Maynooth University
National University of Ireland Maynooth

Political Disengagement and Spaces of Neglect in the Current Political System

William Durkan

Primary Supervisor: Dr. Adrian Kavanagh

Secondary Supervisor: Prof. Chris Brunsdon

Thesis Submitted for the Degree of Ph.D.

Faculty of Social Sciences

Department of Geography

National University of Ireland, Maynooth

May 2021

This thesis was funded by the Irish Research Council Government of Ireland Postgraduate Scholarship Programme (2018-2020) with additional financial support from the Higher Education Authority Covid-19 Fund (2020).

Abstract

Voter turnout measures the legitimacy of functioning democratic processes within States. Areas of low or declining voter turnout highlight spaces of disengagement from formal political processes and are a legitimate cause for concern. Political disengagement has the potential to create spaces of inequality in terms of the level of political representation a given area or group in society receives, and as such, can create spaces of neglect in the political system. This thesis examines General Elections 2007-2016, Local Elections 2014-19 and the 2019 By-Election to identify trends across a range of election types, account for context-specific influences, and highlight areas of concern.

This thesis utilises both marked electoral register and census data to examine registered and voting-age population voter turnout levels. These figures allow detailed examination of voter engagement, while taking account of electoral register accuracy concerns.

Spatial statistical models provide an examination of socio-economic, demographic, and geographical influences which shape voter turnout trends. The thesis associates areas of low or declining turnout with areas that have high levels of social deprivation, unemployment, and younger and transient populations, as well as low education levels. It also identifies low levels of engagement across election types in areas that have significant foreign-born and Traveller communities, highlighting the potential under-representation of vulnerable groups in society.

This thesis investigates the traditional urban/rural divide in turnout levels for General Election 2016, demonstrating that this effect exists independently of an area's socio-economic and demographic profile. The impact of other geographical factors is noted in all case studies. Candidate location and recent boundary changes impact directly on turnout levels; factors which call into question the boundary revision process.

This thesis utilises a range of advanced spatial statistical methods, as well as expert interviews, to identify the outlined trends and suggest potential mechanisms to address areas of concern.

Keywords: Voter Turnout; Political Disengagement; Representational Equality; Candidate Location; Boundary Revisions.

Acknowledgement

The period during which this project place took place was certainly an exciting time to conduct electoral research. Within Ireland, this period saw two general elections, A presidential election, local and European elections, by-elections, and a number of historic referenda, all of which ensured that the Electoral Geography Group had plenty of wagers to place on election result predictions, with varied levels of success for all those involved. This period also saw the rise and fall of 'The Donald', one Brexit, and thankfully, just one global pandemic. These exciting times ensured a steadfast interest in all things political and provided a backdrop that supported research which aims to stress the importance of continued examination and continued improvement of democratic systems within our country.

I would like to thank a number of people, without whom this study would not be possible. Firstly, I would like to thank all of the students and staff in Maynooth University, where I had the privilege of conducting my work over the past number of years. The University community provided great support throughout this time. I would like to thank all of the staff members, those who taught valuable academic skills, and those that facilitated much inspirational political debate outside of the classroom.

I would like to thank my family, friends, and my better-half for putting up with me, both in general, and especially during the final months of frantic thesis writing. I would like to also thank all of those in the postgraduate community, especially those I had the pleasure of sharing the Spatial Analysis Lab with over the past number of years, all of whom helped make a sometimes seemingly impossible challenge that bit more bearable.

In particular, I would like to thank the members of the Electoral Geography Group, Caoilfhionn D'Arcy, Claire McGing, and of course, Adrian Kavanagh, all of whom I have had the pleasure of working with to produce some great research, and many a spirited debate. I would like to offer a special thanks to my Supervisor Dr. Adrian Kavanagh, without whom I would not be where I am today. Adrian has a unique kind of devotion to all his students and a passion for teaching that one can only hope to emulate, and for that, I am truly grateful. I also wish to thank my second supervisor Prof. Chris Brunsdon. I had the pleasure of learning some valuable skills from both

Chris and Martin Charlton over the past number of years, the only two people I know whose first language is ‘R’.

I would like to thank the institutions that funded this research project, for recognising the importance of electoral research in the Republic of Ireland, and for providing the means to complete this project. I also would like to thank all of the political representatives and staff that took time from their busy schedules to take part in this research project. The knowledge gained provided much insight into this research topic, and also many other important topics outside of what is discussed here. Finally, I would like to thank External Examiner Prof. Charles Pattie, Internal Examiner Prof. Chris Van Egeraat, and Chairperson Prof. Carl Anders Säfström for all of their comments and discussions during a very enjoyable viva voce.

Table of Contents

List of Tables

List of Figures

Chapter One: Introduction

The process of casting a vote on election day can mean many different things to many different people. For some, it may be viewed as a tedious process that will have very little impact on a given outcome, for others, it may be considered a privilege to exercise a right only available to those that live in a democracy that supports a free, equal choice in deciding who governs, and who makes important decisions on their behalf. Dahl (1971) highlights the critical function of elections in the democratic process, stressing the need for equality of voice and also the need for participation in the collective decision-making process. In either case, in any given election, many people decide to exercise their electoral power, while many abstain from voting.

Equal representation and a fair electoral system are key components of a free democratic State. At the core of this system is the process of citizens casting their vote on election day. In this regard, an elected government is given a mandate by the electorate to make core decisions on behalf of all citizens in important policy matters. Key's (1966) thesis outlines that in a competitive electoral environment, an election result for the incumbent government should punish bad decision making by elected officials by casting a vote to elect a new government, while strong governance should be rewarded, and the sitting government given a strong mandate by the public to continue in office. When some voters decide not to participate in the process, this mandate can be weakened. The issue of low and declining voter turnout is something that has plagued western democracies in recent decades. (Franklin et al., 2004). This is an issue that has been described as 'democracy's unresolved dilemma'. (Lijphart, 1997). Lijphart (1997) outlines that this issue greatly challenges the core democratic ideals of political participation, and political equality.

Verba (2006) stresses the importance of fairness in the democratic process. In this sense, Verba (2006) stresses the importance of citizen participation in order to create the sense of equality needed for a democracy to be fair and functioning. Franko (2012) also outlines that the sense of equality within a given political system, as shaped by unequal participation, is perhaps one of the most underexamined issues within studies of representation, potentially undermining the sense of equality that lies at the core of a functioning democracy. Lijphart (1997) outlines how the voting process provides a ceiling to achieve this equality, via the process of each citizen having one vote in order to reach a collective decision on governance. Lijphart (1997) also outlines the potential

need for a ‘floor’ in this regard, with the need for increased participation a core objective. Verba (2006) stresses the need for equality in representation in this respect in order to achieve the core ideal of democratic fairness when this fairness is understood as a sense of ‘equal voice’ for each citizen belonging to a given democracy.

As voter turnout tends to have a strong geographical component (Pattie & Johnston, 1998; Kavanagh, Mills & Sinnott, 2004), a very unequal landscape can emerge in terms of political influence. Lijphart (1997) also points to the observed bias in this regard, noting that while there is a geographical element to areas of low and/or declining voter turnout, there are also a number of socio-economic drivers that can create a class-bias in political influence. This inequality in voter participation, and as a result, political influence, can pose a challenge to the function of voting as a ‘democratic counterweight’. (Teixeira, 1992: 4). As decision-makers may tend to ‘disregard the voices they do not hear’, this potentially creates a vast inequality in terms of basic democratic representation for citizens and communities that tend to abstain from the democratic process. (Carreras & Castaneda-Angarita, 2019: 111). Government policies that relate to key functions of the State, such as welfare, public housing, healthcare, and education are all process that need to deliver services equally based on citizens’ needs. As unequal participation may create a skewed system of policy generation, the equality in provision of core services and citizens’ rights to equal provision are potentially damaged. Franko (2012) stresses the potential for damage in this regard, as the author highlights that if better-off citizens have more influence in shaping policy and service provision, they are far less likely to press for better service provisions for sectors that they themselves do not directly rely on, while poorer members in society potentially lack a say in the provision of services that are vital to their wellbeing.

With this in mind, Lijphart (1997) outlines that the best way to address this inequality is to increase voter turnout in a given context, in order to provide a fair and representative parliament that has a strong mandate to act on behalf of all citizens. In order to do this effectively within a given context, one must:

1) Outline the extent of voter participation.

2) Identify the various drivers that influence observed trends.

3) Identify the areas and groups that are neglected politically as a result of the status quo.

4) Identify the barriers that must be overcome for citizens.

5) Make policy suggestions in order to overcome the existing barriers and increase voter participation.

Verba (2006) highlights that an equal and fair democracy needs both equality in democratic participation and also equality in the treatment of citizens by government. In this sense, Verba (2006: 532) stresses the need to include all voices in the democratic decision-making process, a need which is not always met due to citizens abstaining from the electoral process. This choice of abstention may be driven by a broad range of individual factors in any given context and does not occur equally across space. This serves to create a geography of inequality in terms of political voice and political power. Examining trends in political disengagement through voter turnout analysis allows for the identification of potential spaces of neglect and disenfranchisement within the current system. Voter turnout in the Republic of Ireland is not an equal measure, but one that demonstrates a strong geographical divide, and as such, a strong examination of the issues that impact on this important measure is perhaps best understood through the lens of electoral geography.

This thesis aims to investigate the determining factors which drive voter participation within the Republic of Ireland on a range of scales in various election contest from 2007 to 2019. This will allow the social and political impact of these trends to be accessed and facilitate the suggestion of revenant policy solutions to address the issues arising. In order to effectively meet this aim, this thesis will focus on three primary research objectives:

Objective One: Analyse voter turnout trends in a range of elections from 2007-2019 at a range of scales to determine if factors identified by international literature explain spatial variation, or if other geographical factors need to be considered.

Objective Two: To investigate changing political participation in Ireland in the context of a changing global political landscape, following a decade of global recession and austerity measures.

Objective Three: To investigate administrative and institutional factors which may serve to create spaces of social and political disengagement and neglect and suggest possible policy solutions to address these issues.

In order to meet the outlined research aim and objectives, the analytical process involves the construction of detailed voter turnout datasets at a range of scales for a range of election types. Primary datasets are constructed from marked electoral register analysis at both the Electoral Division and Small Area scales. In order to investigate the role that potential register inaccuracy may play in shaping registered turnout levels, a secondary measure of turnout in the form of the estimated eligible voting-age population turnout is also utilised. This process not only allows the identification of electoral register accuracy within the case study area, but also increases the reliability of findings by providing an alternate measure of assessment throughout the analytical process.

This thesis utilises a wide array of advanced geostatistical methods to identify and explore voter turnout trends across elections at a range of scales. While these methods provide a detailed analysis of the various potential socio-economic, demographic, and geographical factors that may influence voter turnout, the inclusion of semi-structured professional interviews with political actors allows a more nuanced insight into the issues at hand.

Given the long-recognised importance of voter turnout for the effective and fair functioning of a strong, fair, democratic system, and given the strong geographical components that are observed as influencing over turnout and equality of political representation, this thesis hopes to provide a comprehensive geographical assessment of trends in recent Irish elections. In order to successfully achieve the desired research outcomes, the consideration of the above outlined research objectives facilitates a robust assessment of the factors that shape electoral participation. This process allows the identification of spaces of neglect in the current political system and aims to put forward policy relevant suggestions to improve equality of representation and increase the strength of democratic representation within the Republic of Ireland.

Chapter Two: Geographies of Voter Turnout

There is a wide body of literature that serves to inform modern studies in the field of electoral geography. Pattie and Johnston (2009: 405) outline the unique place of the discipline by stating the importance of electoral geography in determining the impact of both contextual and compositional effects in order to better understand and analyse resultant political trends within a given context. In this sense, electoral geography serves to anchor any electoral analysis in a spatial context. Only by better understanding the nature of a given place, the people that live there, and the various factors that shape their lives, can one better understand the political choices that they make. By examining the various socio-economic factors that influence the everyday lived experience of individual voters within their unique context, a deeper understanding of political choice can begin to emerge. (Agnew, 2002). Tobler's First Law of Geography (1970: 236) outlines that the closer things are, the more similar they tend to be. Electoral geography serves to apply this observation to the field of politics in order to better understand why this is the case, what shapes these geographies, and what impact resultant trends may have. The field is one that is continually developing as new political focuses and spatial methods emerge and develop.

2.1: Electoral Geography: Place and Politics

From the emergence of electoral geography and electoral cartography in the early 1900's, the techniques and approaches that were first adopted by early academics continue to influence the field today. (Pattie & Johnston, 2009: 406). The work of Andre Siegfried (1913) at the beginning of the twentieth century was one of the first to offer an in-depth analysis of the distinct spatiality associated with voting trends. In this instance, Siegfried's analysis examined the association between political trends and geological characteristics. This somewhat unusual relationship was based on the resultant agricultural and industrial processes that formed in each area which often determined employment status, and often as a result, political preference. (Durkan, Kavanagh & D'Arcy, 2020; Pattie & Johnston, 2009). Pattie and Johnston (2009: 406) also outline significant early studies, such as Tingsten's (1937) investigation of the impact of social class on Swedish

elections and Key's (1949) study of the Southern political landscape in the USA. As the field continued to develop, influential academics employed both aggregate level data analysis, such as in the case of Siegfried, Tingsten, and Key, and also began to incorporate sample survey data analysis, as was the case in the University of Columbia, and later the University of Michigan from the 1950's onwards. (Pattie & Johnston: 2009). This added a new method of investigation for electoral geographers, but also partially impacted the detailed examination of select place that was evident in early Columbia studies. The development of the field as a distinct discipline emerged in the 1950's with the work of Prescott. The relatively new geographic discipline continued to grow and develop, with a comprehensive spatial context displayed in works such as Cox's (1969) analysis of voter bias and spatial context. (Pattie & Johnston, 2009). As new methods develop, the type of analysis conducted by electoral geographers also continues to change. This can be seen as especially pronounced in the field from the 1950's onwards, as the emergence of the Quantitative Revolution led to a heavier statistical focus, moving away from standard cartographical comparison. (Durkan, Kavanagh & D'Arcy, 2020). The development of quantitative approaches continues to shape research in the field, with increased processing power, increased data availability, and increased sophistication of modern cartographical and statistical tools leading the way. With this in mind, it is important that any modern in-depth analysis be both aware of the quantitative tools available and be aware of the human aspect of lived experience that shapes political choice. Above all, any in-depth modern analysis should hold a key focus on the geography of influential factors and have a clear rootedness in place in order to anchor the analysis in its given context.

As the field of electoral geography continues to develop, there is a greater number of studies that employ a range of techniques to examine the factors that shape political choice. Existing works identify a number of influential socio-economic and demographic factors, examined through a range of geographical contexts. This includes examining the impact of Age, Marital Status, Life Cycle, Housing Tenure, Education Level, Employment, Economic Influences, and Social class. In each case there is often a distinct geographical component, a component that must be incorporated into a deeper study of the impact of place and locality on a person's lived experience, and hence, political actions. A comprehensive analysis should aim to incorporate influential variables to as great an extent as possible, through a varied use of select methods. This approach provides a

detailed analysis of what drives observed trends in a given context and informs a composite model that expands our understanding of political choice in the modern context.

2.2: Age

In the examination of factors which are seen to influence voter participation, age has been noted as holding a particularly influential role in many instances. (Nie, Verba & Kim, 1974). Voter participation is generally seen to increase as the age of the voter increases. Nie, Verba and Kim (1974) refer to the wide range of influential studies that examine the relationship between the variables of age and voter participation. In particular, they note the comprehensive analysis of Milbrath (1965:134) that highlights the trend of increasing participation with age, before gradually declining after the age of 60. This curvilinear relationship is observed in numerous studies, as outlined by Skipworth (2009). Further analyses (Norval & Grimes, 1968) highlight that while this relationship is frequently observed, the latter decline may be controlled for in relation to educational attainment. In either case, the influence of age on voter participation tends to be one of the key factors examined in both historical and contemporary electoral analyses, with numerous studies highlighting an observed positive correlation between the two variables. In this regard, the observed trend emerges in numerous studies conducted in various electoral contexts, and on a range of scales. Crittenden (1963) points to historical examples in the United States, such as that of Arneson's 1924-1948 comparative study in Delaware, Ohio. Crittenden (1963) also highlights studies in the European context, such as that of Tingsten's 1897-1934 examination, which demonstrated that political participation generally increases with age until the mid-to-late sixties and is then observed to decline as one reaches 'old age'. This theory has also been examined more recently in the Irish context, with findings which serve to support this established trend. (Kavanagh, 2002: 19).

Crittenden (1963) examines this observed relationship through the use of survey data from the American Institute of Public Opinion in the time period from 1946-1958. In this instance, the author finds that older citizens are indeed more likely to vote and also demonstrate a greater degree of 'consistency' in their political choices. While this study highlights the greater propensity to vote

in older cohorts, the greatest increase in both voting propensity and consistency takes places in the transition from the youngest cohort (21-39) to the middle-aged cohort (40-59), with a smaller increase, and even a decline in some instances, observed in the transition from the middle-aged cohort (40-59) to the oldest cohort (60-79). These findings offer support for the existence of a curvilinear relationship when examining the impact of age on voter participation, with the greatest impact observed as one moves from the 21-39 cohort to the 40-59 age cohort.

Age has been analysed as a determining factor in numerous past studies in the international context. However, viewing age as a determining component establishes a link to a number of other relevant factors. For example, as one grows older, they are more likely to become homeowners, reach a higher level of education, and progress through their life cycle in terms of marriage and children. The findings of Crittenden (1963) support the potential impact of secondary factors on the observed relationship. Crittenden (1963: 331) notes that the 'aging effect may result from experience with given roles and statuses'. In this respect, one may expect the majority of aforementioned potentially influential life transitions to take place between the lower and middle age cohorts examined. It is important to recognise that no single factor exists in isolation, and that a colinear relationship may exist among potentially influential factors. In this sense, it is important to consider that influential individual variables may be best accounted for through the use of a proxy variable, such as a 'life-cycle' measure. For the purpose of this case study, age will be viewed as a separate factor alongside a number of other relevant components in order to provide a comprehensive model of influence. Previous studies, such as that of Snyder (2011) also highlight the importance of conducting a multiscalar analysis in order to help determine the influential factors on observed trends.

In summation, the impact of age on voting behaviour is perhaps one of the most examined relationships in electoral behaviour and political choice. Both political scientists and electoral geographers have highlighted observed relationships and theorised about the potential reasons behind such trends. These studies have provided numerous deep insights into the topic, and also outlined a wide range of methods and processes that can be employed by future studies. From the range of studies conducted to date, there is one unifying factor. From the quantity of research on the subject, it is clear that academics realise the importance of examining the impact that age may have on voting behaviour within in a given electoral context, and also the importance of examining

the impact that this may have on democratic function. In this regard, Berry (2014: 722) highlights the risks associated with younger people abstaining from the voting process, noting that the resultant pyramid-shaped age distribution of voters may greatly impede the democratic influence of younger cohorts, and as such, may create a democratic deficit that should be taken extremely seriously. This deficit is one that policy makers should certainly seek to address to the best of their ability and academics should strive to outline the various causal factors and potential implications of such observations within a given national context, with the aim of identifying issues and outlining potential improvements.

2.3: Marital Status and Life Cycle Transition

In a similar vein to aforementioned trends, marital status has been observed as impacting on overall electoral participation. As an individual advances through their life cycle and is more likely to have a strong community connection, they are often more likely to be involved in the political process. Kavanagh (2002: 22) points to theorists such as Straits (1990) and Pattie and Johnston (1999: 889), who highlight the pivotal role of marital status in the participation process, with the latter describing this factor as the 'most important social context' in terms of shaping political choices.

Stoker and Jennings (1995) examine the potential impact of marital status on voting behaviour through the use of individual level data from 1965 to 1982 in the United States of America. This in-depth analysis focuses on individual level longitudinal data, and also considers additional relational implications of one's marital status. In this regard, it considers marital status in the broader context of the 'life-cycle' implications of voter behaviour, and also in the sense that it considers the 'transition' into and out of marriage as potentially influential events. Stoker and Jennings (1995) also examine the extent to which one individual's voting behaviour is influenced over time through interaction with their spouse and their broader social networks, an approach which is not dissimilar to that taken in 'neighbourhood effect' focused analyses. (Pattie & Johnston, 2009: 410). Stoker and Jennings (1995: 421) in this respect serve to expand on the strand of electoral analysis which places a greater focus on the contextual effect of political behaviour;

an aspect that is key to electoral geography. Through their focus on marital status as a potential driver of trends, the authors expand on the work of Marsden (1987), who demonstrates the likelihood of discussing and debating 'important problems in general', primarily with one's spouse. Stoker and Jennings (1995) expand this hypothesis by extending its inquiry to the realm of political decision making and citizen engagement.

Stoker and Jennings (1995) arrive at a number of relevant conclusions in their detailed analysis. Firstly, they demonstrate that whatever an individual's voting behaviour is, they tend to become more similar to their partner over time. This expands on previous studies that suggest marital status as a broadly influential factor which increases voter turnout by highlighting that this may not necessarily be the case. Instead, this suggests that the likelihood of marriage increasing one's electoral participation instead depends on their spouse's pre-existing level of engagement in political activities. This finding tends to support those of related approaches, notably the 'neighbourhood effect' (Pattie & Johnston, 2009: 410), and also those which consider the process of voting in terms of 'habit formation'. (Coppock & Green, 2016). The noted 'convergence' in political behaviours is more pronounced for electoral behaviour such as voting likelihood, as opposed to other political activities such as campaigning or protesting. This is perhaps due to the relatively low 'cost' associated with the activity of casting a ballot on election day. (Blais et al., 2019). In this sense, Stoker and Jennings (1995:424) conclude that 'the transition into marriage spurs a process of adaptation that results in greater couple correspondence after marriage'. This effect is one that has a notable initial impact on one's voting behaviour, a trend which appears to become more pronounced over time. In a broader context of viewing marriage, it must be noted that it is unclear whether this relationship is due to the marital status of the individuals, or due to other contextual factors. When considering that married individuals are more likely to be exposed to the same influences in terms of economic conditions, housing status, and even increased likelihood to share the same social sphere of influence, the resultant impact of the process of marriage convergence becomes somewhat unclear.

While this study serves to suggest the likelihood of increased or decreased voting propensity of a newly married individual, depending on the voting behaviours of their partner, Stoker and Jennings (1995) also examine the impact of transition into, or out of, marriage as somewhat separate influential factors. In this respect, it is noted that any transition tends to decrease one's likelihood

of engaging in the electoral process. (Stoker & Jennings, 1995: 428). These findings may be considered in terms of the broader impact of destabilising factors in an individual's life. In this respect, not only potentially destabilising factors such as divorce or widowhood have a supressing effect, but also the act of marriage. In this regard, it may be concluded that marriage has an initial depressing impact on voter turnout, but over time it helps create social conditions which lead to a gradual increase. This effect may become more negated, or more pronounced, depending on the pre-existing voting habits of each individual, with both becoming more similar over time.

When Stoker and Jennings (1995) consider one influential impact of marriage as being attributed to movement into a new social network, it must also be noted that there are many other life events that may stimulate a similar transition. The event of one starting a new job or moving to a new area, for example. Perhaps even taking part in a new social activity may potentially have a similar impact on individual voting behaviour. This broader interpretation strongly supports the work of Agnew (2002) in his examination of one's lived experience in driving political change, and again also fits the model of the neighbourhood effect (Pattie & Johnston, 2009) and the friends and neighbour voting effect. (Parker, 1982). In this respect, the individual's likelihood to converge with the views of their social context would potentially serve as the preliminary driver of the geographies of electoral participation, accounting for noted patterns of similarity in one's day-to-day life.

Stoker and Jennings (1995), when considered in this broader context, not only support the findings of analyses that suggest convergence with geographically close networks, but also serve to highlight one apparently key factor that drives an individual's political decision making: the extent of general stability in their lives. In the context of Stoker and Jennings (1995), this sense of stability revolves around marital stability. However, this may also be considered in a broader context. Logic depicts that an individual who experiences instability in their marital status is potentially more exposed to experience instability in other aspects of their day-to-day lives, such as housing tenure, employment, economic conditions, or indeed their level of stability in their broader social networks. In this regard, broad measures of stability may be a potentially beneficial method of examining the key drivers that shape political decision making in a given context. Stoker and Jennings (1995) employ an individual-level analysis that provides a dynamic study of the impact of marital status and life cycle transitions in a way that static, cross-sectional, aggregate studies

may be unable to provide. However, consideration of the impact of 'general stability' as a preliminary driver of one's voting propensity does provide the opportunity to examine relevant related variables in a given electoral context and determine the overall impact observed in an aggregate study. The authors conclude that when observed results are 'taken at face value', an aggregate study should outline a decline in voter turnout when marriages, or a conclusion of marriage, takes place within a given area, and also suggests that an area with many established marriages may have an increased likelihood of voting.

The broader consideration of instability in one's life could be helpful when considering the observed overall decline in electoral participation within western democracies. (Franklin et al., 2004). While Stoker and Jennings (1995: 431) highlight the growing trend of a greater degree of discontinuities in marital histories at the time in the United States, this may generally tend to increase the average level of instability in a person's life. As this is a trend experienced not just in the United States, but largely in the Western world, gradual declines in participation in Western democracies since 1945 (Franklin et al., 2004) may be partly attributed to a growing sense of instability in the average person's life. When the impact of instability is considered in this regard, it may also be worthwhile expanding the root causes of instability to include changes in employment, changes in economic conditions and changes in residence as factors that are perhaps also more common in modern Western societies. Due to the nature of the data in this study, the consideration of stability may be examined through marriage rates in an area, with the aim of investigating if established individuals perhaps have an increased sense of stability and an increased likelihood of voting. Stability may also be considered in terms of housing tenure, assuming that rented accommodation may often provide a less stable environment, as subsequently discussed. While broader interpretations of stability, and potential impacts, may not be adequately examined through a study of this nature, the examination of individual related factors may nonetheless provide relevant insight into this topic. Future studies may wish to consider a more nuanced approach and analysis at the individual level to further expand on this specific factor.

2.4: Housing Tenure and Homeownership

Homeownership is another factor which is frequently observed to have a notable relationship with voter participation. Established theories have pointed to homeownership as demonstrating an increased personal investment in a given community, and as a result, a general increase in political participation.

In a similar fashion to examining age as a determining factor, homeownership is not an entirely independent variable, as homeownership also has potential associations with relative income levels, age, and family status, with older more well-off individuals who have families being logically more likely to be potential homeowners. Many existing studies, such as Holian's (2011) investigation of 'homeownership, dissatisfaction and voting', may fail to fully address this issue of collinearity, but nonetheless identify some key aspects that influence observed voter trends. Downs (1957) points to the role that homeownership rates play in increasing participation rates. This theory has been successfully applied in more modern settings in order to help explain spatial variations in participation rates. (Kavanagh, 2002; Andre et al., 2017).

Holian (2011) examines the impact of both homeownership and dissatisfaction on one's likelihood to participate in the electoral process. The author expands on Fischel's 'homevoter' hypothesis (2001), which outlines that homeownership and dissatisfaction both tend to increase one's likelihood of participating in an electoral context, with dissatisfied homeowners demonstrating a very high likelihood of voting. By analysing the Silicon Valley Pulse survey, conducted in Silicon Valley USA, Holian (2011) finds that this hypothesis holds true, with both dissatisfaction and homeownership rates increasing with voter turnout. Holian (2011) also expands on the work of DiPasquale and Glaeser (1999), who identify both homeownership and 'duration of stay' as increasing the likelihood of voting. In the Irish context, Kavanagh (2002) also points to homeownership and residential mobility as factors which hold an influential role. Findings point to homeowners as more likely than renters to have a longer period of residence within a given area, and as such, are more likely to have integrated into a given community and be more active in their political life. This view contrasts that of Fischel (2001) to a certain extent, as Fischel's study focuses on the financial motivation associated with homeownership, as opposed to solely focusing on community attachment as a factor that drives the observed correlation. Fischel (2001) does

account for some influences outside of financial motivation, pointing to the work of Lyons et al. (1992), which examines the impact of being a 'good citizen' on voting propensity. Jiang (2018) also draws on the existing volumes of literature that examine the impact of homeownership and duration of stay on voting likelihood, using census-block data as opposed to survey analysis. In this case, Jiang (2018) again identifies a positive correlation in relation to homeownership and one's likelihood to vote in mayoral elections in the USA. Jiang (2018) identifies two influential factors in this regard. Firstly, in a similar vein to the work of Fischel (2001), Jiang identifies the financial incentive in relation to owning a property in a given area as a driving factor in increasing participation. In this regard, Jiang (2018: 168) outlines that an individual's home is often 'the largest investment for most U.S households', and as such, 'their financial stake in a community makes them more eager to participate in local political processes'. (Jiang, 2018: 176). Secondly, Jiang (2018: 176) also examines 'length of stay' in an area through a financial lens, noting that the length of time spent in an area also increases the length of time spent receiving 'longer utility flow from local public goods consumption'. Jiang arrives at the conclusion that 'financial incentive alone' is the driver of homeowners' tendency to vote in mayoral elections. While this supports previous studies that suggest a key focal point of voting propensity relates to economic drivers and also supports research that broadly examines the decision to vote as driven by 'self-interest' (Feldman, 1982), it can also be viewed as largely reductive, as there are far more factors to be considered in the context of lived experience (Agnew, 2002) than economic drivers alone. However, it does still offer further evidence that highlights the widely observed correlation between homeownership, duration of stay, and one's likelihood to participate in an electoral contest, while also raising important questions about the potential impact of this on relevant policy decisions.

In summation, existing research outlines the existence of a relationship between homeownership and voter turnout in a range of different contexts. Key studies outline that a dissatisfied 'good' citizen looks to participate in an election, rather that abstaining, in order to resolve a perceived issue, especially if they are a dissatisfied 'good' citizen that owns their own home and has lived in the area for a long time. Existing studies have examined this on a range of scales, in a range of local and national contexts, using methods that are based on aggregate census results, and also methods based on individual survey responses. There are few studies however that aim to examine

this in the context of the myriad of other traditionally influential factors, and fewer still that focus on the Republic of Ireland.

2.5: Education

The effect of education on voter turnout is perhaps one of the most studied aspects within voter turnout analyses. From early political theory up to modern analyses, education is widely observed as having a notable positive correlation with electoral participation rates across a wide range of various electoral contexts. Croke et al. (2016) point to political theorists, such as Hillygus (2005) and Putnam (1995), who claim that education levels are observed as being one of the most influential factors in shaping overall voter turnout levels.

Sondheimer and Green (2010) point to the early work of Merriam and Gosnell (1924) to highlight the range of historically documented cases that support this observation, especially in the United States of America. Sondheimer and Green (2010: 174) outline the broad range of analyses that have used self-reported and public measures of variables in order to outline that the observed correlation predominately holds true, regardless of the specific type of measure used. The authors state that the observed correlation, in the case of the United States at least, exists with 'law-like' regularity. However, the authors also stress the need to be aware of potential limitations to observations, pointing to both the scale of analysis used in order to examine relationships, and also the potential collinearity when considering the various socio-economic characteristics that may go hand-in-hand with an individual's level of educational attainment.

Pelkonen (2012), while acknowledging the vast body of literature that supports observed trends, stresses the need to not just examine educational attainment as an assigned value, but as a conscious choice made by individuals when considering the potential relationship to voter engagement. In this respect, Pelkonen (2012) sets out to examine the potential relationship in a context of institutional changes that extend the length of time an individual has to stay in mandatory formal education, and considers that this may be a clearer measure, as opposed to the impact of the number of years in education directly. In order to conduct this analysis, the author studies the impact of increasing the length of compulsory schooling in Norway on civic

engagement. In this analysis, the author uses both individual level data and municipality level aggregate data with the resultant conclusion highlighting the lack of an observed correlation between the length of time in education and voting propensity. The author suggests that these findings build on the growing body of literature, such as the research of Siedler (2010) and Milligan et al. (2004), which suggests that 'the political activity of people is driven by factors other than education'. (Pelkonen, 2012: 69). In this vein of examination, Siedler's (2010) study examines the increase in years of compulsory schooling in Germany, finding no causal relationship to voter turnout. Siedler (2010) points to the growing body of work with similar findings, highlighting that while there is a relationship observed within the United States in the case of Dee (2004), Milligan et al. (2004) find no such relationship in the case of the United Kingdom. The view that education does not have as great an impact on political behaviours as previously thought may be considered largely reductive. Even as Siedler (2010: 316) outlines the historical body of literature that has stressed the extent of the observed relationship, the author indirectly highlights that it is not the level of education itself that has been theorised to impact on voter behaviours. Instead, it is the level of knowledge, civic awareness, and broad skillsets which encourage engagement that are theorised to drive the observed relationships. However, these individual factors are very difficult to quantify and measure, and as such, education level has often been seen as a strong and logical proxy measure to examine as many of these suggested influential variables as possible. In this respect, if the extent of the traditionally observed relationship appears to be in decline, perhaps it suggests that the associated skillsets and experiences that are historically associated with education are less reliant on formal education in the contemporary context. In this sense, it is also no surprise that the contextual conditions of individual studies would indeed lead to a great deal of variation in observed trends and may also explain why there is an observed difference among various national contexts. When considered in this manner, the recent body of literature that challenges historical studies poses no reason to exclude educational attainment as a valid potentially causal factor but does highlight the need to consider this variable in both geographical context and as part of a greater array of factors that serve to potentially influence voter turnout levels. In the past number of decades the general Irish population are seen to have an overall increased level of education. This is expected to be more prevalent with younger generations, as third-level education, once a rarity, is now commonplace. As education is seen to increase participation and

younger populations are widely observed as being less likely to participate in the electoral process, this paradoxical relationship will be of interest in the modern Irish context.

Apart from the potential causal relationship between educational and voter turnout levels, education has often been considered as a potential means of addressing electoral inequality. In this sense, education may be seen to increase awareness of political events and also provide an increased understanding of this process which makes educated citizens more likely to participate in the electoral process. Mayer (2011: 643) points to education as being a possible corrective measure in the case of unequal participation by increasing education levels among select groups of underrepresented individuals. Pelkonen (2012) argues that while previous studies have examined the relationship between education levels and measures of political awareness, including not just voter turnout but also the level of general awareness among the electorate in relation to economic and social issues, there is very little work to suggest that this raised awareness in decision-making positively impacts on economic performance.

2.6: Employment and Economic Influences

One factor which has been deemed influential on observed voting trends is economic well-being. Economic well-being is seen to be a driver of inequality and is also a factor that can have a strong geographical component. McKay (2019) highlights that while there is a large body of existing knowledge in the field of economics with regard to the importance of spatial inequality, this is often neglected in the political and electoral sphere.

Carreras and Castaneda-Angarita (2019) highlight the perhaps paradoxical relationship observed in existing studies between voter turnout and economic downturns. In this sense, both a withdrawal effect and a mobilisation effect may be observed. The withdrawal effect, as outlined by Rosenstone (1982), describes how a person may become increasingly disengaged in politics during an economic downturn as their focus shifts from politics to survival, or perhaps the failure of established institutions to manage the economic situation leads to a general loss in trust. Shah and Wichowsky (2019) point to the demobilising effect that followed the housing bubble burst and subsequent recession in the United States. Their study points to a demobilising effect among the worst-hit areas. It is important to stress however that this may not be a uniform trend, with the

authors pointing to a number of areas in which grass-roots movements have been established, which demonstrates a high level of citizen engagement and mobilisation in this respect. The authors also highlight the range of related factors which may have an impact on observed trends and suggest that future studies examine the issue in a different context, taking account of factors such as emotional stresses, income inequality, and racial inequality, which are all related and potentially colinear components. However, Shah and Wichowsky (2019) highlight the potential negative impact of economic downturns on select groups within society and highlight that the subsequent suppression of political voices due to reduced participation may lead to a situation in which the people most impacted by economic and political failures are less likely to be represented on the political stage. This raises the bigger question: If some voices are not heard, are they legislated for?

Alternative studies, such as that of Arceneaux (2003), point to a situation in which economic adversity is shown to increase voter turnout. In this instance, the author uses data from the American National Election Study (1990-98) to demonstrate their argument, pointing to the need for caution when inferring individual-level behaviour from aggregate-level data. In this sense, it is important to account for the lived experience of the individual when analysing individual social and political experience. (Agnew, 2002). Carreras and Castaneda-Angarita (2019: 111) also stress the need to acknowledge the limitations of aggregate-level data in this regard. The potential benefits associated with aggregate data should not be disregarded however, as individual responses, especially when gauging a subjective variable, potentially have a greater degree of inaccuracy due to perceived status.

Arceneaux (2003: 73) infers that while economic adversity may reduce voter turnout for some members of society, this impact is not uniform, and the opposite impact is often also observed. The author highlights the factor of ‘blame’ that may be attributed to the sitting government in relation to an economic downturn experienced by citizens. In this sense, those that are impacted by the situation may often be mobilised to increase electoral participation. Carreras and Castaneda-Angarita (2019: 112) also highlight this previously observed trend, based on the framework put forward by Ragsdale and Rusk (2017), which suggests that economic downturns can increase participation for select groups that perceive the impact to be greater for them.

Given the uneven distribution of economic experience in various contexts (Pike & Tomaney, 2009; Mastronardi & Cavallo, 2020) and the localised impact of community engagement as discussed by Shah and Wichowsky (2019), there is a logical expected geographical relationship in terms of the potential mobilisation or disengagement experienced by the electorate in response to the unequal impact of economic experience. While Carreras and Castaneda-Angarita (2019) review a strong body of work that supports both a mobilising effect and a withdrawal effect on a cross-national basis, the authors also point to previous studies that demonstrate the lack of a relationship observed between variables when examined at the cross-national level. Based on the lack of a relationship observed at this scale, a smaller-scale national analysis may be more suited to examining the topic, as a study focused within a single electoral context helps to reduce the impact of variance as a result of other external influential factors.

Carreras and Castaneda-Angarita (2019) seek to offer a comprehensive investigation into the specific impact of macro-economic downturns on electoral participation by examining the issue using cross-sectional data for forty-four countries that have a high degree of variability from 1996 to 2013. The authors aim to identify groups of the population that are most exposed to economic influences, and as such, most likely to respond in a given electoral contest. Groups of the population that have low education levels and high unemployment rates are deemed to be most exposed due to their likely difficulty in securing additional employment in a difficult economic situation. The authors also highlight previous works that suggest poor members of society tend to perceive economic downturns more negatively than other groups in society. In this sense, studies such as Rosenstone's (1982) analysis of the 1974 recession in the United States highlights this observation. In their assessment, Carreras and Castaneda-Angarita (2019) consider the variables of 'unemployment' and 'economic growth rate'. The findings suggest that less-educated and low-income voters tend to mobilise during periods of economic hardship while citizens with a higher level of education and higher income level tend not to demonstrate a response. In this sense, the citizens in society that are often voiceless during normal economic periods are often most vocal in difficult economic times, and potentially as a result have a greater influence on the political sphere in times of economic hardship. Carreras and Castaneda-Angarita (2019) also highlight that this observed relationship is most prominent in States that do not have a generous welfare programme, and States that are less exposed to the process of globalization. It is worth noting in this respect however, due to the various electoral and political contexts involved in a cross-national analysis

of this scale, there is potential for a number of colinear impacts and contextual relationships that serve to impact on the confidence level of such analyses. It may be worthwhile examining the impact of similar variables on a national level in order to determine if variables are impacted on a range of scales due to exposure to welfare spending, or government spending in general, and also by examining economic core and peripheral responses and relations within a given national context.

The body of literature discussed to this point draws on a range of influential factors on a range of scales to outline observed relationships in multiple contexts. There is a broad similarity across studies in the sense that while economic conditions impact on different members of society in different ways, it is often the impact on the individual citizen that tends to shape political behaviour. The majority of studies highlight that electoral participation is often driven by individual concerns and action based on what is perceived to be a necessary choice to improve the life quality of the individual. In reference to low-income and less-educated voters, Carreras and Castaneda-Angarita (2019: 118) highlight this observation by stating that it 'appears that these groups tend to vote in greater numbers when it matters most to them'. Although an individual choice, the aggregate influences and factors that shape these choices often have localised impacts, driving a resultant geography in trends observed.

Pattie and Johnston (2009: 413) address this observation in a similar vein by focusing on 'egocentric voting' and the impact of 'valence politics' on observed voting trends. In this sense, 'egocentric voting' describes a self-beneficial view in terms of political choice, while 'valence politics' outlines the process of making decisions based on desired policy outcomes as opposed to political ideologies. In this regard, voters are seen to be driven by their perceived economic advancement in making a decision on election day. Pattie and Johnston (2009) outline that this approach is often observed to explain the behaviour of the electorate, as the majority of voters don't fully understand the various complexities surrounding economic policy on the political stage and instead exhibit egocentric voting, asking themselves; 'have (the government) improved my standard of living or not?'. (Pattie & Johnston, 2009:413). The authors also outline how this perceived economic well-being often displays a distinct geography, based on relative economic development within a State, and within a community. The authors use the example of the 1997 British Election Study to highlight this effect on the national, regional, and personal scales, using

unemployment levels as an overall measure of economic performance. This study finds that the perceived economic well-being of individuals does indeed influence voting trends, with voters that felt the economy had improved under the current government living in areas with the highest average falls in unemployment, and those that felt left behind by economic development living in areas with the lowest average decreases in unemployment rates. Pattie and Johnston (2009) highlight how this impacted political choice in the subsequent election in the UK, and also offer an example from the United States, demonstrating that a sitting Governor's support change is indeed influenced by the perceived economic progression of regional industries. However, this is often restricted to States in which the Governor is seen to have a direct influence over industry success, as opposed to predominately agricultural regions in which external factors are often the deciding factors in terms of economic success. This demonstrates that voters tend to use their perceived economic well-being relative to other locations at a range of scales in order to measure the effectiveness of a sitting government, and make political choices based on this.

Mckay (2019) outlines the spatiality of the political discontent viewed in the United Kingdom with regard to the Brexit vote, suggesting that the Brexit campaign was largely based on the perception of neglect, and targeted at select members of the electorate, in select regions. Mckay (2019) aims to expand upon the idea that the spatial divisions that emerged in this campaign can to some extent be attributed to 'left behind' places that have suffered economic, and by association, political neglect. (Coyle & Ford, 2017: 67). McKay (2019) recognises the value in examining this issue, pointing to the work of Jennings and Stoker (2016: 372), which examines both 'cosmopolitan' and 'backwater' areas of the UK with respect to their contrasting levels of 'access' to highly skilled jobs, and 'connectedness' to the global economy. In this case, while the study did not point to a trend of local economies influencing the level of political discontent at a constituency scale, they did offer the thesis that poorer areas may be more susceptible to the spread of 'political disaffection'. (Jennings & Stoker, 2016: 380).

In summation, economic conditions and macro-economic fluctuations are widely observed as influencing political behaviour and voter turnout. While initial studies point to a paradoxical relationship in some regards, with both a mobilising effect and a withdrawal effect observed in a situation of economic decline, additional studies point to the various factors which seek to further explain differences in observation. In short, the mobilising impact of economic conditions is

observed in areas where the voters have a strong sense of blame for the incumbent government in terms of a failure to manage economic conditions in a manner that is beneficial for citizens. The withdrawal effect can also be observed in areas in which a lack of political options leads to an overall disillusionment with the established system, or in a case in which the voter believes that their vote will not have a desired impact. When conditions support the mobilisation effect, it is seen to be notably more pronounced in areas that essentially have the most to lose. Regions with low education levels and low income levels are seen to be most susceptible to this type of mobilisation, in a scenario where additional conditions do not impede mobilisation. In areas that demonstrate the withdrawal effect, there is also seen to be localised variances in the overall trend, due to localised impacts of select political or community actors that work to inform and mobilise members of the electorate. In the case of the Republic of Ireland, Kavanagh (2015) notes the implications of economic downturns on the electorate, outlining the extensive political shifts in select regions following the 2008 financial crisis and associated austerity policies with the country.

In the event of either a withdrawal or mobilisation effect, there is often seen to be a resultant geography. The uneven impact of macro-economic changes and the effect of various localised influences serves to shape this resultant geography, and as a result, shape political choices within a given spatial context. While the body of research discussed highlights observed trends on a range of scales by examining both aggregate and individual-level data, one given trend appears to emerge. While macro-economic conditions and geographies of various influences work to shape choice within a given context, it is often the individual experience of each voter that drives political changes. In this sense, it is important to understand that while there is a strong geographical component to behaviours, shaped by the geography of influential factors, it is the impact of changes at the individual level, or even the perception of changes, that shapes a citizen's level of engagement with the political system.

2.7: Social Class

The impact of social class on voter behaviours is widely studied in the international context in terms of how party support trends are influenced (Laver, 1986; Andersen & Heath, 2002) and how voter participation is potentially influenced (Beeghley, 1986; Lahtinen et al., 2017), alongside the

potential implications associated with such trends. When considering the potential impact of social class on a given variable, it is important to consider the various understandings of class determination. Wright (1979) outlines the various key academic discourses that have shaped the contemporary understanding of social class. In this respect, Wright (1979) points to some key understandings of class construct, noting that most interpretations revolve around an individual's income level, with various academics interpreting the hierarchical factors of this understanding in different frameworks. In this sense, Wright (1979) notes the Marxist view, which revolves around a more relational approach. In this framework, social class may be considered in a contextual sense, taking account of the social structure in which an individual lives and acts. Wright (1979) also points to other relational concepts, such as the Weberian concept of social stratification (1922), and Dahrendof's view of authority relations (1959), in order to provide a broad overview of the various relational concepts that may be considered in the determination of social class, within a given context. While it is important to understand the various constructs of social class prior to examining the potential role that this factor may play in shaping political and electoral behaviours, and the potential resultant consequences of this, the various constructs of social class all point to a system shaped around the role of equality, or inequality in a given society. While various class constructs may consider this in the role of decision-making power, resource access, occupational role, or even limits to social freedoms, the degree of equality within a given social structure tends to manifest as a key consideration in social class determination.

In terms of the relationship between electoral participation and social class, Lahtinen et al. (2017) explore the role that an occupation-based measure of social class plays in shaping participation in the temporal context of Finnish elections from 1999 to 2012. In this sense, the authors consider social class broadly in the Weberian context of social stratification. (Lahtinen et al., 2017: 390). The authors stress, that while income and education level are often considered as shaping voter turnout trends, an occupation-based measure of social class is often omitted from detailed analyses. (Lahtinen et al., 2017: 388). The use of occupational status as a direct measure of social class does provide a broad framework in which to understand an objective class measure, but also has a number of potential limitations. Namely, the use of a single determining factor to determine a broad trait such as 'social class' leads to a potentially reductive measure, excluding any external components or subjective understandings that may shape an individual's 'social class', or their perception of 'class'.

In this study, the authors make use of individual-level data to examine the potential impact of social class on voting behaviour. In this sense, social class is previously identified as influencing electoral participation due to the determining role that social class plays in the distribution of 'participation-fostering' resources, such as health and income, two factors that are also examined separately. (Lahtinen et al., 2017: 389). The use of these measures also poses some methodological risk, as both the traits of income and health may be co-determined by one's occupational role, and vice-versa. In terms of the significance of occupational role, the authors largely consider this to be influential on voter turnout due to the level of access to resources which facilitate participation that it may determine for an individual, with 'higher class' individuals having a greater opportunity to vote at a lower perceived 'cost'.

The examination of Finnish elections conducted by Lahtinen et al. (2017) outlines a number of key trends that support the inclusion of a social class measure in an examination of voter participation. Their work serves to outline an observed relationship between an occupational-based measure of social class, with manual workers viewed as least likely to participate in electoral contests, while upper non-manual workers are far more likely to vote. The findings are viewed as broadly holding consistent across multiple electoral contexts. (Lahtinen et al., 2017: 398). The findings also suggest that income plays a strong role in social class determination and the resultant impact on participation rates, and also suggests that class-based differences are more pronounced among those with lower incomes. (Lahtinen et al., 2017: 399). With this consideration, findings raise questions about the individual factors in any constructed social class measure that may have potentially co-linear impacts in multiple directions and form complex webs of influence among variables. It is also worth noting that an individual's age is seen to play a role in shaping the level of correlation, and also in shaping outliers in the observed trends. In this sense, age can also be viewed as a variable that potentially widely influences and determines an array of variables, with relationships that are often heavily influenced by context, as previously discussed. Lahtinen et al. (2017) provide a number of strong considerations for future studies of election participation rates. Noting that a social class measure, in this case based on occupation, can be seen to be influential in the Finnish context, the authors make a strong case for the inclusion of such a variable in future studies of participation, with a number of other contextual and methodological considerations to be taken into account.

The historical construction of the relationship between one's social class and the democratic process is a complicated matter and tends to vary greater depending on national context. Wang and Sun (2017) explore the historical relations of the relationship between class and participation, noting that in many national contexts, middle-class voters, defined here as predominately urban, white collar, waged professionals, tend to be heavily reliant on State actions to protect their way of life. In this sense, Wang and Sun (2017) expand on the work of Lipset (1959) and Moore (1966) to explain the often-co-dependent relationship between the middle class and the government, who are reliant on the continued status quo within a given national context, and who also have the means to participate in electoral processes with little relative 'cost'. In this understanding of class-based influences, middle-class voters are seen to vote more frequently than others as a means of protecting their interests, while associated traits such as a generally higher level of education, promote 'post-materialist' or 'self-expressive' values. (Wang & Sun, 2017: 245).

Wang and Sun (2017) highlight that social class may be perceived in a broad array of understandings, and national contexts. The authors highlight the various historical relationships, and institutional and structural factors, that impact on a potential relationship between class structure and political participation. In this respect, the authors stress the need to consider both the various understandings of social class and national contextual factors in any given analysis of the relationship between class structure and political behaviour. Throughout this study, the authors highlight numerous factors that may be broadly considered as related to social class, such as profession, income, and education. The authors also point to internationally recognised class-based relationships that highlight the increased likelihood of higher voter participation from the middle classes, but stress that there are a number of national contextual effects that may contribute to and produce observed trends. (Wang & Sun, 2017: 253).

Winders (1999) offers a class-based structure in which to consider participation rates in the USA, focussing on the role that class-based conflicts play in increasing participation though social and political movements. The impact of mobilisation, especially in the context of class mobilisation, is also discussed by Gray and Caul (2000), with the authors noting the role that organisations play in determining mobilisation. In this respect, the authors note that labour unions and other employment-based organisations tend to have members that are closely aligned in terms of

possessing a predominantly employment-based understanding of what determines an individual's social class.

Martikainen et al. (2005) outline that their examination of parliamentary elections in Finland suggests that social class is viewed as having a notable impact on resultant participation trends. Further to this, factors such as income and housing tenure are observed as more influential among older cohorts, and educational attainment is more influential among younger groups. Despite the noted deviations based on other socio-economic characteristics, social class is observed as playing an influential role in shaping electoral participation, with the issue of working-class under-representation also noted, alongside the potential policy impacts of a skewed class-based degree of political influence.

While social class may be considered in the context of a broad array of select variables, this study will utilise aggregate census data at a range of scales to examine the potential influence of an employment-based measure of social class on voter turnout trends in recent Irish elections. By examining this characteristic alongside a range of other socio-economic, demographic, and geographical factors, and also providing direct insight from a range of elected representatives, this study will aim to take account of as many related traits as possible. This approach considers an employment-based construct of social class, while still allowing results to be interpreted in a manner which facilitates further debate about the extent of class-based influences, irrespective of construct.

2.8: Ethnicity

The given ethnicity of an individual voter has been identified in a number of instances as having a notable impact on political behaviour. Depending on specific context, ethnicity can influence political support patterns within a State when specific ethnic groupings have a clear political preference. (McAllister & Kelly, 1982; White, 2015). While some political parties may appeal to select ethnic groupings, there are also many instances in which voting occurs along the lines of historical cleavages within a State, cleavages which may also exist along ethnic lines. (Evans & Tonge, 2009). Further to the identified impact of ethnicity on political choice in many varied

contexts, ethnicity has also been identified as playing a notable role in voter turnout in many instances, with select ethnic groups often facing a number of barriers to participation, and as a result, facing the consequences of potential under-representation. (Hajnal & Trounstine, 2005; Fieldhouse & Cutts, 2008; Hershey, 2009). In the Republic of Ireland, there is very little literature that specifically addresses the role of ethnicity in voting practices. As such, this research will aim to provide some insight into the level of electoral engagement among ethnic minorities within the State.

Within the Republic of Ireland, the Irish Traveller Community is a select native ethnic minority which recently gained formal recognition by the Irish Government in 2017, despite being recognised as a distinct ethnic minority in the United Kingdom in 2000. (Daly, 2017). While existing literature has addressed the need to achieve a greater degree of participation among the Traveller community throughout public life (O'Connell, 2006), and policy documents outline the importance of equality in political representation (The Equality Authority, 2006), there is little academic literature that addresses the specific voting habits or level of engagement among the Traveller community in great detail. This is of specific interest because it is an example of a distinct ethnic minority that has somewhat unique social needs that may currently lack sufficient representation. Further to this, other socio-economic traits commonly associated with members of the Traveller community, such as low education levels and a high level of residential mobility may further compound a low level of engagement and produce significant barriers to addressing this issue. (Van Hout, 2010; Watson, Kenny & McGinnity, 2017). This study will aim to explore electoral engagement among members of the Traveller community via the examination of turnout trends and aggregate census data at a range of scales.

The potential influence of descriptive representation, and extent of any influence, is widely debated among scholars, with varied and context-driven observations frequently recorded in the international sphere. (Heath, Verniers & Kumar, 2015; Campbell & Heath, 2017). In terms of investigations into this potential influence, both gender and racial groups are often examined with this question in mind. In the context of black and white voter behaviour in the United States, Gay (2002) aims to determine the role that a candidate's race plays in shaping support levels from a given racial cohort. In this study, Gay (2002) concludes that race, to a given extent, in a given context, does have the potential to shape levels of voter engagement with the political system.

Similar studies have also highlighted instances in which the effect of descriptive representation is very weak, if indeed present. (Pantoja & Segura, 2003). With this in mind, it seems appropriate to investigate any potential influence on voter turnout in the select case study area. In the Irish context, previous works have tended to focus more specifically on the potential role that descriptive representation may play with regard to female voter engagement, as opposed to a racial influence. (McElroy & Marsh, 2009). This is perhaps unsurprising, as female representation has been a widely discussed topic in Irish politics in the run-up-to and wake-of the introduction of gender quotas. (Buckley, Galligan & McGing, 2016). In the aforementioned investigation, McElroy and Marsh (2009) conclude that there is no apparent independent influence due to the effect of descriptive representation on political behaviours in the Irish context.

The investigation of the potential relationship between ethnicity and voter behaviour can be a difficult methodological undertaking, with a simplistic understanding of one's ethnicity and a lack of consideration of detailed contextual influences often omitted for truly comprehensive studies. (Zamfira, 2015). Given this, this study will not aim to provide a fully comprehensive investigation into this topic in the Republic of Ireland but provide a groundwork that may suggest specific trends and better inform future research in the area. While an investigation into this topic is perhaps best informed by individual-level data, this analysis will use aggregate census data to consider the level of participation in areas with significant 'foreign-born' populations and significant proportions of the population classed as 'White Irish Travellers'. (Central Statistics Office, 2016). Further to this, in the context of Local Election 2019, this study will explore the level of engagement form these groups in areas which have a 'New-Irish' candidate, in order to examine the extent of voting along the lines of descriptive representation in this context.

2.9: Community Representation: Place and Locality

In order to keep the field of Electoral Geography firmly rooted in the discipline of Human Geography, a focus on the impact of place and locality on voter behaviour is a key consideration. In this respect, a geographical focus in electoral studies ensures that the political decision-making

process takes account of the various contexts in which actors shape their viewpoints and takes account of these influences in the analytical process. (Durkan, Kavanagh & D'Arcy, 2020).

Throughout the wide discipline of Human Geography, influential academics consistently note the role that 'place' plays in shaping human behaviours. When referring to the web of connectedness in any given place, Escobar (2001 :164) emphasises the viewpoint of Doreen Massey (1999) when writing on this key aspect in geographical inquiry.

> 'This would imagine the spatial as the sphere of the juxtaposition, or co-existence, of distinct narratives, as the product of power-filled social relations; it would be a view of space which tries to emphasize both its social construction and its necessarily power-filled nature. Within this context, "places" may be imagined as particular articulations of these social relations, including local relations "within" the place and those many connections which stretch way beyond it. And all of these embedded in complex, layered histories. This is place as open, porous, hybrid – this is place as meeting place (again, the importance of recognising in the "spatial" the juxtaposition of different narratives). This is a notion of place where specificity (local uniqueness, a sense of place) derives not from some mythical internal roots nor from a history of relative isolation — not to be disrupted by globalisation — but precisely from the absolute particularity of the mixture of influences found together there'. (Massey, 1999:18).

Given the deep rootedness of complex influences in a set place, Escobar (2001: 149) also expands on the topic of human attachment to places, noting that 'belonging… is often expressed in terms of attachment to locality', and a loss of one's sense of place can lead to one's identity feeling threatened or infringed upon by actors on a larger scale. This may lead to a disconnect for an individual or given community, often manifesting in a form of resistance or protest in defence of one's local place, and as an extension, one's sense of identity. In this regard, an individual's sense of importance within the larger sphere is often quantified by their relationship with the political system, and the services and development provided to their local place.

In this sense, the aforementioned role of place and identity creation within the Irish context, as expanded upon by Callanan (2018), Harkin (2018), and Scully (2013), helps to drive the often-observed localism and community-based trends that are commonplace in Irish political culture. O'Carroll (1987: 77) demonstrates the long-standing examination of this topic in relation to Irish

politics, and the formation of observed 'parish pump' politics. In many ways, deep social and cultural factors help to shape localised voting patterns within Ireland. O'Carroll (1987: 89) notes that while this voting style 'imparts a powerful sense of belonging, of distinctiveness, of security, of identity, of loyalty and of partisanship (…) it can impart a strong sense of place but not a sense of direction'. In this regard, the author notes the effectiveness of the process of localised political mobilisation but doubts the effectiveness of the representation and community service received from the more centralised decision-makers in society. State interaction has the ability to develop, and contribute to, a local sense of place while simultaneously infringing and disrupting. Loss of faith in political actors and growing disenfranchisement often leads to a reaction which seeks to create a sense of belonging in a particular space. This reaction however has greater implications, as the creation of a space of belonging for some leads to a space of exclusion, or social 'othering', for many. Recent political developments in countries such as the United Kingdom (Hobolt, 2016) or the United States of America (Mason, 2018), demonstrate that political developments can often be shaped by, and contribute to, a sense of exclusion and disenfranchisement among select communities and in select places.

In the case of the Republic of Ireland, there are many regions which also potentially share this sense of disenfranchisement, and this is reflected in political trends. As many peripheral regions may feel undervalued and distant from the core, individuals move away from the established political system. For an individual in a given local place, this may be reflected in a lack of services associated with their government, such as health, housing availability, education, or policing services. As Ireland has many geographical peripheral regions and may itself be potentially considered a peripheral region in the European context, this growing divide may lead to significant reactions in the future. Places which feel underdeveloped or left behind often reflect this through political action and recent times have seen many areas turn to new political parties in protest, or alternatively turn to Independent candidates which they feel represent their values and sense of place in a rapidly developing world, or simply refuse to interact with the political system as a whole and instead choose to stay at home on election day. These experiences shape their opinions and relationships with particular politicians, political parties, and the political system as a whole. In this sense, 'locality plays an important role in the formation of individual and communal identity' and has various political implications. (O'Carroll, 1987: 78).

When taking this into consideration, voter turnout trends may serve to highlight areas of difference, geographically, socio-economically, and politically. One's choice whether to participate in an election, or to stay at home on election day, reflects their opinions about the present political system. Individuals who choose not to engage with the system are often expressing their lack of trust or belief in the current arrangement. This may stem from a lack of their personal ideals being represented on the national stage or by simply not seeing the benefit of the current system in their day-to-day lives. Analysing these trends through a geographical lens allows the identification of areas which express disenfranchisement with the political system and allows investigation of various influential factors. In order to investigate these trends, voting behaviour is analysed at a range of scales. In this sense, many consider 'a multiscalar concept of place as offering greater insight into how politics works', or in this instance, the particular variation in influences and patterns in voter turnout trends at a range of scales. (Agnew, 2002: 217). With regard to the aforementioned 'local' nature of politics, it is important to consider that 'politics is structured through the places people make in their transactions with one another – local, regional, national and wider'. (Agnew, 2002: 217).

Ireland is often viewed as having a highly localised style of voting in comparison with other western democracies. (O'Carroll, 1987; Kavanagh, 2002; 2015). Given this localised style of voting, political candidates often rely on a strong support base in their own local area within a given constituency. This 'friends and neighbours' spatial voting pattern means that a candidate's support level is strongest where they reside and operate on a daily basis, and radiates from this point, declining with distance. (Pattie & Johnston, 2009: 412; Kavanagh, 2015). This localised impact of a candidate in a given community may also be enhanced by what Pattie and Johnston refer to as 'the neighbourhood effect'. (2009: 410). This process, originating with the work of Kevin Cox (1969), outlines how political opinion and choice can be shaped by interacting among voters in a given context. In this sense, political choice is seen to be shaped by local interactions among voters in their day-to-day lives. The concept outlines that as people interact in their local communities, workplace, or even family home, their opinions tend to shape the opinions of those that they interact with, leading to spaces of similar viewpoints. Johnston (1974) examines this concept with regard to the local electoral context in Christchurch, New Zealand. In this quantitative analysis, the author outlines how the concept of 'the neighbourhood effect' is seen to have a partial impact on the resultant trends, however, because of the subjective nature of personal interaction

and various difficulties in accessing these factors, it is difficult to draw set conclusions. Johnston (1974) does provide useful insight into the process, and also highlights the need to incorporate a qualitative viewpoint in a more comprehensive analysis. Pattie and Johnston (2009) build on the earlier works of Huckfeldt and Sprague (1995) in order to evaluate the extent of 'the neighbourhood effect' through survey data analysis. Pattie and Johnston (2009) examine the 1992 British Election Study to highlight the impact of 'the neighbourhood effect', highlighting that voters are indeed influenced by people that they converse with. This may lead to a person moving away from the party that they previously supported or strengthen their level of support for a given party. However, this may vary depending on a number of factors, including the relative strength of one's views and support level, and can also be considered 'culturally specific' in some instances. (Pattie & Johnston, 2009). Given the impact of 'friends and neighbours voting', which may be potentially further enhanced by 'the neighbourhood effect', it is clear that there is a strong body of research that explains why candidates can have a pronounced localised support base in a given context. Pattie and Johnston (2009: 412) further suggest that 'the neighbourhood effect' is neither sufficient nor necessary for the creation of a distinctive electoral geography. This is an important consideration, especially in the modern age where internet communication creates a scenario in which community engagement is not necessarily bound by physical space. However, I believe that the impact of any localised voting style, which has been viewed as particularly pronounced in the Republic of Ireland (Parker, 1982; Kavanagh, 2002; 2015), is a vital component of any comprehensive analysis and must be incorporated into any truly useful behavioural model which aims to understand overall voting trends.

While the impact of candidate location is well examined in terms of the emergent candidate support trends, the impact of candidate location on voter turnout is examined to a lesser extent. (Kavanagh, 2002). While local communities are observed as providing a strong base of support for candidates within that area, it stands to reason that the lack of any candidates in a given community has the potential to reduce the overall level of participation, and as such, has the potential to impact the quality of overall representation within a select space.

Localised voting often leads a successful candidate to act in the role of a 'local promoter', for social, economic, and infrastructural issues, bringing topics that are relevant in their given locality to the national stage in order to seek a solution. (Gallagher & Komito, 2010: 230). Given this, a

focus on place, locality, and community is of vital importance in any analysis of Irish electoral behaviour. In this sense, a spatial framework which places an emphasis on the impact of locality and the everyday experience of the individual voter offers a valid lens in which to view the relationship between members of a given community and their political choices. This approach ensures a focus that accounts for 'values' or 'preferences' which are 'imbedded in the places or contexts where people live their lives', and hence play an influential role in political choice. (Agnew, 2002: 3). In this regard, a lack of political representation for 'local' issues potentially leads to a disconnect between the people and their political system.

Community representation is a key aspect when examining the impact of participation and engagement in the electoral process. In this regard, it is important to consider that a local representative is perhaps viewed as the figure that will fight to create and protect the economic opportunities within a given community. In this sense, the perception of their effectiveness may be seen to potentially influence political participation, and political choice, within that community. As this concept is largely subjective, based on the perception of effectiveness, it is also important to consider if differing members of the community, or different community groups, may perceive the degree of effectiveness in differing ways, and if so: is there perhaps a socio-economic element that influences this perception?

With this in mind, McKay (2019) draws insight from the work of Dorling and Pritchard (2010), and Wong et al. (2018), placing a greater focus on smaller geographical units of analysis in order to examine this issue in more detail. This allows for the analysis to focus on communities, and individual lived experiences within these communities. Past studies, such as the work of Agnew (2002), highlight the importance of examining such issues at the personal scale, as it is often the lived experience of the individual within their given local context, the area in which they live their day-to-day lives, that shapes opinions and political choice. The analysis of trends on a range of scales also serves to provide a more accurate picture of observed relationships, as the scale of analysis can often greatly influence research observations in a methodological sense, as subsequently expanded upon. (Openshaw & Taylor, 1979).

2.10: The Urban/Rural Divide

In a range of electoral geography investigations of voter turnout in a given election contest, researchers often note a significant difference between urban and rural areas in a range of national contexts. While Monroe (1977) points to a range of historical studies conducted in the United States of America that originally expected urban areas to generate a higher level of engagement due to the presence of a highly educated workforce, the author noted that this is often not the case, using numerous examples throughout the American Mid-West to demonstrate a higher level of engagement among rural communities. In the American context, further studies, such as that of Preuss (1981), outline the existence of a lower-than-average level of turnout in urban centres, and note the potential negative consequences of this as most countries in the Western world become increasingly urban in nature.

The tendency for an urban/rural divide is present in a wide range of electoral contexts. Sridharan's (2014) study outlines the higher-than-average turnout in more rural areas in India's 2009 and 2014 elections across all social class groupings. Clem and Craumer (1997) note the significant urban/rural difference in voter behaviour within regions of Russia in elections from 1995-96, noting a significant urban/rural cleavage, and higher-than-average turnout in rural areas. Tarrow (1971) highlights the perceived lack of interest in politics in rural France, but again highlights that turnout rates tend to be higher in rural areas despite this factor. In all of the above cases, despite the authors having reason to expect a higher level of engagement in urban cores, be it due to the socio-economic and demographic characteristics of the area or due to a perceived level of disengagement among rural voters, the tendency for rural areas to have a higher level of voter turnout holds true in a wide array of contexts.

In the Republic of Ireland, voter turnout has been noted as having a significant urban/rural divide. (Kavanagh, Mills & Sinnott, 2004). In this respect, urban cores are noted as having a significantly lower level of participation, while values in more rural areas are significantly higher. (Kavanagh, Mills & Sinnott, 2004). This divide is identified in the Irish context on a range of scales, and across a range of different election types. (Kavanagh, 2002). However, the drivers of this divide are somewhat less clear. While Kavanagh, Mills and Sinnott (2004) note that this divide may have an association with the level of community attachment in a given area, there are also a number of the

aforementioned socio-economic and demographic factors that may contribute to the observed divide. While some academics attribute the observed divide to the tendency for an older and more residentially stable population in rural areas (Delaney & McKenzie, 2007; Blais, Galais & Reidy, 2017: 175), this interpretation fails to address the question of: to what extent is the urban/rural divide driven by socio-economic and demographic factors, and does this divide exist independently of these characteristics?

This study will aim to determine the extent of an urban/rural divide in voter turnout levels and determine if any existing divide is driven by socio-economic and demographic variables or exists independently of these traits. In order to examine this issue, a more detailed classification system of urban and rural areas (Teljeur & Kelly, 2008) will be utilised, as subsequently expanded upon in detail, with data examined on a range of scales and across a range of different elections.

2.11: Electoral Systems

Outside of the broad range of socio-economic, demographic, and local factors that can shape electoral behaviours, there are also a number of structural, administrative, and contextual factors that can shape the behaviour of the electorate. The impact of a given electoral system on voter behaviour is widely noted, and various academics have examined the characteristics of a given system in order to determine the impact that this may have on the electorate. In order to do so, academics have sought to identify key factors and key aspects of systems that potentially have an impact. Jackman and Miller (1995) base their investigation on the five key traits of a given institutional context that are widely believed to have a notable impact, as first proposed by Jackman (1987). The authors point to competitiveness, proportionality, the number of parties, unicameralism, and mandatory voting laws as key factors to examine in order to determine the degree to which a given electoral context supports or inhibits electoral participation.

In terms of competitiveness, Jackman and Miller (1995) point to the differences observed between majoritarian and proportional systems, with the latter widely regarded as increasing the degree of competitiveness within a given electoral district. This is an argument also outlined by Bowler et al. (2001), using the example of local level elections in the United States of America. Historically, Jackman and Miller (1995) point to authors such as Gosnell (1930), Powell (1986), and Jackman

(1987) in order to support this observation, noting that proportional systems increase the incentives for parties and candidates to mobilise everywhere.

The issue of proportionality is another factor that varies widely between majoritarian and proportional systems. Jackman and Miller (1995) highlight the impact of proportionality due to the potential decisiveness of a marginal vote. A majoritarian system tends to increase the degree of wasted votes in an electoral contest, again reducing the incentive for an individual citizen to realise the potential importance of casting their vote. Gudgin and Taylor (2012) stress the frequent disproportionality viewed in 'First-Past-The-Post' system in the United Kingdom. In this respect, proportional systems are again believed to be a stronger mechanism of translating a given share of the vote on election day into a representative share of the seats in parliament, and hence a higher degree of proportionality is believed to increase voter turnout.

Jackman and Miller (1995) analyse the work of Downs (1957) in relation to the degree to which multi-party systems potentially influence voter turnout. In this respect, multi-party systems are seen to produce coalition governments, and as such, voters are less likely to directly elect a government, but merely a party that may form one component of this. Proportional systems are traditionally far more likely to produce a coalition government (Norris, 1997), and as such, have the potential to lower voter turnout. However, it must be considered in this respect that many proportional systems have historically yielded results which produce single-party governments. This can often be attributed to the presence of large parties that consistently gain very large proportions of the available seats in parliament. This can be demonstrated in both of the countries which use the PR-STV electoral system for first-order elections. In the case of Malta (Hirczy, 1995), the presence of two strong parties and a high level of competitiveness, which has produced a number of close results, has facilitated a high level of voter turnout overall. In the case of the Republic of Ireland, the PR-STV system has historically produced what has been described as a 'two and a half party system' (Kavanagh, 2015), with the parties of Fine Gael, Fianna Fáil, and Labour historically taking large shares of the seats in parliament. This trend is one that has been observed as in decline in recent elections, and as such, may be one potential factor that contributes to an overall decline in participation.

Jackman and Miller (1995) also point to unicameralism as a determining factor in shaping voter turnout. In this regard, the authors expand on the body of previous works that examines electoral

decisiveness (Dahl, 1966; Rae, 1971; Strom, 1990) by applying this concept to the ability for decisiveness of the subsequent government. In this sense, the structure of decisiveness in government is seen to be influential on voter turnout propensity. With this in mind, it is expected that voter turnout will be higher in an electoral contest that produces a national parliament which is seen to have the primary influence on legislation and policy generation. In the case of the Republic of Ireland, the lower house of the parliament is the primary generator of policy. While there is a set level of influence on the process by the house of the Seanad and also the President, the lower house is the only directly elected institution with the power to generate legislation. In this context, the degree of unicameralism in the Republic of Ireland should be expected to support levels of high voter turnout in General Election competitions.

The presence of mandatory voting laws is the final factor examined by Jackman and Miller (1995). The authors point to previous studies by Gosnell (1930), Tingsten (1937), and Jackman (1987), that outline the likelihood of increased participation in electoral systems that instil compulsory voting. Jackman and Miller (1995) do note the importance of also considering the potential penalties for non-compliance, and also note the difficulties for direct observation based on the degrees of variability in this respect. The lack of compulsory voting in the Republic of Ireland should still be considered as a factor that fails to limit non-voting behaviour among citizens.

In order to determine the impact of the above outlined factors, Jackman and Miller (1995) examine voter turnout in a total of twenty-two countries from 1981 to 1990. This study examines a wide range of nations that employ differing mechanisms throughout various stages of their electoral design, across a body of national contexts that demonstrate a range of voter turnout from a low of 41 percent to a high of 93 percent. In their analysis, a strong correlation is observed between the dependant variable of voter turnout and the aforementioned independent factors that existing literature has identified as having an expected and observed influence. In this sense, the authors conclude that the outlined institutional factors can be seen to offer a reasonable broad explanation of observed trends in the cross-national examination. However, Jackman and Miller (1995) also stress that in order to compile a truly comprehensive insight into the factors that shape political action, one must also consider the more subjective influences that shape both individual and collective decision-making in any given context. In their process of inclusion in this respect, Jackman and Miller (1995) incorporate a measure of ‘cultural factors’ and determine that there is

no observed relationship in this regard. It must be noted however, that any quantitative measure of individual or collective experience has numerous potential limitations.

In the case of the Republic of Ireland, Jackman and Miller (1995) outline a number of potential ways in which the overall electoral system may be improved, while also highlighting the many positives associated with the use of Proportional Systems. The PR-STV system used in the Republic of Ireland for general election contests differs from most other English-speaking nations. As outlined by Gudgin and Taylor (2012), the majority of other English-speaking nations employ some form of majoritarian system. In the case of the Republic of Ireland, the use of a PR-STV system resulted from of the United Kingdom's desire to offer some political protection to the Protestant minority in the State in 1920 (Gallagher, 2005), and perhaps the continuation of a proportional system in the Republic of Ireland after 1922 was also considered as a way of setting the nation apart in terms of democratic appeal from the rest of the English-speaking world.

In any case, the use of the system in the Republic of Ireland is an important consideration when examining the geography of voter turnout. While the system itself has an impact on national levels of participation, a key consideration in terms of international comparison, the system also has a number of related impacts when considering the factors of candidate location, the number of candidates, party support trends, and the degree of locality in candidate support that may shape the geography of participation rates within the State. (Kavanagh et al., 2006).

2.12 Boundaries and The Revision Process

The revision of electoral boundaries, and the potential impact of changes on the electorate, is a frequently discussed topic among electoral geographers. Historically in the Republic of Ireland, decisions about boundary changes were made by the party in government, and frequently changed with the aim of improving government members' electoral performance. Since 1979 this process has instead been overseen by an independent commission (Coakley, 2015), with the aim of removing the influence of potential political gains for sitting government members from the process. Instead, this system aims to make changes to electoral boundaries in a way that serves members of the public, adhering to both the constitutional requirements (Government of Ireland, 1937) and the provisions as outlined in the Electoral Act 1997 (Government of Ireland, 1997) with

subsequent amendments. While this process is no longer driven with political gains in mind, this does not mean that changing boundaries no longer have an impact on members of the electorate when moved from one area to another. As outlined by Gudgin and Taylor (2012), the translation of votes into seats in any given system depends on the geography of party support within a given nation, and the nature in which the 'grid' of electoral boundaries is placed upon the geography of support. In this respect, the process of producing electoral boundaries can have a profound impact on election results. While the use of an independent commission removes the aspect of party influence and intended bias, any boundary changes made by an unbiased body can have numerous unintended impacts on the electorate within a given area.

While the impact of changing boundaries on party support is well-studied and widely discussed in many national contexts (Sauer, 1918; Eagles et al., 2000; Engstrom, 2013; Fan, 2015; Durkan, Kavanagh & D'Arcy, 2020), the specific impact on voter turnout is something which is less examined in electoral studies. Hunt (2018) examines this topic in his analysis of the redistricting process in Florida. Previous examinations into the subject in the United States, such as that of Hayes and McKee (2009), note that the redistricting process appears to influence voter turnout, with a relative decrease of 5 percent observed in impacted areas. Hayes and McKee (2009) highlight that, by moving an electoral boundary, voters are then far less familiar with their representatives, and as such, are less likely to vote on election day. Hunt (2018) outlines the need to consider this topic with the use of individual-level data, as opposed to previous aggregate-level studies, in order to gain a deeper understand of how a redistricted electorate may be impacted by the process. In Hunt's analysis (2018), the use of individual-level data yields a strikingly similar result, with the process of redistricting leading to a decrease in excess of a 4 percent in electoral participation rates. While Hunt's study (2018) points to a similar resultant decrease in voter turnout, the use of individual-level data does provide a significant insight into the root causes of this observed decrease on the individual level. Hunt (2018) notes an array of influential factors that have previously been observed to influence voter turnout trends that are seen to be impacted by the redistricting process, and as such, a secondary effect is observed in participation rate decreases. In this respect, Hunt (2018) notes the impact of redistricting on party and candidate competitiveness, the incumbency advantage of candidates, and the partisan balance of the electoral area, and outlines the resultant impact that changes in these factors have on electoral participation.

In the Irish context, a similar framework to that of both Hunt (2018) and Hayes and McKee (2009) may offer some insight into the impact of boundary revisions on the electorate. While the impact of the boundary revision process may be examined in this respect, it is key to also examine other potentially influential factors that may be affected, such as the impact of a county divide, the impact revisions may have on candidate location, the impact redistricting may have on party and candidate canvassing and campaigning, and lastly, the impact that this may have in the context of an individual voter's relationship to an existing representative. In the process of examining the impact of boundary revisions on voter turnout, each of the above factors much be considered in relation to both how they may influence voting propensity, and how the boundary revision process may impact on them.

The current boundary revision process in the Republic of Ireland has led to a scenario in which election boundaries change more frequently, as has been the case in the period from the 1980's until present. (Kavanagh, 2014: 218). The Kavanagh Index of Constituency Change (KICC) shows that the 2012 Constituency Commission have brought the most dramatic changes since the 1980's; changes which may potentially impact on the electorate in affected localities. (Kavanagh, 2014: 227-229; Kavanagh 2003: 93-98). The index not only assigns points for changes, but in particular for changes that occur in areas in which they have been commonplace across various revision processes. There is a noted correlation between areas susceptible to boundary changes and demobilised voters. (Kavanagh, 2014: 229). Kavanagh points to a number of factors which may be seen to contribute to this including, in a similar vein to Hunt (2018), the potential impact of the lack of candidate recognition among the electorate when moved to a new constituency. This is a logical progression as individuals are unable to vote for a candidate which they may have built a relationship with over a period of time and are now removed from an area which they considered themselves connected to. The areas which are most susceptible to these changes outside of Dublin are often largely rural communities, as large population centres are more difficult to relocate in terms of electoral boundaries, without the addition of further representatives. Kavanagh (2014) highlights that this is a potential impact not only relevant to Ireland, making reference to the view of Lord Campbell-Saviours (2012) when discussing the loss of citizen-representative relationships due to proposed boundary revision in the United Kingdom, but the impact of such changes may be more pronounced in Ireland due to the traditionally high degree of localism in Irish electoral behaviours, as previously outlined.

The importance of county boundaries in this process can be considered as part of the wider importance of county identity experienced by people. In Ireland, county identity is often viewed as a very influential factor in shaping an individual's, and a community's, sense of 'place'. Callanan (2018) has highlighted the key role of county identity in Irish life, including in the formation of political boundaries. While Callanan (2018) considers past works from the mid-twentieth century that doubted the modern relevance and function of these administrative regions, many cultural factors, including organisations such as the G.A.A., have played a large role in ensuring that the county remains a key identifying feature in Irish life. (Harkin, 2018). While academics such as Harkin (2018) and Scully (2013) examine the relational identity of 'the county' within Ireland in terms of identity creation for members of the Irish diaspora, the authors expand upon the work of cultural scholars, such as MacClancy (1996), that highlight the important role of sport in creating a broader county identity for individuals and communities. In this regard, sports are frequently seen to 'help to define moral and political community', acting as 'vehicles of identity, providing people with a sense of difference and a way of classifying themselves and others, whether latitudinally or hierarchically'. (MacClancy, 1996: 2). MacClancy (1996) also highlights the close links between sports and politics, predominately through the role that both play in shaping individual and community identity. Within Ireland, the establishment of G.A.A. communities along both parish and county lines has helped to reinforce and recreate this multigenerational sense of place identity within Ireland. The role of the G.A.A. in shaping the modern experience of identity and belonging within a given place is a process closely related to the shaping of political opinions, and as such, helps to shape the sense of county identity that is frequently discussed in terms of the electoral boundary revision process when county boundary breaches are involved.

Callanan (2007: 133) outlines the deep rootedness of county administrative regions within Ireland, stating that a 'revision of local government boundaries which directly challenge deeply rooted territorial identities have never been seriously considered'. However, as previously outlined, this has not been the case in terms of electoral boundary revisions. The observed sense of county identity among the Irish public is of core relevance in the case of electoral boundary revisions. This helps to shape a deeper sense of place, identity, community, and community representation; factors that may deeply shape and influence political decision-making.

In terms of the contemporary boundary revision process, Callanan (2018) uses the examples of suggested changes in both the Athlone area and the Waterford area during the 2015-16 revisions to demonstrate the vast number of public appeals that were received in opposition to the breach of county boundaries. Callanan (2018: 599) also provides the examples of other suggested changes in areas such as Cork and Galway City. In these cases, while alterations are suggested, there is no breach to the county boundary. This review demonstrates that the issue of breaching a county boundary stimulates a much more pronounced opposition from members of the affected areas, with almost 28,000 submissions received in the case of Athlone and over 19,000 received in the case of Waterford, while only 55 and 96 were received in the cases of Galway and Cork, respectively. The noted opposition to breaching historic boundaries highlights the sense of awareness and importance of county identification among members of the public and stresses the need for deep consideration by the boundary revision committee. A stricter adherence to county boundaries in the revision process also serves to support the views of Sauer (1918) in terms of respecting coherent boundaries which tend to group citizens in a meaningful and historically significant manner for administrative purposes.

The current nature of boundary revision employs a system of 'micro-management' and frequent change. (Coakley, 2015: 531). This frequent change can be potentially damaging to the overall quality of democratic representation for the affected populations.

> 'It is confusing for voters, at best, and deeply alienating, at worst: they may find themselves transferred, as they see it, out of their own county and into a neighbouring one, potentially losing the services of a long-term Dáil deputy, in a process that is potentially delegitimising'. (Coakley, 2015: 550).

While various issues and potentially negative impacts of the current boundary revision process within the Republic of Ireland have been noted by many academics, there is somewhat of a lack of empirical evidence to examine the impact that changing boundaries may have on voter turnout within the affected areas. While Kavanagh (2014) highlights the observed low turnouts in areas with higher KICC redistricting scores (i.e. those areas that are most prone to frequent boundary amendments) and also highlights the views of citizens in Dublin South Inner City who feel that an aspect of continued change can be disillusioning, there is scope to provide a more in-depth analysis

into the voter turnout trends observed in redistricted spaces. In this sense, a detailed comparison to their surrounding areas provides an opportunity to better examine the potential impact of moving from one constituency to another, and the impact that this may have on voter turnout and equality of representation within a given place.

2.13: Election Type

The type of election taking place is one factor which can often drastically impact the resultant voter turnout on election day. Elections which elect the head of the primary governance body, such as general elections in the Republic of Ireland, may be considered as 'first-order elections', while European level or local level elections can be considered as 'second-order' elections, with the latter usually having a notably lower voter turnout. Besides these electoral contests in the Republic of Ireland, by-elections also take place in order to elect members of Dáil Éireann in instances in which sitting members of the house take up a new political role elsewhere, retire, or pass away. In this sense, while by-elections elect members of the lower house in the same manner as a general election, the limited extent of the contest and the limited number of available seats make these contest more similar to second-order elections in many regards.

The reasons behind a lower level of engagement in second-order elections may be attributed to the perceived importance of the election by the electorate, with more salient elections generating a greater degree of interest. While Dettrey and Schwindt-Bayer (2009) find that the power attributed to presidents in various democracies did not impact the associated voter turnout, Elguie and Fauvelle-Aymar (2012: 1599) expand on this by comparing countries with semi-presidential constitutions, concluding that the importance of an electoral contest does determine the extent of voter turnout at legislative elections, noting that 'above a certain degree of presidential power, turnout at presidential elections is higher than at legislative elections' and that the 'relative importance of presidential and legislative elections can be understood as a continuous scale'. Leininger et al. (2018: 509) point to European elections as an example of second-order elections, stating that:

> ‘The overall turnout rate for European Parliament elections (EEs) decreased from 62 percent in 1979 to 43 percent in 2014, with levels as low as 13 percent in some Member States, despite an increase in the formal powers of the institution’.

While this points to the low and declining turnout rate of second-order elections in the European context, it also highlights that the given powers of the institution do not appear to be the sole determining factor of observed changes. In this respect, studies such as Cutler’s (2008) analysis of voter turnout in the case of Canadian second-order elections point to the impact of a range of contextual factors that influence voter turnout trends, in a similar fashion to first-order elections, at the sub-national level.

Given that an overall lower level of engagement is expected in second-order elections, based on existing studies, and given that traditional influences are observed as shaping voter turnout at the sub-national level, this raises the question: is the expected decline in second-order elections more pronounced among some groups of the electorate, or in places with select traits in the Republic of Ireland? Leininger et al. (2018) highlight that when second-order elections are held concurrently, there is a noted increase in voter turnout, with the coincidence of local elections and European elections in the Republic of Ireland potentially offering some insight into this suggestion. Despite the coincidence of second-order elections within the Republic of Ireland, both local elections, held at the same time as European elections, and by-elections tend to have a notably lower level of voter turnout than general elections have. (Kavanagh, 2002: 133; Kavanagh, 2004). While this overall trend exists nationally, Kavanagh (2004) has outlined a number of marginal areas in which local election turnout is higher relative to general election contests, again highlighting the varying geography in influences and in the extent of macro-trends.

This thesis will examine the factors which shape voter turnout trends in general election, local election, and by-election contests in order to highlight the different rates of engagement among election types, and also examine the extent to which a wide array of previously discussed factors shape trends in each case.

2.14: Further Discussion and Conclusion

In conclusion, voter turnout can be considered as an important measure of the legitimacy and function of democratic practices within a given nation. While not the only form of engagement with the political system, it is the formal process of electing the individuals that represent citizens' needs, and as such, the process of deciding who governs and legislates on their behalf. In this process, voting does not occur equally across society. In this respect, unequal participation has the potential to create an unequal level of representation and a potential inequality across broader society. This potential is heightened when select groups or communities tend to abstain, leading to a scenario in which select groups of society may not have a voice at the table when important policy decisions are made.

There is a wide array of influences that are observed as shaping voter turnout trends, both in the international context, and within the Republic of Ireland. While a number of influences may impact on the national level of voter turnout in a given contest, such as the electoral system, or type of election taking place, these factors may also contribute to more localised effects, in select places, or among select groups in society. In terms of the difference in participation observed among different places, the previously outlined socio-economic and demographic variables have been noted in numerous past studies as helping to shape the resultant geography of participation within the country. Important administrative processes, such as the revision of electoral boundaries, have also been noted as having an impact on levels of support and engagement in numerous instances. While boundary revisions may not be politically motivated in the Republic of Ireland, they have the potential to have a number of negative consequences for the quality of representation received in affected areas. While existing works, as previously outlined, have identified a number of relationships in past elections, this study will aim to determine the existence and extent of these relationships in more recent Irish elections.

Further to this, this study will aim to expand on the spatial nature of participation that has been identified as existing outside of these influences. (Kavanagh et al., 2006). Through the application of a detailed spatial framework that uses a range of quantitative and qualitative measures, this study will aim to provide a detailed and comprehensive understanding of turnout trends within

Ireland, identify causes for concern, and put forward policy relevant suggestions that can address issues and lay the groundwork for future studies in this area.

Chapter Three: Framework and Methodology

In order to provide a comprehensive examination of voter turnout trends in recent Irish elections, this study aims to employ a strong spatial framework in which to investigate the wide array of factors that potentially influence voter turnout levels, and the resultant geography of participation within the State.

To successfully build on existing works, as previously outlined, and provide new insight into electoral behaviour within the State, we need a framework which can highlight trends in participation with a strong degree of reliability and which also accounts for the more nuanced aspects of political and electoral behaviour. In this sense, this study is grounded in the philosophy of critical realism (Bhaskar, 1975), a framework which facilitates the use of advanced quantitative methods in order to identify potentially influential socio-economic, demographic, and geographical factors which have an association with voter turnout patterns at the constituency and sub-constituency levels, while framing these findings within the context of existing electoral geography literature. This approach also acknowledges that political behaviour is more nuanced and is more reliant on unique individual behaviours, which are shaped at the local level, than a purely quantitative approach may be able to explore. In this sense, a qualitative approach in the form of semi-structured interviews with a range of political actors aims to explore these more subjective aspects of electoral engagement.

Throughout the various forms of investigation utilised, this project is geographically focused in nature, using advanced spatial statistics that are capable of identifying and exploring the spatiality of trends in more detail than any previous works on this subject, a factor which is of key importance in understanding electoral behaviour and the role of 'place' in the process. This has previously been highlighted in a range of contexts both internationally (Agnew, 2002) and nationally (Kavanagh, 2002), and is perhaps of particular importance in the Republic of Ireland due to the highly localised nature of the political system and electoral behaviour. (O'Carroll, 1987). Through the application of a strong spatial framework, this thesis will provide insight into the factors that shape electoral participation on a range of geographical scales and in various electoral contexts. It will aim to identify potential causes for concern within the current system, and it will aim to provide a range of policy relevant suggestions in order to address areas of potential neglect.

3.1: Theoretical Framework

As previously outlined in Chapter Two, the field of electoral geography has evolved over the past century to include a wide range of approaches that aim to examine political trends, while taking account of the unique context of place and the role that it plays in shaping political behaviour. (Johnston & Pattie, 2006; Agnew, 1987). In this sense, the field differs from other forms of political inquiry and offers a number of benefits when examining political behaviour among the electorate in a given place. This study considers an approach grounded in the theory of critical realism as the best means of effectively conducting research in the field of electoral geography.

Bhaskar (1975) outlines that the critical realist philosophy allows for the inclusion of human experience in scientific inquiry without fundamentally rejecting experimentative empirical study as a whole. Research conducted in the critical realist philosophy provides a means of expanding beyond the merely descriptive, in a similar vein as Koestler (1967) notes in his reflection on the practice of behaviourism in the discipline of psychology, without reducing the human condition to a purely consequential view shaped by mundane stimulus. This allows research to gain a deeper insight into human behaviour, while still appreciating that ultimately 'it is impossible to arrive at a diagnosis of man's predicament'. (Koestler, 1967: 18). This approach is perhaps naturally complimentary to the discipline of human geography, as it facilitates empirical inquiry into social, cultural, and political conditions, while being appreciative of the broader nuances of human behaviour.

Bhaskar (1975: 20) notes that 'society must consist of an ensemble of powers irreducible to, but present only in intentional actions of men; and men must be causal agents capable of acting self-consciously on the world'. The critical realist approach in human geography allows investigation into the actions of individuals in the world, by basing inquiry in the place where actions occur and aiming to better account for the web of influences that may play a role in shaping the choices that people self-consciously make within their lived context. Cox (2013: 12) notes that both Bhaskar (1975) and Giddens' (1984) structuration theory fundamentally recognise issues of dualism in existing approaches' concept of the 'individual' and 'society' and these propose 'a solution emphasising the relational character of the terms: that people could only be agents in virtue of their

social relations; but without that activity, those social relations would not be reproduced and could not be transformed: in short, a relation of mutual dependence'.

The critical realist approach in human geography not only appreciates the complexities of the individual and individual actions in the social sphere but situates inquiry and grounds research in a strong spatial context. Within human geography, a discipline which naturally concerns the role of 'place' in human experience and action, a critical realist approach facilitates complex inquiry and has the benefit of situating experience and action within a given spatial context. In this sense, the approach allows inquiry into observed social relationships in a given place without assuming the rigid binds of the purely positivist approach and allows the application of scientifically rigorous methods to investigate the factors that can influence and shape human behaviour at a range of scales. This approach also takes account of the complex influences of broader structures and cultures on human behaviour through the anchor of place, noting that complex systems and networks sit in set places. (Escobar, 2001). This approach also facilitates the view that 'places' and the complex web of influences that are present within them play a fundamental role in shaping human behaviours, in the same manner as human behaviours and actions in turn shape the places in which they act.

In this sense, a framework for research that is based on the ideals of critical realism allows electoral geographers to examine the factors that shape individual choice in the political world and take account of influences rooted in the places where these actions occur, while still appreciating that electoral behaviour, like all human behaviour, is shaped by a whole that is more than the sum of the parts. This approach holds a fundamental place in forms of inquiry based in electoral geography, as electoral geography is perhaps a field uniquely placed to examine the process in which people choose the decision-makers in society; the representatives and the structures that will shape their society; a societal structure which will in turn shape the lives and 'lived experiences' of individuals and communities in a given polity. (Agnew, 2002). Colin Flint (2000) highlights the need for a comprehensive electoral geography to be rooted in a framework that is driven by a social constructivist position and which fully accounts for the role that politics and political action play in the process of creating select spaces and places. In this sense, Flint (2000) considers the need to include a view of the social construction of space that takes account of the power relations and dynamic interactions within a given setting (Pred, 1990), and one which takes account of the need

to link a wider perspective of ideology, institutions, and knowledge to political actions and political change. (Thrift, 1983). Agnew (1996a) notes the various complexities of 'context', and the particularities of 'place', stressing the need to account for 'place' in any truly comprehensive attempt at understanding political behaviours in a given setting.

Agnew (1996b) highlights that 'we can never satisfactorily explain individual choices unless we situate the individuals in the social-geographical contexts of their lives', noting that this is a complex web of interconnectedness that informs political beliefs and political action within a given geographical context. In terms of examining political change, Agnew (1996b) notes that 'geography is dynamic' in the sense that the characteristics of a given space do not hold constant across time, and as such, a dynamic understanding of place, as with individuals, is necessary in any temporal perspective. Agnew (1996a) highlights the benefit of understanding factors which may be considered 'universal' or 'particular' in the context of geographical scale, and instead considers the range of influential factors within a given place as ranging from the 'global' to the 'local'.

This study considers the spatial framework suggested by academics such as Agnew (1996a) as a means to best understand the complexities of political behaviour within the Republic of Ireland, with the aim of exploring potential causes for concern in political behaviour. A critical realist approach to electoral geography bases human actions and influences in a select place, places where society uniquely shapes individuals, and individual produce their society. By applying the philosophy of critical realism (Bhaskar, 1975) to the field of electoral geography, political action may be understood in the social and spatial contexts in which individuals live their lives (Agnew, 2002) and make their choices, while not claiming to provide a law-like comprehension of human behaviour, and appreciating the interconnectedness of various influential processes, as may be represented in Figure 3.1.1.

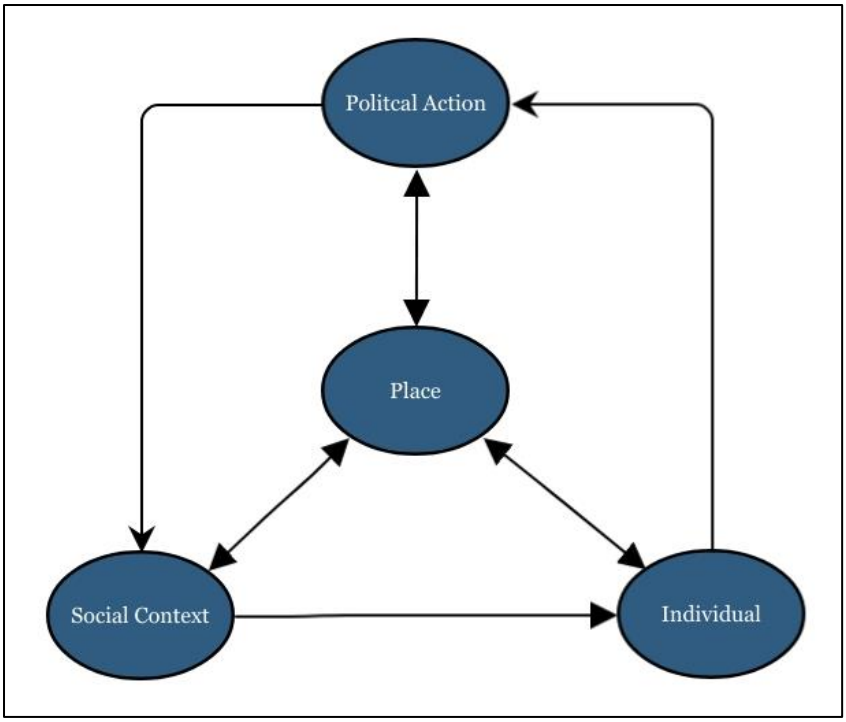


Figure 3.1.1: Flowchart Demonstrating the Potential Web of Influences Considered in Political Behaviour

In terms of suggesting methods which may be beneficial in furthering political insight, Agnew (1996a) notes that a complex topic of inquiry such as political behaviour need not be constrained by a prescribed framework or methodological approach, but one which accounts for place, and resists the urge to 'squeeze' explanation into a linear statistical model. The discussion of the critical realist approach put forward by Pratt (1995) embraces the theory of a critical realist philosophy but notes the issues with 'working through' this approach in practical research interests. This is notable in that it outlines previously suggested limitations on scientific inquiry in research of this nature. In this sense, the framework may perhaps be better understood as one that does not restrict methods of investigation but notes the need for comprehensive research design and encourages further considerations in the interpretation of results and presentation of findings. Yeung (1997: 53) also highlights the common misconception that an approach based on the critical realism paradigm has a prescribed set of methods, but instead highlights that it is an overarching philosophy and each discipline within human geography must consider an appropriate range of methods in order to conduct studies in this ethos.

Agnew (1996b) also points to the limitations of a strict approach which aims to ultimately identify the single causal factor or primary driver of political or human action, as the human condition is rarely motivated into action by a single factor. Agnew (1996b) highlights that the purpose of his preferred approach to electoral geography, one which puts politics in its place, does not require a strict overly prescribed framework in which to conduct analyses, but rather provides a broader framework which aims to understand human action in the context of the wide array of influences that can shape political action, at a range of scales. In this sense, critical realism does not provide a 'totalising philosophy' in which to conduct research within the social sciences but notes the lack of an 'ultimate truth' that may account for all of the actions in human behaviour in any valid study. (Yeung, 1997: 54)

While modern electoral geography is shaped by a range of viewpoints within the field, this study aims to employ a strong spatial framework that, while rooted in the quantitative analysis of electoral trends, seeks to include the influence of place and context, and enrich understanding of observed trends through inclusion of the viewpoints of relevant political actors. This project aims to better understand the range of factors that shape the geography of participation in order to identify select groups and select places that may be underrepresented, and as a result, neglected by the current political system. In this respect, this study will aim to utilise a strong spatial framework to take account of context on a range of scales, in order to identify potential causes for concern, and suggest solutions that may improve the quality of representation received by citizens within the Republic of Ireland.

3.2: Quantitative Approaches

Quantitative tools have been widely used in geographical studies in a range of broad approaches. Murray (2010) provides an overview of the development of various quantitative approaches, their contributions and impacts, and the potential application of quantitative methods within the discipline of geography. Murray (2010) notes the broad range of techniques, often developed in the fields of mathematics and statistics, that may be applied to a spatial analysis in modern quantitative geographical approaches. This includes the broad application of basic statistical

measures such as mean, variance, and correlation, alongside more spatially dependent methods such as spatial statistical models, spatial autocorrelation analyses and geographically weighted regression. (Fotheringham et al., 2002). The application of quantitative methods to geographical analysis saw significant growth in the age of the 'quantitative revolution' in which scientific methods were widely viewed as the primary approach in which to examine social and geographical issues (Durkan, Kavanagh & D'Arcy, 2020; Murray, 2010). Many approaches that have been developed by geographers such as Cole and King (1968) during this period, however, have been expanded upon by the contemporary age of GIS technologies and geocomputation to form a broad modern range of potential quantitative methods.

In this sense, there is a broad range of quantitative approaches and tools available to contemporary researchers in the field of human geography. In terms of the quantitative geographical methods applied, Murray (2010) highlights the importance of Geographic Information Systems (GIS) in the modern approach. The power of modern tools has had a notable impact on the ability of geographers to utilise spatial analysis and convey information to the reader in a spatial context. The application of GIS has been widely utilised throughout human geography, and the field of electoral analysis is not different in this regard. (Durkan, Kavanagh & D'Arcy, 2020). Murray (2010) highlights the importance of the tool in terms of data input, data manipulation, data display, data analysis and also data management. In this respect, Murray (2010) and Yano (2000) note the important developments in computer science that allow processes to be quantified and incorporated into spatial analyses, techniques which further the development of the field of geography as a whole. Fotheringham (1997) further highlights the benefits of advancements in spatial analytical techniques, which have facilitated a deeper level of understanding of the 'local' and variance observed in data, when considered at a range of scales and analysed through the lens of advance quantitative measures.

When using a range of quantitative techniques, the researcher must also be aware of the types of data which they are using, the potential range of statistical tests that are available, and the limitations to these tests, as well as the range of available testing methods which may be less suited to producing a reliable statistical analysis, depending on the type and structure of the available data. In this sense, Brunsdon (2018) outlines some key considerations with respect to the various scales of measurement applied to research data and the considerations given to the various types

of statistical testing that best suit a given dataset. This addresses some of the considerations outlined in classical statistical methodology literature, such as the work of Stevens (1946) and the concept of 'scales of measurement'. In this instance, Stevens (1946) set out to outline the appropriate types of statistical tests that may be applied to a given type of data, creating a framework that outlines the distinction among Nominal, Ordinal, Interval and Ratio (NOIR) data that has been widely applied in statistical evaluations. This approach serves to form the groundwork for more modern approaches and has informed the design and function of contemporary statistical analysis tools, such as the SPSS dashboard. (Brunsdon, 2018). The NOIR approach may be considered to be limited when addressing some specific data structures. In this respect, a number of revised approaches challenge existing frameworks, suggest alternative measures, and even challenge the need for an axiomatic framework. (Brunsdon, 2018). While there is much discussion in relation to Stevens' (1946) approach in the contemporary context, methodological discussion in this respect does serve to highlight some of the characteristics that a researcher must be aware of in a given dataset in order to make informed and appropriate choices about the type of statistical testing that may be applied to the dataset prior to in-depth analyses.

While quantitative tools have developed in past decades and are widely applied to many fields within human geography, academics such as Kwan and Schwanen (2009) note the various criticisms of an over-reliance on quantitative tools. While the modern era saw growth in quantitative investigation throughout the social sciences, human geography offered an important lens in which to view many social issues, as many quantitative techniques and models fail to incorporate spatial influences, and as a result, often omit key aspects in analysis. In this sense, Sheppard (2001) highlights the frequent misconception that analyses rooted firmly in quantitative investigation are restricted by a tendency to be overly influenced by the ideals of positivism. In this respect, Kwan and Schwanen (2009) point to a perceived inability within the discipline to reconcile quantitative and critical approaches that have both dominated within geographical approaches. In this sense, geographers that focus primarily on critical approaches, with issues of social inequality at their core, may often consider classical quantitative approaches somewhat reductive and lacking human context, as they have the danger of making sweeping generalisations about a given issue or given community. Murray (2010) also notes the broad range of challenges that exist in this regard, noting the need to be aware of limitations where applicable and also the need to be cautious with interpretations of quantitative data when examining social issues that can

be broadly impacted by a range of factors, on a range of scales. In this sense, the author notes that while the quantitative revolution in geography is alive and well and quantitative tools can provide valuable spatial analyses, any spatial model is only ever an 'abstraction of reality', a concept that all researchers need to be aware of and mitigate accordingly.

While the growth of quantitative tools has enabled new approaches, which are more capable of considering local and human perspectives into established practices, many geographers still view quantitative and qualitative approaches being irreconcilable to a certain extent. (Kwan & Schwanen, 2009). Barnes (2009) suggests that the apparent irreconcilable nature of the approaches is not one that developed due to a conflict of frameworks, but instead due to the development of post-war culture within the discipline of human geography, with Barnes (2009: 292) noting the quantitative nature of some of Karl Marx's work, who may be considered the 'ultimate social critic'. In this sense, the divide within the field need not discourage the use of heavily quantitative approaches, suggesting that modern approaches are capable of adequately examining social and cultural divides through the use of detailed statistical analyses. In order to better take account of the 'lived experience' (Agnew, 2002) of individuals and the numerous human perspectives that are incorporated into political decision making, approaches may be complimented and enriched by qualitative inquiry involving select actors, and other relevant sources.

With this study conducted through the aforementioned philosophy of critical realism, advanced quantitative methods are applied so that trends in voter behaviour may be considered on a range of scales in order to identify potential relationships between trends and the socio-economic, demographic, and local influences that shaped the 'lived experience' of individual actors. (Agnew, 2002). In this sense, advanced quantitative methods provide a deep level of insight, firmly rooted in the spatial, into the topic of voter turnout in recent Irish elections. While the aim of this study is to identify the factors that shape the geography of participation and identify potential causes for concern, the application of further qualitative analysis, as subsequently discussed, ensures that voter behaviour and social environment is considered in a complex manner in order to better understand the observed trends and resultant implications.

3.3: Voter Turnout Data: Construction and Application

When constructing, analysing, and interpreting a given dataset, it is of key importance that the researcher is familiar with the type of data available, and the types of suitable methods to analyse such data, as previously outlined. In the case of this study, voter turnout is calculated for a range of electoral contests. The availability of turnout data is limited by the level of access provided to figures, the cost of these resources, and the time-consuming nature of manually constructing datasets at the Electoral Division scale. While the Electoral Act 1997 (Government of Ireland, 1997) provides access to marked electoral register figures upon request within six months of a given contest, this data comes with a notable price tag for associated administration costs. In the case of this study, a total of €1,249.65 was spent in acquiring research data that could be combined with the data already available in Maynooth University. While limitations on data availability, associated costs, and the time-consuming nature of assessing records somewhat limited the scope of the select case study area, a reasonable dataset is constructed for each electoral event discussed. Each separate dataset constructed provides a snapshot of voting trends at a given electoral event, in a given spatial unit at one point in time. The use of this cross-sectional type of data provides a number of benefits, giving a select snapshot that holds a constant among all participants, the constant being the period in time when all respondents provided data. The use of marked register analysis, in conjunction with census data (see Section 3.4) limits the impact of potential drawbacks to using cross-sectional datasets. Often, cross-sectional datasets can be determined to be limited by the sample population examined, as Sedgwick (2014) notes in the context of medical data analysis.

In the case of this research study however, the marked register includes a full analysis of all registered voters, and is framed in the context of register accuracy, as outlined in Chapter Four. In the same sense, the use of census data provides a fully comprehensive snapshot of the population at time of conduct, as it is a process completed by all residents in the State. Cross sectional analysis also poses the threat of potentially missing the impact of variable change over a given time period, and as such, can often be problematic when examining a give cause-effect relationship. (Caruana et al., 2015). In this sense, this study also considers a temporal perspective which compares

changes in voter turnout levels within a given spatial unit over a period of time, as subsequently outlined in more detail.

The voter turnout levels are constructed from detailed analysis of the marked electoral register. The marked electoral register provides a fully comprehensive list of all individuals that are registered to vote in a given election, indicates all voters that cast a ballot on election day, and also outlines the select voting status of each member of the electorate. In this respect, Irish and UK citizens are able to participate in a General Election contest, with UK citizens that are ineligible for other types of election marked with a 'D' on the electoral register. Similarly, other individuals that are resident in the State, such as foreign nationals, are eligible to participate in Local Election contests, and marked with an 'L' on the register. Foreign nationals that are from another European Union State are eligible to participate in both Local and European elections and are indicated with an 'E' on the electoral register. The final grouping indicated on the register are those that are registered to cast a postal vote in an election and are marked on the register with an 'S'. Further to the information provided in terms of voting eligibility in a given election and the level of participation among the electorate, the register also outlines the 'Electoral Division' in which each voter is located, adding a valuable spatial component to the data which facilitates a detailed level of analysis. While the constituency and the Electoral Division are the only spatial units formally indicated for each voter, each individual's specific address is also listed, allowing the manual allocation to other spatial units.

The process of constructing datasets based on the register consists of the manual allocation of voters within each spatial unit in order to present the proportion of the eligible electorate that voted in a given election. This process is currently unsuited to digital generation, due to the lack of uniformity in register structure and lack of uniformity in marking individuals that cast a ballot. In this respect, a detailed analysis of voter turnout in this manner is rarely conducted due to the time constraints involved in generating an accurate and comprehensive dataset. For the purpose of this study, select case study areas are chosen from General Election 2016, Local Election 2019, and By-Election 2019 in order to construct detailed datasets, a process that consisted of the manual assessment of 1,902,134 members of the electorate.

Structuring data at the Electoral Division scale and the existence of previous similar datasets for General Election 2007 and Local Election 2014 allows the addition of a temporal perspective in

the data. Select small scale case studies are also constructed for General Election 2016, via the allocation of voters into 'Small Area' spatial units. The use of these two select scales allows voter data to be assessed in the context of a range of census variables, that are also provided for these spatial units, as subsequently expanded upon. In addition to this, the alignment of the voter data with census units also facilitates the examination of the eligible voting-age population measure of voter turnout. The provision of both measures is beneficial for both addressing issues with register accuracy, as expanded on in detail in Chapter Four, and also for considering the action of not registering to vote as a form of electoral abstention. In order to conduct further analysis of voter turnout trends by both measures of turnout considered, the census data is divided into a range of socio-economic and demographical variables, as subsequently outlined in detail.

3.4: Census Data and Variable Selection

In terms of the aforementioned socio-economic and demographic factors that have previously been considered as influential in terms of voting behaviour, the Central Statistics Office includes a number of select variables in the census reports that allows an investigation of a number of these factors, at a range of scales, and also allows direct comparison with previous reports. As the census in the Republic of Ireland is held every five years, this allows a given researcher not only to identify the extent of a variable in a given spatial unit, but also to investigate how a select factor has changed over a select time period in a given area.

In the course of this study, the census data from Census 2016 facilitates an investigation of the socio-economic and demographic characteristics within a given area. Comparison is also facilitated for the trends in the 2014 and 2019 Local Election contests and the 2019 By-Election, which are also based on Census 2016 data. While there is a greater degree of deviation in this respect between the year an election took place and the closest year that census information is available, the data still allows for some insight into the extent of select variables in a given spatial unit. In terms of the available variables that may be examined, it is crucial that the variables for comparison that are selected are uniform across all datasets used. This allows direct comparison and investigation into various trends which may emerge.

Census data is presented as the percentage of the population for a given category within a select spatial unit. This study will utilise both Electoral Division and Small Area level data, as previously discussed. When deciding upon the census variables that will be used in analysis, there are a number of considerations in terms of what unique census variables will be used to measure a given factor of interest, with choices informed by relevant academic literature. As the choice of variable construction can have a great impact on the resultant analysis, the breakdown of variables for select measures may be viewed in more detail in Appendix E.

Age	Under 18's (excluded)	**Education**	Lower Education
	Age 18-29		Higher Education
	Age 30-49	**Employment**	Working
	Age 50-64		Unemployed
	Age Over 65		Student
Marital Status	Single		Retired
	Married	**Social Class**	Category One Workers
Housing Tenure	Owner Occupied		Category Two Workers
	Rented	**Ethnicity**	Foreign Born
	Rented from Local Authority		White Irish Traveller
	Same Address for Over One Year	**Social Deprivation**	Pobal Relative HP Deprevation Index 2016
			Pobal Absolute HP Deprevation Index 2016

Table 3.4.1: Socio-Economic and Demographic Variables Included in this Study

In a broad sense, variables are constructed to reflect the socio-economic and demographic traits within a given area, taking account of the estimated percentage of each class among the adult population. The choice of variables is informed by traits that are observed as potentially influential in existing literature, as discussed in Chapter Two. Table 3.4.1 outlines the list of variables included in this thesis.

3.5: Spatial Data, Scale, and the Modifiable Areal Unit Problem

In data analytics, it is key that the researcher makes informed choices that serve to further the accuracy and level of insight gained from the available data sources. In this sense, the researcher must be fully aware of the various techniques available, the best practices outlined in existing

research, and the type of data they are working with in order to make the most informed choices. In this sense, the structures associated with the spatial element of any dataset is a key consideration, one which is often overlooked. Voss et al. (2006: 407) note in this regard, that 'spatial methods are necessary for the appropriate analysis of spatial data'. The failure to successfully incorporate the spatial element of a datasets can have a number of impacts on the analytical process, and often disrupt the observations from commonly applied methods. Voss et al. (2006) point to the use of standard regression models, noting that the spatiality associated with the data generally tends to violate at least one of the assumptions underlying the model. This is an issue that has long been recognised, with Stephan (1934: 165) outlining that; 'data of geographic units are tied together, like bunches of grapes, not separate, like balls in an urn'. Voss et al. (2006) point to the need to identify the existence of geographical relationships based on aspects such as spatial autocorrelation, the modifiable areal unit problem, scale, and edge effects, which will be subsequently outlined in more detail, in order to adequately make suitable decisions and produce a valid interpretation of the data available.

Many studies that are conducted into electoral and political behaviour fail to consider the spatial aspect of datasets and data analytics. It is this specific aspect that sets electoral geography apart from other forms of academic inquiry, with the spatial component of data and methods applied a key consideration throughout this study.

The scale of analysis in a given context not only determines the resolution in which a given issue is presented, but it may also have a number of consequences for the existence and extent of the statistical relationships observed. From the 1930's onwards, initial research explored by academics such as Henry Sheldon and Gehlke and Biehl (1934) have outlined the impact of spatial units' size and aggregation on the statistical relationships observed among variables. In this sense, it was observed that the correlation coefficient of two variables tends to increase as spatial units are grouped into smaller areas (Gehlke & Biehl, 1934), with the authors using the example of male juvenile delinquency rates as absolute values correlated with median equivalent monthly rental in the 252 census tracts of Cleveland and surrounding suburbs. This analysis was further supported by varying the grouping sizes of coin toss results and also by examining the value of farm products in relation to the number of producers, again at various grouping extents. The authors conclude that the observed increase in the correlation coefficient tends to exist in smaller geographical

groupings. This early academic research on the topic potentially raised more questions than answers, with the authors questioning 'whether a geographical area is an entity possessing traits, or merely one characteristic of a trait itself'. (Gehlke and Biehl, 1934: 2). This observed relationship between correlation coefficients and spatial unit size leads Yule and Kendall (1950) to question the existence of any observed relationship in a given spatial context, whule noting their ability to manipulate the extent of a correlation coefficient based on their choosing of an appropriate size for the spatial unit used in a given analysis. Openshaw (1977) expands upon the very serious implications for the observed relationship for the validity of any spatial analyses.

While the existence of the observed impact on spatial unit size dates back to the 1930's, this relationship became known as the Modifiable Areal Unit Problem (MAUP) when examined by Openshaw and Taylor (1979), with the authors noting the impact of the grouping of differing spatial units when examining the relationship between the proportion of the population voting for the Republican Party and the proportion of the population aged over sixty, in the case of Iowa. In this case, Openshaw and Taylor (1979) demonstrated that when enough variations in the scale of aggregation are used it is possible to return a correlation ranging from -0.81 to +0.98 for the same variables. In this sense, a unique issue is raised in spatial modelling of any data set, with not only the extent of an observed relationship being manipulated based on the choices made during the process of analysis, but even the direction of an observed relationship. (Openshaw, 1977).

The issue of the MAUP can be broadly explained by examining the impact of two select characteristics on spatial data. These characteristics are the scale of analysis used, and the aggregation of units into composite zones of varying sizes. Wong (2004) notes that this process can operate in both directions, noting that disaggregation of units is just a likely to have an impact on the resultant analysis. Jelinski and Wu (1996 :131) describe the issue as outlined in Figure 3.5.1.

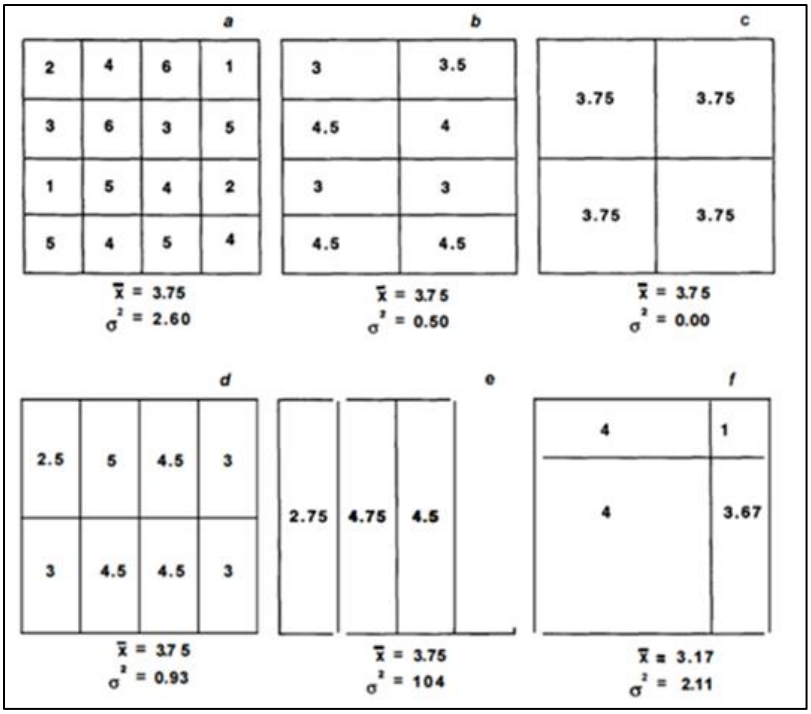


Figure 3.5.1: An Example of the Impact of Scale and Aggregation on Spatial Data

Source: Jelinski and Wu, 1996: 131.

In Figure 3.5.1 Jelinski and Wu (1996 :131) highlight the issue caused by scaling in images A-C, noting the change in the observed variable as the small blocks in image A are gradually observed at a greater scale, and at a lower resolution. In this instance, the scale issue demonstrated how variance observed at a small scale may be lost when a larger scale viewpoint is used on the same spatial dataset. While the impact of the scale of analysis is highlighted in image A-C, the similar zoning issue associated with the aggregation of units into various blocks is highlighted in image D-F. Jelinski and Wu (1996 :131) highlight how the zoning of differing blocks can have a significant impact on the extent of the variable observed. As both the scale of analysis and the zoning or aggregation of spatial units can have a great impact on observed results, the Modifiable Areal Unit Problem poses a significant issue for various types of spatial data and subsequent analyses.

While this issue is perhaps most broadly discussed in the field of human geography, it also poses issues for physical geographers, and indeed any analysist that use data with a spatial component.

(Dark & Bram, 2007). The examination of the impact of MAUP on observed statistics has been extended to the field of geographical health studies, with the extent of spatial autocorrelation in a given variable seen to be the greatest determining characteristic of the spatial data that serves to increase the impact of ecological bias in the relationships observed. (Swift et al., 2014). Fotheringham and Wong (1991) note that this is a serious issue for all analysis that use spatial aggregated data, noting that studies based on the aggregation of data based on predefined administrative units are likely to become more commonplace due to the growing availability of aggregated data sets, such as census results, as was the case in the United Kingdom at the time.

In order to overcome the issues associated with the MAUP, Openshaw (1977: 169) outlines the need to 'approximately optimise model performance' in order to conduct valid spatial analysis. Many academics note the ongoing need to both be aware of and address the MAUP issue as far as practicable when conducting spatial analysis. While there are many detailed approaches that focus on the aggregation of data at multiple scales in order to compare the resultant correlation coefficients, authors such as Duque, Laniado and Polo (2018) employ the use of a single constructed indicator in order to determine the susceptibility of a given variable to the impacts of the MAUP. Duque, Laniado and Polo (2018) created the S-MAUP measure in order to determine the extent of vulnerability, with the measurement based on the spatial distribution of the variable, at the smallest scale of data available, or lowest level of aggregation. In this case, the authors devise a measurement to explore the extent of the potential MAUP impact once the user inputs the level of aggregation and the level of spatial autocorrelation of the select variable, as previously discussed. This allows the researcher to determine the maximum level of aggregation which does not manipulate the variables distribution, and also serves as a test to determine the comparability of two various levels of aggregation. (Duque, Laniado and Polo, 2018: 23).

When considering the impact of MAUP, research can often be limited by the type of data and scale of data available in a given spatial unit. Jelinski and Wu (1996: 130) note that most early exploration of the MAUP, such as the work of Gehlke and Biehl (1934) and Robinson (1950) use spatial units in their analysis that are usually predefined units based on the nature of administrative and political boundaries. In this sense, the scale of analysis may often be driven by limitations imposed by the scale of data that is available to the researcher from a given source. In terms of the consideration of the issues associated MAUP and the mitigation efforts put in place to ensure

a valid analysis of the study area, this study places an emphasis on a number of key considerations. Dark and Bram (2007) note the need to agree on the 'objects of enquiry' as advised by Openshaw (1977) and the need to restrict analysis to the basic geographic entities (Hey et al., 2009) in order to limit the impacts of this issue. As Dark and Bram (2007) note, this places a strong focus on being able to identify the appropriate scale in which to conduct analysis. Fotheringham (1989) outlines the use of approaches such as fractal dimension analysis (Mandelbrot, 1967) and spatial autocorrelation (Moran, 1948; 1950; Cliff and Ord, 1973) in order to identify the extent of variability in a given spatial dataset, so that the research can then take this into consideration during the process of analysis and make appropriately informed choices and interpretations.

While this study conducts analysis on a sub constituency scale, the individual geographic units that are the primary focus of the analysis are Electoral Divisions (EDs) as used by the Central Statistics Office. This has been identified as the primary scale of analysis for a number of reasons. The use of Electoral Divisions allows both the calculation of voter turnout data at a relatively small scale, as the corresponding Electoral Divisions are noted on the marked electoral register. The use of Electoral Divisions also enables comparison with the various socio-economic and demographic characteristics that are of interest in the analysis through the use of Census 2016 data. The relative continuity of the scale allows for direct temporal comparison in select geographic areas, and comparison to the electoral trends observed in previous elections. The use of Electoral Divisions as the primary scale of analysis also compliments the availability of secondary resources that have been generated with the use of census data, such as the urban/rural classification system put forward by Teljeur and Kelly (2008), as subsequently expanded upon. The use of Electoral Divisions ensures, as far as practicable, that aggregate data will not need to be aggregated in order to match various spatial units, and as such reduces any potential further impacts associated with the scale or aggregation of spatial data.

The units themselves are also meaningful in the context of the electoral contest in which they are being examined. Electoral constituencies in the Republic of Ireland are constructed and revised based on the aggregation and transition of Electoral Divisions. In this sense, the political boundaries that exist are constructed, or are revised, along the lines of the primary spatial unit used in this study. While the use of meaningful units and the use of units that require no further aggregation in order to conduct comparative analysis reduce the impacts associated with MAUP,

a number of risks still exist when conducting analysis at a single scale. In order to mitigate the associated risks, this study also employs analysis at the Small Area scale, the smallest scale at which data is available from the Irish Census. While census data is widely available at this scale, comparative analysis requires the creation of a voter turnout dataset at this scale. For the purpose of analysis, each individual voter is assigned to a given Small Area unit to provide comparative data. Due to the time-consuming nature of this process, a number of select case studies within the primary study area are selected to provide a comparison in this respect. The study areas were chosen in order to provide a range of geographic environments and are dispersed throughout the primary study area, ensuring to include a range of population sizes and densities across a range of constituencies, in order to better include the differing constituency level impacts on voter behaviours.

While any analysis that is based on aggregate spatial data poses a risk of influence from issues associated with the scale and aggregation of data, this study takes a number of steps, including using meaningful spatial units, avoiding unnecessary additional aggregation, and examining relationships at a range of scales, in order to conduct analysis in a responsible manner that mitigates these risks as far as practicable.

3.6: Statistical Methods and Model Construction

When working with quantitative data and data of a spatial nature, there is a wide range of methods that may be applied in order to investigate the existence of trends and examine the robustness of observations made. The choice of initial methods, extent of robustness testing, methods used for assessment, and presentation of results can all have a significant impact on the resultant findings, interpretations, and applications of a given research project.

The previously outlined census variables serve as potentially very informative variables in order to determine any associated socio-economic and demographic trends with voter participation. In order to examine the relationships associated with the previously outlined variables, each variable will first be examined at Electoral Division level in order to determine if there is a correlation

effect with voter turnout levels. In order to test this relationship, the Pearson method will be applied to each variable in turn in order to determine the potential existence of a relationship.

The Pearson product-moment correlation coefficient is a standard method of assessing the existence of a potential relationship between two select variables. This method is applied in order to investigate the exitance of a relationship in instances where no trend in a given direction is pre-determined to be expected, and as such, is an appropriate tool for initial investigation and identification of potential associations in a given dataset. While this type of correlation assessment is not infinitely robust, authors such as Havlicek and Peterson (1976) note that this form of assessment is rather insensitive to assumptions of normality of a given variable distribution. Throughout the initial exploratory data analysis for this research study, the Spearman and Poisson methods were also applied to data where the structure of a given variable may have deemed it unsuitable for assessment via the Pearson method. In these instances, while varying levels of correlation were naturally returned based on the chosen method, the variation of correlation methods failed to identify any variables that were not previously identified as being of interest, and the varying levels of correlation observed did not suggest significant difference in terms of the overall level of potential influence of a select variable. As such, the Pearson method is applied throughout this study in most instances in order to facilitate comparability and reduced the excessive presentation of statistical testing, with other forms of testing outside of this noted where relevant.

By examining the extent of observed relationships between each variable, a number of decisions may be made in terms of what indicators are suitable to be included in a more complex linear multiple regression model. When testing variables individually through application of the Pearson method, the significance of a correlation may be examined by obtaining the 'p-value' of each correlation between variables. In order to determine if a correlation is likely to be zero, a null hypothesis is Stated and then a 'p-value' is obtained in order to accept or reject the null hypothesis, depending on the value returned. In this case, the null hypothesis is: The difference between the correlation and zero is due to chance.

A 'p-value' is an indicator of the level of significance, ranging from 0-1. A low value indicates a high degree of significance, or reliability. As a general rule in many social science analyses, it is suggested that a p-value of <0.05 indicates a 'statistically significant' relationship, while a value

above this indicates a less reliable result. Authors such as Colquhoun (2017) point to the issues of using such approaches, noting that the results indicated are largely reductive, can often be quite opaque, are often misunderstood, and sometimes misleading. In this sense, the author notes the common misunderstanding of what the frequently used p-value represents, accurately defining the value, as outlined below.

> 'If there were actually no effect (if the true difference between means were zero) then the probability of observing a value for the difference equal to, or greater than, that actually observed is called the p-value. In other words, the p-value is the chance of seeing a difference at least as big as we have done, if, in fact, there were no real effect'. (Colquhoun, 2017: 2).

The work of Colquhoun (2017) highlights some of the risks associated with interpreting the statistical level of confidence in observed results. Academics in the medical field have noted similar concerns in relation to the given 'power' of a statistical test and the level of 'significance' reported. (Christley, 2010). While Colquhoun (2017) concludes that a much more comprehensive approach may take advantage of Bayesian or reverse-Bayesian analyses, the author also recognises that many points raised are subject to further debate. (2017: 18). In a more basic guideline, the author suggests a broad, easily applicable, best practice approach by stressing the need to be better aware of the issues with p-value interpretation and, whatever the chosen method to address concerns, aim to have a p-value well below the broadly considered 'statistically significant' level, and ensure that all values are fully represented. This does not only aim to ensure that the conclusions drawn from a statistical relationship are most likely to be actual effects but aims to address the broader issue of reproducibility in academic research, as subsequently expanded upon in detail. In order to better address the above issue, this research project will aim to present all statistical analyses, processes of analysis, decisions made in the analytical process, and results of given tests in as clear and open a format as possible. As such, the presentation of exact values will allow the reinterpretation of all results, and also facilitate replication of results.

In order to further protect against inaccurate inferences, this study considered the alternative means of assessment as suggest by Colquhoun (2017). While the application of a Bayesian analysis requires the determination of a prior probability and the reverse Bayesian approach presents a prior probability that may then be deemed to be acceptable, this study examined all significance levels

with consideration of False Positive Risk values. (Colquhoun, 2019). This approach takes account of the probability of a 'false positive' in the relationship reported by taking into consideration the strength of the observed correlation, the p-value associated with the test, the number of observations in the sample, and the prior probability of a relationship in a given direction. The False Positive Risk value was computed for all calculations in this study by assuming a prior probability of 50 percent, and no calculations were included that failed to meet the level of equal-to or less-than a False Positive Risk of five percent, unless otherwise Stated, with the vast majority of calculations well below this level. The decision to not present the False Positive Risk value for each calculation within this study was made in order to reduce the volume of data presented in each representation and due to the uniformity of findings for all calculations. This was calculated using the False Positive Risk Web Calculator tool (Longstaff & Colquhoun, 2020), with the inclusion of comprehensive p-values and correlation extents in the thesis allowing verification by third parties.

Model Construction: **OLS Linear Multiple Regression Models**

Once the process of individual variable assessment in data analysis is complete, the strength of relationship among variables may better inform the construction of a linear multiple regression model in order to determine the extent to which overall voter turnout trends are shaped by the predictor variables. When choosing the variables to include in a regression model, there are a number of important considerations and a number of useful methods that can be applied to aid in the decision-making process.

In choosing a final model, the AIC function can also be helpful. The Akaike Information Criterion, 'AIC', (Akaike, 1973) is a solution to the issue of selecting variables to include in a multiple regression model. (DeLeeuw, 1992). This builds on existing methods, such as the 'maximum likelihood method', (Akaike, 1992) to create a single measure used to aid the decision process when deciding on which variables are best included in a multiple factor regression model. The introduction outlines the initial equation set out by Akaike (1973).

Given a set of estimates $\hat{\theta}$'s of the vector of parameters θ of a probability distribution with density $f(x|\theta)$ we adopt as our final estimate the one which will give the maximum of the expected log-likelihood, which is by definition

$$\mathbf{E}(\log f(X|\hat{\theta})) = \mathbf{E}\left(\int f(x|\theta) \log f(x|\hat{\theta})\, dx \right),$$

where X is a random variable following the distribution with the density function $f(x|\theta)$ and is independent of $\hat{\theta}$.

Figure 3.6.1: The Akaike Information Criterion (AIC) Equation Structure

Source: DeLeeuw, 1992: 600.

This method may be applied by examining the AIC value between the dependant and each independent variable in turn, with a lower AIC deemed to make the variable a better fit to the model. The model may be constructed in multiple variations, with some additional variables included/excluded in each iteration. Following this process, an AIC value is returned for the entire model, and models may be constricted in multiple variations. The model with the lower score may then be deemed to be a more reliable predictor of the dependant variable in question.

Two variables which have a strong relationship may interfere with the effectiveness of a regression model. This issue of collinearity can be problematic in this sense. Collinearity, 'multicollinearity, and ill conditioning all refer to the same general concept of dependence among predictors in a regression model'. (Thompson et al., 2017: 81). This may interfere with a given regression model as 'multicollinearity can cause slope parameter estimates to have magnitudes or signs that are not consistent with expectations, or with the bivariate correlation between a predictor variable and an outcome variable'. (Thompson et al., 2017: 82).

Throughout the process of regression model analysis, the extent of the relationship between the potential predictor variables in question will be examined further before decisions are made about the composition of the final model. The Variance Inflation Factor (VIF) may be applied in this instance to determine the impact that correlation between variables has on the model accuracy. The VIF value is determined using standardised regression coefficient and semi-partial correlation values from within the model in question. (Thompson et al., 2017: 81). This measure was

introduced by Neter, Wasserman and Kutner, (1983: 3) and the equation may be viewed in Figure 3.6.2.

$$\mathrm{VIF}_j = \frac{1}{1 - R_j^2}.$$

Figure 3.6.2: Variance Inflation Factor (VIF) Equation Structure

Source: Neter, Wasserman and Kutner, 1983: 3.

In this instance, 'j' is the predictor variable, while 'R^2' is the multiple correlation coefficient. The VIF value observed can range from zero to infinity, with higher values indicating a greater contribution to collinearity within the model. In this sense, various model constructs and potential predictor variables can be compared throughout the model construction process, and any that serve to cause a significant threat of collinearity error can be mitigated before the final models are analysed. While specific thresholds are not enforced throughout this study, the analytical process aims to keep all VIF scores as low as possible, with the vast majority of variables in models returning a value of less-than five. Some exceptions are made, and noted accordingly in the text, with no values above ten included in any instances.

Throughout the process, all models are also considered in the context of the degree of influence that extreme outlier values may have on the relationship observed. In order to ensure that observed trends are not shaped by the existence of extreme outlier values, all analyses take account of Cook's (1977) distance statistics throughout the construction process. In this process, outliers that have a disproportionate influence on the trends reflected in the model output are highlighted, alongside the degree to which they impact on a given model's performance. Throughout this research process, a representation of Cook's analysis is presented as relevant in instances in which it is appropriate to consider the potential influence of extreme values on model performance. In instances where extreme datapoints are identified in this respect, datapoints may then be excluded

so that the model will perform more accurately and better identify the existence and extent of potential relationships within the data.

Model Construction: Logistic Regression Models & Categorical Variables

While multiple linear regression models are used throughout the analytical process in order to examine the relationship between predictor variables, generated from census socio-economic and demographic variables, categorical variables are also considered in the form of the Teljeur area classes (Teljeur & Kelly, 2008), as subsequently outlined, and also some spatial factors that are generated when examining the potential impact of candidate location and boundary revisions. When categorical variables are used in these instances, the model construction process must take account of the structure of the variables in order to be appropriately applied. One means of doing so is through the application of logistic regression models. Logistic regression models are used primarily to examine the trends in relation to Teljeur area classes, voter turnout levels, and socio-economic and demographic variables. In this respect, logistic regression may be applied in order to examine the relationship between a categorical variable in binomial form and various linear variables. (Sperandei, 2014). As the Teljeur variable has a total of six individual classes however, 'dummy' variables must be included in the process. Further to this, categorical variables are also included in numerous linear regression models applied. In these instances, categorical variables are created in binary form to describe a spatial relationship, and regression is applied with these 'factor' variables included. When Teljeur area classes are also included in a linear regression model, 'dummy' variables are again required in order to account for the presence of six Teljeur classes. In order to conduct these analyses appropriately, regression analysis is conducted in 'R' statistical software, which automatically includes 'dummy' variables as appropriate in 'lm' and 'glm' functions, and also allows the user to manually assign the 'reference' category where required. (LaMorte, 2018). In the model construction process, the models are examined with the inclusion of the various considerations outlined in the previous section.

Spatial Autocorrelation: Clusters and Outliers

When working with spatial data, the various geographical patterns observed in variable distribution is a key consideration. In this respect, the researcher may wish to examine the extent to which values for a given variable 'cluster' in groups of similar levels. Likewise, the researcher may wish to examine the extent to which a particular case demonstrates a significant degree of variance from surrounding values and may be considered as an 'outlier' in the dataset. This is of particular importance when assessing various relationships and the existence of spatial autocorrelation can often undermine the legitimacy of a given analysis, if not accounted for in the process.

In this thesis, the extent of spatial autocorrelation of a select variable is examined throughout the research process. Spatial autocorrelation outlines the degree to which similar values are located together or are dispersed throughout the case study area. In this respect, spatial autocorrelation may exist in a negative or in a positive sense, as outlined in Figure 3.6.3.

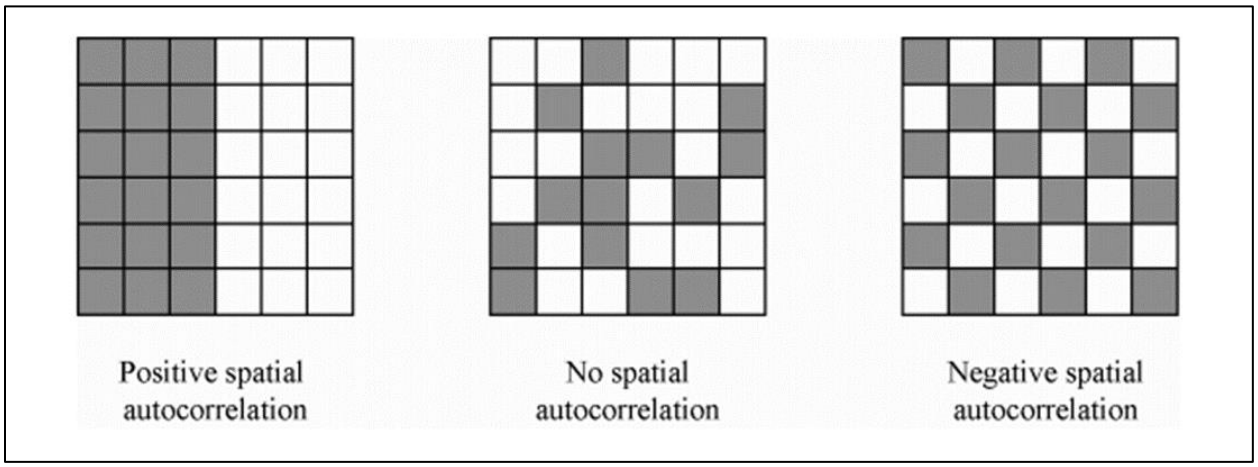


Figure 3.6.3: Spatial Autocorrelation Patterns

Source: Radil, S. M. (2011: 44)

Various methods may be applied in order to examine this issue. This research process includes the application of the Moran I statistic (Moran, 1950) to outline the extent of any given relationship,

and also utilises the Local Indicators of Spatial Association (LISA) cluster and outlier identification method through the application of the relevant function in the ArcGIS toolbox. (Anselin, 1995). The Moran's I test and associated functions are available in the 'spdep' R software library. (Bivand, 2018). A Moran's I test returns a value ranging from -1 to +1, in which a 0 value indicates a random distribution, -1 indicates negative autocorrelation, meaning neighbours tend to be dissimilar, and a value of +1 indicates similarity of traits among neighbouring areas. The associated p-value with the test outlines the degree of statistical reliability in findings. This builds on 'Tobler's First Law' and it is often applied in statistical analyses to examine the impact of neighbouring values on a given spatial dataset. (Miller, 2004: 284).

In the application of Moran's I testing it is essential to consider the most appropriate weighting matrix that will be applied for the test. In order to conduct Moran's I statistical testing in this thesis, the 'row standardised' method is applied. This is included in the 'nb2listw' function which supplements a neighbours list which is previously determined using the 'poly2nb' function. The 'poly2nb' function utilises the 'queens' determination of neighbours as a default and is deemed to be appropriate for this analysis as it constructs a neighbours list based on any shared boundary between two polygons. (Bivand, 2018).

The application of LISA (Anselin, 1995) is facilitated by the availability of the 'Cluster and Outlier Analysis (Anselin Local Moran's I)' function in the ArcGIS toolbox. The application of this method outlines areas in which clusters of similar values exist. This includes the identification of High-High Clusters (H-H) which consist of values in the variable examined that are notably high and are located near other high values, and also Low-Low (L-L) Clusters which consist of an area in which neighbouring variable values are significantly lower than average within the dataset. The application of this method also outlines outliers in respect, with their values represented as Low-High (L-H) outlier areas, which are low values among an area of significantly higher values, and also as High-Low (H-L) outliers, which are areas of significant high values among an area of relatively low values. For the purpose of this study, the above outlined methods are utilised throughout Chapter Four and Chapter Five, which examine the accuracy of the marked electoral register and the voter turnout trends in General Election 2016 within the select case study area at Electoral Division level, respectively. The methods are appropriate in these instances as the large contiguous area and presence of 912 datapoints is sufficient in order to generate reliable and

insightful findings. These methods are excluded from the analyses in Chapters Six, Seven, and Eight as the lack of contiguity and relatively small number of datapoints in each area restricts the generation of reliable analyses.

Standardised Residual Values

Throughout the research process, the application of various forms of regression model not only provides insight into variables which have an observed relationship and outlines what percentage of variability in a dependent variable is accounted for by observed relationships, but also allows the examination of standardised residual values and the resultant geography of residual values produced. The application of various statistical models allows the generation of standardised residual values which outline the extent of variation from the predicted value within each area, based on the factors identified as influential in the model output. The examination of areas in which the model has made a significant over-prediction or under-prediction allows the potential identification of additional variables that may be influencing the dependant variable, outside of those included in the model. The spatial nature of the dataset and generation of standardised residual values allows these values to be tested in the same manner as any spatial data, namely, through the application of cluster and outlier identification, as previously discussed. This process is vital, not only as it serves to highlight areas in which values are higher or lower than predicted, and as such has the potential to identify additional influential variables present in these locations, but also because the spatial independence of values is essential in a regression model that performs reliably. In this respect, significant clustering observed in the resultant standardised residual values would suggest that the model and variables included in the model fail to act independently, and as such, are unreliable predictors.

Geographically Weighted Regression

The final form of statistical testing applied to the data is Geographically Weighted Regression (GWR), where appropriate. (Fotheringham et al., 2000). GWR not only allows the construction of detailed OLS multiple regression models, but also allows spatial influences to be better understood,

allowing the user to weight values based on neighbouring variables and standardised residual outputs. The spatial nature of various 'R' packages, such as the 'GWModel' library (Lu, 2020), allows the application of advanced methods such as Geographically Weighted Regression analysis to further advance findings.

There are two forms of GWR utilised in data testing applied in this study. In both cases, the functions aim to incorporate a spatial influence into the multiple regression model by including a neighbouring weight. The first test is a spatial error model, which includes a spatial factor based on the error term, generated from the standardised residual values within each area. If positive spatial autocorrelation or clustering is present in the geography of residual values, this method should improve the overall accuracy of the model. The second test is a spatial lag model, which aims to include a weighted influence on the dependent variable from neighbouring values. In this instance, if the dependent variable displays signs of positive spatial autocorrelation or clustering, the application of a spatial lag model should improve overall accuracy in predicted values.

The application of GWR techniques provides a greater level of insight in the geographical factors that shape observed trends, and as such, are a tool of great benefit in any electoral geography study.

3.7: Urban/Rural Classification

When investigating the extent to which observed trends are shaped by geographical influences, the degree to which an area is classed as urban or rural plays a key role. The urban/rural variation in the geography of political support and voter behaviour is something that is widely noted, both in the international context (Tarrow, 2014) and the Irish context (Kavanagh et al., 2006), as previously expanded upon in greater detail in Chapter Two. With this in mind, it is important to categorise areas accurately in order to analyse the relevant data and provide a comprehensive insight with regard to potential urban/rural variation.

In this sense, Teljeur and Kelly (2008) put forward a classification system which aims to accurately class each Electoral Division in Ireland in terms of 'urbanness' or 'ruralness'. This system places each Electoral Division in a total of six classes, ranging from 'City' to 'Rural Remote'. The authors

developed the bespoke classification system in order to provide a more detailed analysis of the impact of geographical context on the level of healthcare provided within Ireland. While this approach was developed to examine a potential urban/rural divide in healthcare access, the existing literature on the observed impact of the urban/rural divide on voter behaviour suggests that the classification method may also be a suitable means of assessing this topic.

The classification differs from previous systems as it employs a more complex method of determining the individual classes, while avoiding a potentially reductive classification of 'urban' or 'rural'. This method takes account of the differing types of environment in both urban and rural contexts for a more nuanced viewpoint. This approach accounts for the various urban environments in Ireland, accounting for not just cities, but also smaller towns and villages, urban contexts which differ vastly from each other in composition and lived environment. The same holds true in the case of rural areas, with this classification system acknowledging that 'rural Ireland is not a homogenous entity but more probably composed of a variety of rural area types'. (Teljeur & Kelly, 2008: 298). This approach also provides the resultant classification at a useful and adaptable scale, which supports a detailed analysis within the select study area. In this sense, the classification is supported by the availability of other data at the same scale, such as census data.

Teljeur and Kelly outline (2008) the range of approaches taken internationally in term of urban and rural classification, noting that the approach differs greatly depending on the national context. In this respect, approaches must consider a unique national population distribution, such as in Australia, which has a broad contrast in urban and rural environments. Teljeur and Kelly (2008) also outline some progressive methods that aim to improve the quality of classification at a range of scales, such as the grid system that supports sub-classification in the UK. The methodology adopted by various countries demonstrates a great deal of variance in terms of chosen indicators and the classification of an area based on these variables, such as settlement size threshold for example. Teljeur and Kelly (2008) provide a useful example of the international contrast in classification in the cases of Sweden, which classes a settlement as 'urban' if over 1500 people are resident there, compared to a threshold of 30,000 in Japan. While the range of international approaches differ greatly, a number of approaches tend to use the same indicators, or some combination of indicators, to determine the degree of 'urbanness' or 'ruralness' in a given context.

The majority of these approaches take both population size and population density into consideration when making a distinct classification.

In the Irish context, the classification system for urban settlement has been in use since 1966, with a threshold of 1500 people, despite the various changes in Irish society and settlement since that time, as outlined by Teljeur and Kelly (2008). The approach put forward by Teljeur and Kelly (2008) is based on observed international approaches and informed by the body of literature that highlights the aforementioned need to use a suitable scale for analysis, a need to combine multiple factors into the indicator values (Goodall et al., 1998), the need to incorporate 'fuzzy distinctions' to avoid misclassification as far as practicable (Coombes, 2004), and the need to also consider socio-economic dimensions in a given area. (Brown & Cromartie, 2004). Based on the observed international practices, the body of literature available, and the level of data availability, Teljeur and Kelly (2008) derive their classification from four key indicative measures:

Settlement size: based on the median settlement size.

Population density: based on land area that excludes uninhabitable land.

Proximity to urban centres: within a one-hour travel radius of the nearest urban centre.

Land-use: based on the Corine land-use data transcribed to ED scale. (Buttner et al., 2002).

Based on the above information, Teljeur and Kelly (2008: 302) produce two methods of classification, and sub-classification to group each Electoral Division into four broad classes before further including additional subcategories. The first approach applies discriminant analysis to the classes of median town size, population density, and 'access' scores, in order to reclassify areas that are more similar in nature to alternate classes. K-Means clustering is applied to the proximity to urban centres measure to minimise the variance within each class, while maximising the variance among differing classes. Land use is then incorporated into the approach through the application of the process outlined in Figure 3.7.1, in order to arrive at a given land use in one of seven distinct classes.

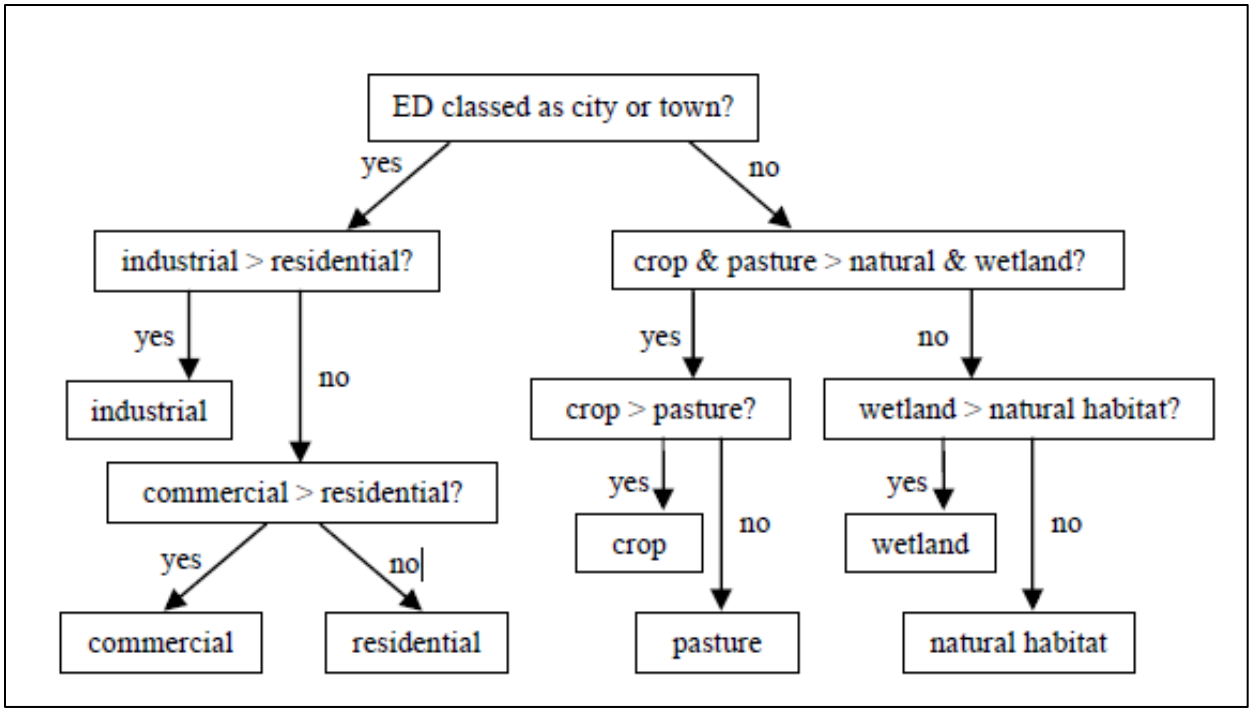


Figure 3.7.1: Land-Use Classification Process

Source: Teljeur & Kelly, 2008: 302.

An alternate approach was also followed, in which K-Means clustering was first applied to all four variables in order to determine the composition of classes, and both approaches were compared through the use of a Goodness of Fit indicator. In this sense, alternative studies have suggested that the use of a K-Means clustering algorithm may be better replaced with the use of Partitioning Around Methods (PAM) to construct a more robust framework in cluster creation. The use of the PAM method serves to make the clustering process more robust to outliers, as it uses absolute distances from cluster centres, as opposed to the squared distances used in the K-Means approach. (Brunsdon et al., 2016). However, the methods applied in the case of Teljeur and Kelly (2008), consisting of the comparison of two parallel approaches through the use of a Goodness of Variance Fit (GIF) measure ensures that the selected approach performed suitably in terms of class creation. While the GIF value indicates that both approaches are suitable, the first provides a broader range in classes, with the second approach combining many of the smaller urban classes, namely 'Town' and 'Village', into a singular entity. Teljeur and Kelly (2008) use the first method, including initial

categorisation and subsequent sub-classification to produce a system with six resultant classes, as viewed in Figure 3.7.2. Given the variance in the number of datapoints within each class, the authors further applied the 'shrinkage' method to indicator values before examining the socio-economic relationship to the suggested classes. The correlation observed in socio-economic values indicated that the resultant six classes serve to produce a suitable classification system that accounts for variance in selected data.

Class	EDs	Population	% Population
City	467	1,394,248	35.6
Town	234	997,950	25.5
Accessible village	159	227,662	5.8
Remote village	71	75,145	1.9
Accessible rural	1301	778,642	19.9
Remote rural	1190	443,556	11.3

ED: Electoral Division.

Figure 3.7.2: Teljeur Urban/Rural Classification Groups

Source: Teljeur & Kelly, 2008: 305.

The classification system constructed in this instance provides the opportunity to examine the differences in various urban and rural environments at a more nuanced level in order to provide a deeper insight into observed trends. Teljeur and Kelly (2008) construct a classification method, grounded in sound statistical reasoning, and informed by best international practices. In the authors' own words:

> 'The classification presented here achieves that sub-categorisation and provides a better tool for understanding urban/rural differences than a simple dichotomy. Incorporating several data sources enables the construction of a classification that includes both demographic and topographic information'. (Teljeur & Kelly, 2008: 309).

While Teljeur and Kelly (2008) create the classification system to examine the health implications of geographical location, I propose that the method is also the best available measure of 'urbanness' or 'ruralness' in which to examine the impact of geographical location on political behaviour. While Teljeur and Kelly (2008: 307) use unemployment and education as two of the indicators in order to demonstrate that the constructed classification is suitable to measure variance in observed relationships, the variance in these two indicators would also suggest an impact on voting behaviour, as the select socio-economic variables are also perceived to be associated with voter participation rates, as previously discussed. While the classification was originally constructed in 2008, the revised version based on the 2011 census information provides a well-placed snapshot for the scope of this research project, as it provides a classification at the mid-point between the general election contests of 2007 and 2016, which are both considered in the examination of temporal turnout trends. While the classification will also be used for examining the 2016 General Election separately, the degree of change associated in the area classification from the 2008-2011 versions suggests that any changes from 2011-2016 are acceptable, given the scale of the study area and the likelihood of multiple areas changing class significantly. When applied to the chosen study area, the Teljeur (2008) classification, as updated from the 2011 Census, provides a strong range of variation among Electoral Divisions. All six classes are included in the study area, with the volume of each demonstrated in Table 3.7.1. As outlined, the majority of classes have a strong number of cases that are capable of facilitating robust statistical analysis. The 'Village (Remote)' is the only potential exception in this respect, with only seventeen areas within the class. In the context of the full dataset however, this should still facilitate a reasonable degree of accuracy in comparison to other area classes.

The geography of Teljeur Classes within the study area may be viewed in Figure 3.7.3. The broad east-west urban/rural divide is demonstrated in this instance, with all of the 'City' classes based near Dublin City, and the majority of the most rural classes located in the west of the study area. While previous studies have taken account of this broad east-west divide, the Teljeur classification allows for a much more detailed insight and allows differentiation among different types of urban or rural environment.

Classification	Number of Data Points
City	293
Town	103
Village (Near)	50
Village (Remote)	17
Rural (Near)	358
Rural (Remote)	91

Table 3.7.1: Number of Electoral Divisions in Each Teljeur Class Within Study Area

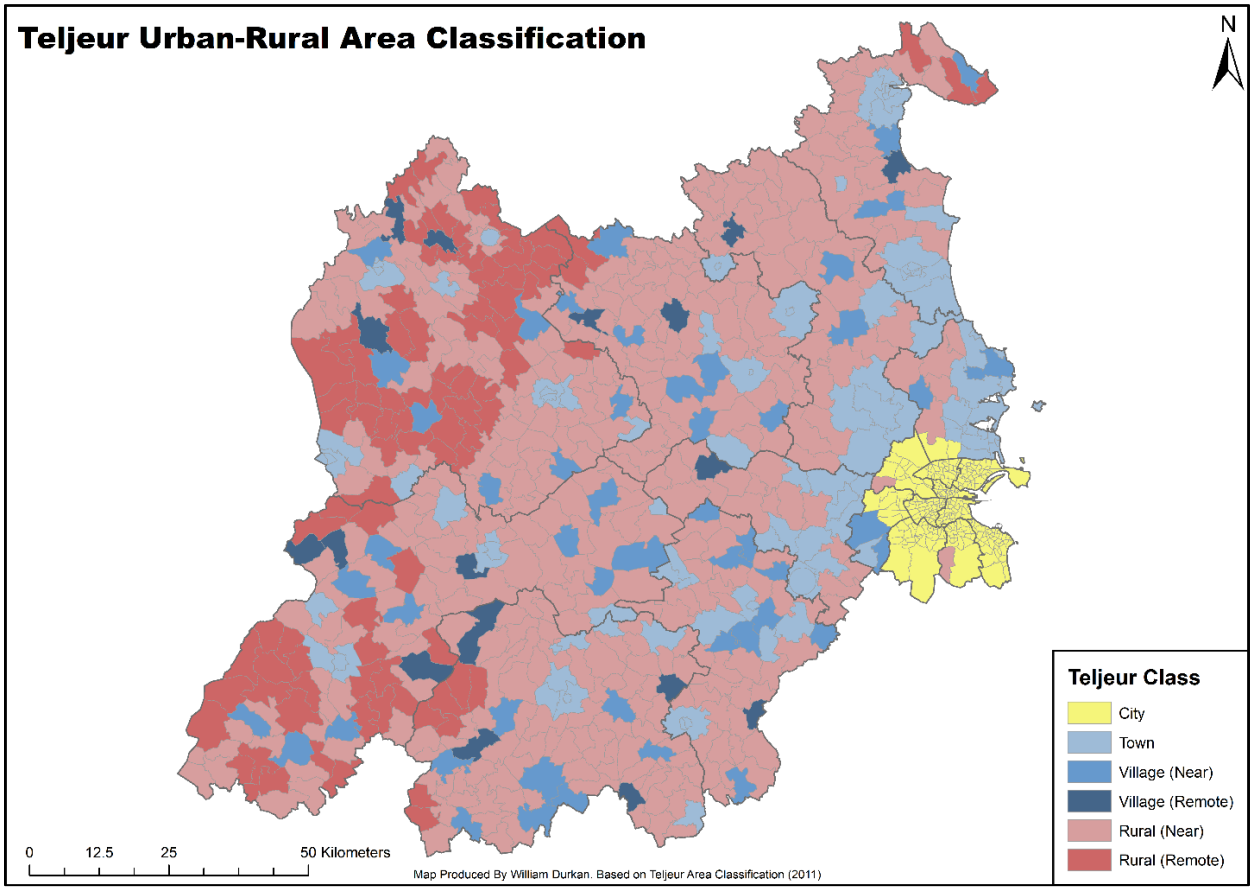


Figure 3.7.3: Teljeur Area Classification by Electoral Division in Case Study Area

Source: Updated 2011 Classification from Teljeur and Kelly, 2008.

3.8: Qualitative and Mixed Method Approaches

Philip (1998) simply describes qualitative approaches as any research that is essentially non-numeric in nature. The application of qualitative approaches within the field of human geography grew out of the backlash to the aforementioned Quantitative Revolution as a means to provide a more comprehensive way to investigate complex social, cultural, and political issues. While the quantitative approach serves to identify spatial trends at a range of scales in order to allow a great deal of confidence in observation and statistical analysis, the sole use of quantitative methods may potentially exclude a number of unique instances that are lost in the aggregation of data. Zolnik (2009: 336) highlights the limits to quantitative analysis, noting that although modern methods are quite advanced in order to allow observation and analysis, they cannot account for the 'cultural, political and social contexts that affect human behaviour'. In this sense, the application of qualitative approaches may be viewed as essential in any research which engages with such topics and aims to investigate the impact of everyday 'lived experience', an aspect deemed to be of central importance to electoral geographers such as Agnew (2002). While Philip (1998) notes the existing criticisms of the subjective nature of qualitative geographies, the author also points to the work of prominent figures such as Nigel Thrift and Ron Johnston (1993), who argue that qualitative approaches have the potential to be every bit as rigorous and reproducible as their quantitative counterparts. Kirk and Miller (1986: 12) note that while qualitative research may be viewed as more subjective in nature, the aim still remains to draw objective conclusions, and qualitative research is also pluralistic in nature so that a range of investigations may be applied, noting that a range of perspectives on a given research topic is important in order to provide 'a fuller understanding of its depth'. Anderson (2010: 2) notes that while past critiques of qualitative approaches have suggested that there is an adherent lack of rigour and potential bias, qualitative approaches can be 'unbiased, in-depth, valid, reliable, credible and rigorous', when carried out in the appropriate and correct manner, stressing the need for reliability and validity.

While Young et al. (2018) focus on the application of qualitative research methods in the field of conservation studies, a great deal of their insight is generally applicable in terms of the strengths, potential weaknesses, and best practices for the usage of qualitative methods in any given academic study. They note the large volume of studies in their field that fail to follow best practice in

qualitative method application in terms of including a critical analysis of the research process, noting the need for a research to include recognition of the potential impact of sampling and interview bias on the overall processes. The authors argue that research needs to clearly outline why the chosen method was applied, noting the various decisions and ethical considerations taken into account during the process. In this sense, this study aims to clearly outline the research choices in terms of methods and analysis for all approaches applied. This is of particular importance when outlining the process in interview analysis, so that a third party may review the materials of their own accord in order to ascertain the reliability and relevance of conclusions drawn by the researcher. This also includes the importance of explaining the justification for the selection of interviewees and the range of viewpoints provided on a given research subject.

Qualitative research can often be very informative when a given study is of relevance to policy formation. While quantitative analysis may provide the statistical grounding for a given policy issue and potential solutions, qualitative approaches serve to better inform policy makers of 'the settings in which policies will be implemented'. (Anderson, 2010: 1). The presentation of research findings is always an important consideration, but this aspect is perhaps more pronounced in the case of qualitative approaches due to the greater potential for differences in interpretation. While this is a consideration to the forefront of all research approaches, interview responses in particular can often pose a challenge in this respect. In terms of the presentation of interview materials, Anderson (2010: 4) points to the need to present segments of the interview that are 'most poignant' or provide the most insight into the topic of interest, while taking care not to present sections of the interview that are too long and tedious for the reader.

In the context of this study, qualitative approaches in the form of interviews with relevant political actors serve to add further depth to the insights drawn from the quantitative approaches applied and provide local contextual insight into trends observed. Further to this, qualitative approaches served to give candidates and elected representatives an opportunity to express their interpretation of trends observed and offer insight into the potential policy aspects of observed trends.

While the potential benefits and drawback of both quantitative and qualitative methods have caused much debate over the past number of decades within the field of human geography, Philip (1998) notes the potential to take advantage of the strengths of each approach, while mitigating the weaknesses through the application of a mixed-method, or multi-method approach within the

field. Zolnik (2009) advocates for the adoption of a ‘multi-level’ approach that allows researchers to better account for a broad range of influences on a given subject matter, and also identify a suitable role for the application of in-depth quantitative approaches in a given study through the application of ‘mixed methods’. Philip (1998) also notes that the Quantitative Revolution often produced approaches that failed to address the prominent socio-political issues of the time, instead tending to stick to easily quantifiable objective matters, while excluding more subjective or messy topics. This in turn, often led to the rejection of quantitative approaches following the ‘cultural turn’ within the discipline. In order to address the existing concerns, Zolnik (2009) suggests a multilevel approach that incorporates qualitative approaches in order to gain a relevant and accurate insight into topics of human behaviour. In this respect, the author notes the potential benefits to a mixed method approach for human geographers to gain a comprehensive insight into select behaviours in a given spatial context. The apparent divide between quantitative and qualitative approaches is well noted, with Philip (1998: 261) highlighting that:

> ‘The editor of the focus debate in *The Professional Geographer* voiced his regret over the apparently divisive gulf between quantitative and qualitative methods, writing that he believed the divide to be "a form of intellectual hardening that closes minds, restricts insight, and undermines our collective understanding" (Hodge, 1995: 426)’.

In this respect, Philip (1998) examines the potential benefits to bridging the divide between the two approaches in order to implement an effective mixed method approach that simultaneously allows research to be grounded in sound statistical analyses, while capturing the distinctly human contexts that are key in understanding behaviours. Philip (1998: 261) points to the potential benefits to encouraging mixed-method and multi-method approaches, noting that the inclusion of a ‘poly vocal’ approach can serve to enrich the discipline and provide more comprehensive analyses, in a similar ethos to that of postmodern approaches within the discipline. He challenges the assumption that quantitative approaches are strictly deductive and objective in nature, associated with ‘artificial’ representations, while qualitative approaches are strictly inductive and subjective in nature, associated with real-world ‘natural’ settings. Instead, he suggests that all social research tends to move between research questions and evidence to examine issues in a complex world in a similar manner, aiming to provide a greater depth of understanding and as

such, differing approaches should not be viewed as 'divorced' from one another. With this in mind, Philip (1998) suggests that the application of multiple approaches to a given topic serves to reduce the potential for over-reliance on a single approach and may often be a very advantageous course of action for the researcher. Young et al. (2018: 17) note the benefits associated with the application of a wide range of methods in investigation, pointing to the potential benefits of having multiple methods in order to 'limit the bias associated with any one method'. Anderson (2010) also highlights this point with reference to the wide range of academic and professional fields that are frequently seeing the advantages in mixed method approaches, as opposed to examining a given issue through a single, perhaps unfocused, lens.

Philip (1998) denotes that the researcher should not prescribe to a given method based on their personal opinion or epistemological viewpoint, but instead should allow the nature of a given research topic to determine the choice of research methods best suited. While Julia Brannen (2017: 8) notes that the mixing of approaches may raise 'the question of movement between paradigms at the levels of epistemology and theory', the author also stresses the consideration of the choice of methods that are appropriate for a given research topic, as opposed to placing the 'cart before the horse' with a prescribed theoretical or methodological approach without prior consideration of the specific question at hand.

3.9: Interview Design and Application

In the context of this study, while various issues are examined in terms of voter participation levels and associated socio-economic and demographic statistics, statistical analysis alone cannot account for the various intricacies of how individuals within the electoral system may behave. The use of semi-structured professional interviews provides insight from political representatives, candidates, and associated staff that work closely with constituents on a day-to-day basis and are in a position to provide additional insight. As the political representatives are both policy makers and are directly impacted by a number of electoral issues, their professional insight may also be viewed as extremely beneficial in terms of identifying, expanding upon, and outlining any potential policy solutions to issues addressed in the course of this study. The human aspect of voter

behaviour is a key aspect of this study, and with this in mind, the choice was made to include qualitative research methods in order to compliment, and expand upon, some of the themes highlighted in the quantitative analysis. While there is potentially some scope to include a greater degree of input from individual voters in the form of a questionnaire survey, there are a number of considerations that led to the exclusion of this approach. While a survey of various individual voters may be a viable option for future studies that wish to expand upon some of the themes explored here, considerations in terms of the quantity of materials required in order to do so effectively within the set timeframe led to the exclusion of this potential method. In any potential study that aims to include a methodological approach such as this, the volume of responses would need to involve a substantial sample with an appropriate geographical spread to effectively compare and contrast results with aggregate quantitative findings, as are utilised here.

While the methods applied in this instance do not aim to gain individual insight from voters, the choice was made to apply a range of semi-structured interviews with election candidates and elected representative in order to provide the additional insight that may be overlooked in a purely quantitative study. In this sense, an elected representative can offer additional insight into the various human aspects that tend to drive voter behaviours. By interviewing elected representatives, this not only serves to provide a professional insight into their own experiences and opinions, but also that of their constituents, based on their need as representatives to be aware of voter experiences and also due to the high level of engagement with constituents and constituent issues on a day-to-day basis. Elected representatives also offer the option to interpret the level of consideration given to issues that are raised throughout course of this study and also offer their opinions on how potential issues may be better addressed, potentially offering a range of policy solutions to some of the concerns raised. The insight of political representative that have served over a long period of time is also a very beneficial viewpoint as this study explores how various areas and process have developed over time. In this sense, long-serving representatives have a great deal of experience with working in a given area and with groups of the electorate over a long period of time, and as such, can provide insight into the various changes that they have experienced and the potential impact of these changes. Likewise, newly elected representatives may also have potential unique engagements with various processes and members of the electorate that may provide unique detailed insight into a number of relevant issues.

In line with the suggestions made by Young et al. (2017), there was a wide range of considerations in terms of potential interviewees. The range of participants in this study aimed to achieve as wide an array of participants as possible, taking account of party representation, gender representation, and geographical dispersion throughout the chosen study area. This aims to give as wide as a viewpoint as possible and include the widest range of insights possible. The final interview component in this research project consisted of 28 interviews, with one interview having two participants present, and one additional written response, making a total of 30 participants. Of these respondents, there was a strong range of gender, geographical, and political diversity, as well as a broad range of political experience, as displayed in Table 3.9.1. As outlined, the gender divide in this study is 2-1 in favour of male participants. While this does not achieve a strict level of sex/gender equality overall, it does ensure that both sexes have a reasonable level of equality in input. This notable divide must also be considered in the context of the overall gender balance of political representatives, with just 22.5 percent of TDs being Female in the 33rd Dáil. (Carswell, 2020). With regard to the diversity in political viewpoints included, this is again largely reflective of the political makeup of the 32nd and 33rd Dáil and overall party size at time of writing, while noting that not all participants are members of Dáil Éireann. Perhaps the most notable exception in this respect is the somewhat low level of participation among Sinn Féin. In this sense, it is important to consider that the majority of interviews were conducted prior to the 2020 General Election, in which Sinn Féin grew in terms of Dáil seats from 22 to 37 members. In this respect, it is also important to note that the Social Democrat party had 2 and 6 TDs in the 32nd and 33rd Dáil respectively, and also Solidarity-PBP had just 6 and 5 TDs, respectively. When the overall structure of political representatives is considered alongside overall political party size, the pool of interview participants is broadly representative of the political parties within the Republic of Ireland and can provide a balanced insight into a range of topics from a diverse personal, political, and geographical viewpoint.

Interview Participants	30
Male	20
Female	10
Fine Gael	11
Fianna Fáil	8
Labour	4
Independent	3
Sinn Féin	2
Green Party	2
Social Democrats	0
Solidarity-PBP	0
Other	0

Table 3.9.1: Interview Participant Information

The interview design consisted of a semi-structured format in which similar questions were presented to each participant, with some variation based on differences in electoral involvement, and some participant-specific questions included as relevant. An example of the range of questions put to participants may be viewed in Appendix C, with a full list of participants presented in Appendix D.

The semi-structured nature of the interviews allowed a broad comparison in responses across topics in order to gain multiple viewpoints on a given topic, while at the same time facilitating a broad discussional approach which served to be beneficial in terms of expanding upon more complex aspects of political engagement, identifying additional potential trends, and outlining a broad range of potential solutions for aspects of behaviour deemed to be a cause for concern. Interviews 1-22 were conducted in-person, with one subsequent written response, and the final interviews were conducted by phone call due to the onset of Covid-19 restrictions from March 2020. The use of the in-person form of interview and subsequent phone discussion facilitated detailed semi-structured discussion and input on all relevant topics.

3.10: Ethical Considerations and Mitigation

Ethical considerations are a key aspect of any research project in the social sciences. While some of the more serious ethical dilemmas arise in instances in which the researcher is in contact with vulnerable persons, or a case in which vulnerable persons are the topic of a given study, it is vital to consider potential risks in any study conducted. While a number of academic pieces that aim to better advise on ethical considerations in social science research focus primarily on instances that involve work with vulnerable persons (Paoletti et al., 2013), there are ethical considerations in all steps of social science research outside of these instances. These are ethical considerations that the researcher must take steps to identify and mitigate as far as practicable in order to conduct viable ethical research.

In terms of ethical approaches, there have been a number of progressive developments in social science research over recent decades, with initial discussion about the best ethical practices that question the extent to which researchers should be held accountable (Holden, 1979; Horowitz, 1979; Garn, 1979) replaced with a system in which all reputable research institutions aim to uphold a high level of ethical conduct at all stages of the research process, from the choice of research topic to the dissemination of research findings. (Paoletti et al., 2013: 21). In terms of the development of ethical research practices, the aforementioned age of 'big data' and developments in research methodologies and technology have led to the need to have deep consideration of the ethical practices associated with the collection and analytics of all data and demonstrate that the researcher has mitigated for all possible risks. (Paoletti et al., 2013: 21).

Paoletti et al. (2013: 2) note the need for sound moral reasoning in the conduct of social science research, highlighting the wide range of institutions in a given context that may seek to provide both guidelines for best practice and select codes of conduct which research must adhere to. While debate continues about the best practices for progressive ethical research guidance in the social sciences (Sleeboom-Faulkner et al., 2017), ethical research conduct is undoubtedly a key aspect of any study that must be thoroughly considered throughout the research process.

In the case of this study, all aspects of research adhere to the guidelines outlined in the Maynooth University Ethics Policy (Maynooth University, 2020), and was subject to ethical approval by the

Maynooth University Ethics Committee based on an outline of research to be conducted. Outside of the required ethical approval measures taken for this research project, the researcher also successfully completed the Epigeum 'Research Integrity – Social and Behavioural Sciences' training (Epigeum, 2018) required by all Irish Research Council studies in order to ensure that all research projects adhere to best practices in ethical research. The aforementioned need for research to be reproducible and open as far as practicable, a standard adhered to in this research design, also serves to bolster the ethical standard of the research, as subsequently expanded upon in more detail.

In the case of quantitative data analysis, there are a number of key ethical considerations in the research design of this study. Marked electoral register analysis requires access to the raw data that is compiled on election day, consisting of the either direct or indirect personal information, including name, address, members of household, residency status, and voting behaviours of individuals. While the marked electoral register is a matter of public record and subject to purchase from a given Local Authority, or the Oireachtas, within a six-month window of a given election, nonetheless, the personal information enclosed must be respected. In order to mitigate any ethical risks associated with the usage of data, all information generated from the analysis of the marked electoral registers is presented in an aggregate format, with no spatial units used that consist of less than forty registered electors. This ensures, even in the case of relatively small-scale analyses, that no individual data may be extracted from the aggregate set. The data is also checked to ensure that, even in the case of a larger area, there are no cases in which a maximum or minimum value is presented, which could potentially allow for an individual determination to be made. Throughout the study, there were no spatial units identified which represented a registered voter turnout value of 0 percent or 100 percent. Throughout the course of the study, all documentation that contained personal information, including the marked electoral registers, were stored in line with the data storage protocol as subsequently outlined. The quantitative analysis conducted for this research project also utilised census information, which is publicly available and only presented in an aggregate format, and as such, was suitable for usage in its current format without any ethical risks.

The qualitative content in this research project consisted of the conduct of 28 interviews with election candidates and public representatives and associated staff members. Arguably, ethical consideration is more necessary in the design and application of qualitative approaches, and as such, ethical considerations were at the forefront of interview design, arrangement, conduct,

analysis, and dissemination. Winchester (1996) notes some of the aspects that the interviewer must be aware of when conduction interviews as part of a given study, noting the need to consider various aspects of the process, such as power and gender relations, and the manner in which participant information is represented.

All research participants in this study were provided with a detailed information sheet in advance of each interview outlining in detail the various measures that are put in place to ensure data protection and their rights to confidentiality, as viewed in Appendix A. Each research participant was also provided with a consent form prior to the conduct of an interview, indicating that they understood all aspects of data usage, and agreed to be named in the final report to be put forward for publication, as viewed in Appendix B. Interview participants that took part via phone after the onset of Covid-19 restrictions and did not have facilities readily available to provide a signed acknowledgement provided a verbal acknowledgement at the beginning of each interview.

All interview materials were stored in line with university data protection policy, availing of best practice. As the transcription process for the interview materials included the involvement of a hired third party, all steps were taken to ensure that the materials were kept confidential through the usage of a confidentiality agreement. This ensured that all information was kept confidential and that all recorded and typed materials were deleted by the relevant third party once the transcription process had concluded. All files were sent through the usage of a secure password protected server, with a timed deletion and were unable to be shared with any parties other than those in the confidentiality agreement.

3.11: Reproducibility in Research

One key consideration in data analysis is the level of reproducibility of a given research process. Brunsdon (2016) outlines that the development of focus on reproducible research (Claerbout & Karrenbach, 1992) in fields such as mathematics, statistics, and economics is one that should also be a key consideration in quantitative human geographical analyses. Brunsdon (2016) argues that this is an approach that should have a pivotal role in research dissemination, especially in the age of ‘big data’, as the numerous and complex approaches and analyses that take place ‘behind the

scenes' of any given piece of work may often have perhaps unseen consequences for the final results. Brunsdon (2016) also notes that since the development of the original argument (Claerbout & Karrenbach, 1992), subsequent authors (Hey et al., 2009; Kelling et al., 2009; Heppenstall et al., 2012; Kitchin, 2014) have sought to update the range of modern scientific paradigms that utilise detailed quantitative methods, noting that a computational paradigm and an exploratory paradigm may be added to the classical deductive and empirical paradigms in this respect. While Claerbout and Karrenbach (1992) outlined the need for reproducibility in quantitative approaches, the development of the latter paradigms instils this viewpoint, as both often rely on detailed approaches and complex computational processes in their analyses. (Brunsdon & Singleton, 2015).

Reproducibility and access to open data and methods in academic research is an issue that often generates much debate, as the tensions between academic property and producing research that is open to inspection and modification by all generates discussion about the best practices to follow, the best methods to achieve the desired outcomes, and the question of responsibilities in terms of addressing outstanding issues. A clear focus has been placed on the importance of reproducibility in research in a number of instances, with academics outlining the key requirements in order to provide truly reproducible, open, and modifiable approaches in a given analysis.

Open-source methods place a focus on open data, open software, open hardware, open standards, open research collaboration, open publication, open funding, and open education/learning. (Garnett & Kanaroglou, 2016). The open nature of the approach allows for detailed temporal analysis of data at scales ranging from the global to the local, while also affording the opportunity for collaborations with associated disciplines. The application of an open-source approach to the field of electoral geography allows for global cooperation to enhance and deepen the understanding of the various social and political issues of our time, using both a social and a geographical lens. Conducting research in an open manner also allows for input from various third parties, while being simultaneously open to user review in order to improve methodology and analysis, thus retaining the benefits of peer review and replication of methods. The growing global digital network and range of devices which can support open-source software, combined with the low cost for users, does not constrict the overall potential collaborator pool in the same manner as other approaches may, thus leading to a database which is inherently accessible and open to all modes of input and review. (Durkan, Kavanagh & D'Arcy, 2020).

Brunsdon (2016) suggests that some practices that serve to support a reproducibility framework include a similar approach to that of literate programming (Knuth, 1984), in which the code for all analyses is also made available. The use of open software allows the user to not only display the final result of an analysis or process, but also all a third party to view all of the relevant code behind the functions applied. Brunsdon (2016) notes that reproducible and open studies allow detailed comparison of results, fully documented methods, portable methods and code, updatable results and also serves as an opportunity to increase the impact of a study, as the open approach encourages interaction and increases viability as a result.

Colquhoun (2017: 18) makes a strong argument against the prioritisation by institutions and research bodies of perceived gain over quality of research, noting that the lack of focus on reproducibility in the research community. In this sense, the author uses the example of p-value 'significance' to demonstrate the clear prioritisation of publication and 'research impact' over statistically sound measures and best practices, as supported by the nature of open research and reproducibility. In this regard, the need to focus on reproducibility in research serves to better address a number of broad concerns within the academic community, leading to research that is open to both interpretation and modification by additional parties, rewarding sound academic inquiry and scientific progress, as opposed to perceived 'impact'.

This study aims to be as open and reproducible as possible by adhering to some straightforward practices. This includes presenting datasets in an open manner, making these fully and publicly available, in an open repository. Not only are the datasets publicly available, but the analysis of the data is presented in an open format, with specific outputs and values presented for verification. The results of analyses are presented in a manner which encourages openness and reproducibility, with exact figures given for all correlation analyses, as opposed to solely using reductive terms such as 'statistically significant'. This ensures that not only are all of the statistical decisions and functions available for inspection, but also available for modification should it be desired by either the author or an alternate researcher at a later date. In this respect, any interpretations made by the author are open to inspection and alternate interpretations, if desired.

Chapter Four: The Electoral Register

The marked electoral register is the primary resource used for aggregate studies of voter turnout levels within the Republic of Ireland. The register records the official list of individuals that are entitled to vote within a given constituency on Election Day. Analysis of the register provides the only in-depth insight into the proportion of the electorate that come to vote on Election Day, within a given spatial context. Analyses of the register, while providing much valuable insight into voting behaviours, are reliant on the accuracy of the register itself in order to provide valid and accurate data.

4.1: Inaccuracies in the Electoral Register

Despite the importance of the resource for administrative reasons, in terms of ensuring that elections are conducted in a valid and appropriate manner, and as an academic resource, in order to analyse electoral trends and identify potential issues with the electoral process, the electoral register in the Republic of Ireland is notoriously poorly organised and maintained. Deputy Sean Fleming (2019) highlights the current state of the register, referring to the register as a 'shambles', outlining that, in its current form, 'It's a disgrace to the State'.

O'Malley (2001) points to issues with outdated voter details as driving issues with the accuracy of the register. In this respect, as people move address, they may fail to accordingly update their voter details, and may perhaps be registered at an old address, or even multiple addresses in different areas. Issues with updating the register may also lead to instances in which people that have emigrated from the country or people that are deceased are also included on the register and are inaccurately recorded as 'non-voters' in an electoral contest. (O'Malley, 2001).

Deputy Martin Heydon also pointed to the issue of inaccurate voter details and the associated problems that impede register accuracy within the Republic of Ireland.

> 'Data is something for us to bear in mind, as well that you know, this is indicative. You know there are people on the register who are dead, and their names are on the register, or

people who are in their area that aren't on the register. So the register itself is not perfect'. (Heydon, 2019).

O'Malley (2001: 216) also points to the issue of non-Irish immigrants who may be unaware that they are eligible to participate in a range of electoral contests or who may 'feel unwilling to register'. While eligibility to vote differs among election types, potential voters may often be unaware of this, and incorrectly assume themselves ineligible. O'Malley (2001) also points to issues of data comparability, with often a significant gap between election dates and the closest census date, limiting the ability of analysts to compare the register figures with figures from census population statistics. Academic assessments of electoral processes, such as Kavanagh et al. (2006), highlight the possible implications for comparison among constituencies as each local authority is responsible for the maintenance of their portion of the overall register, a process which may not be conducted uniformly. Whatever the cause of inaccuracies in the register, the impact of these can be seen when comparing the number of individuals included on the register with the estimated eligible voting-age population for electoral contests.

While not all eligible persons may choose to register, Theresa Reidy outlines that the expected level of registration is in the 80-90 percent range. (Downing, 2016). A report by the Laois Nationalist (2016) highlights the extent of over-estimation on the register prior to the 2016 contest, arguing that there was potentially a 15 percent national over-estimation; an issue that calls into question the degree of 'trust' in the electoral process. Reports by the Oireachtas Library and Research Service (2016) have highlighted the extent of inaccuracies at the national level throughout various electoral contests, with Figure 4.1.1 outlining the difference in register figures and estimated eligible voting-age population at the national level from 1981-2011, with the register over-estimating the size of the electorate to varying degrees at each contest. This report (Oireachtas, 2016) highlights that while the register may be inaccurate, analysis of both the marked register figures and an estimated eligible voting-age population measure are useful to identify macro-trends in participation rates.

Election Year	Number of Electors on Register	Estimated Voting-age population (Number)	Register as % of Real Electorate
1981	2,275,450	2,144,862	106%
1982	2,335,153	2,177,924	107%
1987	2,445,515	2,286,993	107%
1992	2,557,063	2,390,054	107%
1997	2,741,262	2,562,285	107%
2002	3,002,173	2,739,999	109%
2007	3,110,914	2,912,197	107%
2011	3,209,244	3,074,898	104%

Figure 4.1.1: National Level Comparison of Registered Voters to Estimated Eligible Voting-Age Population in General Election Campaigns 1981-2011

Source: Oireachtas Library and Research Service (2016)

The inaccuracies in the electoral register can have a notable impact on analysis of trends such as the given voter turnout of an electoral contest. Kavanagh (2010) points to the impact that issues with the register may have on temporal analyses of voter turnout within the State, with figures increasing in instances in which efforts were made to improve register accuracy. Kavanagh (2016) outlines that an inaccurate register can have a significant impact on understandings of voter turnout levels within the country. This issue is highlighted by long-serving Kildare North Labour TD, Emmett Stagg who points to the potential impact in reported voter turnout figures, stating that; 'the register is probably the biggest thing that causes this [viewpoint], that 40% don't vote'. (Stagg, 2019).

O'Malley (2001: 217) investigates the hypothesis that urban/rural trends that have been observed in voter turnout analyses may not be true observations but are instead shaped by a greater inaccuracy in urban areas that produces the traditionally observed trend of lower voter turnout in urban centres, as suggested by the work of Smith and McClean (1994). The analysis performed by O'Malley (2001: 220) in this respect however is somewhat restricted in the consideration of what may be classed as either an 'urban' or a 'rural' area, with the distinction made by classing

rural areas as ‘Rural (non-Dublin)’. Despite this potential issue with the specific urban/rural classification choice, the findings support later more nuanced investigations (Kavanagh et al., 2006; Kavanagh, 2016) which suggest that correcting register figures would in fact increase the degree of observed urban/rural variations as opposed to explaining the observed differences, suggesting that ‘real’ turnout levels are even lower than those officially recorded in low-turnout urban cores, and higher than recorded figures suggest in high-turnout rural areas.

The analysis of O’Malley (2001) highlights a number of core considerations and important potential impacts of issues with the register. O’Malley (2001: 221) stresses the need for academics that conduct analysis on voter turnout within the Republic of Ireland or include the Republic of Ireland in an international comparison to take these observed inaccuracies into account. The author also highlights the potential impact of an inaccurate turnout figure in relation to the possible implications of Article 47.2 of the Constitution (Government of Ireland, 1937), which states that a vote on a proposal other than a constitutional amendment may be automatically approved, despite the result of the vote, with a voter turnout of less-than one-third of the registered electorate. (Forde & Leonard, 2013). In this sense, paying close attention to the accuracy of the register is of core importance for any analysis of voter turnout within the Republic of Ireland, and should also be a key focus when considering the potentially crucial policy implications of an inaccurate register. The potential drawback of inaccuracies in the electoral register are also highlighted by Downing (2016) as he outlines that the findings of Oireachtas investigations into the matter highlight the potential for register inaccuracies to provide ‘significant opportunity for fraudulent use of ballots’. The potential impact reaches beyond the potential for fraudulent behaviours, with an *Irish Examiner* (O’Riordan, 2020) article highlighting cases in which individuals that have been deceased for over a decade are still included on the register. This not only highlights issues from an administrative point of view, but also in terms of the human impact associated with family members receiving polling cards for deceased relatives. With the previously identified issues and potential implications of these issues with the register in mind, this analysis investigates the degree of register accuracy in the 2016 General Election contest within the case study area in order to investigate these issues in more detail and identify potential causal factors and geographical trends so that the subsequent electoral analysis may be better informed.

4.2: Methods for Register Accuracy Examination in General Election 2016

In order to determine the level of register accuracy in General Election 2016, within the select case study area, the eligible registered electorate within each Electoral Division is examined. This figure may be calculated by removing the total number of 'L' voters, that may participate in local elections only, and 'E' voters, that may participate in both local and European elections, from the total number of individuals registered to vote in each area. The figures include both the regular electoral register and the supplementary electoral register for each area, giving a full dataset for all individuals that were able to vote on Election Day in General Election 2016. This figure may then be compared with the total estimated eligible voting-age population for each Electoral Division in a general election contest, which consists of all Irish and UK citizens over the age of eighteen.

It is important to note in this regard that the election took place in February 2016 and Census 2016 was taken in April of the same year. While this means that the two figures will not exactly align, the relatively short time between both events should not allow for any significant deviation in the data, given the level of potential change and the size of the examination area. However, the data is somewhat limited in the respect. While the census categories allow for the calculation of all individuals over the age of eighteen in each Electoral Division, and also the number of Irish and UK citizens in each area, the figures for citizenship are not presented for each age cohort. In order to conduct this analysis, the percentage of the total population classed as either Irish or UK citizens is transposed to the total members of the population over the age of eighteen. While this is not a strictly valid measure, as it assumes a uniform proportion of citizenship across children and adults, the measure provides the most accurate measure possible of the estimated eligible voting-age population in each area, with a reasonable and acceptable degree of error.

When both the total valid registered electorate and the total estimated eligible voting-age population figures are recorded, a figure for the percentage of the eligible population that is registered to vote may be calculated for each Electoral Division. As this figure is presented as a percentage value, areas of over-estimation and under-estimation of the 'real' eligible electorate may be explored.

The comparison figure in this sense allows for the identification of areas in which the register is most inaccurate, and also allows for the identification of areas in which voters are potentially assigned incorrectly to Electoral Divisions on the register. The application of the ArcGIS function for Anselin's Local Moran's I cluster and outlier analysis, based on the LISA local cluster and outlier analysis model (Anselin, 1995), and the Global Moran I test under randomisation allows the identification of values that represent significant clusters and outliers alongside the level of spatial autocorrelation observed in the results. (Bivand & Wong, 2018).

The measure of register accuracy allows examination of the aforementioned observed urban/rural divide in register accuracy at a smaller scale than previous analyses, utilising Electoral Division level analysis. This also provides a more comprehensive classification of the degree of 'urbanness' or 'ruralness' used in previous analyses in each area by applying the Teljeur Area Classification system. (Teljeur & Kelly, 2008).

4.3: Electoral Register Accuracy Analysis in General Election 2016

Figure 4.3.1 demonstrates the geography of the proportion of the estimated eligible voting-age population that is included on the electoral register for each Electoral Division within the select case study area for General Election 2016. There is a notable east-west divide in the observed trends, with areas tending to be under-registered in the predominantly urban east of the study area, with over-registered areas predominantly located in the more-rural western constituencies. There also are a number of notable extreme values in some individual instances. In a number of these cases, areas with very low values tend to have a neighbouring area with a very high value, suggesting that these are cases in which a segment of the electoral register is incorrectly labelled, with certain areas incorrectly allocated to a neighbouring Electoral Division.

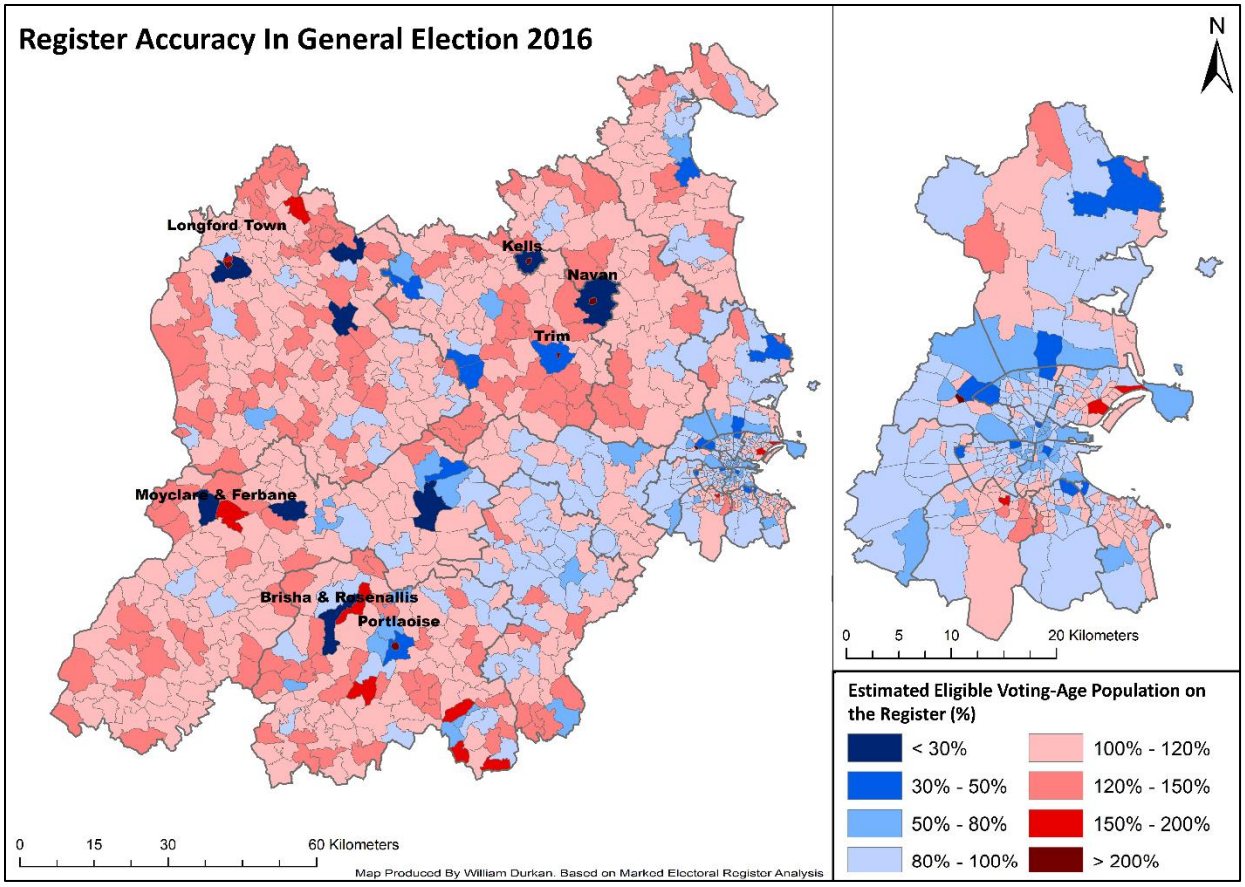


Figure 4.3.1: Comparison Between Estimated Eligible Voting-Age Population and Numbers on the Official Register for General Election 2016

Potential allocation errors may be observed in areas such as Navan, Trim, Kells, Longford Town, and Portlaoise. In these instances, urban cores tend to have more individuals registered than live in the area. Table 4.3.1 outlines the most extreme values in registration levels. This again suggests, based on the extent of the values and the tendency for extreme values to correspond to a neighbouring Electoral Division, that the misallocation of large sections of the electorate to their Electoral Division is a significant and frequent issue with the dataset.

This is deemed to be the case in the aforementioned instances, with a random sample used to identify a number of individuals that are incorrectly allocated based on the Eircode for their listed address. There are also some instances in more-rural areas that have a similar issue, such as the cases of Moyclare and Ferbane in the Offaly constituency, and Brisha and Rosenallis in the Laois

constituency. However, these cases are more difficult to confirm based on the less-frequent use of Eircodes for voters in rural areas.

Misallocating voters to incorrect Electoral Divisions does not appear to be an issue in terms of allocating voters to the correct voting constituencies, as the extreme cases identified do not break constituency boundaries in any instances identified here. While this may not be an issue in terms of the functionality of the register on Election Day, it is a significant issue to be aware of when examining and analysing data based on the use of the marked electoral register at Electoral Division level.

	Electoral Division	Percentage of Valid VAP on Register (%)
Extreme Lows	Navan Rural	14.1
	Rahan	14.9
	Kells Rural	25.2
	Moyclare	28.9
	Longford Rural	29.1
	Holmpatrick	30.3
Extreme Highs	Navan Urban	795
	Trim Urban	541
	Portlaoise Urban	359
	Kells Urban	248
	Blanchardstown-Roselawn	234
	Longford Urban No.1	209

Table 4.3.1: Extreme Values in Registration Levels for General Election 2016 at the Electoral Division level

The aforementioned geographical divide in the values presented in Figure 4.3.1 may be further examined in order to determine the presence of clusters and outliers, or spatial autocorrelation in the values observed. In order to examine this characteristic in more detail, a Moran I test for spatial autocorrelation under randomisation may be applied to the case study area. As Figure 4.3.2 outlines, this test returns a null result, with the test having too large of a p-value to offer any reliable insight. This is perhaps unsurprising when considering that while there appears to be large areas of similar values, there are also multiple instances of extreme outlier values.

```
        Moran I test under randomisation

data:  HHSHP$`ELE VAP/REG`
weights: HH.list

Moran I statistic standard deviate = -2.053, p-value = 0.98
alternative hypothesis: greater
sample estimates:
Moran I statistic       Expectation          Variance
    -0.0375842644     -0.0010976948      0.0003158513
```

Figure 4.3.2: Moran I Test Under Randomisation on the Percentage of the Estimated Eligible Voting-Age Population Registered for General Election 2016 at Electoral Division level

The application of Anselin Local Moran I testing to the case study area may be used to identify both areas that have significant outlier values, and areas that have significant clusters of similar values. As viewed in Figure 4.3.3, a number of significant trends are displayed within the case study area. Perhaps the most striking observation is the geographical divide in High-High and Low-Low clusters. The majority of Low-Low cluster values are located within Dublin City in the east of the study area. On the contrary, the more-rural constituencies to the west have a number of smaller clusters of very high values. The outlier areas previously discussed, which are predominantly cases of inaccurate voter allocation to Electoral Divisions, are again highlighted in this instance, identified here as High-Low outliers often accompanied by neighbouring Low-High outliers.

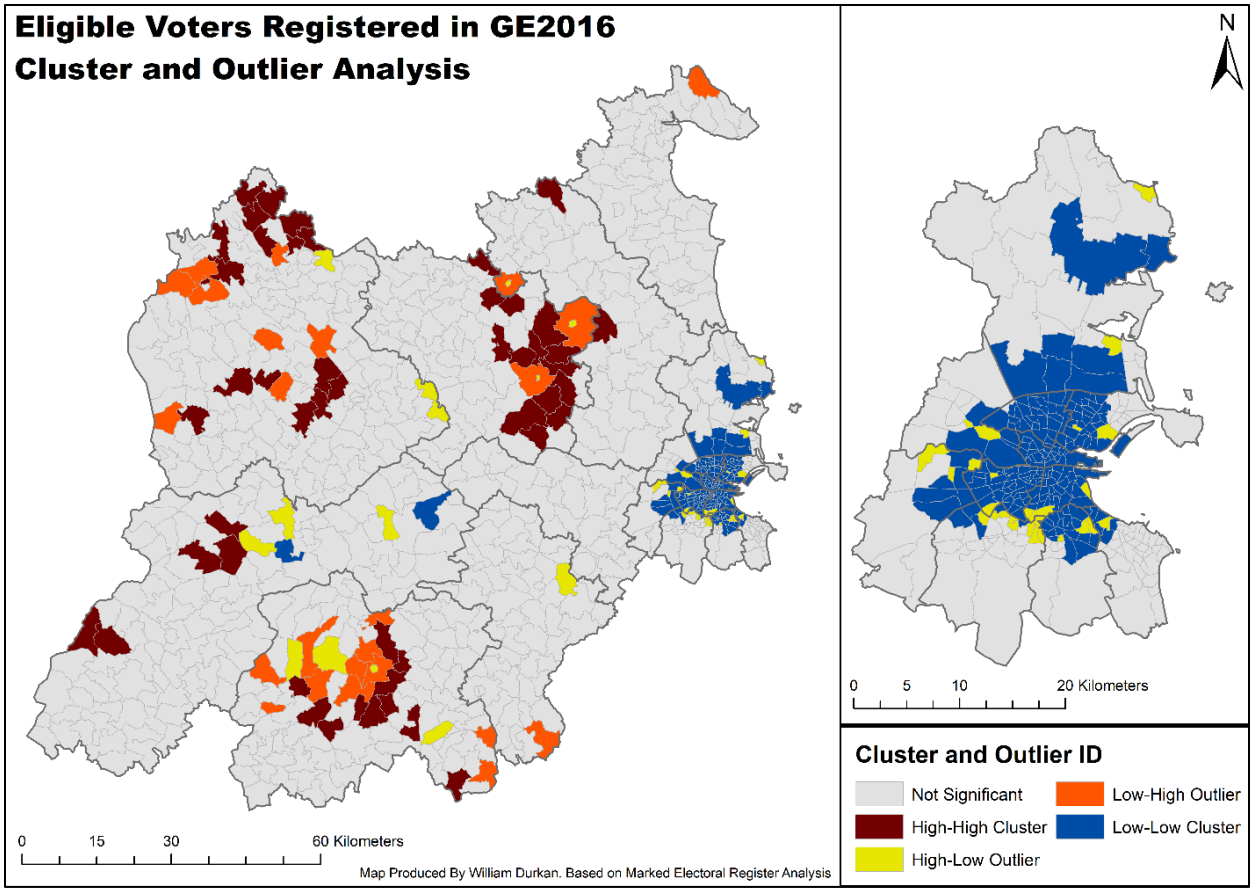


Figure 4.3.3: Cluster and Outlier Identification on the Percentage of the Estimated Eligible Voting-Age Population Registered for General Election 2016 at Electoral Division level

Outside of these instances, other outlier cases may provide insight into the characteristics of areas that tend to have higher levels of registration, despite a number of neighbouring areas having very low values. High-Low outliers that do not immediately appear to be the result of voter misallocation into neighbouring Electoral Divisions are particularly striking within Dublin. Examination of these areas in more detail has the potential to provide insight into the characteristics that shape registration levels. Figure 4.3.4 demonstrates the extent of cluster and outlier analysis when the data is restricted within Co. Dublin. When the data is restricted to the Dublin region, the relative clusters provide additional insight to the previous analysis. In this instance, the inner city is still outlined as having a much lower level of registration than may be expected, based on the estimated eligible voting-age population. There are also a number of areas

that have a relatively greater level of registration, with a comparison of these areas potentially providing some additional insight into the factors that shape observed trends.

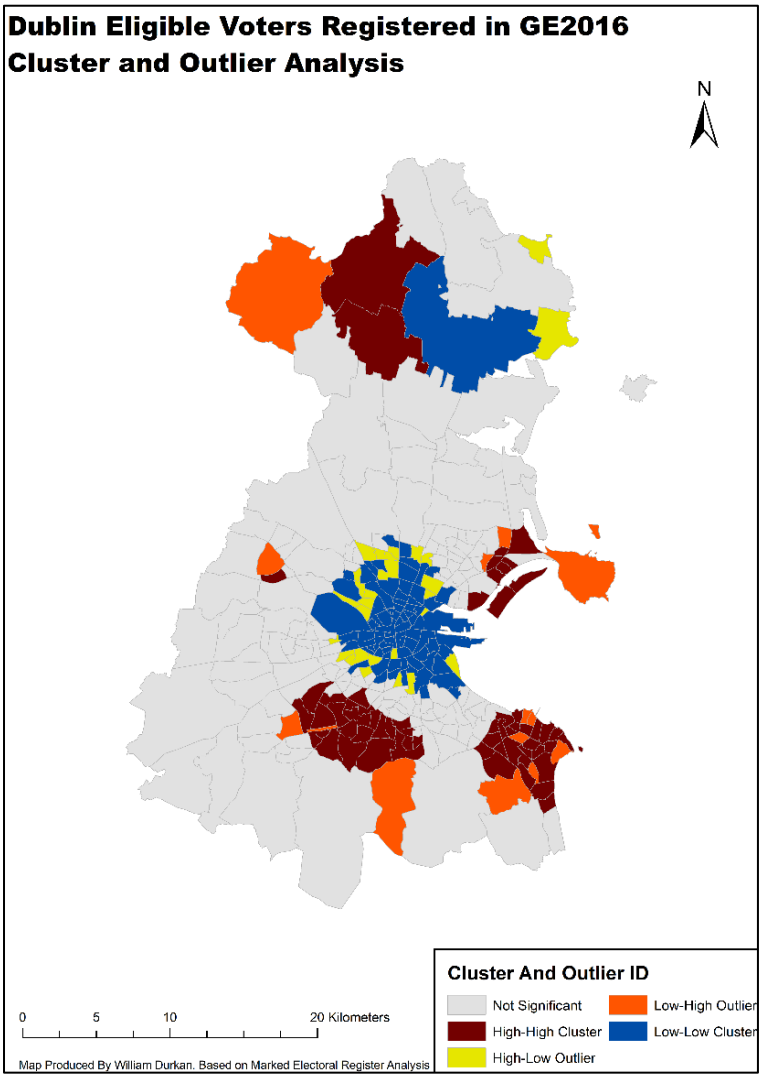


Figure 4.3.4: Cluster and Outlier Identification on the Percentage of the Estimated Eligible Voting-Age Population Registered for General Election 2016 at Electoral Division level within Co. Dublin.

In this analysis, the inner city is identified as having a much lower level of registration than clusters such as the south-west cluster in parts of Rathfarnham, Templeogue, and Tallaght, the south-east cluster in parts of Killiney, Dalkey, and Dun Laoghaire, and the north-east cluster in areas such as Clontarf and Raheny. The significant deviation between these areas suggests that while Dublin has

a notably lower level of registration than more-rural settings, this trend is less pronounced in more-established areas of the city and most pronounced in the city-centre. In this respect, there are very low levels of registration in areas such as Usher's Quay and in Electoral Divisions such as Mansion House B. Theresa Newman, Parliamentary Assistant and Campaign Advisor to Deputy Kate O' Connell, outlines the notable difference in these areas, and the potential for factors such as housing tenure to shape registration levels.

> 'The Mansion House B area is obviously a more inner-city area than Terenure, and turnouts tend to be lower in inner-city areas. I think this is probably largely down to how poorly updated the actual register is. And inner-city locations tend to have more transient populations. So, you end up with people who might register to vote as students if they're going to college'. (Newman, 2019).

The impact of residential mobility on register accuracy and the specific impact of this on inner-city areas is also noted by Constitutional Convention member and Dublin Central TD Maureen O'Sullivan.

> 'I mean sometimes you send out... we might post a leaflet if we were going to gated apartments, and the number that come back "no longer at this address", but they're on the register'. (O'Sullivan, 2019).

Former Tánaiste and long-serving representative Eamon Gilmore notes the differences observed in terms of residential mobility in areas that may be located relatively close together. Mr. Gilmore highlights the contrast between areas in the more-established communities in the Foxrock-Beechpark Electoral Division and the more-transient population in the apartment complexes in the Cabinteely-Loughlinstown Electoral Division.

> 'Where you have very stable household formation and where you have a very stable housing situation, you know in the case of Foxrock-Beechpark, I think you mentioned as an example, this would be an area where, you know, it would be the typical Dun Laoghaire middle-class estate, where there's a high level of citizen engagement. So, people would

> either respond to the circular they get from the local authority, or the advertisement that they'd see about updating the electoral register. They're much more conscious of that… The apartments around the commercial centre in Loughlinstown and Cherrywood… I suspect that there is a high level of registration issues there. So, you get an apartment. Somebody has registered for the last election. They have moved on. They're not taken off the register. So, there's a lot of people on that register who really have moved on... I mean, I would have typically come to, you know, let's say a block of apartments, and you look at the register and there are huge numbers of names on it, but they might be in one or two-bedroom apartments. There might be six names. And you'd know there are not six people'. (Gilmore, 2019).

While the above analysis identifies both areas of significant outlier values and areas of potential clustering, the suggestion that many outlier values are as a result of data inaccuracy hinders the examination of the extent of spatial autocorrelation present among the valid values for the data. In order to better examine the extent of spatial autocorrelation, through the application of the Moran I test under randomisation, the data was re-examined with extreme values removed. In order to examine this aspect of the data, both extreme low and extreme high values are removed, reducing the dataset from 912 datapoints to a total of 850 datapoints. As Figure 4.3.5 demonstrates, the removal of extreme values returns a valid test for spatial autocorrelation with a very reliable associated p-value. The results point to the presence of a medium-strength positive spatial autocorrelation, further demonstrating that similar values tend to be grouped or clustered in select areas. This suggests that geographical factors are potentially a contributing element to registration levels among the population, or that the factors the shaped register inaccuracy are framed geographically.

```
        Moran I test under randomisation

data:  HHSHPRED$`ELE VAP/REG`
weights: HHRED.list

Moran I statistic standard deviate = 19.55, p-value < 2.2e-16
alternative hypothesis: greater
sample estimates:
Moran I statistic       Expectation          Variance
     0.3926517708     -0.0010976948      0.0004056578
```

Figure 4.3.5: Moran I Test Under Randomisation for Registration Levels in the Reduced Study Area with Extreme Values Removed for General Election 2016 at the Electoral Division level

4.4: The Urban/Rural Divide in Voter Registration Levels

While the above analysis demonstrates a geographical trend among the observed values, further in-depth analysis is needed in order to investigate the potential presence of an urban/rural trend in the data. While previous studies have examined this at the constituency level (O'Malley, 2001), the use of the Teljeur area classification system allows a more insightful investigation at the Electoral Division scale. (Teljeur & Kelly, 2008). Table 4.4.1 outlines the observed trends in the level of recorded voter registration among the six Teljeur areas classes. When examined in the context of the full study area with all available values included, there is a lack of a clear observed trend in the data. While the 'City' Teljeur class does demonstrate the lowest mean value of 95.7 percent registration and the 'Rural (Remote)' class demonstrates the highest observed mean value of 118.3 percent, suggesting the presence of an urban/rural trend, there is a large degree of variability in the interim classes. There are also very significant levels of standard deviation among all classes, but a greater degree of deviation observed in the more-urban contexts. When the urban/rural nature of the data is examined in the context of the reduced dataset that excludes the most-extreme values, there is a more-uniform and reasonable level of standard deviation in the values observed across all Teljeur classes. When examined in this manner, the data suggests a much more linear trend among the area classes, with a steady increase in the recorded registration levels as the areas progress from urban to rural. The observed trend in the data has a number of potential implications, suggesting that, as previous analyses have proposed (O'Malley, 2001;

Kavanagh, 2016), urban areas tend to have an under-estimated level of voters on the register, while rural areas tend to have an over-estimated level of individuals on the register.

Full Study Area			**Study Area with Extreme Values Removed**		
Total Electoral Divisions: 912			**Total Electoral Divisions: 850**		
Teljeur Class	**Registration Mean (%)**	**Standard Deviation**	**Teljeur Class**	**Registration Mean (%)**	**Standard Deviation**
City	95.7	20.26	City	96.23	12.66
Town	114.41	89.87	Town	102.01	15.03
Village (Near)	103.12	20.83	Village (Near)	103.92	13.48
Village (Remote)	98.82	25.01	Village (Remote)	109.16	10.81
Rural (Near)	112.62	16.71	Rural (Near)	112.77	12.02
Rural (Remote)	118.32	15.05	Rural (Remote)	115.89	13.43

Table 4.4.1: Registration Levels for Teljeur Area Classes in Both Datasets for General Election 2016 at the Electoral Division level

While the above analysis outlines the suggested presence of a strong urban/rural divide in the data when examined by Teljeur area class, there is also a notable level of deviation within each class. In this sense, a more detailed analysis through the application of a logistic regression model can provide additional insight into the potential relationships observed. Figure 4.4.1 displays the results returned upon the application of a logistic regression model to the data in the full case study area with all 912 datapoints included. As indicated, the inclusion of the proportion of the population on the register as a predictor variable improved the ability of the model to predict a given Teljeur class. This may be observed in the difference of values returned between the null deviance and residual deviance for the model.

```
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-3.2880  -1.2284   0.6810   0.8395   2.2470

Coefficients:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)  -2.942306   0.431323  -6.822    9e-12 ***
`ELE VAP/REG`  0.035600   0.004149   8.581   <2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1145.2  on 911  degrees of freedom
Residual deviance: 1047.7  on 910  degrees of freedom
AIC: 1051.7

Number of Fisher Scoring iterations: 5
```

Figure 4.4.1: Logistic Regression Analysis of the Proportion of the Eligible Population Registered and Teljeur Area Class

The predictive ability associated with the level of registration is visualised in Figure 4.4.2. In this instance, while there is a relatively strong level of accuracy demonstrated, with urban areas tending to be located at the lower end of the scale, and more-rural areas located towards the higher end of the scale, there is a number of instances in which the prediction is inaccurate, as reflected by the presence of urban extreme values at either end of the scale.

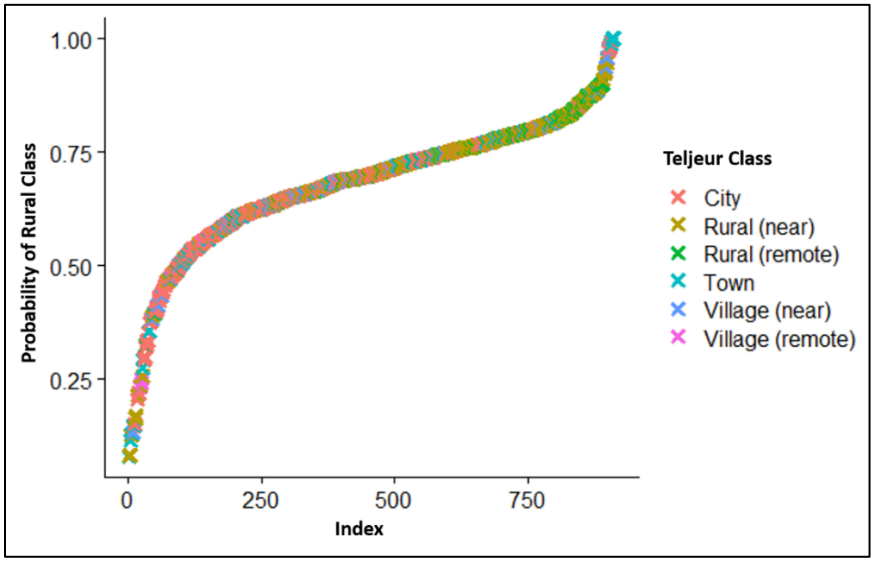


Figure 4.4.2: Accuracy of Logistic Regression Analysis for each Teljeur Area Class

In order to limit the impact of extreme values on the predictive ability of the model, the relationship between the proportion of the estimated eligible voting-age population registered to vote and each Teljeur area class is re-examined with the reduced data set, which has the most extreme values removed. The results of this analysis may be viewed in Figure 4.4.3. This iteration of the model demonstrates an improved coefficient value, a notably lower AIC value, and a greater degree of difference between the null deviance and residual deviance values, suggesting that with the extreme values removed, the model is more accurately able to predict a given Teljeur class based on the level of registration in the area.

```
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-2.3794  -0.9518   0.5087   0.7957   2.2914

Coefficients:
             Estimate Std. Error z value Pr(>|z|)
(Intercept)  -7.465495   0.688473  -10.84   <2e-16 ***
`ELE VAP/REG`  0.078868   0.006674   11.82   <2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1074.5  on 849  degrees of freedom
Residual deviance:  879.6  on 848  degrees of freedom
AIC: 883.6

Number of Fisher Scoring iterations: 4
```

Figure 4.4.3: Logistic Regression Analysis of the Proportion of the Eligible Population Registered and Teljeur Area Class in the Reduced Study Area

The predictive ability of this model may be further observed in Figure 4.4.4. This iteration of the model demonstrates a much more linear trend than the previous version, with a more notable division between areas that are largely urban in nature, at the lower end of the scale, and areas that are more rural in nature, at the higher end of the scale. This suggests that with the removal of extreme values, which are largely driven by the inaccurate allocation of voters to Electoral Divisions on the register, there is a strong urban/rural divide in the proportion of the eligible population that were registered to vote for General Election 2016 within the select case study area.

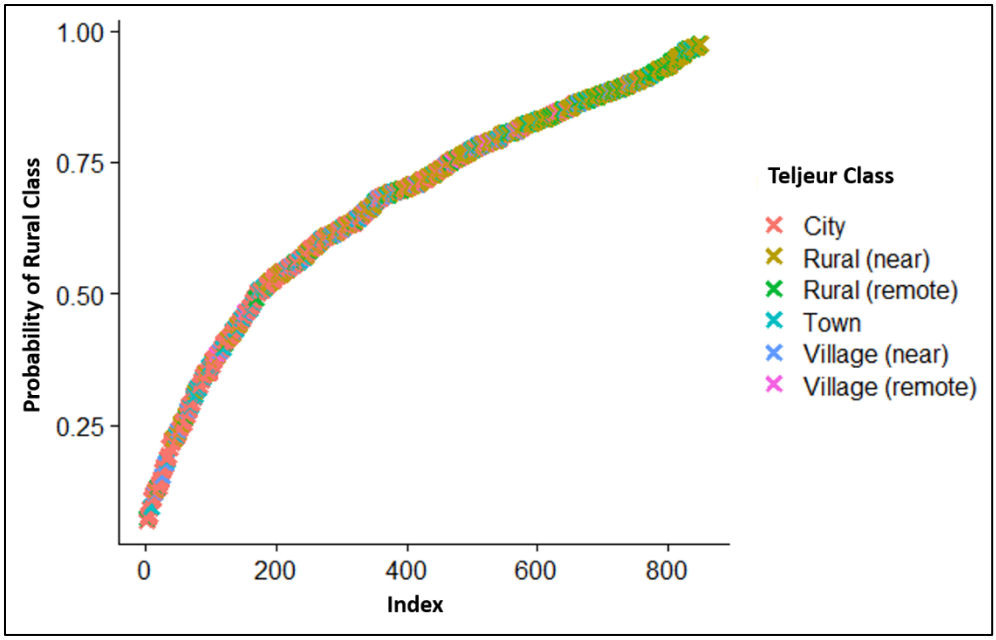


Figure 4.4.4: Accuracy of Logistic Regression Analysis for each Teljeur Area Class in the Reduced Dataset

The above findings highlight that the register tends to under-estimate the level of voters present in urban centres, while over-estimating the voters present in more rural areas. Given this, analyses which seek to make inferences about the level of voter engagement based on marked electoral register data need to take account of these inaccuracies. As previous analyses have suggested (O'Malley, 2001; Kavanagh, 2016), this trend would serve to increase the traditionally observed urban/rural divide in voter turnout levels, as opposed to explaining why a difference between urban and rural voter turnout exists in the first instance. In terms of potential influences, it must be considered that differences are potentially driven both by levels of register inaccuracy, and the level of voter registration in the first instance.

4.5: Socio-economic and Demographic Influences on Registration Levels

When considering the urban/rural divide in registration levels, and register accuracy, it is important to consider the socio-economic and demographic traits that may also contribute to the observed

level of variation. The previously identified outliers in the data provide a strong insight into the potential causal factors that shape trends, alongside a comparison of areas in the reduced dataset with extreme outliers removed which demonstrated the greatest degree of linearity in terms of the relationship with the urban/rural variation.

```
Residuals:
    Min      1Q  Median      3Q     Max
-50.760  -7.069  -0.562   7.045  41.225

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  107.51450    1.80857  59.447  < 2e-16 ***
`PC Rent`     -0.48022    0.02623 -18.306  < 2e-16 ***
`PC VAP 65+`   0.43992    0.07875   5.586 3.13e-08 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 11.78 on 847 degrees of freedom
Multiple R-squared:  0.4018,   Adjusted R-squared:  0.4003
F-statistic: 284.4 on 2 and 847 DF,  p-value: < 2.2e-16
```

Figure 4.5.1: Linear Regression Model to Examine Socio-Economic and Demographic Influences on Registration Levels and Register Accuracy

When examining the socio-economic and demographic factors that potentially contribute to the observed trends, as Figure 4.5.1 demonstrates, there is a strong association observed when the analysis is based on the reduced dataset. In this regard, areas with high levels of the population classed as ‘renters’ and also areas that tend to have a high proportion of the population in the 65+ age bracket demonstrate notable associations. Figure 4.5.1 outlines that the proportion of renters in an area has a strong negative association with the level of registration, while areas with older populations tend to have a positive association with registration levels, with the combined variables accounting for over 40 percent of the observed variability in recorded registration levels.

It may be suggested that areas with high proportions of renters have a number of individuals that have moved to a new house on a more regular basis than others and have not changed their voting address. There is also the possibility in these areas that while individuals live in an area and may be registered to vote there, they may be double-registered, and potentially may travel to another

area to cast their vote, potentially in a high-turnout rural area. This data may also account for individuals that are usually resident in the area but are less likely to register to vote in an electoral contest. Associations between non-voters and individuals that live in rented accommodation will be examined in more detail in subsequent sections. While the model leaves 60 percent of variability unaccounted for, the observed trends have a strong degree of statistical reliability and no collinearity issues are observed, with a VIF value of under 1.3 for each variable.

The positive association observed between registration levels and high levels of the population in the older age cohort may partially be explained by the presumed tendency for older people to be less residentially mobile. Based on existing research (Kavanagh 2002), older individuals also tend to be more likely to register to vote and participate to a greater extent in electoral contests than younger individuals. There is also greater potential in areas with older populations for more deceased individuals to still be included on the electoral register, artificially boosting the number of people on the register in that area, and artificially reducing the 'real' turnout level.

The previously examined cluster and outlier analysis highlighted a notably low cluster of registration levels in Dublin City, with some areas highlighted as having a much higher level of registration within the region. Given this, the re-examination of the Dublin data may serve to provide some insight into the characteristics of select areas that influence the level of registration and register accuracy. By examining the reduced dataset within Dublin, more insight is provided into these trends, with Figure 4.5.2 outlining the impact of two influential variables, the level of owner-occupancy and the percentage of the population classed as 'working' in the census data.

```
Residuals:
    Min      1Q  Median      3Q     Max
-24.548  -4.742  -0.521   3.930  40.661

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  92.36714    4.70317  19.639  < 2e-16 ***
`PC Owned`    0.41102    0.02571  15.984  < 2e-16 ***
`PC Working` -0.38701    0.07189  -5.383 1.47e-07 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 8.902 on 303 degrees of freedom
Multiple R-squared:  0.5542,   Adjusted R-squared:  0.5513
F-statistic: 188.3 on 2 and 303 DF,  p-value: < 2.2e-16
```

Figure 4.5.2: Linear Regression Model to Examine Socio-Economic and Demographic Influences on Registration Levels and Register Accuracy within Dublin

The resultant model accounts for over 55 percent of the variability observed in the data, with a strong degree of statistical reliability, and no VIF values over 1.2 for any variables included. In this examination, areas with high levels of homeowners have a positive association with registration levels. In a similar vein to the previous full study area examination which identified the negative association with rented accommodation, this analysis suggests that areas with high levels of homeowners, who presumably are more likely to have longer terms of residency in the area and who are more likely to be permanently based there, have a higher level of registration. Again, this suggests that areas with more transient populations have individuals that are inaccurately registered and also may have higher levels of individuals that do not register to participate in electoral contests, despite having a valid residency in an area. The negative association with levels of the population that are classed as ‘working’ may suggest that there are a number of individuals that tend to work in the city during the week but may travel to other parts of the country to cast their votes in instances of double registration. This may also be a factor attributed to an age association, with high levels of workers in an area suggesting a lower level of older, retired individuals. As such, these areas potentially do not have an older population contributing to higher levels of registration, as previously discussed.

4.6: Further Discussion and Conclusion

In conclusion, while the marked electoral register is a key tool for both the legitimate functioning of the electoral process, and academic assessments of voting trends, there is a major issue with its accuracy and maintenance. While this issue has been long identified (O'Malley, 2001; Kavanagh, 2004; Kavanagh, 2016), there has been little success in addressing issues, including in relation to the 2016 General Election contest, as discussed here. While the register may be deemed to be largely inaccurate, these inaccuracies are not uniformly distributed across all areas. The associated trends in this respect have implications for all academic assessments of voter trends that make use of register figures, and also provide some insight into the factors that drive inaccuracies.

This analysis identifies multiple types of inaccuracy in the register in the select case study area for General Election 2016. Some inaccuracies at the Electoral Division level may be attributed to administrative errors in the allocation of voters to Electoral Divisions, as demonstrated in the case of areas such as Trim, Navan, Kells, Longford Town, and Portlaoise. These inaccuracies do not appear to pose a major issue for the legitimate allocation of voters into voting constituencies. However, the presence of any inaccuracies of this nature may be considered somewhat concerning, as the presence of inaccuracies in some instances may suggest the possibility of other less-visible inaccuracies that may cause an impactful misallocation of voters, especially in instances in which Electoral Divisions are moved between constituencies in boundary revision processes.

Other inaccuracies identified appear to stem from high levels of residential mobility, as suggested by previous studies. (O'Malley, 2001; Kavanagh, 2016). This analysis demonstrates that areas which have high levels of rented accommodation tend to have much lower levels of registration. In these instances, it is possible that individuals never register at their address and may be registered at an older location. In contrast, areas with high levels of owner-occupied homes, and as a result, a longer average term of residency, tend to have more individuals on the electoral register. Areas that have older, more settled, populations not only tend to have more individuals on the register, but also have a higher likelihood to have deceased members still included on the register, as a result of having a greater number of older individuals resident there. In these instances, there is also potential for double counting, as children of older individuals stay on the register after moving away from home.

The observed trends demonstrate that there is a strong urban/rural divide in the level of the estimated eligible voting-age population on the register, with over-estimated registers in rural areas, and under-estimated registers in urban centres. This level of deviation may be partially explained by the aforementioned socio-economic and demographic characteristics, with a greater degree of residential mobility in urban areas, and a generally older population in more-rural areas. The impact of these traits on register accuracy may be deemed to be a more prevalent issue in recent years, with a documented increase in residential mobility within the State. The past two decades have seen an increase of individuals over the age of fifteen that have moved address in the last year, increasing from 74,001 in the 1996 census to 219,995 in the 2016 census. (Irish Government News Service, 2019). The urban/rural trend observed here suggests that, as some academics have outlined (O'Malley, 2001; Kavanagh, 2016), the urban/rural trends previously observed in voter turnout were not driven by register inaccuracies but would have been even more pronounced with a more accurate electoral register.

While an inaccurate register is a cause for concern for the effective administration of electoral processes and a key consideration that must be accounted for in any relevant academic assessment, these are issues that may be addressed. In terms of the administrative issues raised, modern tools potentially allow the construction and maintenance of a highly accurate register of electors within the Republic of Ireland, requiring only a relatively low degree of readjustment to current processes. The first administrative issue raised stems from the duplication of individuals at multiple addresses, and the failure to remove individuals that are now resident outside of the State or deceased. The inclusion of PPS numbers on the register would systematically address this issue to a large degree, with duplications on the register easily identified, and individuals mistakenly included identified accurately so that the register may be rectified. This is a point highlighted by Deputy Sean Fleming, who outlines that the introduction of PPS numbers to the register would solve issues of duplicate registrations in a relatively straightforward process.

> 'It's inconceivable that you don't have to have your PPS number to get on the voter's register. I know people who've moved house four times and their votes are still in each of the four. They were living here and registered. They moved there two years later. They registered there. And they're there two years later'. (Fleming, 2019).

The recent introduction of Eircodes within the State allows for a relatively straightforward solution to the issue of misallocation of voters to Electoral Divisions. While a large number of individuals on the register currently have an associated Eircode, the inclusion of an Eircode for all individuals would allow instant allocation to the correct Electoral Division and would ensure that the reallocation of voters from one constituency to another upon a boundary revision, which is a process based on the reallocation of Electoral Divisions, is an instant and accurate process when conducted using appropriate tools. The mandatory inclusion of Eircodes would also allow the easy identification of instances in which an individual registers to vote at an address already associated to other voters and can be used as a tool to potentially identify instances of duplication in this respect.

While calls for electoral reform and a body to oversee such reform are nothing new, the recently formulated, at time of writing, 'Programme for Government' document (Department of the Taoiseach, 2020) states the establishment of an Electoral Commission as a priority within the current term. This is an issue that appears to have a strong appetite for reform at the current time, with numerous current senior members of government highlighting their desire to address these issues.

> 'I think there's difficulties on the register itself. And there's a whole modernisation probably we need of our register'. (Ryan, 2019)
>
> 'I think we absolutely need a reform of our electoral register'. (Heydon, 2019)
>
> 'This is my own opinion now; I think you should just be automatically registered when you hit eighteen'. (Martin, 2019)

Quinlan (2015) highlights the benefits of an independent commission, not only in terms of increasing the effective administration of electoral processes, but also in terms of the potential positive impact of such a body on increasing participation levels in general. The current appetite to address the issue provides a strong opportunity to modernise the register. With the modern tools that are available, and an approaching census that will provide updated population statistics, now

is an ideal time to address this issue. While the issue of reforming the electoral register has various implications for policymakers and academics, and has been long discussed, perhaps the current government will make use of the tools and opportunities at hand to ensure a better system is put in place; a solution which will support academic inquiry into important electoral issues and protect the conduct and legitimacy of our electoral process.

In terms of the issues raised by inaccurate registers for academic assessments of voter behaviour, this is certainly an issue that needs to be accounted for. While leading Irish academics (O'Halloran, 2019) correctly highlight the issues with basing voter turnout figures on the marked electoral register, noting the 'health-warning' that comes with these figures, the viewpoint that 'turnout figures are a work of fiction' puts forward a quite reductive perspective that fails to acknowledge that these figures still offer the most insightful database into 'real' voter behaviours on election day. In this sense, studies based on these figures serve to provide a great deal of insightful and valuable information, as long as inaccuracies are accounted for in the investigative process.

In the case of this analysis, voter turnout figures are presented as both a measure of the percentage of the eligible voters on the marked electoral register, and as a total of the estimated eligible voting-age population. The use of multiple measures allows a greater degree of reliability in the observed trends. The use of multiple approaches, combined with a consideration of the nature of issues with the electoral register as identified here, allows for a very accurate assessment of voting trends, that are as far from a 'work of fiction' as any academic assessment on voter behaviours may hope to be, and serves to provide valuable insight into the behaviour of the Irish electorate.

Chapter Five: General Election 2016

As outlined in Chapter Two, there is a wide array of research that examines the various socio-economic, demographic, and geographical factors that potentially shape voter turnout levels and the resultant geography of trends in both the international context and the Irish context. When considering the aforementioned importance of voter turnout levels in terms of the relative health and legitimacy of any given democracy, one cannot stress enough the need to both be aware of voter engagement levels on a broad scale and to better understand the factors that shape areas of low and declining voter turnout levels, areas that may be at a serious disadvantage in terms of representational equality. In terms of the current level of representational equality within the State, if policy makers potentially disregard voices that are not represented within a given debate (Scudder, 2020: 508), there is a great potential for spaces of neglect to exist within the current political system.

This analysis aims to identify the factors that shape trends within in the select case study area for General Election 2016, including areas that are experiencing low or declining levels of voter turnout. By analysing the resultant geography of participation, areas and select groups that are under-represented may be identified, and the factors that shape these trends may be better understood. This process serves to not only identify these factors, but also has the potential to suggest policy measures that may aim to address issues arising, addressing instances of low participation in a manner that aims to improve the overall legitimacy and health of our current democratic and electoral system. In order to meet this aim, this study examines the socio-economic and demographic characteristics that influence participation rates, and also examines other geographical factors that may be influential in this respect. By outlining the existence and extent of these influential factors and resultant geography of relationships observed in General Election 2016, there is the potential to better understand electoral participation rates, identify potential issues, and make progressive policy relevant suggestions to address concerns.

General Election 2016 took place against a backdrop of many harsh austerity measures, and subsequent economic recovery, with the previous government being the first to serve a full term since the economic recession of 2008. The election, which was dubbed ‘the election that nobody won’ (Gallagher & Marsh, 2016), saw a notable deviation from the traditional ‘two and a half party

system' within the State, with significant changes potentially signalling an end to the domination of 'civil war' politics within the county. (Kavanagh, 2015). The election was also the first in the State to take place under newly introduced gender quota legislation (Buckley et al., 2016) and subsequently saw the first ever re-election of a Fine Gael Taoiseach, in an election that set the stage for the 32nd Dáil term, a term which included the centenary of the historic 1918 election and multiple historic referenda. While many aspects of the 2016 election and subsequent Dáil term may be deemed to be significant in terms of the political landscape within the State, one aspect that perhaps received less attention is that of voter turnout and level of participation in the decision-making process.

5.1: Voter Turnout in General Election 2016

In General Election 2016 national registered voter turnout decreased by 4.8 percent to 65.1 percent. There was a notable variation in the registered voter turnout level at the individual constituency level within the select study area. As seen in Table 5.1.1, the nineteen constituencies in the case study area demonstrate a wide range of registered voter turnout, ranging from a low of 52.4 percent in Dublin Central to 67.7 percent and 67.9 percent in Offaly and Dublin Bay North, respectively. When the estimated eligible voting-age population measure of turnout is applied at this level, there are some notable differences. In this respect, the lowest eligible voting-age population turnout is again seen in the Dublin Central constituency, which has just 45 percent turnout by this measure. The highest turnout constituencies are Offaly with 71.8 percent, Dublin Bay North with 69.8 percent and Longford Westmeath with 69.8 percent turnout by this measure. While the overall turnout variation remains largely similar in terms of the lowest and highest turnout constituencies, the voting-age population measure tends to have more extreme values. In most instances, the voter turnout by both measures is within five percent variance, with the exception of some notable cases, as outlined in Table 5.1.1.

Constituency	Turnout (REG %)	Turnout (VAP %)	Difference	Constituency	Turnout (REG %)	Turnout (VAP %)	Difference
Meath West	60.25	65.08	4.83	Dublin Central	52.40	45.01	-7.39
Laois	61.96	64.61	2.65	Dublin Bay South	54.80	49.10	-5.70
Kildare South	62.83	60.02	-2.81	Dublin South Central	58.10	55.31	-2.79
Kildare North	63.40	61.04	-2.36	Dublin North West	62.00	56.87	-5.13
Meath East	63.50	68.60	5.10	Dublin Mid West	62.80	59.55	-3.25
Louth	65.20	67.56	2.36	Dublin South West	64.40	67.08	2.68
Longford-Westmeath	66.27	69.76	3.49	Dublin Dun Laoghaire	64.65	65.19	0.54
Offaly	67.70	71.80	4.10	Dublin Fingal	65.10	62.86	-2.24
				Dublin West	65.40	60.75	-4.65
				Dublin Rathdown	66.30	61.37	-4.93
				Dublin Bay North	67.90	69.81	1.91

Table 5.1.1: Voter Turnout by Constituency in General Election 2016

The aforementioned traditional urban/rural divide in Irish voter turnout geographies (Kavanagh, 2002) suggests that more rural constituencies tend to have a higher level of electoral participation, with more urban constituencies tending to be much lower. At the constituency level in General Election 2016, there are notable highs in predominately rural constituencies such as Longford-Westmeath and Offaly, while the urban Dublin Central displays the lowest level of turnout. The apparent urban/rural divide is even more pronounced in the voting-age population data, which must be considered in the context of potential register inaccuracies as previously outlined in Chapter Four. While there are significant variations in turnout levels at the constituency level, trends may be examined in more detail at the sub-constituency level.

Registered Voter Turnout in General Election 2016

A constituency level analysis demonstrates that through the examination of voter turnout, even using large spatial units such as the constituency, there is a notable variation in the areas that turn out to vote in General Election 2016. In a similar fashion, the examination of voter turnout at the sub-constituency Electoral Division (ED) level provides a view that serves to demonstrate the high level of variation in electoral participation within each constituency. The use of Electoral Division level analysis provides a detailed view of the geographic variation observed in this respect, as viewed in the case of the registered voter turnout in Figure 5.1.1.

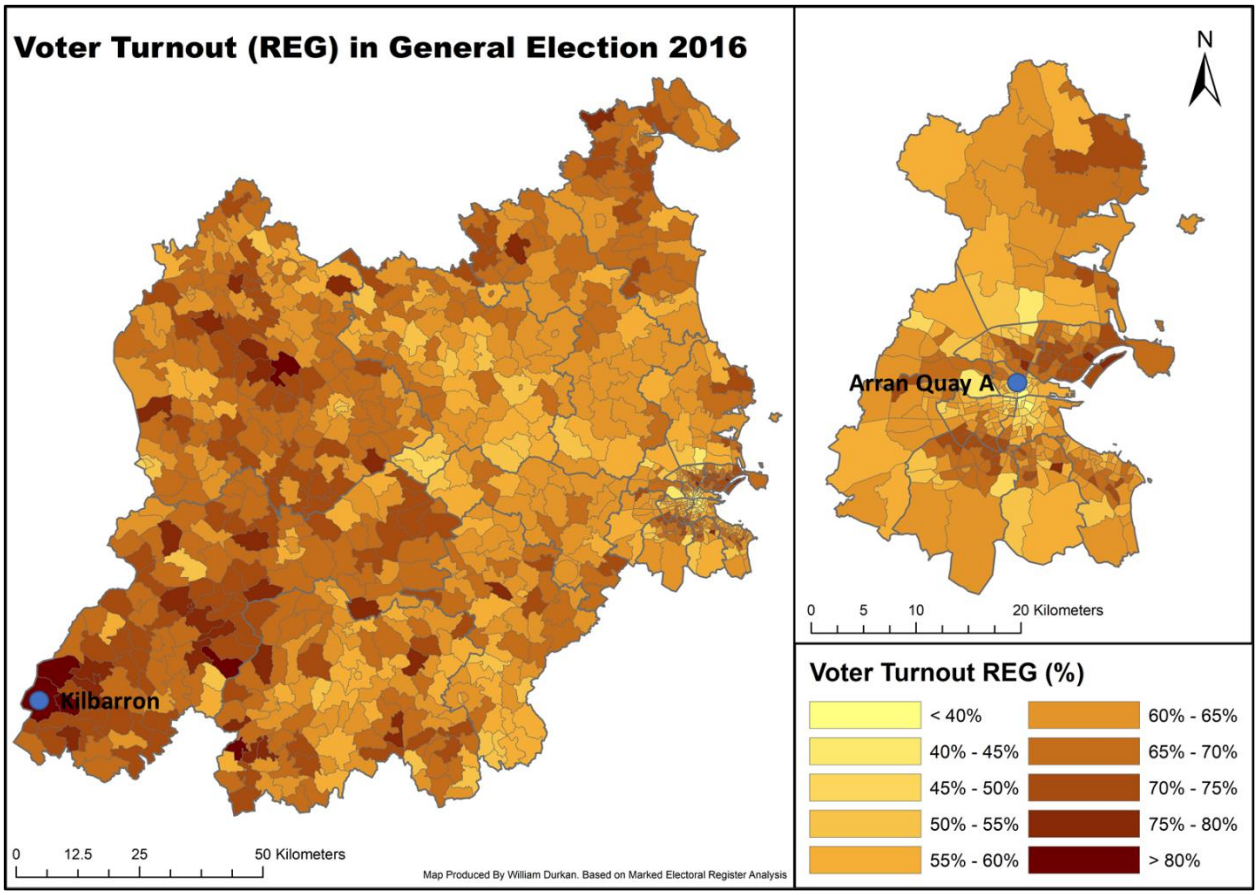


Figure 5.1.1: Voter Turnout (REG) levels at General Election 2016 at the Electoral Division Level

The predominately rural west of the study area displays some of the highest observed registered voter turnout levels, while the more urban east displays some of the lowest levels, as is especially evident in Dublin City Centre. As Table 5.1.2 demonstrates, registered voter turnout ranges from a low of 31.1 percent in Arran Quay A, in the area of Dublin City Centre between Phibsborough Road and North Circular Road, to a high of 85 percent in Kilbarron, Co. Tipperary, in the Offaly Constituency.

Minimum	1st Qu.	Median	Mean	3rd Qu.	Maximum
31.13	60.57	65.03	64.45	69.01	85.01

Table 5.1.2: Voter Turnout (REG %) at General Election 2016 at the Electoral Division Level: Descriptive Statistics

Table 5.1.2 outlines that while half of all Electoral Divisions are in the 60.57 percent to 69.01 percent range, there are notable deviations and areas that are significantly lower and significantly higher in terms of the registered voter turnout recorded. While most areas show a low level of deviation from the median and mean values, the full extent of variation is further demonstrated in Figure 5.1.2. The relatively normal distribution in registered turnout values not only outlines that the majority of areas are relatively close to average values, with a lower volume of areas with extreme values, but the relatively normal distribution is also considered favourable for a detailed statistical analysis. The wide range of values serves to offer a strong case study for examining some of the potential factors that shape trends, allowing examination of the voting behaviour of these 1,479,708 members of the electorate, who were located in these 912 Electoral Divisions at General Election 2016.

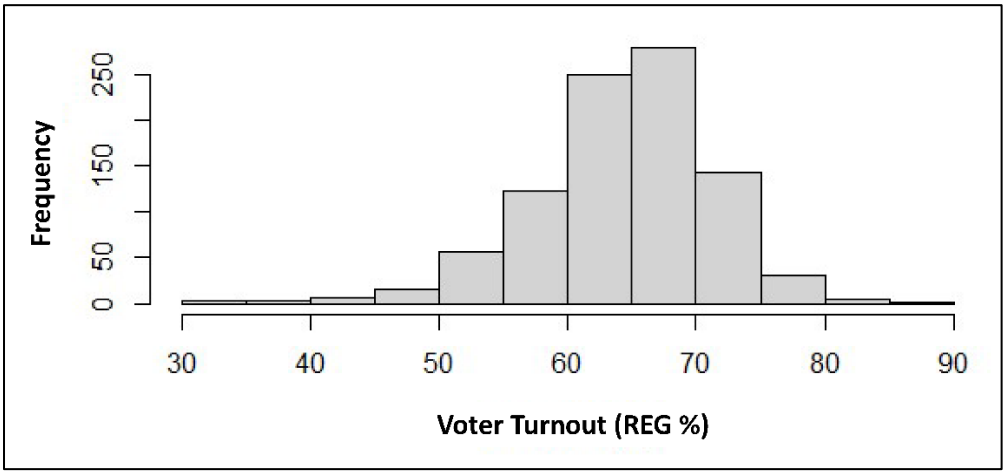


Figure 5.1.2: Histogram of Registered Voter Turnout (%) in General Election 2016 at the Electoral Division Level

While there is a relatively normal distribution observed in registered voter turnout at the Electoral Division level, the data may also be examined in order to better explore the spatial distribution of similar and contrasting values. This may be examined in more detail via the application of the Moran I test under randomisation in order to determine the extent of spatial autocorrelation in the data distribution. As may be observed in Figure 5.1.3, there is a significant presence of positive spatial autocorrelation observed in the registered voter turnout values, suggesting the presence of significant geographical clusters of similar values in the case study area.

```
Moran I statistic standard deviate = 25.346, p-value < 2.2e-16
alternative hypothesis: greater
sample estimates:
Moran I statistic       Expectation          Variance
     0.5089787006     -0.0010976948      0.0004050063
```

Figure 5.1.3: Moran's I Test Under Randomisation for Register Voter Turnout in General Election 2016 at the Electoral Division Level

The mapping and identification of clusters and outlier values within the registered voter turnout levels may be better demonstrated and examined through the application of Anselin's Local Moran's I spatial statistics testing. In this instance, this process identifies a number of clusters that have similar registered voter turnout levels. Large clusters of high values observed are predominantly located in the more rural constituencies in the west of the case study area, and the north Co. Louth area. (Figure 5.1.4). The most notable low value clusters are observed in the central case study area, with arguably the most notable cluster of low values located in Dublin City Centre. Within the Dublin constituencies, there is one notable high value cluster in the Dublin Bay North area, (effectively the old Dublin North-East constituency area). Besides the potential insights gained from examining the characteristics that shape areas that are identified as having either a cluster of high or low values, the examination of outlier values also has the potential to offer useful insight in this respect. There are numerous cases identified in this instance that stand out as having significantly different values to surrounding areas, and as such, provide a point of contrast and comparison, and also provide an opportunity for a more in-depth analysis to examine the various factors that shape participation rates in greater detail.

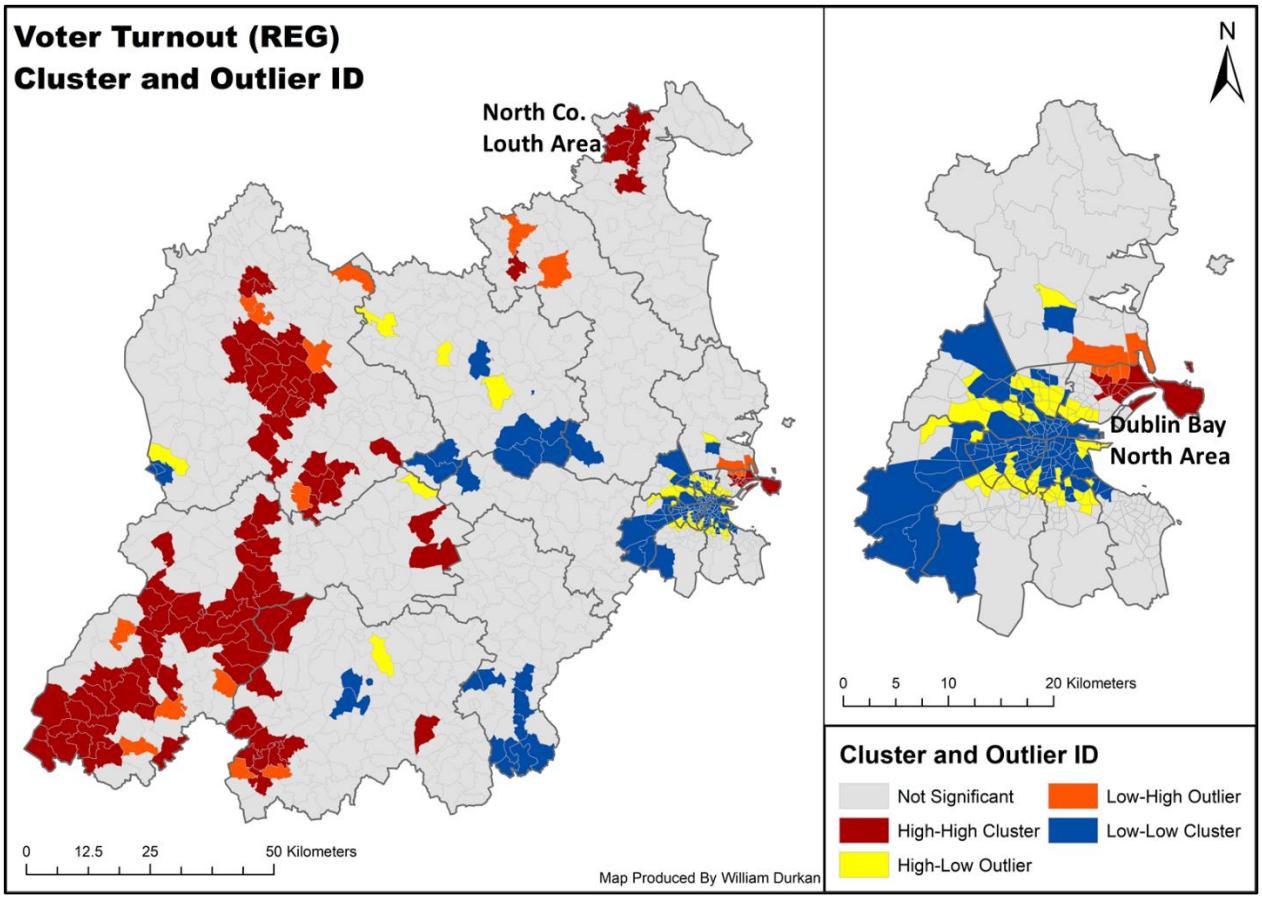


Figure 5.1.4: Anselin Local Moran's I Cluster and Outlier Identification of Registered Voter Turnout at General Election 2016 at the Electoral Division Level

Eligible Voting-age Population Turnout in General Election 2016

While the previously outlined trends in registered voter turnout values is undoubtedly impacted by aforementioned issues with the accuracy of the electoral register, the examination of trends in the eligible voting-age population voter turnout data offers a point of comparison and contrast. In this sense, the application of both measures serves to strengthen the reliability of any consistent findings between datasets, and also provides an opportunity to examine trends among voters that do not register to vote in the first instance.

As demonstrated in Figure 5.1.5, there are many similarities observed between the overall trends in both measures of voter turnout applied. This includes the notable presence of numerous high voter turnout values in the western parts of the case study area, with many lower values observed in the more urban east, as is especially pronounced in the Dublin City Centre area. There are also many contrasting values observed in the areas previously identified as having issues with the accuracy of the electoral register, and as such, many extreme values displayed can be largely attributed to this identified issue with a reasonable degree of confidence. One other notable difference, again in part related to aforementioned aspects of register accuracy, is the presence of more extreme values, with many more Electoral Divisions in the highest (>80 percent) and the lowest (<40 percent) classes relative to the previous analysis.

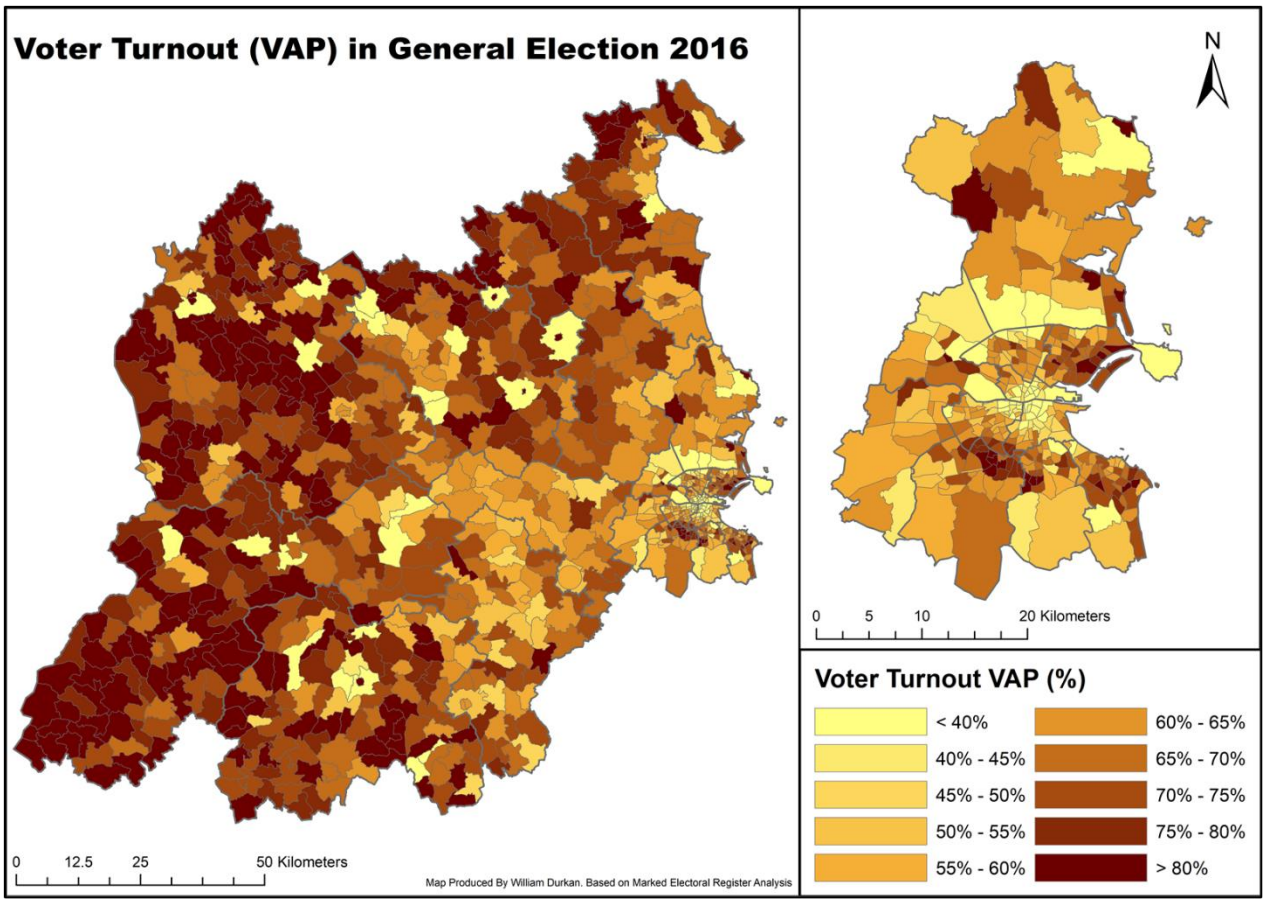


Figure 5.1.5: Estimated Eligible Voting-Age Population Voter Turnout (%) at General Election 2016 at the Electoral Division Level.

More detail in relation to the eligible voter turnout values may be provided by examining the distribution of values, as demonstrated in Table 5.1.3. In this case, the full dataset may be compared to a trimmed dataset that has the most extreme values removed on either end of the scale, values which are most likely shaped by aforementioned register inaccuracies. This examination of the data presents a large range in voter turnout values, with over 50 percent of all values, by both measures, located in the 60-80 percent range. By comparison to the previous registered voter turnout analysis, the most notable difference in this regard is the presence of more pronounced values, even when the trimmed data with the most extreme and unreliable values removed is examined. In this examination, areas that have values over 100 percent are deemed to be shaped by register inaccuracy with a high level of confidence. Some values that present an unlikely 100 percent level of turnout in the trimmed dataset are still included, again most likely as a result of register inaccuracy. These values are still included to reduce the number of outliers removed as far as possible, with those that remain deemed to be appropriate for further analysis, given the large number of datapoints still included in the trimmed dataset.

Data	**Minimum**	**1st Qu.**	**Median**	**Mean**	**3rd Qu.**	**Maximum**
Full	8.69	60.67	70.23	69.38	77.93	447.63
Trimmed	22.49	61.43	70.23	68.84	77.77	100.00

Table 5.1.3: Voter Turnout (VAP %) at General Election 2016 at Electoral Division Level: Descriptive Statistics

The full distribution of values may be further observed in Figure 5.1.6, demonstrating that there is a similar level of a relatively normal distribution in the trimmed dataset, and also a significant number of extreme values on both ends of the scale. In a similar fashion to the previously examined data, this distribution is suitable for further statistic testing in order to provide more insight into the factors that shape resultant voter turnout values.

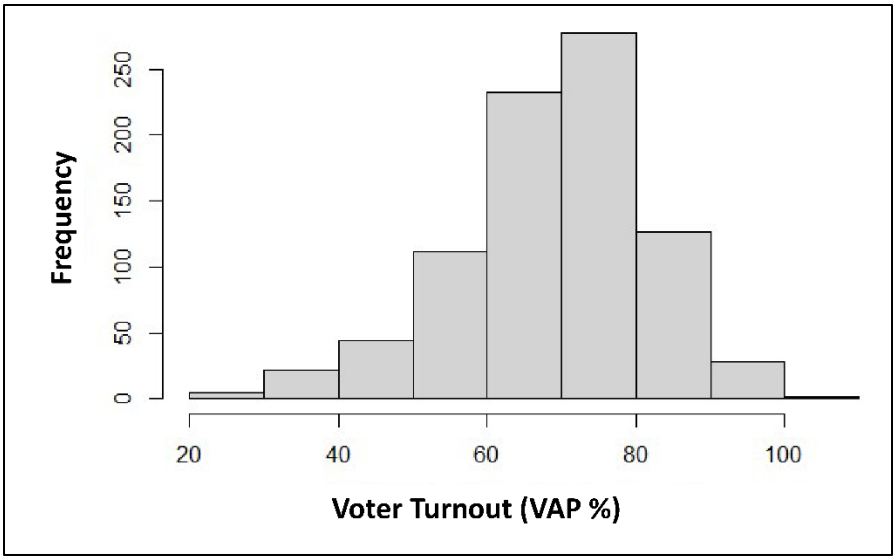


Figure 5.1.6: Histogram of Estimated Eligible Voting-Age Population Turnout at General Election 2016 with Extreme Outliers Removed at the Electoral Division Level

In a similar manner to the previous analysis, while there is a great deal of variation observed in overall turnout values, the examination of the degree of spatial autocorrelation present in the data provides more insight into the resultant geography of turnout levels. As displayed in Figure 5.1.7, statistical testing for spatial autocorrelation via the application of the Moran I test under randomisation demonstrates the presence of a notable positive spatial autocorrelation, pointing to the presence of similar values being grouped together. In contrast with the previous analysis of registered voter turnout values, there are some notable differences observed. In this instance, the presence of a positive trend is far less pronounced, with a much lower Moran's I statistic value. One other noteworthy point is the drastic increase in the p-value returned, albeit, still at an acceptable level of reliability by the majority of measures. This may be in part attributed to the previously discussed areas in which register inaccuracies tend to cluster. The nature of this issue leads to areas that would contribute to evidence of negative autocorrelation, and as such, undoubtedly impact the observed p-value in the identification of a positive trend.

```
Moran I statistic standard deviate = 3.2382, p-value = 0.0006013
alternative hypothesis: greater
sample estimates:
Moran I statistic       Expectation          Variance
     0.0599324907     -0.0010976948      0.0003551984
```

Figure 5.1.7: Moran's I Test Under Randomisation for Estimated Eligible Voting-Age Population Turnout at General Election 2016 at the Electoral Division Level

With the application of Anselin Local Moran's I statistical analysis to the data, there is largely a similar return to that observed in the registered voter turnout analysis, as demonstrated in Figure 5.1.8. Again, the data demonstrates the presence of high-turnout clusters in the predominantly rural west of the case study area, and the most notable low-turnout clusters are identified in Dublin City Centre. While the specific location and extent of clusters is somewhat different in this instance, the overall trends are quite similar. This suggests that the trends observed are indeed valid observations, being present in both measures applied. The similarity between observations may also suggest that the factors which drive registered voters deciding to stay at home on Election Day are potentially the same factors that drive individuals to not register to vote in the first instance. This may also suggest that while register inaccuracies somewhat skew the geography of participation observed, the main patterns and trends remain largely intact. In a similar fashion to the previous analysis, there are also multiple instances of outlier values identified at both ends of the scale, which may serve as useful cases in which to better understand the prevalent factors that shape observed trends.

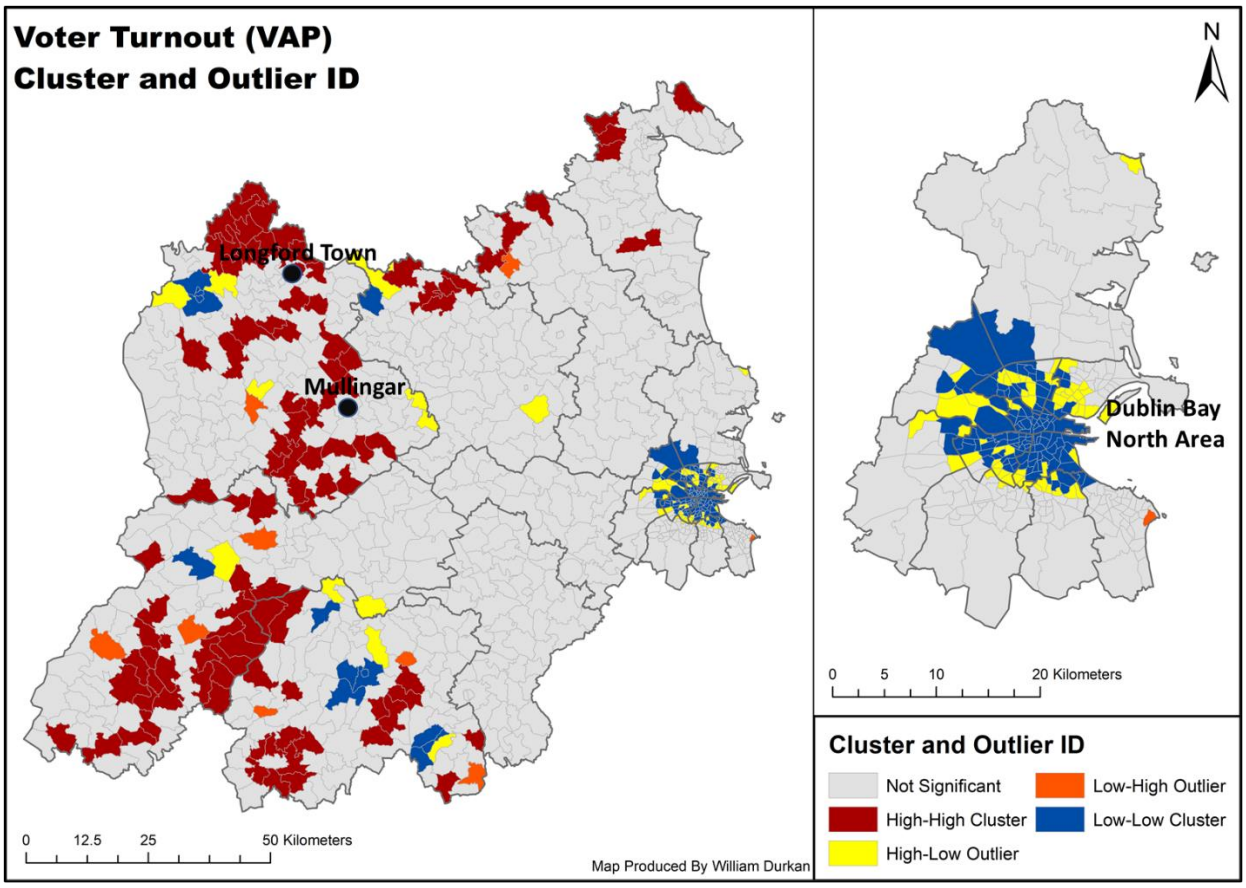


Figure 5.1.8: Anselin Local Moran's I Cluster and Outlier Identification of Estimated Eligible Voting-age Population Turnout in General Election 2016 at Electoral Division Level

This examination also notably fails to identify the high cluster of turnout levels in the Dublin Bay North constituency. This may suggest that register inaccuracies in the area play a role in shaping the previous observed cluster. However, it is worth noting that while no cluster of high values is identified in this area, the neighbouring low cluster largely fails to expand beyond the constituency lines. Further to this, there is a significant volume of areas identified as high-low outliers in the area, adding further to the suggestion of a constituency-level effect in the area that leads to a higher level of turnout here than in surrounding areas. There are also a notable number of high-turnout clusters in the west of the Offaly constituency and in the Mullingar and Longford Town area. These areas were arguably some of the most competitive in General Election 2016.

In summation, the examination of both applied measures of voter turnout identifies a number of useful characteristics in the data that serve to potentially provide in-depth insight into the factors that shape the observed trends. The observed pattern of participation points to a strong geographical aspect in the resultant values, and potentially, in the factors that influence these trends. In order to gain a deeper understanding of potential causal factors, and the emergent geography of participation, the relationship between voter turnout and a wide array of socio-economic and demographic characteristics, is examined in more detail.

5.2: Temporal Voter Turnout Trends

Further to the examination of voter turnout trends in General Election 2016, the examination of rates of turnout change from previous election contests has the potential to provide further insight into the factors that influence participation rates. For the purpose of this study, changes in voter turnout levels at the Electoral Division scale may be observed with reference to General Election 2007, due to the availability of data at this scale. There are a number of restrictions however in terms of the level of comparability possible with Census 2006 data due to the inconsistencies in data structure between Census 2006 and Census 2016. The structure of data for Census 2006 at Electoral Division level fails to provide clear categorisation outputs and is structured in a cumbersome manner that restricts the generation of appropriate comparative data. For the purpose of this study, registered voter turnout change may be examined prior to the examination of the socio-economic and demographic characteristics in 2016 that are predominant in areas of registered voter turnout change between 2007 and 2016. Nationally, the turnout in 2016 was two percent lower than it was in the 2007 election, with an examination of data at the Electoral Division scale providing a more detailed picture of turnout trends.

Registered Voter Turnout Change from General Election 2007 - 2016

As displayed in Figure 5.2.1, there is a wide range in the levels of change in registered voter turnout between General Election 2007 and General Election 2016 at the Electoral Division scale. While a number of areas demonstrate quite a significant decline in participation rates, there are also numerous instances in which there is a significant increase observed. There are a number of areas in the west of the case study area that demonstrate significant decreases. The majority of areas that demonstrated a notable increase were located in the Kildare South constituency for 2016 and also in Dublin City Centre. While a notable number of Electoral Divisions saw increased turnout levels in central and South-West Dublin, there were also a number of instances of decline, perhaps most pronounced in the suburban areas at the edge of Dublin City.

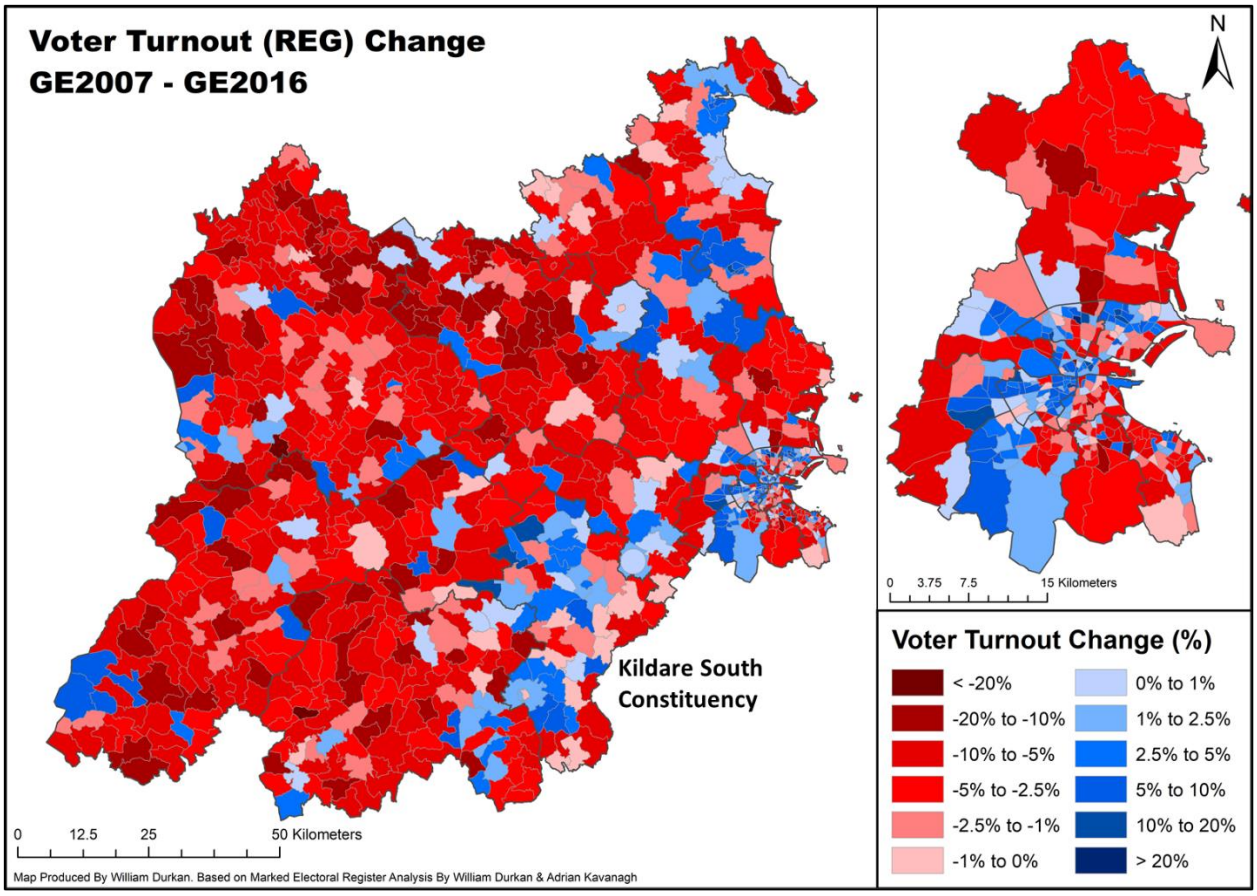


Figure 5.2.1: Registered Voter Turnout Change from General Election 2007 to General Election 2016 at the Electoral Division Level

When the data is viewed in detail, there is a broad overall trend of decline, with most areas demonstrating a slight decline and some instances of extreme values recorded. The full range and distribution of values may be viewed in Table 5.2.1.

Minimum	1st Quartile	Median	Mean	3rd Quartile	Maximum
-24.56	-6.73	-2.83	-2.91	0.75	22.82

Table 5.2.1: Descriptive Statistics of Registered Voter Turnout Change from General Election 2007 to General Election 2016 at the Electoral Division Level

The full extent of the distribution of data may be viewed in Figure 5.2.2. In this instance, while the largest category is the 0 to -5 percent range, overall the data has a relatively normal distribution which makes the variable suitable for additional statistical testing.

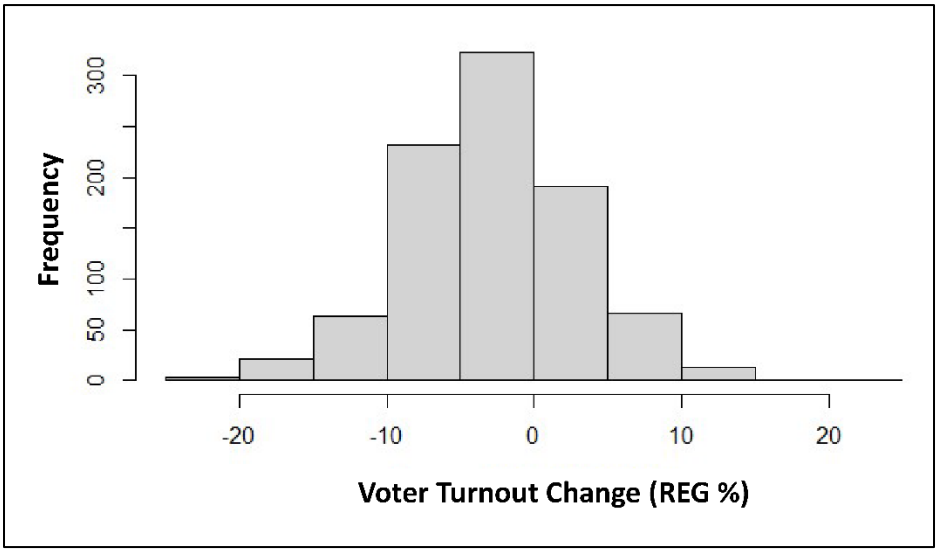


Figure 5.2.2: Histogram of Registered Voter Turnout Change from General Election 2007 to General Election 2016 at the Electoral Division Level

Overall, while the registered voter turnout rate of change from General Election 2007 to General Election 2016 points to an overall decrease and a mean decrease of -2.91 percent among Electoral Divisions within the case study area, the geography of change is not uniform. While the majority of areas record a relatively small level of change (less-than five percent), there are a notable number of areas that record a greater level of change, with some pronounced extreme values. Further to this, the initial examination of values outlines that there are a number of regions that appear to have similar trends present in the rates of change observed. The spatiality of change may be further explored via the application of the Moran's I test under randomisation in order to determine the existence and extent of spatial autocorrelation in the data. As displayed in Figure 5.2.3, the test in this instance fails to return a statistically reliable result. This may indicate either a random spatial distribution of values to a certain extent, or perhaps more likely given the initial investigation, the presence of both clusters and outliers within the data.

```
Moran I statistic standard deviate = 0.41724, p-value = 0.3383
alternative hypothesis: greater
sample estimates:
Moran I statistic       Expectation          Variance
     0.0073042287     -0.0010976948      0.0004054993
```

Figure 5.2.3: Moran's I Test Under Randomisation for Registered Voter Turnout Change (%) from General Election 2007 to General Election 2016 at the Electoral Division Level

With the application of Anselin's Local Moran's I Cluster and Outlier Identification, there are a number of striking trends in the distribution of the rates of turnout change. (Figure 5.2.4). Overall, the analysis points to significant clusters of declining participation in the more rural west of the case study area, and significant clusters of increased participation in the large population centres and surrounding areas. This is most pronounced within Dublin City. The analysis also highlights a number of outlier values in both instances, predominately in areas on the fringes of aforementioned clusters. The identification of significant characteristics in outlier areas in both instances may be further examined in subsequent analyses in order to provide further insight into the factors that shape the geography of participation in these areas.

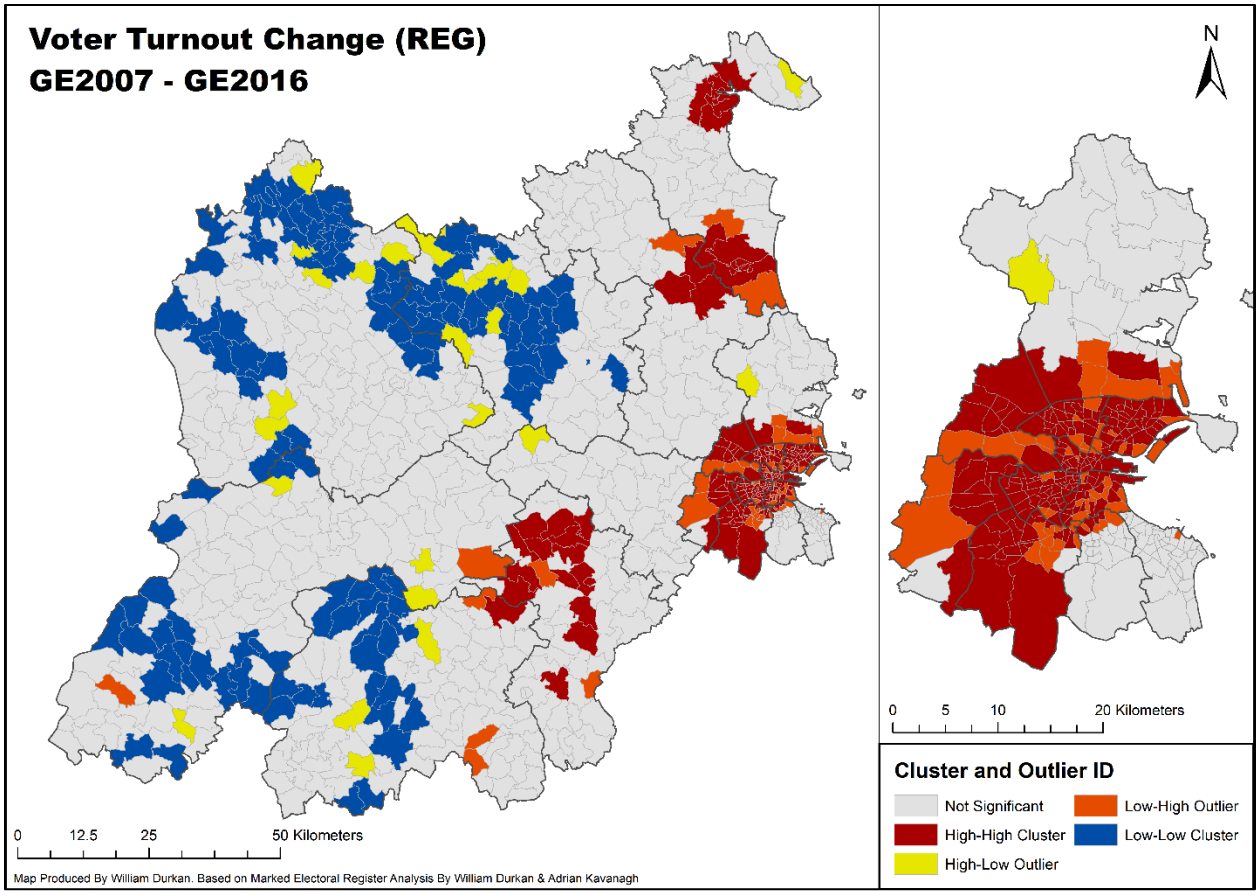


Figure 5.2.4: Anselin Local Moran's I Cluster and Outlier Identification of Registered Voter Turnout Change (%) From General Election 2007- to General Election 2016 at the Electoral Division Level

Overall, the examination of the various rates of change in registered voter turnout between both elections points to a unique geography of participation change with clear spatial associations. The examination of the socio-economic, demographic, and geographical factors that may influence various rates of change has the potential to provide a greater depth of insight into the factors that may shape the geography of participation change between electoral contests. Prior to this examination, the consideration of the rates of participation change observed among the eligible voting-age population also has the potential to provide additional insight.

Eligible Voting-Age Population Turnout Change between General Election 2007 and General Election 2016

As viewed in Figure 5.2.5, the vast majority of Electoral Divisions experience a decline in voting-age population participation rates, in a similar manner to the previous analysis. However, fewer areas see an increase in turnout levels, in contrast with the previous measure. Throughout the predominantly urban areas in the east of the study area there are a number of extreme values recorded, suggesting perhaps that a significant level of variation observed is shaped by issues with register accuracy.

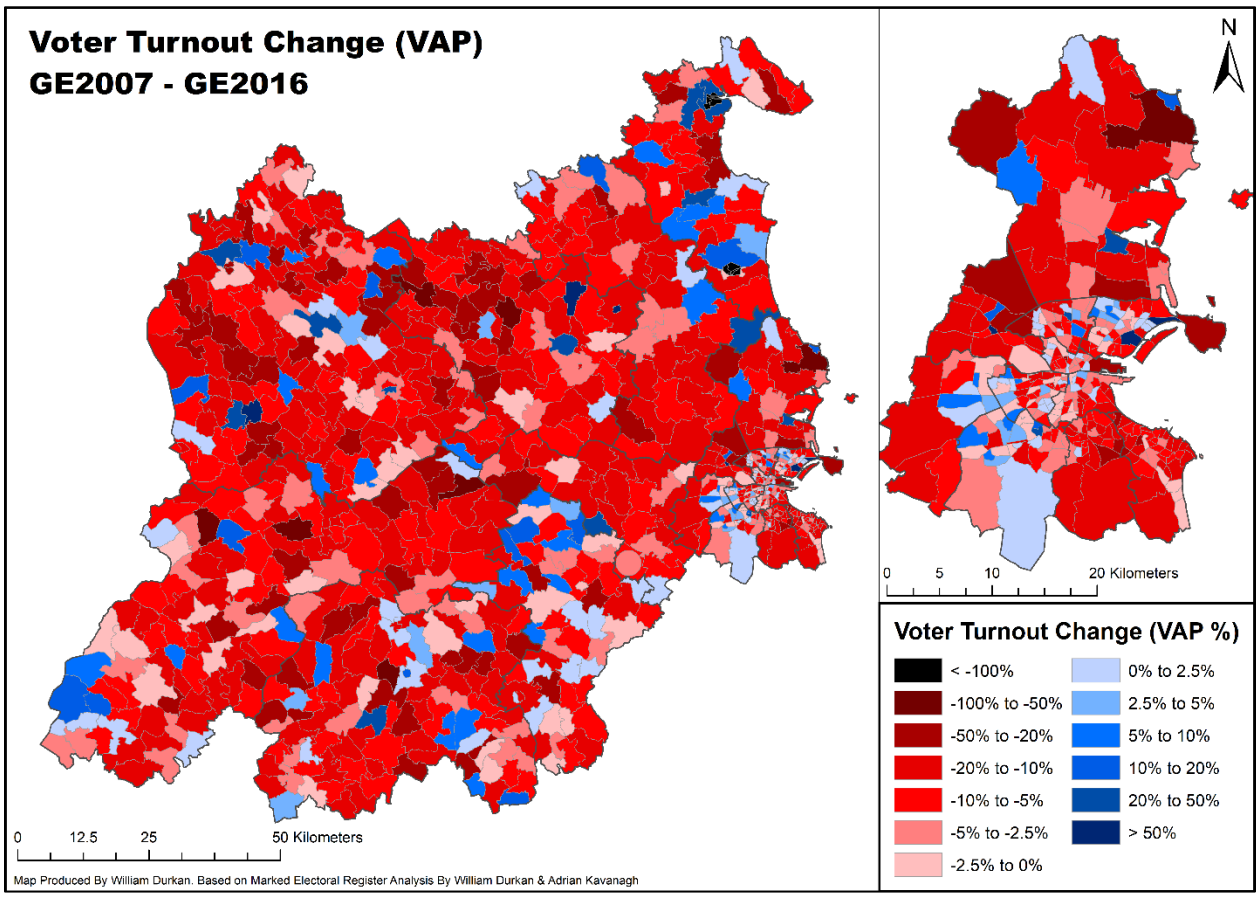


Figure 5.2.5: Estimated Eligible Voting-Age Population Turnout Change (%) from General Election 2007 to General 2016 at the Electoral Division Level

The extent of extreme values that are likely driven by register inaccuracies and discrepancies in the resultant datasets is outlined when the maximum and minimum values in the dataset are examined, as outlined in Table 5.2.2. While some extreme values impact the level of reliability and clarity in the data, the removal of twenty extreme values returns a similar figure in terms of the median value. In this process, any values that exceed the -50 percent to +50 percent thresholds are deemed to be 'extreme'.

Data	**Minimum**	**1st Quartile**	**Median**	**Mean**	**3rd Quartile**	**Maximum**
Full	-1501.94	-13.84	-8.08	-12.65	-2.39	132.214
Reduced	-48.84	-13.57	-7.58	-7.87	-2.01	49.4

Table 5.2.2: Descriptive Statistics of Voting-Age Population Turnout Change (%) from General Election 2007 to General Election 2016 at the Electoral Division Level

While the presence of inaccuracies in the data are an issue throughout the analytical process in this instance, the overall dataset still facilitates a reasonable means of comparison to the previously examined registered voter turnout figures. Further to this, the removal of extreme values also provides a means of accessing the data through further statistical analyses with a reasonable degree of reliability. In order to conduct further analyses, extreme outlier values are replaced with a change rate of 0 percent. This is deemed to be a more appropriate manner than excluding Electoral Divisions affected by apparent issues as it allows a comprehensive examination of geographical influences in a contiguous area uninterrupted by null values. The values are replaced with the presumption of 'no change' in voter turnout figures as opposed to a mean or median value, as the temporal nature of the data allows the reasonable presumption of no change in voter turnout levels, in a manner that would not be suitable for a static measure, with the relatively low proportion of 2.2 percent of datapoints edited. The adjusted dataset also displays a reasonable level of normality, as displayed in Figure 5.2.6, and as such, is suitable for subsequent statistical analysis.

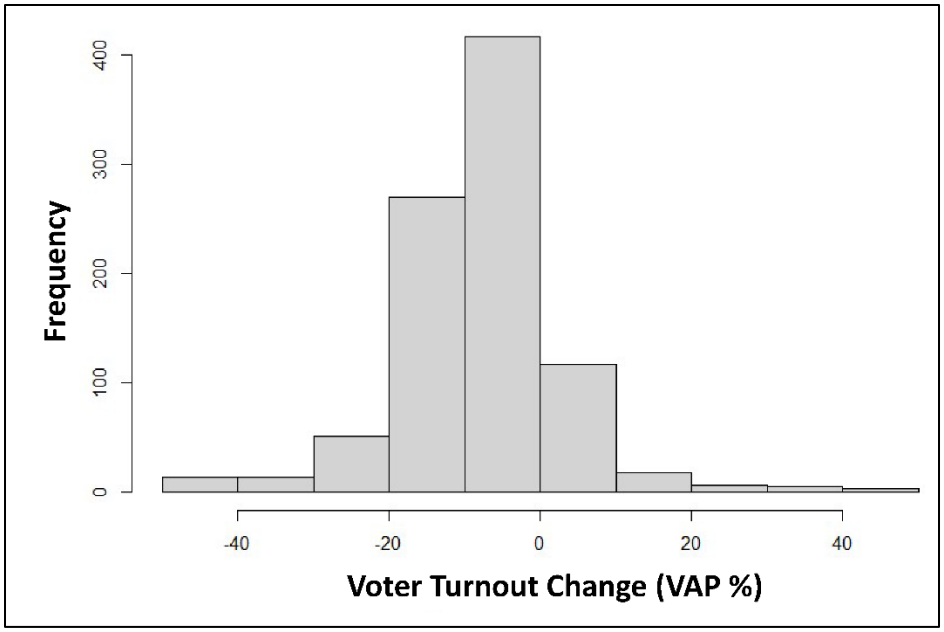


Figure 5.2.6: Histogram of Voting-Age Population Turnout Change (%) from General Election 2007 to General Election 2016, for the Reduced Dataset

The distribution of the data when viewed in this manner outlines the predominant trend of turnout decline across the case study area, but also outlines the not insignificant number of Electoral Divisions that recorded an increase in participation levels. While a range of values exist within the study area, the application of Moran's I testing investigates the extent of spatial autocorrelation in the data. The testing of the full dataset (Figure 5.2.7) suggests the presence of slight positive spatial autocorrelation. While this testing returns a strong degree of reliability in the results, the examination of the data in the reduced dataset fails to highlight the same extent of positive autocorrelation, although there is some evidence to suggest a trend in this direction. The somewhat mixed results, as with previous analyses, perhaps suggests the presence both of clusters of similar values and also the presence of notable outlier values in the data. As such, a more localised viewpoint of the spatial distribution of values may be obtained through the application of Anselin Local Moran's I Cluster and Outlier Identification analysis.

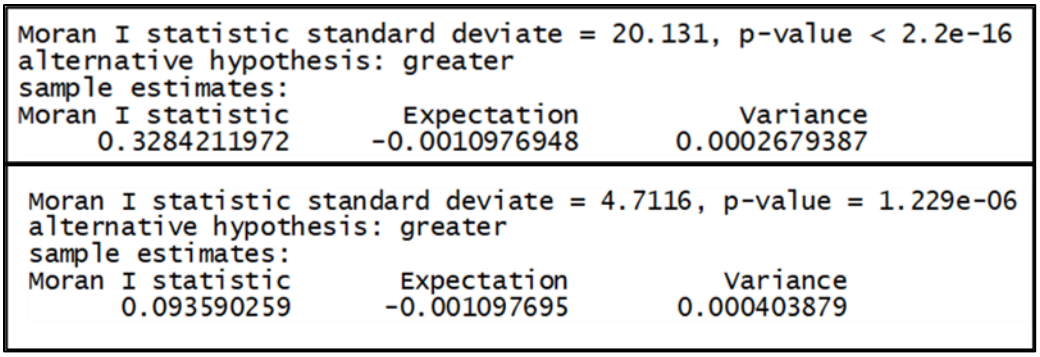


Figure 5.2.7: Moran's I Test Under Randomisation for Voting-Age Population Turnout Change (%) from General Election 2007-2016, for both Full (Top) and Reduced (Bottom) Datasets

The initial application of Anselin Local Moran's I Cluster and Outlier Identification analysis utilises the full unedited dataset, with extreme values included. (Figure 5.2.8). There are a number of similarities and differences when compared to the analysis of the rates of change in registered voter turnout figures. The presence of High-High clusters in values is again most pronounced within Dublin City, with some notable Low-High outliers also present in this area. Outside of Dublin, there are some other small clusters of high values identified, most notably in the Louth, Kildare, and North Tipperary areas. Perhaps the most notable difference to the registered turnout analysis is the failure of the method to identify clusters of Low-Low values to the same extent. In this respect, while the west of the case study area does demonstrate some small Low-Low clusters, this is far less pronounced by this measure. In many instances, and perhaps especially pronounced within the Louth Constituency, the presence of significant clusters and outliers of contrasting measures near large population centres may suggest a significant impact caused by register accuracy related issues. Figure 5.2.8 also demonstrates the differences in the resultant trends when the extreme outliers are reduced. In this instance, the removal of extreme outlier values returns a similar overall trend, with additional Low-Low clusters identified throughout the north-west of the study area, and in the south-east of Dublin City. While both measures of turnout and both voting-age population datasets have a number of similarities in trends, subsequent analysis of the socio-economic and demographic characteristics within the area provides an opportunity to examine the rates of turnout change between elections in more detail.

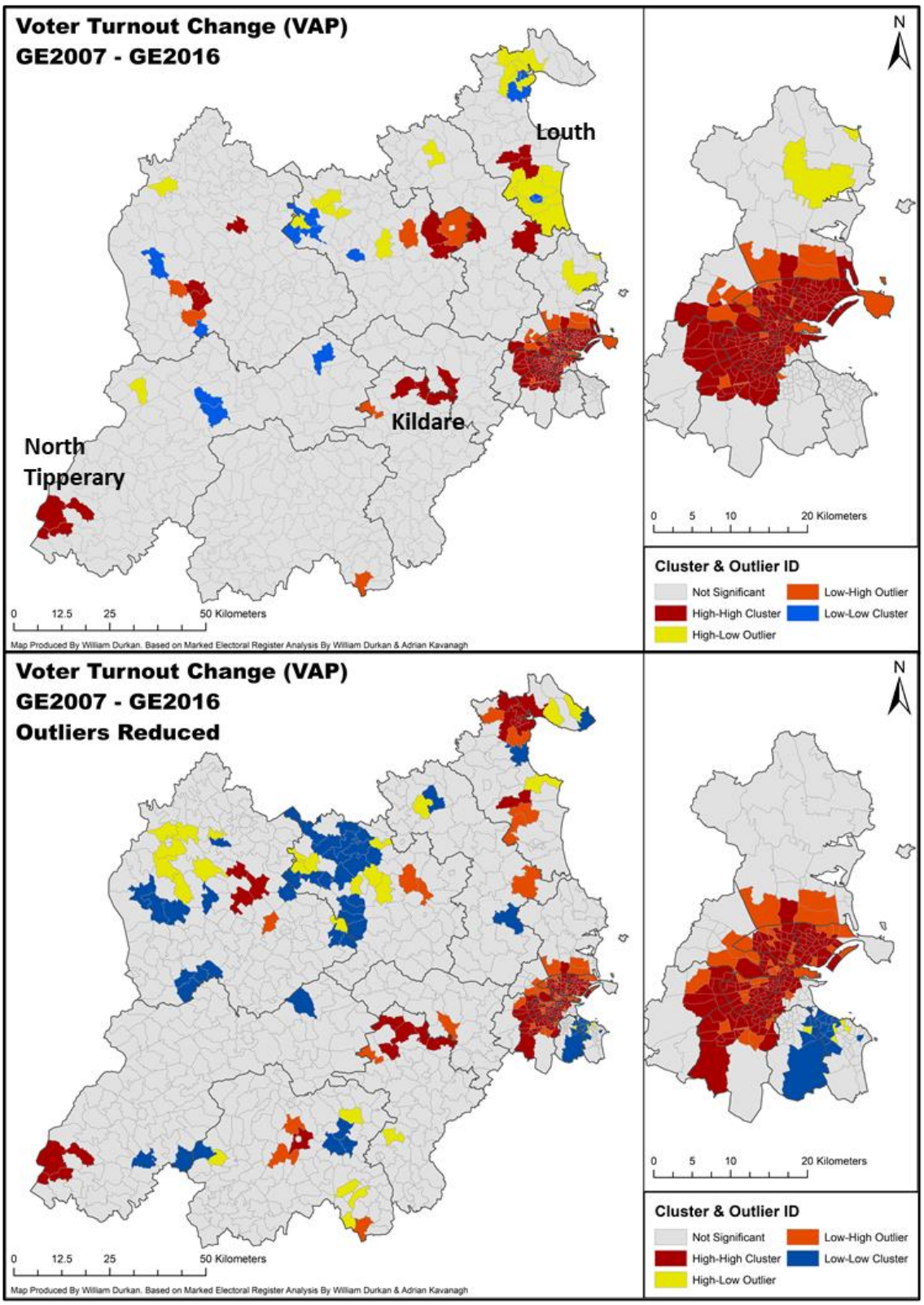


Figure 5.2.8: Anselin Local Moran's I Cluster and Outlier Identification of Voting-Age Population Turnout Change (%) From General Election 2007-2016 at Electoral Division Level

5.3: Socio-Economic and Demographic Influences on Turnout Trends

The previous analyses have outlined a number of geographical trends in voter participation levels and rates of change observed between General Election 2007 and General Election 2016. The detailed investigation of various socio-economic and demographic characteristics within the select case study area serves to provide insight into the existence of relationships between variables and voter turnout trends, and also provides insight into the extent to which any relationship may shape the resultant geography of participation. This analysis will firstly explore the relationship between select characteristics, as outlined by existing literature in Chapter Two, with regard to turnout levels in General Election 2016 alongside the examination of temporal trends across elections. The initial investigation will consider the potential relationships between voter turnout trends and individual characteristics, a vital step in advance of aiming to provide a more comprehensive analysis, based on trends observed. For the purpose of analysis, select census variables are chosen from Census 2016, as expanded upon in Chapter Three, and compared to both registered voter turnout and the estimated eligible voting-age population turnout figures and associated rates of change. As the census data is examined for 2016 and does not incorporate a temporal perspective from previous census results, subsequent investigations may wish to also consider the relative changes in census characteristics over this time-period in order to provide additional insight into trends observed.

Age and Marital Status

As previously outlined in Chapter Two, academics such as Nie, Verba and Kim (1974) have observed the impact of age on voter participation in the international context, with Milbrath (1965) and Skipworth (2009) suggesting a curvilinear relationship that demonstrates an increased likelihood of participation until age 65, followed by a gradual decline. In the case of the 2016 General Election in the Republic of Ireland, age can be observed as having a notable impact on participation rates within Electoral Divisions. While an aggregate study is perhaps more limited than an individual level survey in some respects, it also provides the benefit of having an all-

inclusive sample. The geographical approach anchors the data in a spatial unit, in this case Electoral Divisions, so that an area's participation rate may be examined alongside the proportion of the residents that are in a given age cohort in order to determine if the participation rate is influenced by a significant proportion of a given age cohort living there.

When we examine the impact of age in the 2016 General Election, there is a notable trend observed in terms of the relationship to participation in areas with a large cohort of younger people. As viewed in Table 5.3.1, as the proportion of individuals in the 18-29 age cohort increases, voter turnout tends to be lower. The results demonstrate that a medium strength inverse relationship is observed between the two variables, with a very high degree of reliability in the results. This trend is notably more pronounced when the voter turnout by eligible voting-age population is examined. Areas with younger populations are notably more likely to present a lower degree of participation on election day by both measures of turnout applied, with the more pronounced correlation for voting-age population perhaps suggesting that many individuals in this age cohort not only abstain from voting on Election Day, but many others are not registered to participate. When the temporal trends are also considered, there is a less pronounced trend observed, but one that is arguably of equal importance. The data suggests that areas with a large proportion of individuals in the youngest age cohort in 2016 have experienced a notable increase in participation from General Election 2007. This trend is most pronounced in the registered voter data, with a weak positive association observed between variables. At the individual variable examination stage, the data suggests that while areas with younger populations are less likely to have a large voter turnout, turnout in these same areas has increased over recent years, perhaps suggesting a significant change in the extent of the traditional relationship expected.

Voter Turnout	**Pearson Correlation Coefficient**	**P-Value**
Turnout REG	-0.4414751	8.650884e-45
Turnout VAP	-0.6081286	4.223121e-87
Turnout REG Change 07-16	0.2537718	7.198094e-15
*Turnout VAP Change 07-16	0.07187011	0.02999

* 50 Outlier Values Removed from the Dataset

Table 5.3.1: Voter Turnout (%) and Age 18-29 (% 2016) Correlation by Electoral Division

With regard to this issue, the youngest age cohorts are historically noted as having a lower-than-average level of voter engagement. This trait, and the potential negative associations of this are noted by Deputy Frank O'Rourke.

> 'If you look at it historically, probably the biggest age group that doesn't come out to vote is probably the young, say maybe 18, maybe to 25- or 27-year-olds. And they don't come out to vote. And I think that's a pity… And I think that's something we need to look at as a country'. (O'Rourke, 2020).

The potential for an increase in participation among younger members of the population is also noted by a number of representatives, especially in the context of a number of relevant issues that impact younger citizens and recent referenda which saw a large voter registration drive among younger communities. In this respect, Mr. Gilmore notes the potential for a motivational political issue to mobilise voters. While this is reflected by Deputy Brophy, he also notes that increased participation is not as pronounced as may be expected in subsequent elections following the recent referenda.

> 'If you took for example the people who registered for the first time for the marriage equality referendum and looked at well how many of them voted in the 2016 General Election, I mean that would be an interesting thing. I suspect a lot did. I know that a lot remained politically active. And similarly in the repeal the Eighth Amendment, that a lot who became active in those campaigns went into different political parties subsequently'. Gilmore, 2019).

> 'You see this in voter registration for the recent social referenda… you have large sways of young people. And when I say young, I mean I'm talking about people up to their mid-thirties… When you then talk to those same people, as you do when you're canvasing or whatever, and you ask them do they see a correlation between then turning out to vote in a Local Election, almost not at all. And then when you ask that generation; "well do you see

> a correlation between being socially active on a social issue in a referendum and turning out to vote in a general election?" "Yes". A bigger percentage do, but still, no they don't. They don't see that their vote can matter or that it makes a difference. (Brophy, 2019)

When examining the relationship between older age cohorts and participation rates within a select area, a notable trend emerges. In support of the trend observed with the youngest 18-29 age cohort, areas with large proportions of the population in the 30-49 age cohort also tend to demonstrate a lower voter turnout, albeit to a lesser extent, as observed in Table 5.3.2. This trend tends to reverse when examining the impact of the older 50-64 cohort in both instances. In this respect, areas with a large proportion of the population in the 50-64 cohort demonstrate a medium strength positive correlation, as observed in Table 5.3.2. What is perhaps most notable in this instance is that the age-participation relationship reverses between the age cohorts of 30-49 and 50-64. This serves to highlight middle-age as a potential transition period, in a similar vein to Crittenden's (1963) study highlighting the transition period between the 21-39 and 40-59 age cohorts. It is important to remember however that such inferences may not be made conclusively with an aggregate research study. When the temporal data is considered there is some evidence, with limited reliability, to suggest an increase in participation in areas that have a significant 30-49 age cohort, with a slight trend of decline observed in the registered voter turnout data in areas with a significant proportion of individuals in the 50-64 age cohort. This again suggests an increase among younger populations in this time-period, with a threshold in the middle-age bracket. This is a tentative suggestion based on the data however due to the nature of investigation, the strength of trends observed, and the limited reliability and uniformity observed across different measures. This must be considered in the context of other age-related observations, and subsequent composite analyses.

Age 30-49			Age 50-64		
Turnout	**Pearson Coefficient**	**P-Value**	**Turnout**	**Pearson Coefficient**	**P-Value**
REG	-0.3329719	4.73E-25	REG	0.432876	6.06E-43
VAP	-0.4526771	3.59E-44	VAP	0.6705093	4.61E-112
REG Change 07-16	0.1039769	0.001665	REG Change 07-16	-0.2645044	4.59E-16
*VAP Change 07-16	-0.08390967	**0.01124	VAP Change 07-16	0.03944921	0.234
*50 Outlier Values Removed					
**Correlation on the Threshold of False Positive Risk Limit of <5%. FPR = 0.05.					

Table 5.3.2: Pearson Correlation of Voter Turnout and Proportion of the Population in the 30-49 and 50-64 Age Cohorts at Electoral Division Level

The positive relationship between participation and older age cohorts is most notable when examining the oldest 65+ age cohort, as displayed in Table 5.3.3. While various studies, such as that of Crittenden (1963), apply individual level survey data to demonstrate a decline of voter participation as one reaches 'old age' in their mid-to-late sixties, the examination of older voters based on those registered to participate points to a much higher voter turnout in areas that have a large proportion of the population in the 65+ age cohort. Conversely, when the measure of voting-age population is applied, there is a negative correlation observed, suggesting that areas with large proportions of the population in this age cohort tend to have a much lower voter turnout than registered figures outline. This may suggest that there are a significant number of areas in which there is a large number of individuals in the 65+ age cohort that are not registered to vote. This trend may also be shaped by a number of older individuals that are included on the register for a postal vote, and as such, excluded from the registered turnout data at the Electoral Division scale. The temporal trends do not highlight any strong reliable observations, with the voting-age data failing to return a reliable result when the rate of change in voting-age turnout data is considered in either its entirety or the reduced format with extreme outlier values removed. The rate of change in registered turnout does suggest a slight decrease in areas with a significant older population, with subsequent analyses potentially providing further insight in this respect.

Voter Turnout	Pearson Correlation Coefficient	P-Value
Turnout REG	0.4445452	1.842097e-45
Turnout VAP	-0.2752368	3.058829e-16
Turnout REG Change 07-16	-0.141275	1.852e-05
Turnout VAP Change 07-16	-0.009279477	0.7796

Table 5.3.3: Pearson Correlation of Voter Turnout and Proportion of the Population in the 65+ Age Cohort at Electoral Division Level

While the correlation data for various age cohorts in this instance points to a higher voter turnout in areas with an older population, in a relatively linear fashion, with the temporal data pointing to a possible decline in this trend between elections, it is important to consider various age-related characteristics that may drive observed trends. (Crittenden, 1963: 331). Factors such as the impact of a population's transitions in the 'life-cycle' (Stratis, 1990; Pattie & Johnston, 1999; Kavanagh, 2002) or the impact of other age-related factors that may play a key role in driving observed relationships in this instance must also be considered.

One factor that tends to transition as an individual moves through their 'life-cycle' is their marital status. While not all individuals follow a uniform path in this respect, the use of aggregate level data with a high volume of data available in each spatial unit allows the broad generalisation that a population which has a relatively high level of an older population would be expected to have a higher volume of individuals that are married, compared to a high level of single persons in an area with a largely younger population. Furthermore, one must consider the specific factors in an older population that leads to the resultant increase in voter participation, with previous studies by academics such as Pattie and Johnston (1999: 889) and Stoker and Jennings (1995) stressing the role of marital status in this respect. When examining the impact of marital status on voter participation rates in General Election 2016 within the select study area, there are notable correlations observed, as demonstrated in Table 5.3.4. The data demonstrates a medium strength inverse relationship between the proportion of a population that are 'single' within a given area and voter turnout levels, while the proportion of individuals that are classed as 'married'

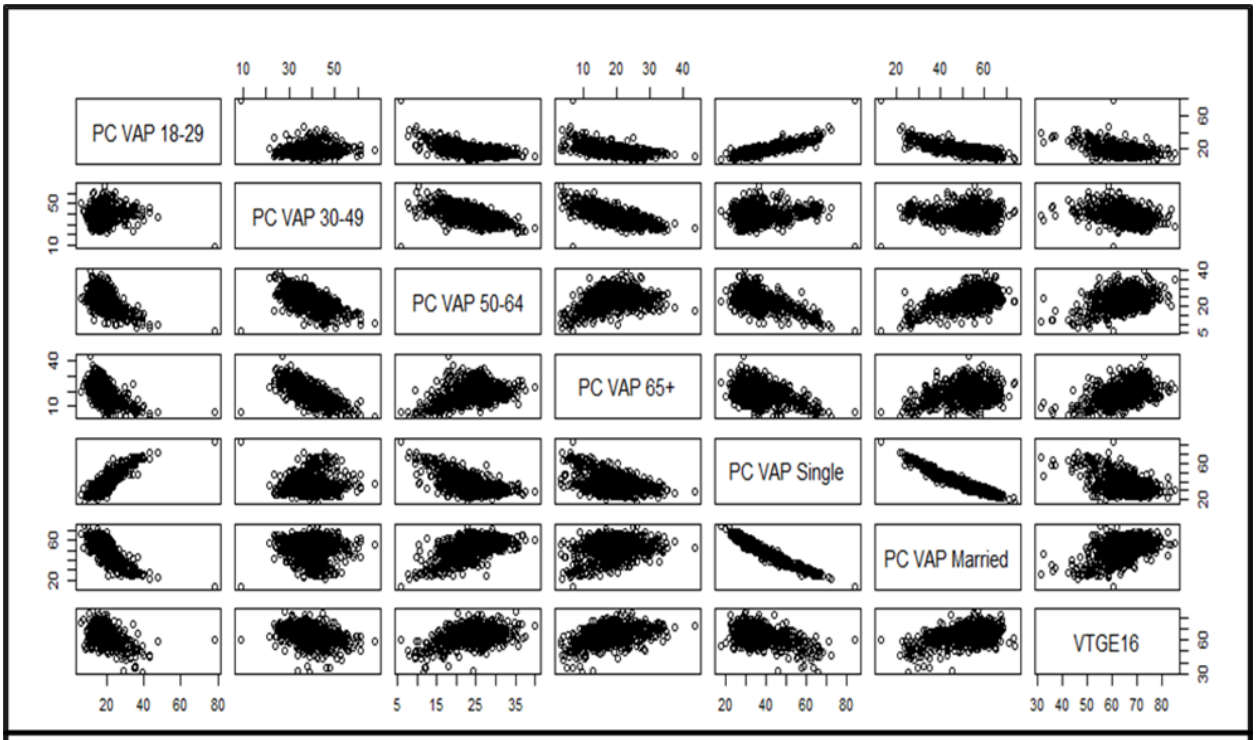
demonstrates a medium strength positive relationship. This relationship is more pronounced when examining voters in the eligible voting-age population measure of turnout, potentially pointing to a trend of both non-voters being more pronounced in the 'single' category, and also a significant number of individuals that are not registered in this instance. The temporal data in this instance points to a clearer trend than previous investigations, with a suggested increase in participation in areas that have a significant 'single' population and a decrease in areas which have a significant 'married' population. This trend is best reflected in the registered voter data, but is also identified, albeit to a lesser extent, when the voting-age population data is considered with extreme outlier values removed.

Single (%)			Married (%)		
Turnout	**Pearson Coefficient**	**P-Value**	**Turnout**	**Pearson Coefficient**	**P-Value**
REG	-0.490201	2.65E-56	REG	0.4625173	1.56E-49
VAP	-0.6569699	3.89E-106	VAP	0.6144333	2.26E-89
REG Change 07-16	0.3409286	2.95E-26	REG Change 07-16	-0.3569447	8.62E-29
*VAP Change 07-16	0.1044064	0.001592	*VAP Change 07-16	-0.1248589	0.0001566
*50 Outlier Values Removed					

Table 5.3.4: Pearson Correlation of Voter Turnout and Proportion of the Population in Marital Status Categories at Electoral Division Level

Prior to the examination of additional variables, it is important to consider the collinearity between both of the martial status variables and aforementioned age variables. In this respect, the variables of age and marital status are both observed as having a notable impact on the voter turnout within a given area and are both variables that are potentially closely related. Figure 5.3.1 outlines the extent of the relationship between both variables. In this respect, there is a notable positive association between the 'married' variable and the older age cohorts, and a positive association between the 'single' variable and the younger age cohorts. The inverse relationship is also observed when the data is considered in that manner. While both age and marital status are observed as influencing the voter turnout within a given area, the closeness of the relationship between both variables makes it difficult to infer the causal factors that drive the participation rate with a strong degree of reliability. While both variables have a significant impact, a subsequent

more detailed composite analysis will consider these variables alongside additional associated variables. While marital status is not the only variable considered which has a close relationship to age, it serves as an example of the existence of multicollinearity within the dataset, a factor that must be taken into consideration in subsequent analyses. In this respect, further issues of multicollinearity will be outlined in detail as they arise in the investigation process.



	PC VAP 18-29	PC VAP 30-49	PC VAP 50-64	PC VAP 65+	PC VAP Single	PC VAP Married	VTGE16
PC VAP 18-29	1.00	0.03	-0.57	-0.52	0.85	-0.75	-0.44
PC VAP 30-49	0.03	1.00	-0.57	-0.70	0.11	-0.05	-0.33
PC VAP 50-64	-0.57	-0.57	1.00	0.37	-0.63	0.59	0.43
PC VAP 65+	-0.52	-0.70	0.37	1.00	-0.41	0.28	0.44
PC VAP Single	0.85	0.11	-0.63	-0.41	1.00	-0.96	-0.49
PC VAP Married	-0.75	-0.05	0.59	0.28	-0.96	1.00	0.46
VTGE16	-0.44	-0.33	0.43	0.44	-0.49	0.46	1.00

Figure 5.3.1: Scatterplot of the Correlation Among Age and Marital Status Variables with Registered Voter Turnout in General Election 2016 at the Electoral Division Level

Housing

Homeownership and residential mobility have served as key indicators of voting likelihood in a wide array of electoral contexts (Downs, 1957; Fischel, 2001), including in the Irish context. (Kavanagh, 2002). In this sense, individuals that live in rented accommodation are perceived as notably less likely to participate in electoral contests than individuals that own their own home. The perceived reasoning behind the widely observed trend points to the increased likelihood of a homeowner being a long-term resident in the area, hence being more invested their local community. As indicated by long-serving Deputy Sean Barrett:

> 'People who own their own house tend to be more committed to what's happening in the area… they have a stake in the area'. (Barrett, 2019).

There is also the potential financial aspect to consider as a motivating factor behind observed trends, with a home being a valuable asset that may be impacted by policy changes at a national or local level. (Fischel, 2001; Jiang, 2018). In this sense, homeowners may be considered to be more affluent than renters in many contexts, and as such, the aspect of accommodation tenure and affluence may have a common association. Deputy Eamon Ryan highlights that the impact of community involvement does not necessarily explain areas of historically low engagement, pointing to areas that consistently demonstrate low turnout but have relatively stable communities living there.

> 'I don't think it's more investment in the community. There is a very strong sense of community in areas around Pearse Street… where you've got traditional working-class communities who have been there for a long time or a very, kind of, strong sense of community'. (Ryan, 2019).

While Deputy Ryan acknowledges that areas with high levels of homeownership tend to be more affluent areas, and demonstrate higher levels of voter turnout, he points to potential driving factors beyond the financial aspect of affluence, instead considering that individuals that are more

imbedded in the community and more stable in their day-to-day lives perhaps have more social resources available to them and have an active interest in the political system.

> 'They've more skin in the game… I wouldn't be so narrow to say; "oh I've got a property worth a million and therefore I want to protect it". I don't think we're as narrow as that. But just that maybe you're more settled, maybe you've a more stable situation so you can afford to think, you know, not just paying the bills next Friday'. (Ryan, 2019).

In the 2016 General Election, areas that have high levels of owner-occupied homes demonstrate strong support for past observations. As Table 5.3.5 demonstrates, there is a notable positive correlation observed between areas with high levels of owner-occupied homes and areas that demonstrate a high level of voter turnout by both measures applied. When the temporal perspective is also considered, there is evidence to suggest that while these areas have a high level of political engagement, this relationship has decreased in strength from the 2007 General Election, with a medium strength negative correlation observed between areas with high levels of owner-occupancy and registered voter turnout rates of change. This trend is also observed in the voting-age data, to a lesser extent.

Voter Turnout	**Pearson Correlation Coefficient**	**P-value**
REG	0.6067201	8.522848e-93
VAP	0.7370194	1.97038e-146
Turnout REG Change 07-16	-0.3525068	4.49074e-28
*Turnout VAP Change 07-16	-0.1048293	0.001523

* 50 Outlier Values Removed from the Dataset

Table 5.3.5: Pearson Correlation of Voter Turnout and Proportion of the Population Living in Owner-Occupied Homes at Electoral Division Level

When examining the impact of high levels of rented accommodation on voter turnout trends, there is also a notable correlation observed, as demonstrated in Table 5.3.6. As previous studies in the

Republic of Ireland have demonstrated (Kavanagh, 2002), areas with high levels of rented accommodation tend to reflect a lower overall rate of voter turnout. When examining the relationship between voter turnout and the proportion of individuals in rented accommodation, there is a medium strength negative correlation observed at the Electoral Division level with a strong level of reliability in the results. The temporal trends also suggest a notable increase in voter turnout in areas that have high levels of rented accommodation, with this trend, in a similar manner to the previous investigation, best reflected in the registered voter turnout data.

Voter Turnout	**Pearson Correlation Coefficient**	**P-value**
REG	-0.5954658	1.333565e-88
VAP	-0.7368951	2.335761e-146
Turnout REG Change 07-16	0.3583541	5.071698e-29
*Turnout VAP Change 07-16	0.1082477	0.00106

* 50 Outlier Values Removed from the Dataset

Table 5.3.6: Pearson Correlation of Voter Turnout and Proportion of the Population Living in Rented Homes at Electoral Division Level

Previous studies have also identified the specific impact of Local Authority rented accommodation on voter turnout trends. (Kavanagh, 2002). As Table 5.3.7 indicates, while there is a notable association between voter turnout and Local Authority rented housing indicated, it is less pronounced than the impact of rented accommodation overall, demonstrating a weak-medium negative correlation with both measures of participation. Similar results are also observed when applying the alternative measure of a Spearman correlation, which may be more appropriate given the lack of a normal distribution in the proportion of the population in Local Authority rented housing. When the temporal data is considered however there is a more pronounced trend than in previous analyses. From the temporal perspective, there is a weak-medium strength positive correlation observed between rates of turnout change and the proportion of the population living in Local Authority rented housing. This suggests a notable increase in participation among Local Authority renters in the period from 2007 to 2016.

Voter Turnout	Method	Correlation Coefficient	P-value
REG	Pearson	-0.3794539	1.316213e-32
REG	Spearman	-0.3562219	1.129335e-28
VAP	Pearson	-0.410645	6.52571e-36
VAP	Spearman	-0.4011613	1.395169e-36
Turnout REG Change 07-16	Pearson	0.3556961	1.374515e-28
Turnout REG Change 07-16	Spearman	0.2600444	1.462e-15
*Turnout VAP Change 07-16	Pearson	0.1842894	2.072e-08
*Turnout VAP Change 07-16	Spearman	0.1579105	1.648e-06

* 50 Outlier Values Removed from the Dataset

Table 5.3.7: Pearson and Spearman Correlation of Voter Turnout and Proportion of the Population Living in Local Authority Rented Accomodation at Electoral Division Level

As some tenants in rented accommodation may rent on a long-term basis, the proportion of the population that has had the same address for over one year is examined in Table 5.3.8. While data is analysed using the Pearson method, the Spearman approach is also considered as there is a somewhat irregular distribution of values for the independent variable. The correlation observed in this respect serves to suggest that the transience of a given population has an impact on the rate of voter participation within a select area, to a certain extent. The analysis demonstrates that areas with a higher proportion of individuals at the same address for over one year tend to have a higher level of participation, compared to areas with a large degree of transient residents. A notable correlation is observed among all methods applied, with this trend especially pronounced when the voting-age population data is considered. The temporal data fails to uncover the existence of a strong trend with the same degree of reliability, with no correlation observed between the rate of voting-age population turnout change by either method applied, when either the full dataset or the reduced dataset with extreme outliers removed is utilised. The rate of turnout change in registered participation however does point to a weak negative correlation, perhaps suggesting that a decline from 2007-2016 is more likely among these communities.

Voter Turnout	Method	Correlation Coefficient	P-Value
REG	Pearson	0.4458701	9.403524e-46
REG	Spearman	0.2941972	1.147945e-19
VAP	Pearson	0.6215238	5.485301e-92
VAP	Spearman	0.5136676	2.080304e-58
Turnout REG Change 07-16	Pearson	-0.1625665	7.993e-07
Turnout REG Change 07-16	Spearman	-0.2060181	3.373e-10
Turnout VAP Change 07-16**	Pearson	0.06104036	0.06539
Turnout VAP Change 07-16**	Spearman	0.04711233	0.1551

** Fails to Return a False Positive Risk Value of < 5%

Table 5.3.8: Pearson and Spearman Correlation of Voter Turnout and Proportion of the Population Living at the Same Address for Over One Year at Electoral Division Level

Homeownership rates appear to serve as a strong indicator of voter turnout in a given setting, and perhaps suggest support for the previously observed impact of homeownership and residency tenure on participation. However, the observed relationship does not indicate if this trend is perhaps shaped by a sense of community attachment, or as other academics have suggested in the context of the USA, a potential financial aspect in terms of home value. In this sense, higher levels of interest in community activity and political processes may be motivated by a perceived opportunity to protect or further an investment in an asset, an asset that is usually a person's greatest financial investment, their home.

The observed trends also raise the question of other potentially influential factors that are perhaps reflected by areas in which a population is more likely to rent accommodation as opposed to owning their own homes. In this sense, there is potentially a notable impact of the overall age of a population, with younger populations, especially in the contemporary context, perhaps being notably less likely to own a home. There is also a potential economic context to consider, as subsequently discussed in detail, with more affluent areas perhaps more likely to have a higher rate of homeownership. The potential impact of other characteristics that help to shape the

observed relationship may also be considered in a geographic context, with a notable difference in the type of accommodation available in various areas, with far more rented accommodation available in largely urban areas, while there is a greater degree of homeownership in more rural settings.

In this respect, while the data points to a relatively strong association between voter turnout, the type of accommodation an individual lives in, and the length of time that they have been living in a given area, this must be considered in alongside the various other factors that may influence participation.

Education

Educational attainment is perhaps one of the most widely studied and widely noted positive influences on voter participation, as outlined in Chapter Two. However, there is a wide array of considerations to take into account when examining this issue. While Sondheimer and Green (2010) note the consistency in the observed positive correlation using a wide range of methods, the authors also stress the need to consider contextual influences and the scale of analysis used. In the Irish context, past examinations have highlighted the role that education can play in shaping political behaviour. (Kavanagh, 2002). Educational attainment can have an impact on the electorate for a number of different reasons.

Deputy Sean Fleming and Deputy Robert Troy highlight that lower socio-economic groups within society are potentially more vulnerable with respect to educational attainment, an issue that has the potential to create a political inequality and is perhaps an issue that may be better addressed by policy makers, while Deputy Louise O'Reilly places a particular focus on the role of early education.

> 'The areas that are more economically and socially challenged would include [issues with] education as well'. (Fleming, 2019).

> ‘Policies have a direct consequence on people’s lives. It is unfortunate that people in lower socio-economic areas don’t see that. And I think that’s a failure on our part too in terms of not demonstrating to them the benefits of participating in politics’. (Troy, 2019).
>
> ‘It has to start with primary school. And I think kids who are coming up, they’re disengaged from the political system before they even get to secondary school’. (O’Reilly, 2019).

In this sense, by completing lower levels of education, there is an opportunity to begin a life-long process of engagement with politics as a whole. In the case of General Election 2016 in the Republic of Ireland, the select case study area demonstrates a notable lack of expected correlation between educational attainment and voter turnout at the Electoral Division level. As demonstrated in Table 5.3.9, the measure of ‘lower’ educational attainment demonstrates a weak relationship in the opposite direction than expected, but this measure returns a result that demonstrates a lower degree of reliability than previously observed trends. In this instance, the temporal data analysis fails to uncover any significant trends, with weak evidence to potentially suggest a slight increase in turnout among the voting-age population in the ‘lower’ education cohort, albeit a broadly unreliable observation.

Voter Turnout	**Pearson Correlation Coefficient**	**P-value**
REG	0.2464709	4.358571e-14
VAP	0.3439626	5.143657e-25
Turnout REG Change 07-16	-0.0299772	0.3659
*Turnout VAP Change 07-16	0.08038301**	0.01518

* 50 Outlier Values Removed from the Dataset

** Fails to return a False Positive Risk Value of < 5%. FPR = 0.064.

Table 5.3.9: Pearson Correlation of Voter Turnout and the Proportion of the Population in the ‘Lower Education’ Category at the Electoral Division Level

Third-level education arguably has particular potential to make the electorate more aware of the role that politics plays in shaping their personal environment, and the nuances of civic service that they may encounter in their everyday lived experience. Deputy Robert Troy highlights the potential impact of higher education on an individual in this respect while Deputy Sean Barrett of Fine Gael notes the significant changes with respect to educational attainment within his constituency over the past number of decades.

> 'People who have gone to college are more in tune maybe with [the fact that] the government of the day does make a difference, because the government of the day are the people who initiate policies, who pursue policies, enact legislation, and that legislation has a direct impact on people's lives'. (Troy, 2019)

> 'When I go back to 74', the poor people didn't have third-level education, or indeed second-level education. But now people are, the vast majority of people in my constituency now would have at least second-level education, you know, and a sizable percentage would be moving into third-level education of some type'. (Barrett, 2019).

In this sense, education has the potential to better inform individuals of the role that politics and the electoral process can play in shaping their lives, with more citizens than ever before progressing further in formal education. While past studies have highlighted the presence of egocentric and sociotropic voting (Pattie & Johnston, 2009), higher education has the potential to appeal to members of the electorate motivated by these factors, as individuals may better understand how their needs, or the needs of their community, are connected to the political process. While higher education perhaps makes this connection more visible to individuals, this does not necessarily mean that they are more likely to participate in the electoral process. This is highlighted by Deputy Sean Fleming, who states that some people with a higher level of education might be less likely to participate as a result.

> 'There's probably some people who might take the opposite view. Educated people might say "well, the TDs aren't up to very much, why would we vote for them?"' (Fleming, 2019).

In the process of examining the impact of a higher level of educational attainment within the select case study area for General Election 2016, a similar result to the investigation of the impact of lower education is returned. As viewed in Table 5.3.1, the measure of higher educational attainment fails to return evidence of a strong relational impact on voter turnout levels, with weak evidence of a correlation. In a similar manner to the examination of lower educational attainment, the slight relationship observed is in the opposite direction to what existing literature suggests. In terms of the temporal trends in this instance, there is again little or no evidence to suggest a trend in any given direction, with the voting-age data pointing to the presence of a weak negative association, but again, provides a broadly unreliable measure.

Voter Turnout	**Pearson Correlation Coefficient**	**P-value**
REG	-0.1356149	3.976165e-05
VAP	-0.2616526	8.999679e-15
Turnout REG Change 07-16	0.0107828	0.745
*Turnout VAP Change 07-16	-0.08133826**	0.01401

* 50 Outlier Values Removed from the Dataset

** Fails to Return a False Positive Risk Value of < 5%. FPR = 0.0597

Table 5.3.10: Pearson Correlation of Voter Turnout and Proportion of the Population in the 'Higher Education' Category at the Electoral Division Level

In terms of the potential impact of educational attainment on voter turnout trends in General Election 2016, the areas in the select case study area show little or no evidence of a strong relationship. While this may demonstrate that areas with a lower educational attainment are not necessarily more likely to have a lower level of voter turnout, there are a number of considerations when interpreting the results. One consideration addresses the type of education that may be interpreted as having a potential impact on voter engagement. While no correlation may be observed in this analysis, one may consider that political processes and electoral process are not specifically addressed at any stage of the formal educational process. While a more educated individual may have a better understanding of how political processes impact on their lives

directly, the process of voting itself may be a barrier for people that have not been introduced to the electoral process at early stages of education, or indeed, introduced to the process outside of the formal education system. Deputy Alan Farrell highlighted the barriers that face people in this respect.

> 'Look at the number of spoiled votes in the last election, the confusion that reigned, and it was quite extraordinary…We've a lot to learn in terms of educating people, motivating them, and making them realise how important it is… If you don't say, you don't have a voice…. We also have to make it more convenient for people. The voter registration process is arcane. The voting process is arcane'. (Farrell, 2019).

In this sense, perhaps the impact of educational attainment is driven by electoral and political education specifically. This type of education is not uniform across the State, and for many individuals often takes the form of education outside of a formal school setting. In select cases, the importance of voting and information of the voting process may be disseminated by other groups within the community, a process that is viewed by Deputy Maureen O'Sullivan as one that is key to addressing areas of notably low voter participation, and in the case of Dublin North Inner City, areas that have notably high levels of socio-economic issues historically. Deputy O'Sullivan highlights the role of youth projects and community groups, alongside early education in this process.

> 'They [youth projects and community groups] will always organise a kind of an awareness campaign to get people registered and to encourage them to vote and make them aware of what the vote is. And then a lot of the schools, the primary schools, they have their own mock election, and we have the candidates down and people vote, and they explain what PR is about. They're the things that I know go on in the North Inner City'. (O'Sullivan, 2019).

Besides the important considerations in the type of education that is examined, there are also a number of methodological considerations when interpreting the displayed relationships, or lack thereof. As outlined by discussion on the aforementioned Modifiable Ariel Unit Problem

(Openshaw & Taylor, 1979), and also by Sondheimer and Green (2010) with specific reference to educational attainment, various scales of analysis may often present very different results. Other considerations, such as the impact of other socio-economic variables within a given area may potentially impact on the trends observed. In a similar fashion to the examination of the impact of marital status and age and the potential for dependency, there are no notable correlations among the educational attainment measures and the proportion of various age cohorts in a given area. In this respect, while there is no notable trend observed between educational attainment and voter turnout in this instance, subsequent small area analyses, more nuanced consideration of the urban/rural variation in trends, and composite spatial regression models may add more clarity to the potential relationship of these variables.

Employment

While there is an aforementioned potentially paradoxical relationship observed between economic influences and voter turnout (Carreras & Castaneda-Angarita, 2019), with past studies examining both the withdrawal effect of economic downturns on select groupings (Rosenstone, 1982; Shah & Wichowsky, 2019) and the potential for mobilisation during economic downturns (Arceneaux, 2003; Ragsdale & Rusk, 2017), the examination of employment levels offers an opportunity to examine the impact of a broad measure of economic conditions on voter participation within a select area.

Deputy Sean Fleming points to the role that the macro-economic conditions play in shaping the individual level of engagement with the political system, by highlighting the areas which are impacted by economic conditions in an individual's life and noting that these are often shaped by access to employment and income.

> 'What underlines everything is the strength of the economy. Right. And if the economy is doing well and people are working, social issues are light because people are at work, they're earning money, they can afford their rent, they can afford their health care and they can afford to go out. So you don't get many social difficulties. In a time when the economic situation is more severe, as we've had, and we still have, you have a major problem with

> people getting housing, rent, people accessing the HSE treatment, and then, far more people relying on some element of the social welfare payment. So in good economic times, I'll call it the "economic social issues", are not as prevalent because they're not the problem… But in a more difficult economic time, they could become far more prevalent'. (Fleming, 2019).

In order to examine the impact of employment levels on participation in General Election 2016, the proportion of the population that is classed as 'working' in Census 2016 may be examined at the Electoral Division level. In this examination, while there is a notably low level of variance among the values returned, there is also a lack of a notable correlation, with only a very slight inverse trend observed, as displayed in Table 5.3.11. The temporal data in this case fails to return a valid finding in terms of the change observed in registered voter turnout data, with the level of change in voting-age turnout demonstrating a very weak inverse relationship to the independent variable.

Voter Turnout	**Pearson Correlation Coefficient**	**P-Value**
REG	-0.1727085	1.537491e-07
VAP	-0.2666121	2.677349e-15
Turnout REG Change 07-16	-0.03626317	0.274
*Turnout VAP Change 07-16	-0.1076654	0.001128

* 50 Outlier Values Removed from the Dataset

Table 5.3.11: Pearson Correlation of Voter Turnout and Proportion of the Classed as 'Working' at Electoral Division Level

When interpreting the results it is important to consider that employment alone may not be an accurate measure of the economic conditions within a select area. In this sense, the measure of the 'working' independent variable may also exclude other instances that are not necessarily associated with less-favourable economic conditions within a select area. In order to examine this

aspect in more detail, an alternate measure of economic conditions may be applied in the form of an 'unemployment' based analysis. This serves to examine the specific impact on voter turnout in areas with high levels of individuals class as 'unemployed, having lost of given up previous job'. (CSO, 2016). This measure also excludes those that are unemployed due to disability or on health conditions. As Table 5.3.12 demonstrates, there is a weak negative correlation observed in this instance, suggesting the possibility of a lower-than-average voter turnout in areas that have high levels of unemployment. The temporal data in this case provides some evidence to suggest a correlation between an increase in participation and the proportion of the population classed as 'unemployed'. This weak relationship is demonstrated in the registered voter turnout data, and also in the voting-age population data to a lesser extent when considered in the context of the dataset which has extreme outlier values removed.

Voter Turnout	**Pearson Correlation Coefficient**	**P-Value**
REG	-0.2904858	3.421141e-19
VAP	-0.2817409	5.656247e-17
Turnout REG Change 07-16	0.252795	9.19e-15
Turnout VAP Change 07-16	-0.08924962	0.006997
*Turnout VAP Change 07-16	0.118353	0.0003411

* 50 Outlier Values Removed from the Dataset

Table 5.3.12: Pearson Correlation of Voter Turnout and Proportion of the Classed as 'Unemployed' at Electoral Division Level

The examination of the proportion of the population classed as 'retired' provides an opportunity to build on the previously examined impact of age on participation, and the impact of employment, or past employment, alongside this. While 'retired' is classed as an employment measure in the census data, it is perhaps a factor best considered alongside age variables and the potential impact that this may have on voting behaviours. As Table 5.3.13 demonstrates, there is a mild positive correlation observed in this instance between turnout and retirement, suggesting that areas with high levels of retirees are more likely to demonstrate a higher voter turnout. The temporal data in this instance fails to return any significant observations.

Voter Turnout	Pearson Correlation Coefficient	P-Value
REG	0.3816582	5.360057e-33
VAP	0.385823	1.475417e-31
Turnout REG Change 07-16	-0.04470778**	0.1773
*Turnout VAP Change 07-16	0.05908304**	0.07452

* 50 Outlier Values Removed from the Dataset
** Fails to Return a False Rositive Risk Value of < 5%

Table 5.3.13: Pearson Correlation of Voter Turnout and Proportion of the Classed as 'Retired' at the Electoral Division Level

The examination of the student population serves to provide some insight into another employment variable that also tends to have a strong age-association. As Table 5.3.14 outlines, the nature of the distribution of the student population does not lend itself to any relatable correlation analysis in both the proportion of registered voters and the eligible voting-age population that cast a vote on Election Day, when applying either the Pearson or Spearman method of examination.

Voter Turnout	Method	Correlation Coefficient	P-Value
REG	Pearson	0.002962526**	0.9288087
REG	Spearman	0.09511836	0.004039087
VAP	Pearson	-0.02869726**	0.4033785
VAP	Spearman	0.08115339**	0.01796057
Turnout REG Change 07-16	Pearson	-0.05244203**	0.1135
Turnout REG Change 07-16	Spearman	-0.07045125**	0.03339
*Turnout VAP Change 07-16	Pearson	-0.04275559**	0.197
*Turnout VAP Change 07-16	Spearman	-0.06565077**	0.04748

* 50 Outlier Values Removed from the Dataset
** Fails to Return a False Positive Risk Value of < 5%

Table 5.3.14: Pearson and Spearman Correlation of Voter Turnout and Proportion of the Population Classed as 'Students' at Electoral Division Level

While the analysis of this variable does not point to any significant overall trends, the tendency for the student population to have a notable age-association, and the tendency for the student population to often be more concentrated in specific areas may make the variable better suited for examination in the context of subsequent multiple regression analyses. The issue of a traditionally low voter turnout among student populations is well noted by political representatives, even in the context of the aforementioned increased level of registration among younger cohorts in recent referenda. In this respect, Mr. Eamon Gilmore points to the notable difference in engagement levels between student groups and older pensionable populations, and the potential negative influence of representational inequality as a result.

> 'You know, politics is a cruel business, but its also a cruel business from the point of view of; after every election every political party does an analysis… And come election time, areas and components of the population who vote get more attention. I mean for example, I used to say this to the Student's Union, that one of the things that they needed to do a lot more of was to get the students to vote because, you know, there was certainly for a period of time, there was a perception that the students weren't voting. And pensioners vote… Pensioners will always get more attention than eighteen-year-olds'. (Gilmore, 2019).

Social Class

While social class may be understood in many different ways and measured by numerous indicators and combinations of variables, this study applies an employment-type based measure, as previously expanded upon in Chapter Two and Chapter Three. While previous examinations of social class have also noted the role that income levels play in shaping 'class', the available census data does not record a direct measure of individuals' income. In this respect, it is not unreasonable to suggest that an employment-based measure provides a suggestion of income levels, to a certain extent. Given this suggestion, the select measure serves as a potential indicator of 'class', regardless of one's chosen interpretation of the term.

While social class has been examined and understood to be a key indicator of voter turnout and political engagement in various contexts (Beeghley, 1986; Kavanagh, 2002; Lahtinen et al., 2017),

there is a notable lack of correlation observed in terms of an employment-based social class impact on voter turnout in General Election 2016 within the select study area. The 'category-one' class is created to consist of individuals listed as having 'professional' employment or 'managerial and technical' roles, who would be expected to have a positive correlation with areas of higher voter turnout based on the aforementioned existing research. As demonstrated in Table 5.3.15, there is a correlation observed in the expected direction. The observed correlation is notably weak however, suggesting that perhaps social class is not a primary determining factor in shaping voter turnout trends in all areas, or perhaps suggesting that external factors play a role in shaping the observed relationship. The temporal data also demonstrates a weak inverse relationship by both measures applied, suggesting that voter turnout has an increased likelihood of decline from 2007 to 2016 among communities in 'category-one' employment, but again, this trend is notably weak in nature.

Voter Turnout	**Pearson Correlation Coefficient**	**P-Value**
REG	0.1816235	3.325253e-08
VAP	0.1199425	0.0004576233
Turnout REG Change 07-16	-0.1618715	8.917e-07
*Turnout VAP Change 07-16	-0.1279021	0.0001074

* 50 Outlier Values Removed from the Dataset

Table 5.3.15: Pearson Correlation of Voter Turnout and Proportion of the Population Listed in 'Category-One' Employment at Electoral Division Level

As with previous socio-economic and demographic analyses, the presence of additional factors alongside the existence of a pronounced level of the population in 'category-one' employment must also be considered. In this respect, it is important to consider the influence of social class on participation when examined alongside other socio-economic, demographic, and geographical factors and the potential role that the selected scale of analysis plays in shaping observed trends.

In this respect, the case of the Foxrock-Beechpark Electoral Division provides an example of an area with a high level of individuals in 'category-one' employment, and also a high level of

category-one employment. There are a number of other characteristics in the area that may facilitate a high of voter engagement. Long-serving representative Eamon Gilmore points to a number of factors in this regard, including the level of residential stability in the area.

> ‘You don’t have the same level of rental populations. So these are homeowners, you know, stable, not much movement. Houses will move but they will move by way of selling and they will sell to people, probably of the same kind of people, maybe a bit younger but you know, the same people’. (Gilmore, 2019).

In this sense, there may potentially be a logical relationship between people that have a more professional job, an increased likelihood of a greater income, and as a result, are more likely to be homeowners. While the aforementioned level of ‘rootedness’ in the community may be a potential factor in increased participation in such an area, Mr. Gilmore also points to the practicality of mobilisation during an election campaign in a given area, or ‘canvassability’, which is also facilitated by the type of accommodation present, to a certain extent.

> ‘So, the election campaign is going on and you can bet your sweet life that every door in Foxrock-Beechpark has been knocked on, certainly by every party, and probably by canvassers for almost every candidate, because it’s houses going all along the street. You walk up, you knock on the door. You arrive at an apartment block; you may not be able to get into the block at all. So they don’t get the same exposure to electoral activity’. (Gilmore, 2019).

While Foxrock-Beechpark may be identified as an area with a high proportion of ‘category-one’ workers and a high level of voter engagement, it is important to consider the other factors that may be associated with individuals that have this type of employment, and perhaps an increased likelihood of a higher level of affluence, homeownership, and perhaps even education. In this sense, the traits that are seen to increase participation may be reliant on one another, often manifesting as high values in the same areas as a result. Outside of this, these specific traits may also facilitate other forms of engagement and mobilisation, such as the ‘canvassability’ of houses as opposed to apartments, as identified by Mr. Gilmore. (2019). When considered in this respect,

although the observed correlation between areas with high levels of ‘category-one’ workers may not necessarily determine the degree of electoral participation, the measure may be considered to play an important role in shaping influential traits within select areas.

In a similar fashion, areas with high levels of individuals in ‘category-two’ employment, consisting of individuals that are classed as ‘semi-skilled’ or ‘unskilled’, tend to display lower levels of registered voter turnout. The weak negative relationship in this instance, as Table 5.3.16 demonstrates, again suggests that either social class is not a primary determining factor, or that other the relationship may vary depending on other contextual factors. In this examination there is also a notable lower level of statistical significance than other analyses, suggesting that any inferences from the observed correlation should be only considered as part of a wider analytical process. The lack of significance in the data in this instance is notably more pronounced when the voting-age population measure of turnout is applied, with this examination failing to return a significant level of reliability. The temporal data in this instance points to a slight increase in participation in areas with large proportions of the population in ‘category-two’ employment, with this trend notably weak in nature and failing to reach a reasonable degree of reliability in observation for the voting-age population data.

Voter Turnout	**Pearson Correlation Coefficient**	**P-Value**
REG	-0.09689639	0.003399578
VAP	-0.02769607	0.4199899
Turnout REG Change 07-16	0.09881494	0.002814
* Turnout VAP Change 07-16	0.06869188**	0.03807

* 50 Outlier Values Removed from the Dataset

** Fails to achieve a False Positive Risk Value of < 5%. FPR = 0.13

Table 5.3.16: Pearson Correlation of Voter Turnout and Proportion of the Population Listed in ‘Category-Two’ Employment at the Electoral Division Level

Overall, the examination of the relationship between the measure of social class based on employment-type fails to return evidence of a strong relationship in either direction. While there is some evidence to suggest higher turnout among communities with a high level of 'category-one' employment and also a suggestion of turnout decline in these areas between 2007 and 2016, the observed relationships are notably weak. Further to this, areas that tend to demonstrate an association in this direction, such as the example of the Foxrock-Beechpark Electoral division, serve to highlight instances in which other factors that are potentially related to employment-type are potentially more likely to influence participation directly. In this sense, subsequent composite analyses, and examination of factors at a smaller scale of investigation may provide additional insight into any associations between electoral participation and an employment-based measure of 'social class'.

Ethnicity

When considering the socio-economic factors that shape voter turnout trends within a given area, one factor which may be considered is the ethnic characteristics of the resident population. As previously discussed, not all individuals are eligible to participate in general election contests. In this respect, one must be either an Irish national, or a national of the United Kingdom in order to cast a general election ballot. With this in mind, an examination of the 'Foreign Born' census measure (CSO, 2016) may serve to provide some insight into the proportion of 'New-Irish' citizens that participate in electoral contests. The level of engagement from 'New-Irish' citizens is an important consideration, as many foreign-born citizens and communities may face challenges that are unique to them. Deputy Robert Troy notes the responsibility of engaging with members from foreign-born communities, and asylum seekers in particular, within his constituency. Deputy Bernard Durkan also notes the various challenges that face foreign-born communities and the various barriers that they have faced both in the past and in the contemporary context.

> 'I would try and work with the people who are living [in local asylum centres], to be a voice for those people. A lot of those people are very vulnerable. They're coming from a

very bad situation. They're looking for a fresh start…we have to support these people. We have to show them that they're welcome'. (Troy, 2019).

'The African communities, the East-European communities, the Muslim communities. I have found them to be very, very helpful in bringing to me an opportunity to examine their particular situation, how they fit into our society and how society affected them. I think that's important for all of us, as citizens of this country, and hugely important as time goes by… I think it's sad that, you know, there is any belligerence towards [foreign-born communities]. There shouldn't be'. (B. Durkan, 2020).

As viewed in Table 5.3.17, there is a notable negative correlation between the proportion of foreign-born individuals and voter turnout in a given area. While not all individuals in this instance may be eligible to vote in a given contest, it may be considered that many New-Irish citizens that are eligible to participate are also included in this measure and the results demonstrate a fair representation of the observed correlation in this respect. In terms of the temporal data, while the voting-age measure fails to outline a strong reliable trend, with some suggestion of a weak negative correlation, the registered turnout change demonstrates a weak positive association with a strong degree of reliability. This suggests that voter turnout tends to be notably lower in areas that have significant foreign-born communities, but also suggests a potential tendency for voter turnout to increase in these areas in the period from 2007 to 2016. In this sense however, the methodological restrictions prevent any conclusive findings. Further to this, it is also important to consider the additional traits that may be broadly associated with areas which tend to have large foreign-born communities. In this sense, subsequent composite regression analysis may provide further relevant insight.

Voter Turnout	Method	Correlation Coefficient	P-Value
REG	Pearson	-0.5234038	2.76407e-65
REG	Spearman	-0.3732185	1.610021e-31
VAP	Pearson	-0.6571944	3.118309e-106
VAP	Spearman	-0.5559055	4.187374e-70
Turnout REG Change 07-16	Pearson	0.223878	7.993e-12
Turnout REG Change 07-16	Spearman	0.2374064	3.764e-13
Turnout VAP Change 07-16	Pearson	-0.1062122	0.001317
Turnout VAP Change 07-16	Spearman	-0.02033048	0.5398

Table 5.3.17: Pearson and Spearman Correlation of Voter Turnout and Proportion of the Population Listed as 'Foreign-Born' at Electoral Division Level

The North Inner City has traditionally been noted as an area of particularly low voter turnout (Kavanagh, 2002) and also has a sizable foreign-born community. Due to the extent of the foreign-born community in this area, Deputy Maureen O'Sullivan notes the existence of relevant community groups that organise events aimed to stimulate political and electoral engagement within the area.

> 'I certainly have been to a couple of events down in the teachers' club on Parnell Square, where it was a "meet the candidates" for foreign-national communities. (O'Sullivan, 2019).

When examining the level of engagement from foreign-born communities, it is important to consider the possibility of unique barriers to participation that they may face, and the unique motivational factors that may also exist. In terms of the mobilisation of foreign-born communities, the level of interaction between new communities and elected representatives may differ greatly from place to place, with some areas and communities making an active effort to engage with the political and electoral system. In a similar manner to Deputy O'Sullivan, Former Mayor, Deputy Alan Farrell notes the role that community groups play in facilitating this engagement with the

political system. This direct engagement may serve to better inform new citizens of their entitlement to participate in the process, and also facilitate the process of electoral registration.

> 'When I was mayor, I was invited to an awful lot of community groups that were dominated by the New-Irish… and I did it because I felt it was important for those people to feel part of the community, to engage with the processes that are there within the Local Authority around global government circles… I personally engaged with the churches, not alone Catholic or Protestant, but other churches dominated by the new communities. I would have brought voter registration forms'. (Farrell, 2019).

It is also important to consider the difference between individuals that have come to Ireland from different backgrounds, with a number of representatives highlighting the difference in engagement from other EU citizens and from citizens that have come from outside of the European Union. Deputy Sean Fleming highlights the difference in this respect.

> '[European Union Citizens] don't engage as much because they just feel: "I'm from another EU country". However, I do find that those who come for asylum and have come from Africa are totally involved because they really value their Irish citizenship… So I will say, those who have come through, have got their citizenship, have come through as emigrants into the country from outside of the EU, they totally value their Irish citizenship, and they really want to be integrated and they do vote. And they all want to be on the register. So, they're very much engaged'. (Fleming, 2019).

One specific ethic minority that may be examined is the measured proportion of 'White Irish Travellers' (CSO, 2016) in a given area, and the associated level of electoral participation in Traveller communities. Deputy Martin Heydon points to the need to consider variation in the type of settlement among Irish Traveller communities, and the role that this plays in shaping the level of electoral participation, with settled communities noted as far more likely to participate than transient populations. The total measure of the proportion of 'White Irish Travellers' may fail to capture such differences within the community, but this measure still serves to identify areas with

high proportions of members from the Irish Traveller community, and the associated level of electoral participation.

> ‘There’s transient travellers who travel all the time and then there’s those more settled Travellers who tend to be more integrated in their local area, [who] tend to vote. But obviously the traveling Travellers just don’t [vote] because they’ve no connection to the place and they’ve no sense that, again, that it’s their community, that they’re electing somebody for their area’. (Heydon, 2019).

As indicated in Table 5.3.18, there is a weak-medium negative correlation observed in this respect, with a number of areas that have a high proportion of members of the Traveller community also displaying a low level of electoral participation. In this instance, it is important to consider however that the use of a voter turnout value by measure of the marked electoral register may fail to encapsulate the true extent of the relationship. Many members of the Traveller community may be considered to have a higher level of residential mobility and also a noted possible deterrent in registration due to a higher-than-average level of illiteracy among community members. (Van Hout, 2010; Watson et al., 2017). In this sense, the measure of the relationship to the voting-age population turnout may be a more reliable indication of the relationship between variables. The temporal data fails to return definitive evidence of a relationship, however, the Spearman method of correlation, which is more appropriate due to the structure of the data, suggests a slight increase in voter turnout among relevant populations.

Voter Turnout	Method	Correlation Coefficient	P-Value
REG	Pearson	-0.1516476	4.224802e-06
REG	Spearman	-0.2815694	4.416907e-18
VAP	Pearson	-0.1232301	0.0003167633
VAP	Spearman	-0.3385431	3.082617e-24
Turnout REG Change 07-16	Pearson	0.07131567**	0.03128
Turnout REG Change 07-16	Spearman	0.2142478	6.263e-11
Turnout VAP Change 07-16	Pearson	-0.04230509**	0.2018
Turnout VAP Change 07-16	Spearman	0.1128375	0.0006405

** Fails to Achieve a False Positive Risk Value of < 5%.

Table 5.3.18: Pearson and Spearman Correlation of Voter Turnout and Proportion of the Population Listed as 'White Irish Traveller' at the Electoral Division Level

The level of engagement from Traveller communities is a notable ongoing topic of debate within the political community, with Deputy Fiona O'Loughlin, noting that the Traveller community often has very low levels of engagement with the electoral system.

> 'Some [members of the Traveller community] don't see the vote as relevant to them. They see it nearly as that's something for settled people. But you know it's completely, completely, not'. (O'Loughlin, 2019).

In terms of addressing the issue of low engagement from the community, Deputy Loughlin points to the impact of lower-than-average school attendance and education as a potential barrier to electoral engagement. The Deputy also highlights the role that government and representatives have in addressing the issue and making every effort to better engage members of the community in the local political and electoral environment.

> 'Education comes back into that as well too… There's a particular site in Newbridge where I've always gone in and canvased in and the people have always thanked me for calling in… I just think that's really important. I don't think the turnout is good, but I think that it

should be better. I know we've had some candidates as well from the Traveller community. I think that's good…. I think by participating more, say in public meetings, in engagement… I think that in its own way would add more to an acceptance and add more to a positive experience of the Traveller community… I know through the Traveller groupings that each Local Authority has a sector on engagement around local and national government'. (O'Loughlin, 2019).

Deputy Bernard Durkan also notes the importance of education among members of the Traveller community in terms of facilitating an increased level of engagement with society as a whole and the political system that is a key part of that society. In this respect, the Deputy highlights that educational issues among members of the Traveller community are not something that has necessarily been improved over recent decades, despite recent recognition of their official status as an ethnic minority.

'What I do notice in recent times, and I'm a little bit worried about it in respect of Travellers. The age group of the forties and fifties, they're better educated than the more recent age group, the younger group, and that shouldn't be. And I'm wondering; what's the reason for that? Whether it's because now we have agreed that they are a recognised ethnic minority. I don't know whether it's a good thing to do that or not. Because most of them don't want to become a minority for evermore. They want a joint society. And particularly the women. For instance I would meet women of that older age group who are well educated and well able to express themselves…. I think that the younger women are not as well educated. And I think it goes back to [former government advisor and chairman of the National Council for Travelling People] Mr. [Victor] Bewley's time, when he was encouraging education, education, education, and access to education, and that can only be done in a settlement because if you keep moving the kids around, they're not going to get the same standard of education'. (B. Durkan, 2020).

Alongside this, the Deputy notes the positive move towards an increase in political representatives from the Traveller community, but also notes that this is a sign of the existence of issues in the first instance.

> ‘It’s a sign that [members of the Traveller Community are] being integrated into our society. That’s the first thing. It could also be a sign that they’re not getting the treatment that they really should get from the existing structure’. (B. Durkan, 2020).

While it is perhaps debatable whether or not recent developments have improved representation for members of the Traveller community, both Deputy Durkan and Mr. Roy Dooney, Advisor to Minister Mary Mitchell O’Connor, note the frequent opposition from members of the public and related tentativeness of political representatives to effectively represent members of the community in the current political structure. Deputy Marcella Corcoran Kennedy also notes that the Traveller community in Co. Offaly is one which engages frequently with political representation in relation to a range of issues.

> ‘So the question of Travellers, and incidentally the Travellers’ issues. And this is the worrying thing. I find most people come into the clinics are women, women in the household coming to the clinics. And people say, “you shouldn’t have them in the clinics”, this is perpetuating the notion of doing something for people that they shouldn’t have or shouldn’t get or whatever the case may be. No. It’s a question of bringing to the people the face of public politics so that they can sit down and talk to you about their problems and their concerns and their feelings and to the issues that affect them’. (B. Durkan, 2020).

> ‘So there’s resentment at a lot of levels. I mean the Travelling community are very aware of it but there are very few champions in the Dáil. There’s plenty of lip service paid. And there’s a mile-long series of sort of speeches but the ones that will capture attention and probably approval from their voters are the ones who say: “you know as well as rights, you’ve responsibilities and you know the State will do so much for you, but you know the Travelling community has to do its bit as well”. So it’s a very complex issue and the politicians won’t go near it because they will get eaten alive by the media. You could provide a million examples of that all the time’. (Dooney, 2019).

> '…Traveller accommodation is a big issue. Offaly is one of the underspending counties. I think they all are, across the country, in terms of trying to secure good Traveller accommodation. That's a big issue definitely for that cohort but also for the people who don't want them. So there is that… I find that I engage quite a lot with the Travelling community myself in terms of assisting them with housing, assisting them with, you know, the challenges that they're having with health, whether its depression, or you know, trying to access medication, helping them effectively'. (Corcoran-Kennedy, 2019).

In summation, while the data points to a low level of engagement in a number of areas in which there is a significant Traveller community, the relatively low number of members of the Traveller community make this a topic perhaps more suited via the investigation of individual level data, or in the case of this study, via the examination of the subsequent Small Area data and composite regression model analyses. Likewise, the structure of the data in this initial investigation makes it difficult to examine the specific factor of the impact of membership of the Traveller community with regard to engagement levels, as members of the community typically also have a high level of residential mobility and a lower-than-average progression through formal education institutions. In this respect, the subsequent composite analysis may be better suited to identify trends among the community when all other variables are also considered in context. Further to the analysis of initial data, excerpts from discussions with relevant political actors highlight that the Traveller community are one select group within society that may have specific needs that could be better voiced by political representatives, with some representatives perhaps less likely to engage with issues of this nature due to the potential for negative reaction from various groups in the media and among the electorate on which they are reliant for support. While recent times have seen a number of instances which may point to progress in terms of equality of representation and increased equality of service provision for the Traveller community, it is apparent that a number of issues still exist and that a number of issues that are of direct relevance to the community are perhaps not progressing to the extent to which they once were, or potentially even regressing and widening the perceived level of inequality in service provision and political representation.

Social and Economic Deprivation

The range of previously examined variables includes a broad spectrum of individual social, demographic, and economic variables selected from the available Census 2016 categories. As indicated, multiple variables that are examined have a strong tendency to be interrelated and often provide a select measure that may be related to a broader composite or unseen variable that shapes the observed trends. In order to consider the impact of multiple factors on electoral participation, a composite index that presents a single numerical value for a more complex measure may serve to provide further insight into potential causal factors that shape the geography of voter turnout. The Pobal HP Deprivation Index (Haase & Pratschke, 2017) offers an opportunity to examine the impact of absolute and relative 'deprivation' or 'affluence' in a given area in a more complete manner than an examination of the individual variables that may have an influence on the rate of 'deprivation' or 'affluence' in a given setting. The construction of the index, as expanded upon in Chapter Three, incorporates a wide array of indicators in order to give a single value for each Electoral Division in 2016 and provides an opportunity to examine the relationship between the index and voter turnout in General Election 2016.

Deprivation and affluence are characteristics that are often considered to be highly influential on voter behaviours within a select area, as expanded upon in Chapter Two. In relation to the observed difference in participation rates in his home constituency in General Election 2016, Minister Finian McGrath outlines the role that social deprivation may play in shaping trends.

> 'Well first of all, the two things that jump out at me there in relation to that map [of voter turnout within the constituency] is both, one area is an area of disadvantage, a high disadvantage, and the other area is an area of affluence, and there would be no unemployment and it would be a very rich area. And that's the first thing. The second thing is that in pockets of that area… I don't want to name the areas now because I don't like labelling the areas. But in the low-turnout area, there would be a lot of criminality. There'd be a lot of social problems. There'd be a lot of drugs. And there'd be a lot of really bad social problems where voting would not even be on their radar. And that is part of the problem… The disconnect is because some people who were very, and I empathise now… It's not the total area… there's always about 15 or a solid 20 percent of the people who

have so many problems in their personal, family, and their neighbourhood lives, that they don't see. It doesn't dawn on them to have to vote. And yet the amazing thing is, a lot of those people would still come to our clinics in our constituencies about housing problems, about abuse problems, about anti-social behaviour, about garda problems, drug dealing. So it's interesting, and a lot of TDs notice this, that within our cohort of clinics there'd be at least 50% of our clinics where you know you're not getting a vote. So it deals with the cynicism about politicians only doing things for votes. We know every time we hold a clinic, 50% of those people coming to our clinic will probably not vote because you can see there's trauma going on in their lives and there's serious stuff. I mean, I deal with serious stuff in my clinics now. When I hold my clinic… people come down from the other end of the constituency to tell me about widespread intimidation, ganglands, shootings, burnouts. That's the level of stuff you're dealing with that's under the radar. And the Gardai are not even involved in it because the whole communities will not go to the Gardai because of the intimidation. So the reason is, there's so much else going on in their lives that they won't vote'. (McGrath, 2019).

Minister McGrath highlights that in areas with high levels of deprivation, there are potentially a lot of associated negative influences within a given community. The Minister highlights that it is often the nature of the negative local environment and the personal struggles that are associated with living in such an area that restricts a person's likelihood of participating in the electoral process, as opposed to their given socio-economic and demographic characteristics directly. Conversely, this may be reflected in an increased likelihood of participation among communities that have an increased sense of stability in their personal lives.

'The other thing is, I think people who are more content in their lives, in their personal lives, and if they're wealthy and affluent, they have more time to look around and look at issues and get involved in things as well, and I think that's another issue'. (McGrath, 2019).

The issue of potentially lower voter turnout among groups in society that may be more socially disadvantaged can be considered a significant cause for concern, as often individuals in these areas

are some of the most reliant on effective political representation to improve their overall quality of life. This is reflected by Deputy Catherine Martine, who highlights the disconnect among communities that are potentially most in need of effective political representation.

> 'I worked in a disadvantaged school with children who are unfortunately less likely to have families that would vote. And they actually need us more than ever because they need someone batting for them. Just by nature, they're vulnerable, and so by their very vulnerability they need strong advocates'. (Martin, 2019)

While Minister McGrath points to an increased likelihood of participation in more affluent areas, he also notes that there may also be an existing level of disengagement among the same groups, depending on the economic context at the time of election.

> 'The sector of voters in the affluent areas who don't vote, and there are, in the affluent areas as well, are the classic upper-middle-classes who think they don't need politicians and they look down their noses at politicians… And I would meet them on the doors. "Why would I bother voting? Sure I'm getting on well, I'm very successful, we don't need politicians". But the gas thing about it, when the economic crash came, some of those people were the first in our doors looking for help'. (McGrath, 2019).

In this sense, while representatives acknowledge that social deprivation and affluence can have a notable impact on electoral participation, an expected trend in a given direction is not a certainty and can often vary depending on the wider social and economic context at the time of an election. As viewed in Table 5.3.19, there is a notable lack of a strong correlation observed in this instance between the Pobal Deprivation Index values and registered voter turnout values. As individual characteristics have previously demonstrated a number of notable trends for variables that may be considered influential on the 'deprivation' or 'affluence' level within a given area, and many of these individual variables are included within the Pobal Index, the lack of a correlation in this respect is quite notable, suggesting that this deprivation or affluence measure within a given area is perhaps not a key driving factor of electoral participation, with this aspect explored in more detail in subsequent analyses. When the voting-age population measure for electoral participation

is applied there is slight negative association observed. This may suggest that when non-registered individuals are considered alongside non-voters, the associated deprivation level of an area may be more influential, but again, in the opposite direction than expected, with a lower voter turnout associated with a higher level of affluence. When the temporal trends are considered, there is some evidence to suggest a decline in participation in areas with a high level of affluence, or alternatively, an increase in areas that have a high level of deprivation. This is reflected in the change in voting-age population turnout when the relative index value is considered. As expanded upon in Chapter Three, the absolute index is perhaps the more suited index for temporal analysis, and in this case demonstrates a weak inverse relationship with both measures of turnout change applied.

Relative Pobal Index		
Voter Turnout	**Pearson Correlation Coefficient**	**P-Value**
REG	-0.0700418**	0.03443738
VAP	-0.1720983	4.469044e-07
Turnout REG Change 07-16	-0.0794693**	0.01638
*Turnout VAP Change 07-16	-0.1381728	2.825e-05
Absolute Pobal Index		
Voter Turnout	**Pearson Correlation Coefficient**	**P-Value**
Turnout REG Change 07-16	-0.1015888	0.002129
*Turnout VAP Change 07-16	-0.1403763	2.095e-05

* 50 Outlier Values Removed from the Dataset

** Fails to return a False Positive Risk Value of < 5%

Table 5.3.19: Pearson Correlation of Voter Turnout and Pobal Deprivation Index Score at the Electoral Division Level

In summation, while a number of representatives point to the potential relationship between deprivation, associated socio-economic traits, and voter engagement, the initial comparison of turnout with the Pobal measure of deprivation in 2016 fails to return a clear strong trend.

Perhaps the most striking trend is demonstrated with the consideration of the rates of turnout change from the General Election in 2007 to the General Election in 2016. From this perspective, there is a notable tendency for voter turnout to have declined slightly in more affluent areas. Even more pronounced, is the tendency for turnout to have increased significantly in a number of areas that have a high level of deprivation. In this respect, subsequent composite analysis and analysis at the Small Area scale may potentially provide further insight into any potential associations between deprivation, affluence, and voter turnout trends.

5.4: Multiple Regression Analysis of Turnout Trends

When considering the factors that potentially influence voter turnout within a given area, the application of a linear multiple regression model can serve to outline the extent to which these variables shape a given level of electoral participation. While a number of previously examined variables are seen to have a strong relationship to the level of electoral participation within a given area when examined in isolation, the design, application, and analysis of a multiple regression model provides an opportunity to construct a more nuanced and comprehensive investigation into the potentially influential role of socio-economic and demographic factors on electoral participation. The subsequent analysis will firstly examine the level of association among predictor socio-economic and demographic variables in relation to the proportion of the registered electorate that voted in General Election 2016 before applying an alternate analysis using the measure of the estimated eligible voting-age population that participated in the voting process.

Registered Voter Turnout Analysis

Figure 5.4.1 outlines the range of variables that are included in the initial model design and the associated level of influence of each individual variable observed. In this instance, a number of factors are seen to be influential to a given extent, in a model that accounts for 45 percent of all variation in registered voter turnout values. While the model in its initial form serves as a starting point for a valid composite analysis, a number of issues need to be identified and addressed before a valid model may be examined.

As demonstrated in Figure 5.4.1, one consideration of the dataset is in relation to the aforementioned issue of collinearity among potential predictor variables. In this respect, while Figure 5.4.1 includes all of the variables that will be considered for inclusion in the final model, the numerous collinearity issues among variables must be mitigated for in this process.

In order to construct the most accurate mode possible, a training dataset and a validation dataset is created with a random seed used to split the dataset into a ratio of 80 percent training and 20 percent validation. The training model is constructed considering the normality of the data, issues of collinearity and the VIF value, and the contribution of each variable to the model.

The full regression training model is first assessed to determine the potential influence of outlier or extreme values on the functionality of the model. While outlier values may themselves present areas that are noteworthy of further investigation in their own right, the presence of these values in the model greatly reduces the accuracy of any model constructed and the level of statistical significance associated with predictor values. As such, this analysis will subsequently return to examine extreme and outlier values in more detail in the context of resultant model residual values. Prior to this examination, extreme values are removed in the primary model construction process in order to firstly construct a model with the greatest degree of reliability and accuracy possible. This process is conducted prior to the elimination of any variables, as the removal of extreme values may alter the variables deemed to be relevant in the model construction process. The initial training model was continually reassessed with regard to issues of extreme outlier datapoints having undue leverage, potential collinearity among predictor variables, and the variability accounted for by each iteration of the model.

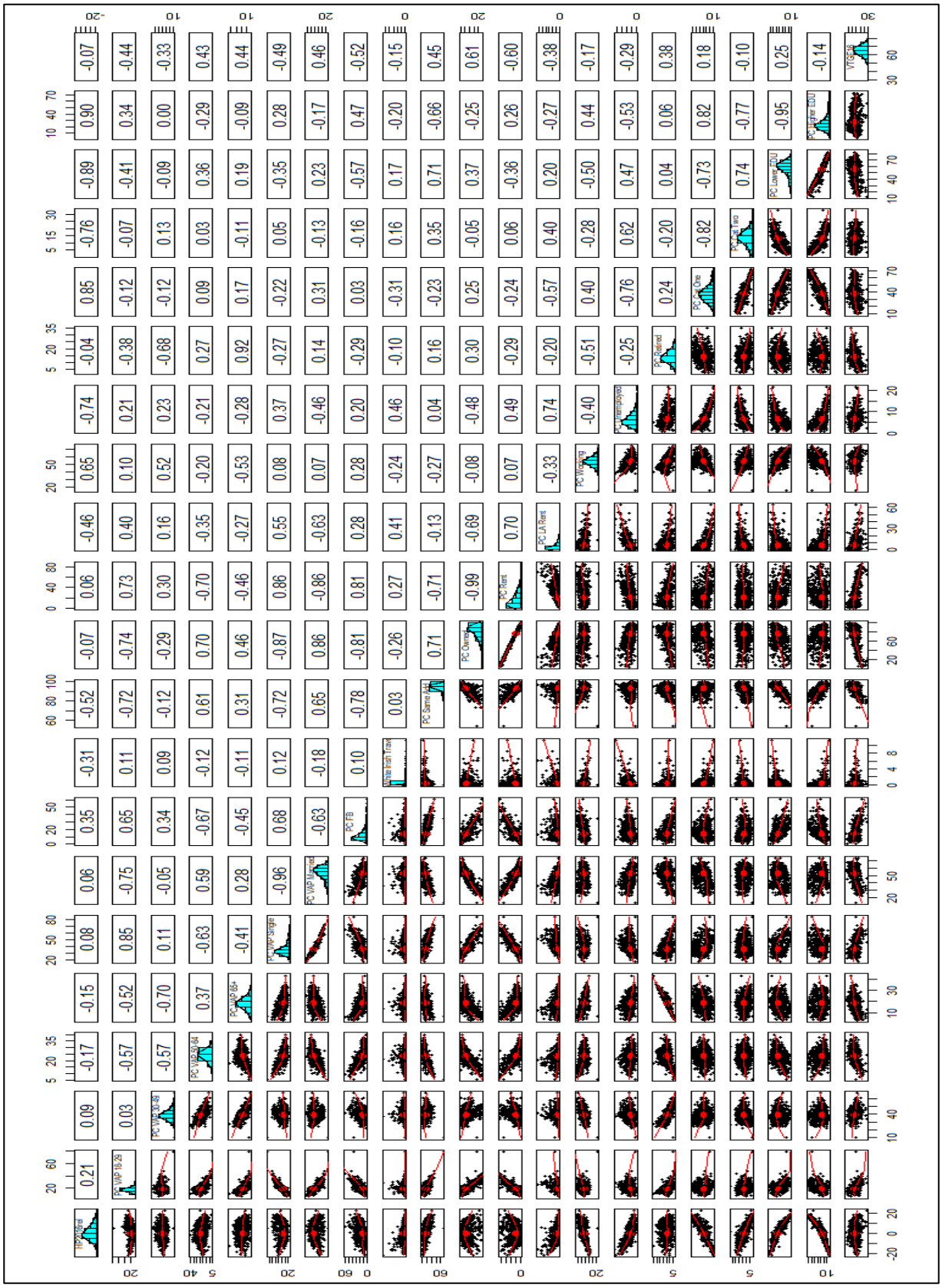


Figure 5.4.1: Scatterplot of Variables in Initial Registered Turnout Model Construction Process

Each reiteration of the model is assessed, with variables eliminated based on their contribution to the model and contribution to instances of collinearity, measured by VIF values. The R^2 value and AIC value are also assessed in order to determine how the model performs in relation to earlier versions. The process is repeated through fourteen variations until a final version satisfies the requirements. The resultant training model, as viewed in Figure 5.4.2, identifies four influential variables that account for just under 40 percent of all the variation in registered voter turnout levels in the training dataset and returns a VIF value of less than 1.6 for each variable included. The final iteration performs relatively also well in term s of Cook's Distance Analysis.

```
Residuals:
     Min       1Q   Median       3Q      Max
-16.6361  -2.8560   0.2676   3.1730  17.6571

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)   0.01609    4.79186   0.003   0.9973
`PC Same Add`  0.66394    0.05445  12.193  < 2e-16 ***
`PC LA Rent`  -0.20560    0.02710  -7.588 1.00e-13 ***
`PC Retired`   0.37186    0.04467   8.325 4.22e-16 ***
`PC Cat Two`  -0.12083    0.05033  -2.401   0.0166 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 '

Residual standard error: 5.373 on 722 degrees of freedom
Multiple R-squared:  0.3911,   Adjusted R-squared:  0.3877
F-statistic: 115.9 on 4 and 722 DF,  p-value: < 2.2e-16
```

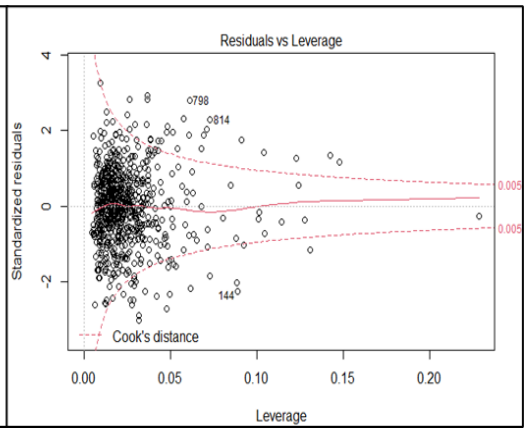


Figure 5.4.2: Final Iteration of the Registered Voter Turnout Training Model

The final training model identifies four influential variables that account for just under 40 percent of all the variability in registered voter turnout levels in the training dataset. A second variation of the model is applied using the log value for the 'PC LA Rent' data due to the possibility of improving the degree of normality associated with the variable, with no significant changes in the model accuracy upon application. The final model produced by the training sample is then applied to the validation sample to assess prediction accuracy based on unseen data. This is an important step in ensuing that the selected variables from the training sample are a strong choice of predicator variables.

The Pearson correlation of the predicted voter turnout values and actual values based on the select predictor variables is compared between training and validation datasets to assess the suitability

of the predicator variable choice, with results presented in Table 5.4.1. The validation model identifies the same level of significance for all of the predictor variables, with a slightly reduced R^2 value of 37 percent. The validation sample is also assessed for extreme leverage, and with three extreme values removed, the model performs to a very similar level.

Model	**Pearson Correlation Coefficient**	**Degrees of Freedom**	**P- Value**
Training	0.6253982	725	< 2.2e-16
Validation	0.5997334	180	< 2.2e-16

Table 5.4.1: Comparison of Training and Validation Model Accuracy

Given a similar level of correlation between the fitted values of both the training model and the validation model with the actual values, the predictors used in the training model may be deemed to be acceptable for use in a final regression model with a full sample for the given study area. The final model, as viewed in Figure 5.4.3 outlines that the percentage of the population at the same address for over one year, the percentage of the population in Local Authority rented accommodation, the percentage of the population that are retired, and the percentage of the population classed as 'category-two' workers in unskilled or semi-skilled employment collectively serve as reasonable predictors for voter turnout levels at Electoral Division scale within the given study area for General Election 2016. In this instance, the percentage of the population at the same address for over a year demonstrates a strong positive association, with a medium strength positive association also viewed with the variable of retirement. An increase in Local Authority rented and the Category-two variables, alternatively has a notable weak negative association with participation levels. While these variables are seen to be influential on the voter turnout levels within the study area, the final model accounts for only 38 percent of all variation in the proportion of registered electors that voted in General Election 2016.

```
Residuals:
     Min       1Q   Median       3Q      Max
-24.1792  -2.9356   0.2873   3.3497  24.0330

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)   1.89853    4.16842   0.455  0.64889
`PC Same Add`  0.64620    0.04776  13.531  < 2e-16 ***
`PC LA Rent`  -0.18847    0.02424  -7.774 2.05e-14 ***
`PC Retired`   0.36916    0.04086   9.035  < 2e-16 ***
`PC Cat Two`  -0.13843    0.04579  -3.023  0.00257 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 5.529 on 907 degrees of freedom
Multiple R-squared:  0.3769,   Adjusted R-squared:  0.3742
F-statistic: 137.2 on 4 and 907 DF,  p-value: < 2.2e-16
```

Figure 5.4.3: Final Regression Model for Registered Voter Turnout in General Election 2016 at the Electoral Division Level

The final model is again re-assessed to determine the impact of extreme values, with two rounds of assessment and the removal of six datapoints improving the accuracy of the model R^2 value to slightly over 38 percent, with no significant change in the coefficient values or p-values. A comparison of model performance in terms of the full model and the model without extreme values may be viewed in Figure 5.4.4. As there is no significant change in the outcome of the model, and as the extreme values may prove to provide valuable insight when examined in more detail, the extreme values are included in all subsequent analyses based on the model.

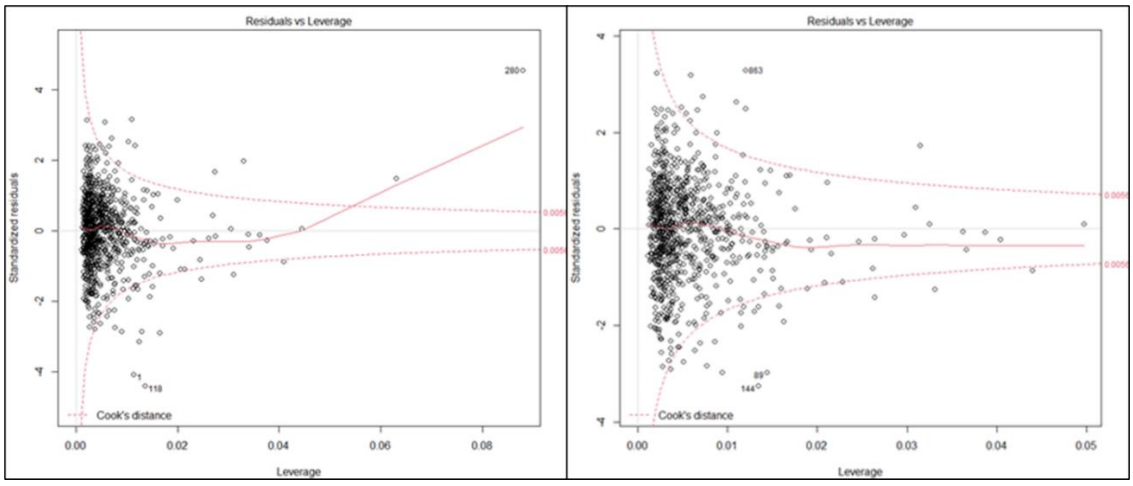


Figure 5.4.4: Cook’s Distance Analysis Comparison of Final Registered Voter Turnout Model

The full final model accounts for just 38 percent of the variability in voter turnout levels, suggesting that the remaining influence is perhaps best accounted for by factors other than the selected socio-economic and demographic variables. The subsequent examination of residual values may aid in the identification of additional influential factors when considered alongside the subsequent results of the estimated eligible voting-age population voter turnout analysis.

Estimated Eligible Voting-Age Population Turnout Analysis

In the same manner as the previous analysis, various re-iterations of the model are constructed for the investigation of influential factors that shape the voting-age population participation rate. In this instance there is a notable need to remove a greater volume of outlier values in order to improve accuracy of the model than was the case in the registered turnout analysis. The removal of a greater degree of outlier values was deemed as the appropriate course of action when considering that the previous examination of electoral register accuracy (Chapter Four). The removal of these outlier values allows a more reliable insight into the core socio-economic and demographic factors that shape trends, prior to the investigation of outlier and cluster location in subsequent analyses. The final iteration of the model may be viewed in Figure 5.4.5, demonstrating that the select predictor variables have significant ability to predict the observed voter turnout values among the voting-age population with an accuracy of 70 percent.

```
Residuals:
    Min      1Q  Median      3Q     Max
-34.719  -4.095  -0.107   4.167  23.824

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)    -71.68068    6.82332 -10.505  < 2e-16 ***
`PC VAP 65+`     0.61469    0.04772  12.880  < 2e-16 ***
`PC VAP 50-64`   0.89113    0.07121  12.514  < 2e-16 ***
`PC Same Add`    1.20016    0.08739  13.733  < 2e-16 ***
`PC LA Rent`    -0.22335    0.03487  -6.405 2.51e-10 ***
`PC Cat Two`    -0.20955    0.06428  -3.260  0.00116 **
---
Signif. codes:
0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.082 on 835 degrees of freedom
Multiple R-squared:  0.6984,   Adjusted R-squared:  0.6966
F-statistic: 386.8 on 5 and 835 DF,  p-value: < 2.2e-16
```

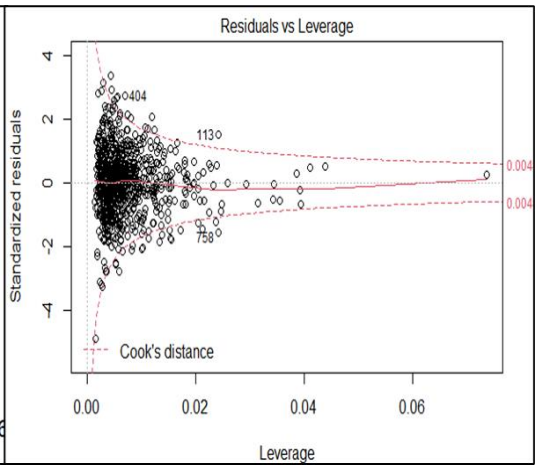


Figure 5.4.5: Final Regression Model for Voting-Age Population Turnout in General Election 2016 at the Electoral Division Level

The final model outlines five influential variables, with each returning a VIF value of less than 2.2. The final model also produces a large degree of reliability in the findings, with the model performing well under Cook's distance analysis. The variables that are observed as having a positive impact on voter turnout levels in this instance are the proportion of the population in the two oldest age categories examined, and the percentage of the population that have been at the same address for over one year, with the latter having the greatest impact. The variables that are seen to negatively influence participation rates are the proportion of individuals in Local Authority rented accommodation and the proportion of 'category-two' workers.

Overall, the findings largely align with the investigation of individual socio-economic and demographic characteristics, and the investigation of the registered voter turnout analysis, with some notable divergence in this respect. The most influential characteristic in both the investigation of voting-age population and register based turnout is that which measures the proportion of the population at the same address for over one year, a variable which is also viewed to be influential in the individual level analysis. There is also a notable positive correlation observed between this variable and the proportion of resident homeowners in an area, and an inverse relationship to the proportion of renters in a given area. This is a logical relationship, as homeowners are more likely to be long-term residents. As such, the inclusion of the 'length of

residency' variable in the model also accounts for these individual level relationships to a certain extent. An interesting insight into the impact of accommodation type may be observed in the case of Local Authority rental accommodation. In this case, while other residency measures have a strong correlation to the proportion of individuals at the same address for over a year, the low VIF value returned from the Local Authority rental variable potentially suggests that the observed negative association with turnout holds true in areas that consist of long-term Local Authority renters. In case of areas with high levels of Local Authority renters, the observed associations may be understood to suggest that these individuals are less likely to participate in electoral processes, not solely due to the reduced likelihood of renters participating less, but also due to a specific characteristic of Local Authority tenants not participating to the same extent as other cohorts.

Both models also highlight the role that age plays in shaping observed trends. In the case of the registered voter turnout, no age variables are included in the final model, however, the inclusion of the percentage of the retired population in an area, a variable with a notable positive association to turnout, has a close association with the older age cohort. In the case of the model based on the estimated eligible voting-age population, there is a significant positive association between turnout and both older age cohorts, with this most notably pronounced in the 50-64 age grouping. The significant association with the 50-64 age cohort is to be expected based on the individual level variable investigation, with the individual level analysis for the 65+ age cohort demonstrating a weak negative association. The reversal in relationship observed for the proportion of voting-age population that participates in General Election 2016 between the individual level analysis and the final iteration of the multiple regression model may be accounted for by a number of factors. Firstly, as the previous investigation into the accuracy of the register highlighted the tendency for the register to be overestimated in rural areas, which tend to have older populations, it is logical that areas which have a high proportion of individuals in the 65+ category also have a number of members on the register that have passed away. The correction of this suspected error would increase participation in rural areas that have an older resident population and alter the individual level analysis. Secondly, and most likely to be the primary driver of the reversal in trend, is the volume of outlier values that are removed in the final iteration of the model in comparison to the individual level analysis dataset. In this respect, it is likely that areas with very high proportions of older individuals, such as urban areas that have a number of nursing homes present, had a strong impact on the initial analysis, an impact that is not present in the final model to the same extent.

This is supported when examining the registered voter turnout figures, as the register analysis identified a number of large nursing homes and institutions that have the majority of residents listed for receiving a postal vote. While this is accounted for in the registered turnout, the voting-age population turnout does not make the same distinction. It is therefore reasonable to conclude that the most reliable association between the 65+ age cohort and voter turnout is that of a positive relationship between variables. The final variable that is included in both the registered turnout model and the eligible voting-age population model is that of 'category-two' workers, an employment-based measure of social class that consists of 'unskilled' and 'semi-skilled' workers. In both instances, there is a negative association between the proportion of individuals in this category and voter turnout figures, albeit somewhat weaker in nature than other key variables. This differs from the initial investigation of individual characteristics which pointed to a lack of a statistically significant relationship in this respect. The relationship observed suggests that while this measure of social class may not be a sole determining factors that shapes voter turnout trends, its inclusion in the model does help to explain a certain degree of variation in turnout levels for areas that should have a higher voter turnout when all other measures are considered, and while perhaps not a key driving factor, does have a notable impact in a number of cases examined.

As the investigation of eligible voting-age population accounts for a greater extent of variation in the data than the marked electoral register figures, there are a number of relevant insights provided. Firstly, it is reasonable to conclude that the notable improvement in the multiple R^2 value suggests that the electoral register inaccuracies appear to be masking the true extent of associations between socio-economic and demographic characteristics and voter turnout levels in many instances. Secondly, findings may indicate that registered voters who do not participate on Election Day are similar in terms of socio-economic and demographic characteristics to those that do not register to vote in the first instance. Finally, while the final model outlines variables that account for 70 percent of variability within the voting-age population turnout figures, there is a further 30 percent of variation that may be accounted for by other factors not included here. Subsequent inclusion of additional geographical variables aims to better account for the remaining variability in this respect.

5.5: Composite Regression Analysis of Temporal Trends

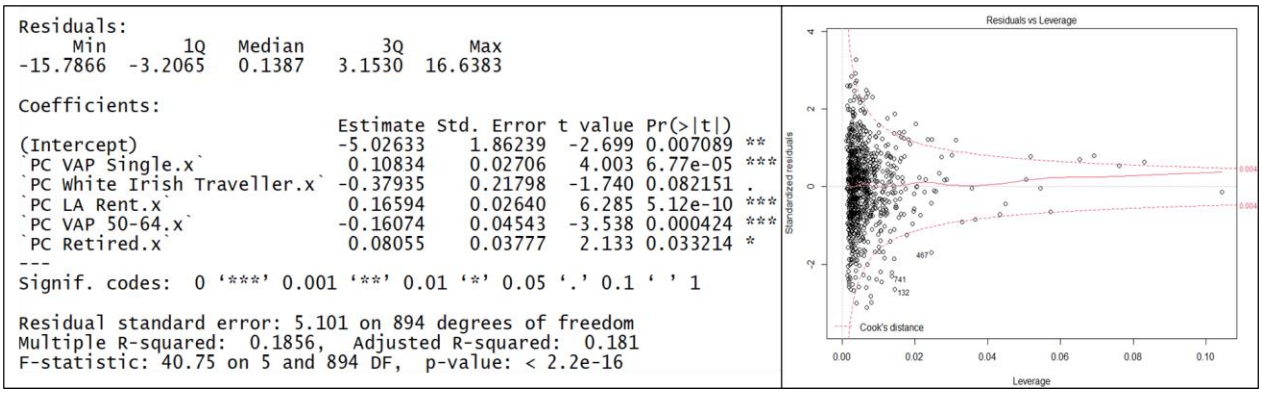
In a similar manner to the construction of multiple regression models to examine the factors which have a strong association with voter turnout levels in General Election 2016, subsequent models are created to examine the relationship between the rates of voter turnout change from General Election 2007 to General Election 2016 in the context of the socio-economic and demographic characteristics in an area where changes occur. In this respect, it is again important to note that the Census 2016 variables provide some insight into the characteristics in a given area for 2016, with these characteristics held constant for the community in order to examine the potential changes in this timeframe among select socio-economic and demographic groups. While a number of areas have undoubtedly experienced significant changes in this respect in the time from 2007 to 2016, the volume of areas examined allows these measures to be considered as constants with a relative degree of confidence. An alternate approach may wish to also examine how turnout trends are impacted by changing conditions in a given area over time. In order to examine the temporal turnout trends between these two electoral contests, the various rates of change in registered voter turnout are firstly considered prior to an investigation to the rates of turnout change among the estimated eligible voting-age population.

Temporal Analysis of Registered Voter Turnout

In a similar manner to the application of linear multiple regression model analysis to the General Election 2016 voter data, the same process is followed when assessing the variables for inclusion in the temporal voter turnout models. The final model, as viewed in Figure 5.5.1, was constructed with the removal of twelve outlier datapoints to increase reliability of observation and the overall stability of the model. This model serves to expand on the examination of individual variables and offers further support to some observed trends, with some notable differences also present.

The model highlights the potential relationship between age variables and rates of voter turnout change. In this instance, areas with large proportions of the population in the 50-64 cohort, the

second-oldest grouping, are viewed as having a mild negative association with rates of change. Conversely, the larger the proportion of 'single' individuals in an area, the more likely the area is to see an increase in participation in this timeframe. While this is not a direct measure of age, there is a strong positive association between the 'single' variable and younger populations. Contrary to this observation however, there is a slight positive association with the 'retired' variable, a variable logically associated with an older population. Overall, this may suggest that registered turnout was more likely to rise among younger populations, and while many older established voters continued to vote in similar numbers, areas with significant populations in the 50-64 cohort were more likely to experience a decline.



```
Residuals:
     Min       1Q   Median       3Q      Max
-15.7866  -3.2065   0.1387   3.1530  16.6383

Coefficients:
                           Estimate Std. Error t value Pr(>|t|)
(Intercept)                -5.02633    1.86239  -2.699 0.007089 **
`PC VAP Single.x`           0.10834    0.02706   4.003 6.77e-05 ***
`PC White Irish Traveller.x` -0.37935    0.21798  -1.740 0.082151 .
`PC LA Rent.x`              0.16594    0.02640   6.285 5.12e-10 ***
`PC VAP 50-64.x`           -0.16074    0.04543  -3.538 0.000424 ***
`PC Retired.x`              0.08055    0.03777   2.133 0.033214 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 5.101 on 894 degrees of freedom
Multiple R-squared:  0.1856,   Adjusted R-squared:  0.181
F-statistic: 40.75 on 5 and 894 DF,  p-value: < 2.2e-16
```


Figure 5.5.1: Linear Regression Model for Registered Voter Turnout Change between General Election 2007and General Election 2016 at the Electoral Division Level

This analysis also points to a reasonable trend of participation increase in areas that have a significant percentage of the population living in Local Authority rented accommodation, as suggested by the initial investigation of individual variables. In a different trend to the individual variable investigation, areas with a high proportion of individuals classed as 'White Irish Travellers' are more likely to be associated with a decline in participation in this analysis. Due to the mixed findings in this regard and the limited nature of the variable, the subsequent Small Area analysis may provide beneficial insight into this select trend.

While a number of useful insights may be drawn from this analysis, it is also important to consider that the overall model accounts for just 18.6 percent of all variability in the data. Given this,

analysis of additional geographical factors may provide some insight into other potentially influential factors that shape the rates of change observed. It is perhaps unsurprising that there is a wide range of variability in turnout change unaccounted for by these predictor variables, given the significant opportunity for register inaccuracies to impact on this temporal analysis, and given the potential for political factors to motivate significant changes in relevant areas.

A variation of this model which includes all datapoints will be utilised for the generation of a full set of standardised residual values within the case study area. The alternate version accounts for just under 17 percent of all variability in the data, with the same variables still identified as influential to a similar extent, with a less stable overall model in terms of Cook's distance analysis results. This alternate model is deemed suitable for standardised residual generation and subsequent analysis.

Temporal Analysis of Estimated Voting-Age Population Turnout

The analysis of the various rates of participation change in the estimated voting-age population turnout data fails to return a model which accounts for a reasonable degree of variability, with an R^2 value of less than 5 percent for the most stable version constructed. Despite this, the model does point to a number of variables that have a reasonable association with the various rates of change in voting-age population turnout observed. In a similar manner to the previous registered voter turnout analysis, areas with large proportions of individuals in the youngest 18-29 age cohort and the proportion of the population in Local Authority rented housing are again seen to have a significant positive association with rates of turnout change. Alongside this, the proportion of the population at the same address for over one year is also identified as having a positive association, a factor which will be examined in more detail in the context of additional geographical variables. This relationship is noted as having the most significant impact on turnout trends. Given that this this trend is not identified in the registered turnout analysis, this relationship may partially be attributed to register inaccuracies, or improvements in register accuracy in more settled communities, especially those in rural areas.

```
Residuals:
    Min      1Q  Median      3Q     Max
-55.115  -5.044   0.757   5.173  60.425

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)    -60.95468   14.67932  -4.152 3.61e-05 ***
`PC VAP 18-29.x`   0.44312    0.13139   3.373 0.000777 ***
`PC Same Add.x`    0.54347    0.15006   3.622 0.000309 ***
`PC Students`     -0.41412    0.16063  -2.578 0.010094 *
`PC Cat Two.x`    -0.21876    0.10173  -2.151 0.031784 *
`PC LA Rent.x`     0.20212    0.05514   3.665 0.000262 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 11.41 on 888 degrees of freedom
Multiple R-squared:  0.04881,  Adjusted R-squared:  0.04346
F-statistic: 9.114 on 5 and 888 DF,  p-value: 1.821e-08
```

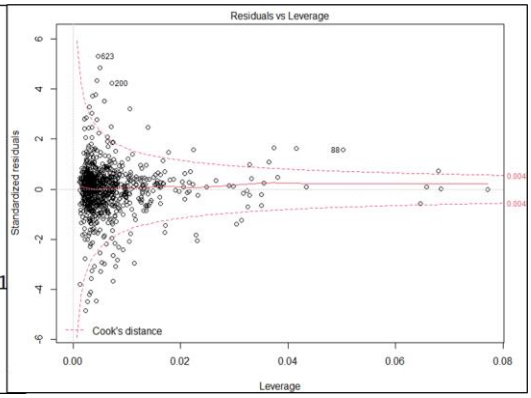


Figure 5.5.2: Linear Regression Model for Estimated Voting-Age Population Turnout Change between General Election 2007 and General Election 2016

At the other end of the scale, negative associations are observed between turnout change and both the proportion of students and the proportion of category-two workers in a given area. Both of these trends however have a lower degree of statistical reliability than the positive associations.

The full dataset when examined in the context of these select predictor variables produced a reduced R^2 value of 2.1 percent, with a number of issues due to extreme outlier values. While the potential benefit of residual examination may be limited due to the low level of overall accountability for the variance in trends observed, the full dataset will be subsequently used to ensure a full geography of standardised residual values within the case study area.

5.6: Residual Analysis of Voter Turnout Models

While the geography of voter turnout may be shaped by the various socio-economic and demographic factors examined to a certain extent, it is clear that there are other factors that also impact the resultant geography of participation. The geography of these potential influences may be determined by examining the geography of the standardised residuals resulting from the various regression models previously produced.

Registered Voter Turnout Model Standardised Residual Values

The geography of standardised residuals of the model based on the proportion of registered voters that participated in General Election 2016 may be examined in Figure 5.6.1. Figure 5.6.1 outlines areas in which the model over-predicted, in red, and areas in while the model under-predicted, in blue, and the extent of this error.

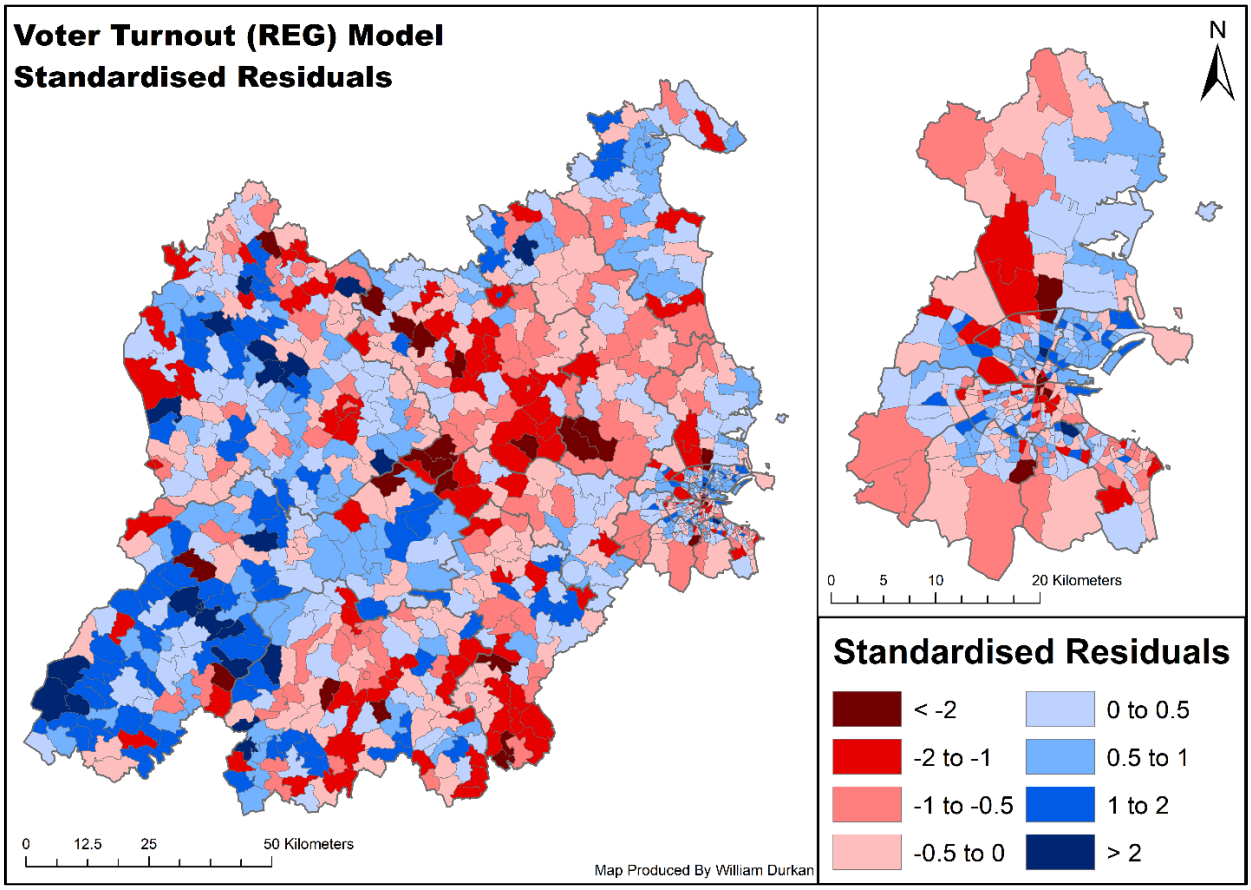


Figure 5.6.1: Standardised Residual Values from the Regression Model based on Registered Voter Turnout Levels in General Election 2016 at the Electoral Division Level

In this instance, there is significant deviation from the model's predicted values throughout the study area examined. The geography that emerges from this analysis of residuals points to a

number of areas in which there are pronounced variations, with a broad trend of under-prediction in many Electoral Divisions to the west of the study area, areas that were previously identified as having some of the highest voter turnout values overall. The examination of Dublin outlines a range of values. Perhaps the most notable aspect is the tendency for the low turnout areas in the city to be under-predicted based on the model predictor variables. While many of these areas may have some of the lowest levels of engagement among registered voters, the socio-economic and demographic variables used in model construction suggest that the turnout in these areas should perhaps be even lower. Having said this, the most pronounced areas of low turnout previously identified in the City Centre have significantly over-predicted values, outlining that these areas are significantly lower-than-expected turnout areas.

While areas of significant deviation from the model predictor variables reflect specific areas of interest for further analysis, there is also a notable proportion of Electoral Divisions that are within a reasonable degree of variability from the predicted values. Areas that are predicted with a reasonable level of accuracy, those in the ranges of -0.5 to 0 and 0 to 0.5 make up significant proportions of the case study area. This is especially pronounced in the central region of the study area, and the area surrounding Co. Dublin in which the select predictor variables are seen to play a key role in shaping the levels of participation among registered voters. While there is a notable degree of variation in values returned, there are many neighbouring areas that tend to present similar values. As Figure 5.6.2 highlights, the application of both the Moran I test under randomisation on the model residual values, and also the application of the Global Moran I test for regression residuals both point to a degree of positive spatial autocorrelation among the values returned with a strong level of reliability.

```
        Moran I test under randomisation

data:  G$stdres
weights: Glist

Moran I statistic standard deviate = 13.821, p-value < 2.2e-16
alternative hypothesis: greater
sample estimates:
Moran I statistic       Expectation          Variance
     0.2771047352     -0.0010976948      0.0004051885
```

```
        Global Moran I for regression residuals

data:
model: lm(formula = `Turnout (%)` ~ `PC Same Add` + `PC LA Rent` +
`PC Retired` + `PC Cat Two`, data = G)
weights: Glist

Moran I statistic standard deviate = 13.983, p-value < 2.2e-16
alternative hypothesis: greater
sample estimates:
Observed Moran I      Expectation         Variance
    0.2774992540    -0.0029297721     0.0004022255
```

Figure 5.6.2: Examination of Spatial Autocorrelation in Registered Turnout Regression Model Standardised Residual Values

Regions of the case study area that demonstrate both similar characteristics and significant outlier values in terms of the standardised residual values may be better examined through the application of cluster and outlier identification, as presented in Figure 5.6.3. This analysis highlights a number of areas with similar levels of deviance from the model predicted values. Clustering in this regard adds further weight to the suggestion that geographical influences in select areas tend to shape voter turnout trends beyond the impact of select socio-economic and demographic characteristics. Areas identified as having significant clusters of similar values include large clusters of under-prediction in the west of the study area and a significant cluster in north Co. Louth. There are also numerous clusters of over-prediction throughout the central region. Within Dublin, the identification of clusters again points to the significantly over-predicted values in the City Centre, and a significant region of under-prediction throughout large parts of the Dublin Bay North constituency and surrounding areas.

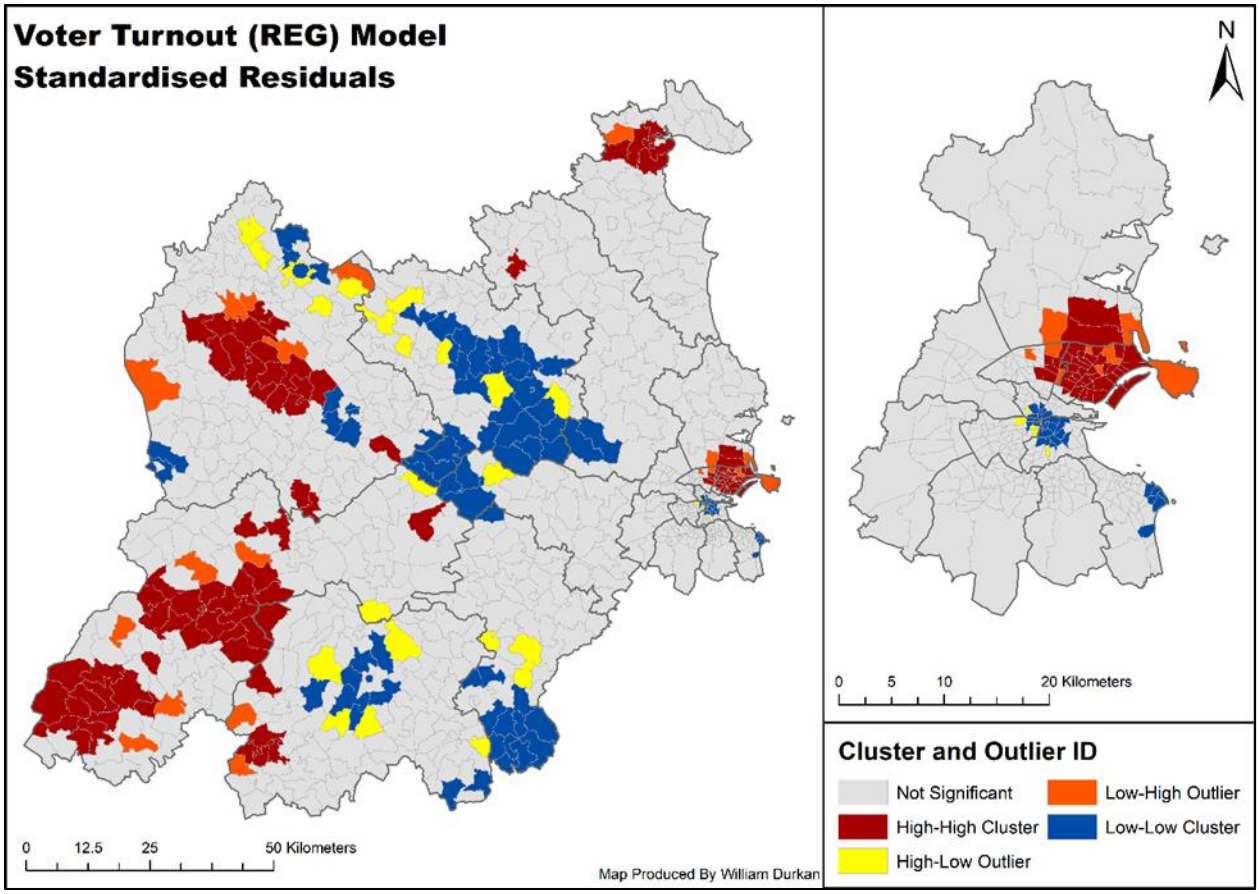


Figure 5.6.3: Anselin Local Moran's I Cluster and Outlier Identification of Standardised Residual Values for the Registered Turnout Regression Model

The case of Dublin Bay North is a striking instance in which under-predicted Electoral Divisions make up the majority of the constituency, with the majority of a large High-High cluster contained within the constituency boundaries. The difference observed in this case points to a potential causal factor that impacted the electorate on a constituency level, in order to raise turnout to a higher level that one would expect based on the given characteristics of the area. In General Election 2016, Dublin Bay North was noted throughout the election campaign as a highly competitive constituency with twenty candidates, six of them sitting representatives, and many of them considered to be high profile, competing for just five available seats. This level of competition led to the constituency gaining the adversarial reputation as the 'Group of Death' within the media. (Independent, 2016). Various investigations into the impact of competitiveness on voter turnout

in the international context suggest that the more competitive an electoral area, the greater the expected turnout. (Maeda, 2016). The perceived competitiveness during the election campaign, and extent of mobilisation as a result, may potentially be a contributary factor to the observed trends in Dublin Bay North. In this respect, Trumm et al. (2017) observe an increase in turnout based on the extent of mobilisation within their analysis of the United Kingdom, while also noting that the increase in turnout is perhaps unrelated to, and independent from the observed impact of the 'campaign effort'. When considered in the Irish content, and with specific relevance to the observed trends in Dublin Bay North in General Election 2016, the constituency competitiveness in this instance undoubtedly had an impact on the respective campaign efforts, and hence potential mobilisation. Besides the identification of clusters of significant high and low values that provide unique insight into factors that shape participation rates among registered voters in relevant areas, the identification of outlier and extreme values also has the potential to inform the identification of influential factors. The areas with the most extreme values in terms of the standardised residuals returned may be viewed in Table 5.6.1.

	Electoral Division	Standardised Residual Values	Teljeur Class
Extreme Lows	MANSION HOUSE B	-4.40	City
	ARRAN QUAY A	-4.08	City
	ROYAL EXCHANGE A	-3.14	City
	NORTH CITY	-2.89	City
	ROTUNDA B	-2.87	City
	TRUMRA	-2.87	Rural (near)
	BALLYBOGGAN	-2.78	Rural (near)
	GALLEN	-2.75	Rural (near)
	BALLAGHMOON	-2.73	Rural (near)
	SONNAGH	-2.64	Rural (near)
Extreme Highs	MONEYMORE	2.41	Rural (near)
	CARDTOWN	2.41	Rural (remote)
	DRUMCULLEN	2.42	Rural (near)
	FINNOE	2.45	Rural (near)
	MUCKANAGH	2.54	Rural (remote)
	FOXHALL	2.62	Rural (near)
	MONEENALASSA	3.09	Rural (near)
	KILBARRON	3.13	Rural (remote)
	KILBIXY	3.16	Rural (near)
	CLONSKEAGH-BELFIELD	4.55	City

Table 5.6.1: Electoral Divisions with Extreme Standardised Residual Values from the Registered Voter Turnout Model

In terms of the areas that have significantly higher-than-predicted values, the majority of the areas are predominantly rural in nature and are some of the highest registered turnout Electoral Divisions within the case study area. In many of these areas, interview participants identified a number of additional factors that may have a significant impact, with the potential influence of candidate location noted in the cases of Kilbarron in North Tipperary and Kilbixy in Co. Westmeath. In the case of Kilbarron, Deputy Marcella Corcoran Kennedy pointed to the strong mobilisation of voters in the North Tipperary area, which was included in the Offaly constituency in General Election 2016.

> 'Candidate location is a big part of it. One of the candidates from Tipperary, Joe Hannigan, is from here. So Joe is the only Tipperary candidate and that was his electoral area, so there was a huge turnout there. He mounted a very strong campaign, a Tipperary versus Offaly campaign'. (Corcoran Kennedy, 2019).

This instance highlights the potential influence of electoral boundaries, as is subsequently examined in greater detail alongside candidate location. This case specifically demonstrates how constituency structure can lead to potential political mobilisation along county lines, given that a viable candidate is based in the relevant area. The case of Kilbixy also points to the potential influence of candidate location, with Deputy Troy noting the potential for local mobilisation in the area due to the presence of two strong candidates in the vicinity.

> 'Well the Kilbixy ED is where I reside… not only where I reside but where Willie Penrose resides. So there's two resident politicians. And we would obviously, you know, you've huge interaction with the people in that box because they're the people that you socialise with, they're the people you're involved in the local GAA with, they're the people that you meet on a Sunday at mass. So in terms of knowing your TD, they certainly would know. And because there's two, it even would accelerate that. And it's not surprising that that is the highest turnout box in the constituency'. (Troy, 2019).

At the other end of the scale, there are also a number of areas in which there is a significant over-prediction of registered turnout by the linear regression model. The Electoral Division of

Roscomroe in Co. Offaly, while not identified as one of the ten most over-predicted areas has a standardised residual value of -2.34, with the lower-than expected turnout in this case addressed by Deputy Corcoran Kennedy. While a high turnout may be expected due to a settled rural community and local candidate in the area, the Deputy points to issues with polling station access as potentially influential in this regard.

> 'The school closed down so there wouldn't have been a polling station there where there used to be a polling station [in Roscomroe]. The shop closed down. So the centre of activity is no longer there where people would be talking about things, "are you going down to vote?", you know. But I'd say the fact that it no longer is a polling station might have something to do with it… That makes a big difference. Huge. Huge'. (Corcoran Kennedy, 2019).

With regard to issues with rural polling station access, the Deputy points to the extent of appeals received when it was previously suggested to close a polling station in Drumcullen, an area that also had a notably higher-than-expected turnout in 2016.

> 'I mean, when the polling stations were proposed, I mean, there was war when there was a polling station going to be closed down in Drumcullen and they were supposed to come and vote in Seir Kieran. There was absolute uproar. There was no way we're going down there to vote… You'll laugh at this but it's real: The rivalry at GAA level… And they said: "we're not going to vote over there"'… They put in a big submission. This is now years ago when I was in the County Council. And such was the ferocity of the reaction…. So there is that kind of, real local identity…I mean at your peril close a polling station because you're definitely gonna' see a falloff in people turning up to vote, in my opinion anyway'. (Corcoran Kennedy, 2019).

In General Election 2016, there are also other instances in which polling station closure may have had an impact on turnout in rural communities. Gallen Electoral Division demonstrates another

instance in which turnout is notably lower-than-expected. In this instance, Deputy Corcoran Kennedy again highlights the changes in polling station location in the area as a potential influential factor that is unaccounted for in the model analysis.

> 'The polling station is no longer in the school…In fact, some of them have moved to a different polling station. Some of them are in Cloghan and they used to be in Ferbane. So that probably has something to do with the low turnout… Where they were used to being able to go down to the vocational school, as it used to be of old. And sure they'd be going down the town anyway they'd be able to hop in and vote… Now they'd be going down the town anyway and then coming back and [think]: "I won't bother going to Cloghan"'. (Corcoran Kennedy, 2019).

While potentially influential factors other than those accounted for in the model construction process such as the location of candidates and issues surrounding electoral boundaries are subsequently examined in more detail, the topic of polling station availability, especially in more rural communities, is a topic that is not included. The issue of polling station access has previously been identified by existing research among some of the same communities in the context of the 2002 General Election. (Kavanagh, 2002). Given the apparent impact of access in rural communities this specific challenge is notably worthy of additional study at a later date.

Prior to the consideration of additional geographical influences, the emergent trends in residual values form the predictive models may be examined in terms of the voting-age population data. Comparison and contrast in this respect has the potential to confirm the presence of spatial trends with a greater degree of reliability, identify additional areas of interest, and also investigate the potential reasons for difference between the two measures.

Estimated Eligible Voting-Age Population Turnout Model Standardised Residual Values

When examining the residuals of the most accurate model generated for voter turnout, based on the ability of the select socio-economic and demographic factors to predict the proportion of the

eligible voting-age population that participated in the election with 70 percent accuracy, there are a number of both similarities and differences observed to the previous analysis. It is important to note in this regard that numerous outliers were removed during the investigation process, the majority of which can be reasonably be understood to be predominately driven by register inaccuracies, as previously discussed. The geography of standardised residual values may be viewed in Figure 5.6.4.

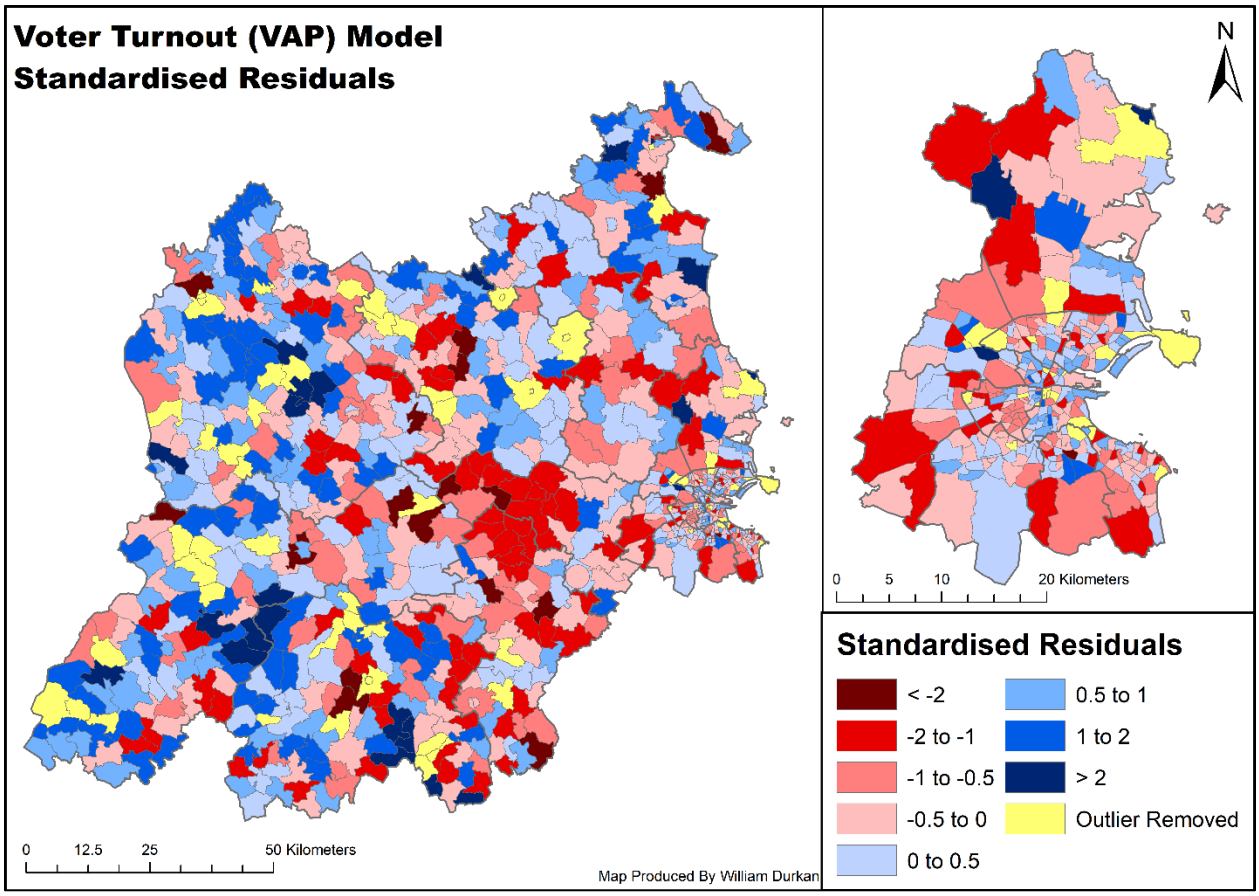


Figure 5.6.4: Standardised Residuals from the Linear Regression Model based on Voting-Age Population Turnout Levels in General Election 2016 at the Electoral Division Level

Perhaps the most notably similarity to the registered turnout analysis is the striking trend of predominantly under-predicted areas in the west of the case study area, with large portions of the case study area in the east consisting of over-predicted values. The picture in Dublin City is also

largely similar, with perhaps the exception of the City Centre, which has a reversal of trends to the registered turnout model, with values in this instance notably tending to be over-predicted to a greater extent. Perhaps the most striking difference to the previous analysis is the proportion of Electoral Divisions in the -0.5 to 0.5 residual range, which is largely reflective of the greater extent of variation accounted for by the voting-age population model in comparison to the registered voter turnout model. In a similar fashion to the previous analysis, the Global Moran I test for regression residuals and the Moran I test under randomisation may be applied to the data, as displayed in Figure 5.6.5.

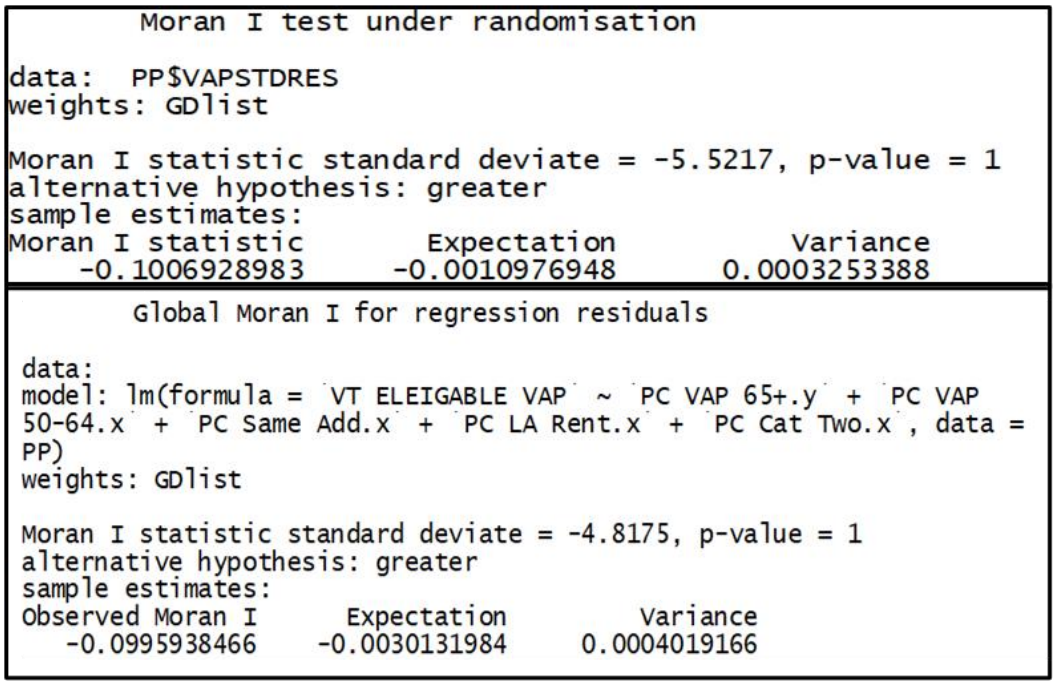


Figure 5.6.5: Examination of Spatial Autocorrelation in Voting-Age Population Turnout Regression Model Standardised Residual Values

In contrast to the analysis of the registered voter turnout data, the testing for spatial autocorrelation in this instance fails to return a statistically significant result. Given this, the examination of clusters and outliers in more detail is best conducted through the application of a cluster and outlier identification process, as displayed in Figure 5.6.6.

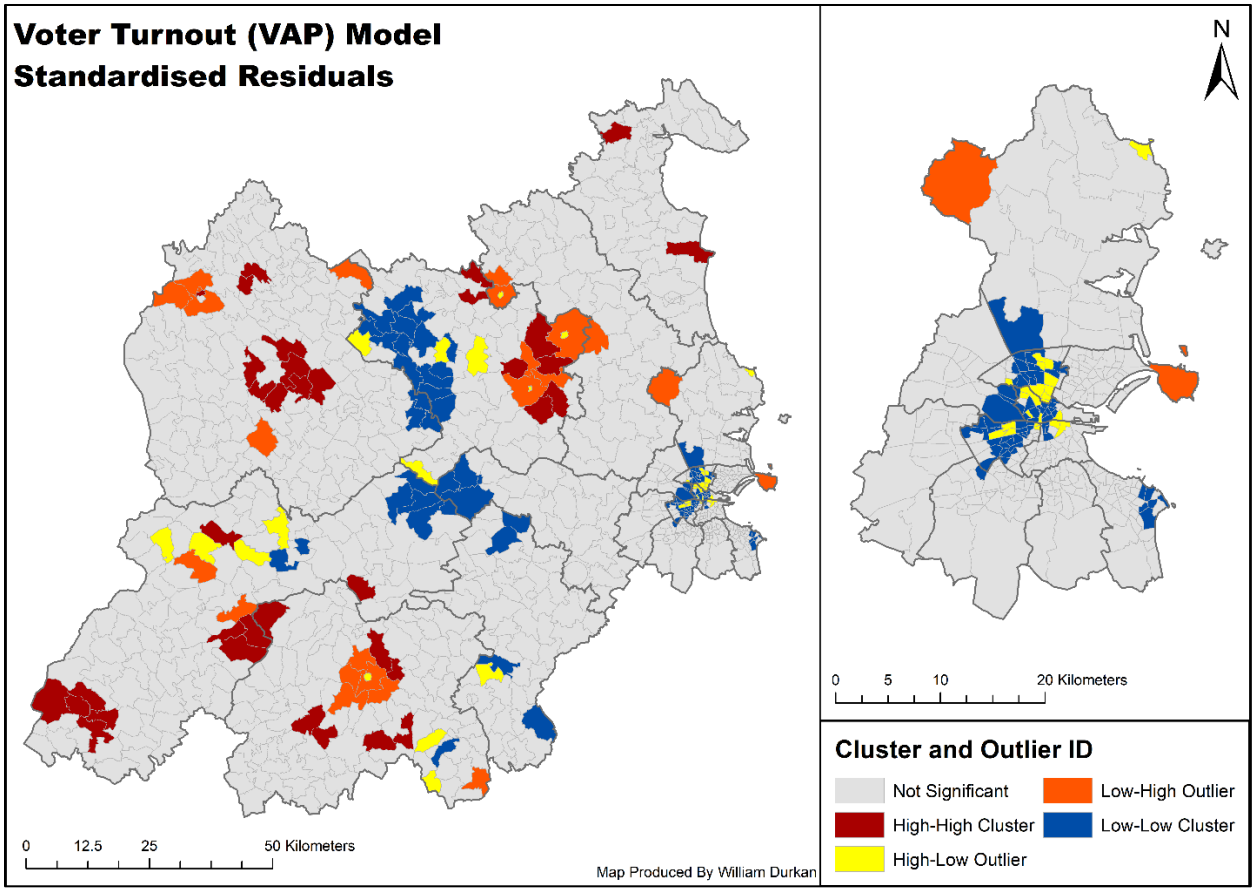


Figure 5.6.6: Anselin Local Moran's I Cluster and Outlier Identification of Standardised Residual Values for Voting-Age Population Turnout Regression Model

As Figure 5.6.6 outlines, there are a number of similarities and differences when compared to the examination of the registered voter turnout data. There are a number of spatial clusters identified in both instances of under-predication and over-prediction by the final model. In a similar fashion to the previous analysis, areas of under-prediction based on the select socio-economic and demographic predictor variables tend to be located in the west of the case study area, with clusters of over-predicted areas in the central region of the study area, and close to Dublin City Centre. These similarities to the previous model residuals, while perhaps not identical in nature, serve to identify the same regions in a number of instances, and as such, serve to increase the reliability in the identification of legitimate trends.

One instance in which no cluster is identified, in contrast to the previous model, is that of the Dublin Bay North Constituency. While the previous analysis pointed to a higher-than-expected turnout, perhaps somewhat due to the presence of a constituency-wide effect due to the high degree of competitiveness in the area, this analysis does not identify the constituency as an under-predicted area directly. One important point in this regard is that while it may not be identified as an area with higher-than-expected turnout based on the model, it does stand out as an area within Dublin that is excluded from the large cluster of over-predicted values that is present in other constituencies in central Dublin, again perhaps adding weight to aforementioned possibility that the somewhat pronounced level of competitiveness in the area did serve to have a positive impact on turnout within the area. This may also suggest that register inaccuracies are a pronounced issue within the area, or alternatively, that increased competitiveness and mobilisation has led to a higher-than-average level of registration in the community.

Outside of the various clusters of similar values identified, there are also a number of extremes and outlier values. In this respect, while many of these align with the previously identified areas of register inaccuracy, the residuals when viewed with outlier values removed serve to identify areas outside of these that have a notable level of deviance from the model predicted values, as viewed in Table 5.6.2. In terms of areas with higher-than-expected turnout, there is a notable tendency for these areas to be located in predominately rural settings, with the exception of Skerries in North County Dublin. With regard to potential driving factors that shape the observed trends, the aforementioned topics of candidate location, boundary revisions, and the urban/rural divide will be subsequently examined in more detail.

	Electoral Division	Standardised Residual Values	Teljeur Class
Extreme Lows	KILLUA	-4.91	Village (remote)
	GRANEY	-3.28	Rural (near)
	RATHCOR	-3.21	Rural (remote)
	CLONKEEN	-3.14	Rural (near)
	TULLAMORE RURAL	-2.79	Town
	CARRICK	-2.78	Rural (near)
	DROMISKIN	-2.78	Village (near)
	BALLYBURLY	-2.66	Rural (near)
	DUNMURRY	-2.55	Rural (near)
	COPPERALLEY	-2.54	Rural (near)
Extreme Highs	TIMAHOE	2.44	Rural (near)
	ROSSMORE	2.57	Rural (near)
	PORTLOMAN	2.66	Rural (remote)
	NEWTOWN	2.69	Rural (near)
	FOSSY	2.74	Rural (near)
	DRUMCULLEN	2.81	Rural (near)
	LETTER	2.87	Rural (remote)
	CLONMETHAN	2.92	Village (near)
	TERMONFECKIN	3.13	Rural (near)
	SKERRIES	3.37	Town

Table 5.6.2: Electoral Divisions with Extreme Standardised Residual Values from the Voting-Age Population Voter Turnout Model

Interview participants make specific reference to the Carrick Electoral Division in Kildare North. In this case, the area has a notably lower-than-predicted turnout and is part of the significant cluster of over-predicted values in North-West Kildare. In this case specifically, Deputy Bernard Durkan points to the potential influence of the boundary revision process and the associated impact on participation within the area.

> 'I think in those areas, there's a local answer to it. Carrick… the address is Carrick, Edenderry [Co. Offaly]. And it has been changed over and back between Kildare North and Kildare South about five times in the last fifteen years. And there's a lack of recognition as to where they belong. And even though we're doing things. I would do things over there, and all that time, you felt as if you're only back into it, starting all over again when it would change again. (B. Durkan, 2020).

The resultant geography of standardised residuals suggests that there are numerous spatial factors that shape deviation from predicted voter turnout values when predictions are based on the select socio-economic and demographic predictor variables for both registered voter turnout and voting-age population turnout figures.

Prior to the consideration of additional factors that may shape turnout trends in General Election 2016, the standardised residual values from models that examine temporal turnout trends from 2007 to 2016 will be examined.

5.7: Standardised Residual Examination of Temporal Turnout Models

In a similar manner to the investigation of standardised residual values for the linear regression models that outlined associations between voter turnout levels in General Election 2016 and the various selected predictor socio-economic and demographic characteristics, the examination of the standardised residual values from models which assessed associations between select variables and various rates of voter turnout change from General Election 2007 to General Election 2016 may be equally as informative. While still a beneficial process, the much lower level of variability accounted for in the temporal models may limit the extent of findings in this respect. While both the registered turnout change model and the voting-age population turnout change model have a notably low R^2 value, the level of accuracy and usefulness of residual examination may be considered in a number of different ways. The correlation of the model fitted values and actual values in both instances, as viewed in Figure 5.7.1, outlines that while the temporal models lack the same level of accuracy as previous analyses, there is still a notable correlation observed in both cases.

```
        Pearson's product-moment correlation

data:  TEMPMODREG.K.FULL$fitted.values and TEMPCORS$VTREGCH0716
t = 13.631, df = 910, p-value < 2.2e-16
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.3563851 0.4642809
sample estimates:
      cor
0.4117751
```

```
        Pearson's product-moment correlation

data:  TEMPMODVAP.D.Full$fitted.values and TEMPCORS$VTVAPCH0716
t = 4.4501, df = 910, p-value = 9.644e-06
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.0817998 0.2088789
sample estimates:
      cor
0.1459413
```

Figure 5.7.1: Pearson Correlation of Fitted Values and Actual Values of Register Turnout Change Model (Top) and Voting-Age Population Turnout Change Model GE2007-GE2016 (Bottom)

While a limited degree of accuracy is noted in both cases, the strong degree of statistical reliability in both observations suggests that the examination of the geography of standardised residual values for both models is a worthwhile pursuit. The registered turnout change examination has a notably stronger degree of accuracy recorded. The difference in model accuracy and potential limitations of observations as a result of this is an important aspect to consider in both subsequent analyses.

Registered Voter Turnout Change 2007-2016 Model Standardised Residual Values

The residual examination for the rates of registered turnout change suggests a notable geographical divide within the case study area, as may be viewed in Figure 5.7.2. While a great deal of variation is observed in the residual values, there is a notable tendency for areas in the east of the case study area to have a greater-than-predicted level of turnout increase, or at least, a lesser-than-predicted rate of decline. Conversely, the west of the case study area has a greater-than-predicted level of decrease in turnout, or at least a lesser tendency for increase in registered turnout values.

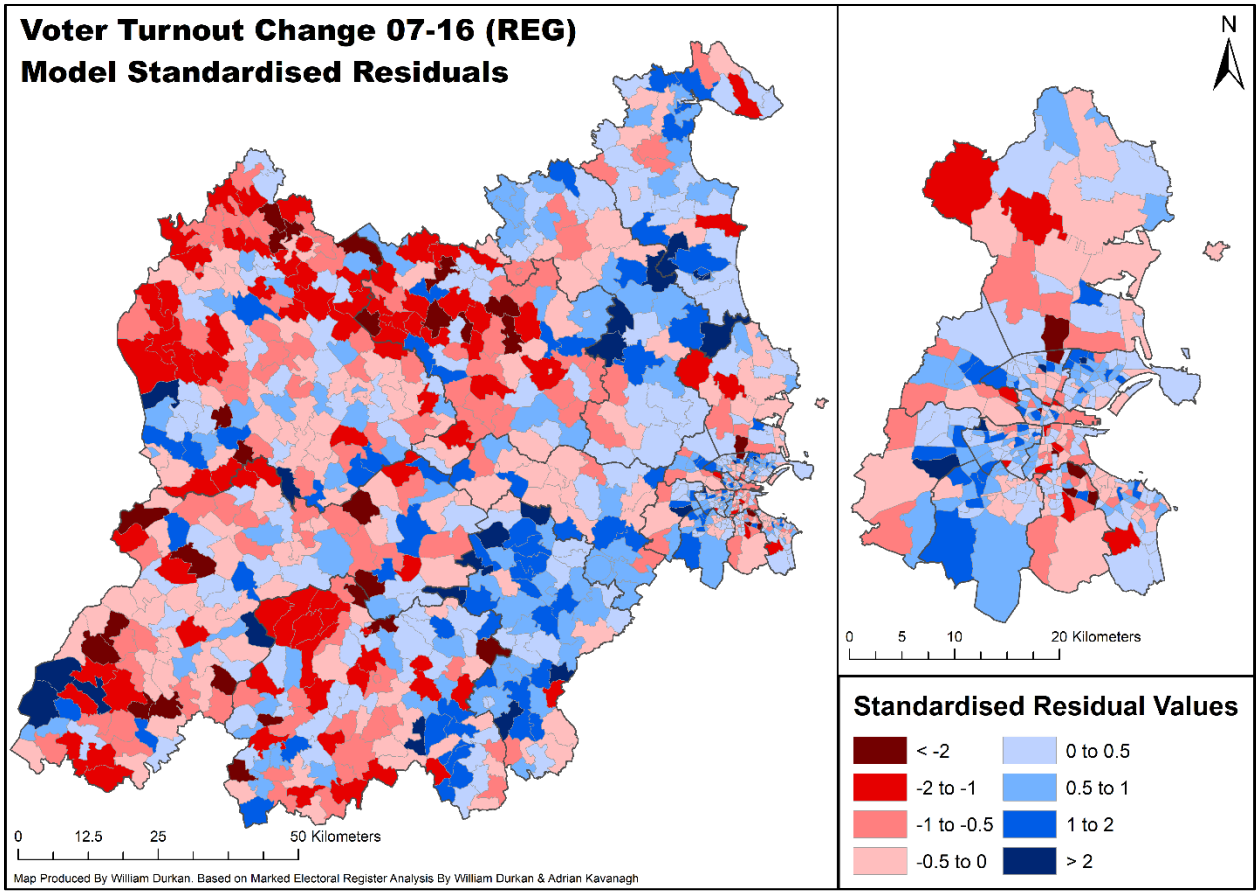


Figure 5.7.2: Standardised Residuals from the Multiple Regression Model based on Registered Voter Turnout Change from General Election 2007 to General Election 2016

The apparent geographical divide in this respect, and notable levels of apparent clustering of values throughout the study area, may be examined in more detail through the investigation of spatial autocorrelation via the application of Moran's I testing on the observed values. As viewed in Figure 5.7.3, both the Moran I test under randomisation and the Global Moran I test for regression residuals suggest a tendency for positive spatial autocorrelation in the data, with a high degree of statistical reliability.

```
        Moran I test under randomisation

data:  tempshp$STDRESREGTEMPFULL
weights: temp.shp.list

Moran I statistic standard deviate = 10.748, p-value < 2.2e-16
alternative hypothesis: greater
sample estimates:
Moran I statistic       Expectation          Variance
     0.2152720696     -0.0010976948      0.0004052752
```

```
        Global Moran I for regression residuals

data:
model: lm(formula = VTREGCH0716 ~ `PC VAP Single.x` + `PC White Irish Trav
eller.x` +
`PC LA Rent.x` + `PC VAP 50-64.x` + `PC Retired.x`, data = tempshp)
weights: temp.shp.list

Moran I statistic standard deviate = 10.88, p-value < 2.2e-16
alternative hypothesis: greater
sample estimates:
Observed Moran I      Expectation         Variance
    0.2152871446    -0.0029108024     0.0004021978
```

Figure 5.7.3: Examination of Spatial Autocorrelation in the Standardised Residual Values from the Registered Voter Turnout Change Regression Model

While the existence of positive spatial autocorrelation suggests significant clustering of similar values in the study area, the weak value returned suggests either a weak degree of positive autocorrelation, or that a number of outlier values may also be present in the data alongside a number of significant clusters. This may be examined in more detail via the application of Anselin Local Moran's I Cluster and Outlier Identification analysis. The results of this analysis, as viewed in Figure 5.7.4, outline a number of significant clusters and outlier values within the study area. Again, there is a notable geographical divide in this instance, with a number of High-High clusters identified in the east of the study area, and a number of Low-Low clusters identified predominantly in the west of the case study area.

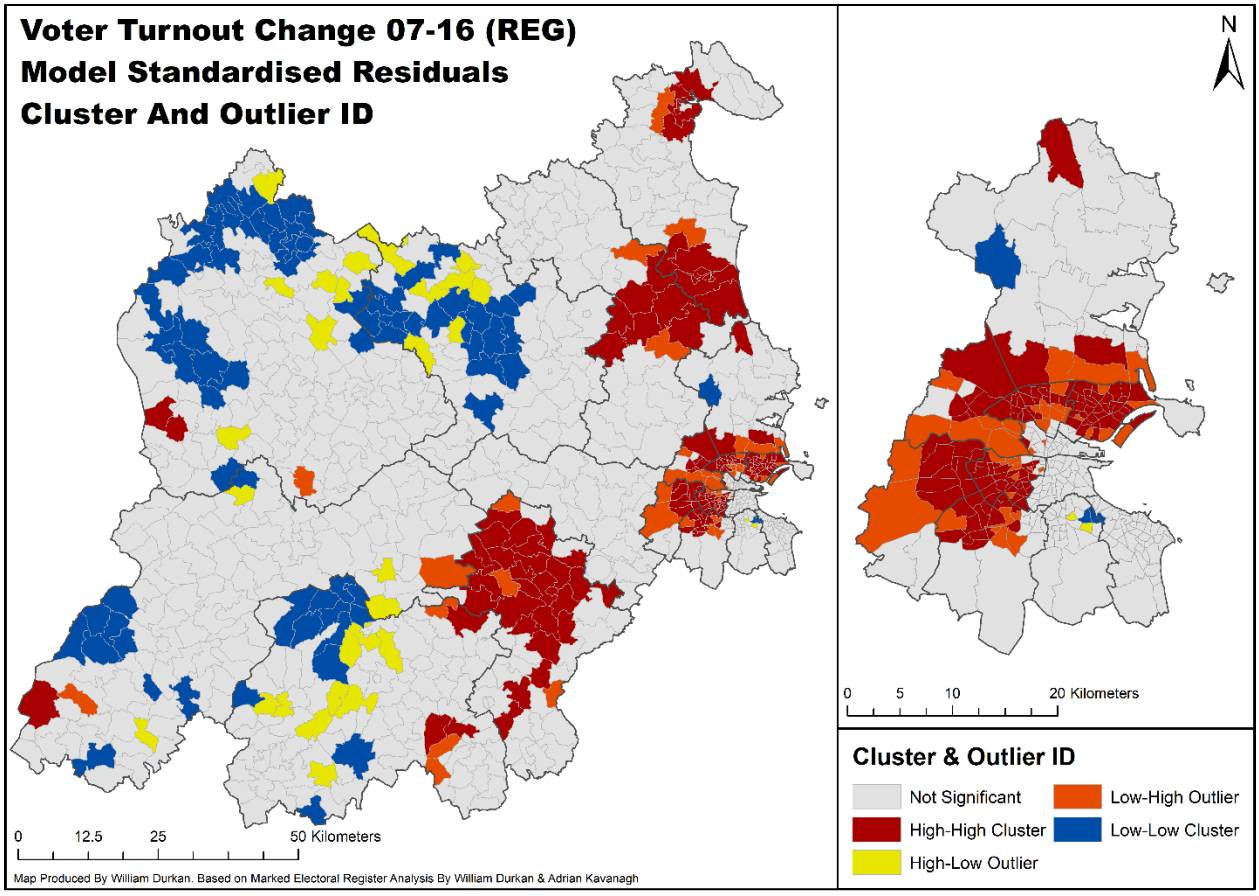


Figure 5.7.4: Anselin Local Moran's I Cluster and Outlier Identification of Standardised Residual Values for the Registered Turnout Change Regression Model

The results add further weight to the observation that registered turnout change from 2007 to 2016 tends to be more positive than predicted in the more urban east of the case study area, and more negative than models predict in the more rural west. While there are notable clusters of similar values in this respect, there are also a number of outlier values identified, suggesting that more localised impacts of select characteristics in a given area have the potential to off-set this observed trend. The potential impact of additional spatial influences in this regard may be considered in the context of the subsequent examination of candidate location and boundary revisions.

Voting-Age Population Turnout Change 2007-2016 Model Standardised Residual Values

Voting-age population turnout change is assessed in the same manner as the previous analysis of registered turnout, with the lower degree of accuracy in the model in this instance a potential limitation on the effectiveness of analysis. The geography of residual values in this case may be viewed in Figure 5.7.5. While there is a reduced level of variation in standardised residual values as a result of the lower degree of variability accounted for in the model, there is still a notable pattern of under-prediction and over-prediction in select areas. This process points to a significantly greater-than-expected level of increase in many areas, perhaps most notably in the area surrounding Dublin City centre.

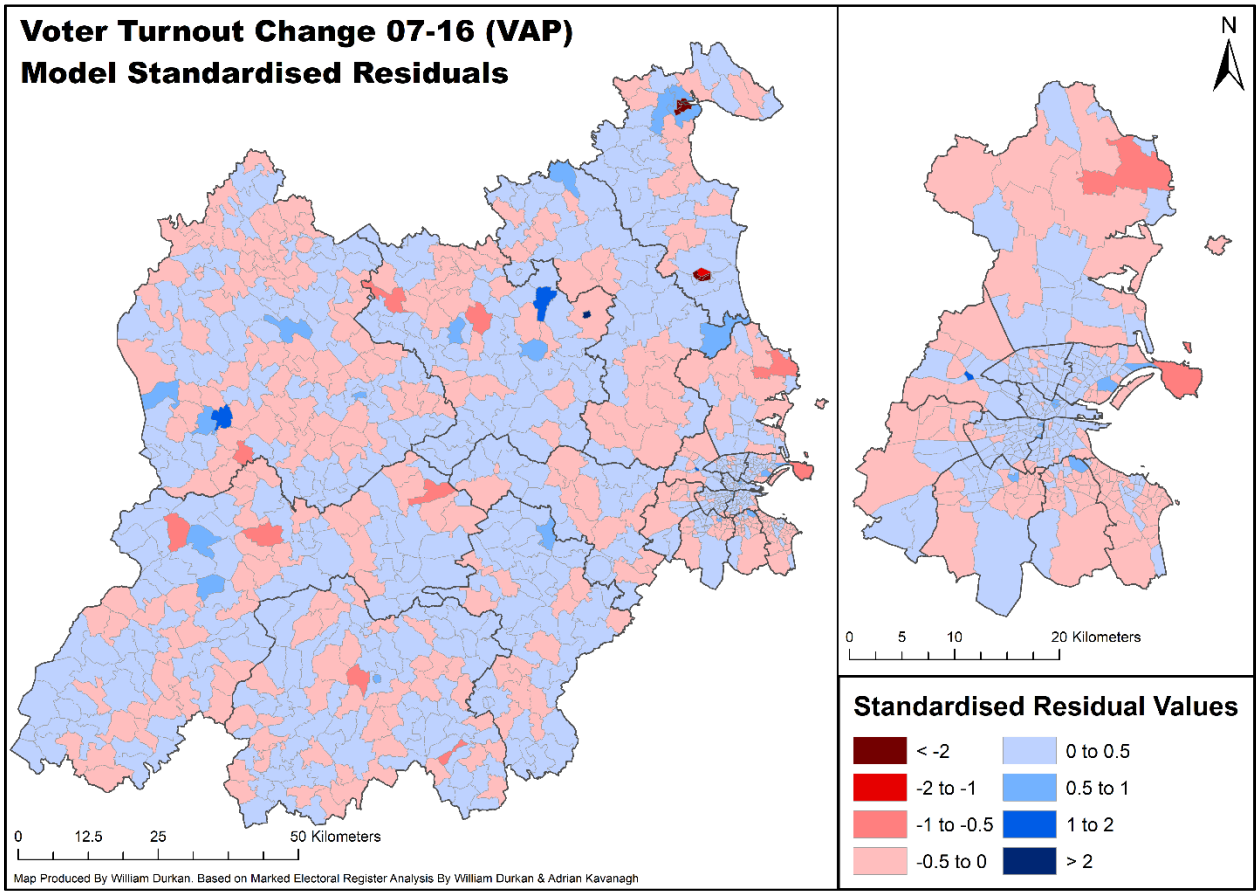


Figure 5.7.5: Standardised Residuals from the Multiple Regression Model based on Voting-Age Population Turnout Change from General Election 2007 to General Election 2016

There are also many areas of greater-than-predicted decrease throughout the case study area, with the resultant geography subsequently explored in greater detail. The application of Moran's I testing explores the level of spatial autocorrelation in the data, with the results displayed in Figure 5.7.6. In this instance, both the Moran I test under randomisation and the Global Moran I test for regression residuals point to positive spatial autocorrelation in the data with a high degree of statistical reliability.

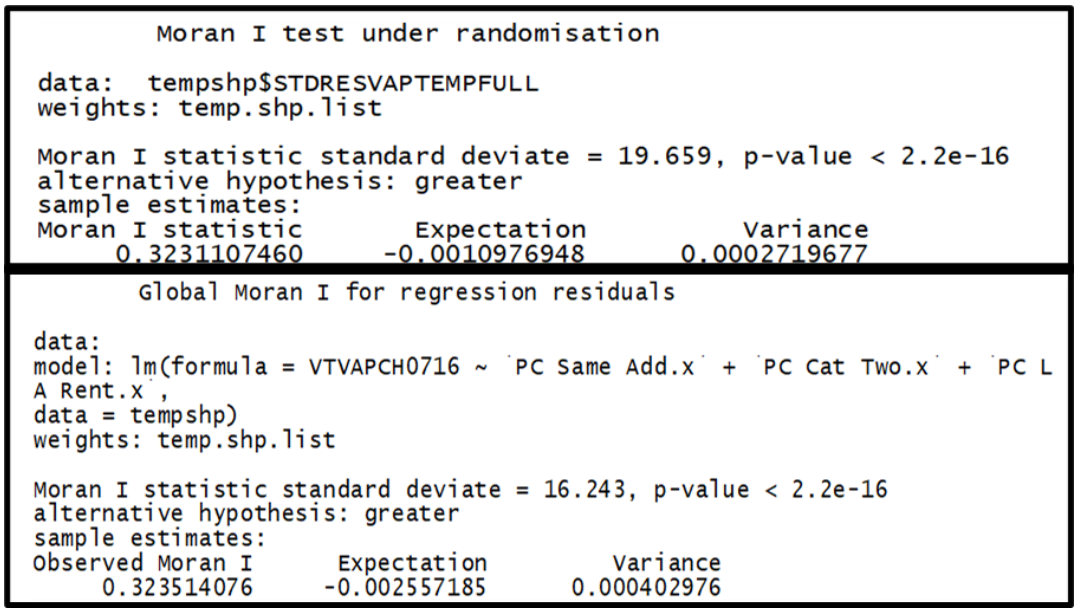


Figure 5.7.6: Examination of Spatial Autocorrelation in the Standardised Residual Values for the Voting-Age Population Turnout Change Regression Model

In a similar manner to the previous analysis, the geography of residuals is explored further through the application of Anselin Local Moran's I cluster and outlier identification analysis, with the results displayed in Figure 5.7.7. While this analysis has a number of differences to the registered turnout change residual analysis, most notably the lack of identification of significant areas of lower-than-expected positive changes in turnout levels, the analysis does highlight Dublin City Centre as a significant area in which turnout change is notably more positive in nature than the regression model predicts.

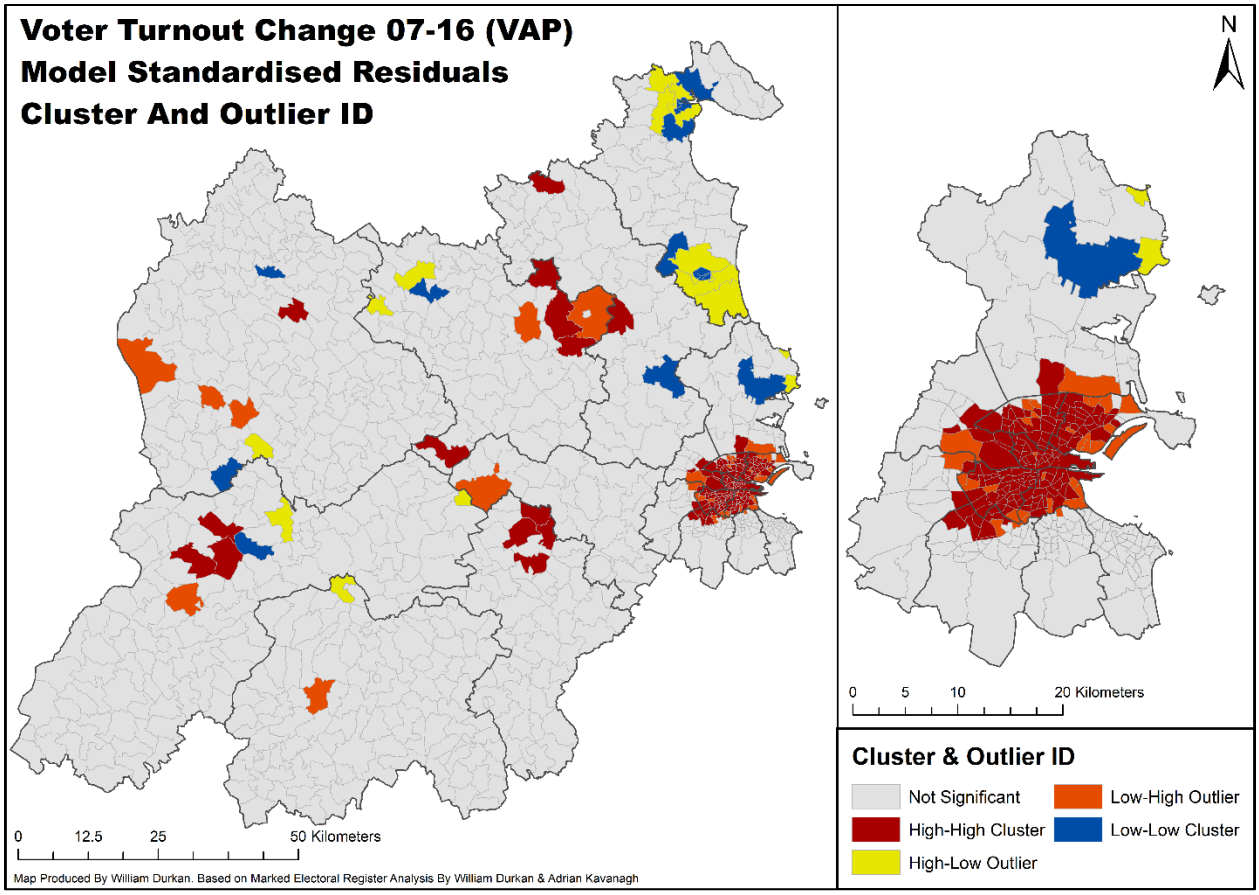


Figure 5.7.7: Anselin Local Moran's I Cluster and Outlier Identification of Standardised Residual Values for the Voting-Age Population Turnout Change Regression Model

The examination of the standardised residual values from both models suggests that voter turnout change in Electoral Divisions in the east of the study area are more likely to be under predicted by the models applied. The registered turnout analysis also suggests that there are significant areas of over-prediction in the more rural west. While this trend is not clearly reflected in the voting-age data, the notable geography of residual values suggests that there are additional spatial variables that influence the model's predictive ability, with additional subsequent analysis exploring this in more detail. In this respect, subsequent analyses aim to identify additional influential spatial variables that shape rates of turnout change from General Election 2007 to General Election 2016.

5.8: Geographically Weighted Regression of Turnout Trends

Previous analyses have identified strong geographical trends in both measures of voter turnout considered. Not only is there a strong geography observed in voter turnout levels in General Election 2016, but also in the temporal data that examines rates of turnout change from 2007 to 2016. While the models utilise various socio-economic and demographic variables to suggest a potential causal relationship which partially accounts for the voter turnout geographies observed, with various degrees of accuracy, there are also notable spatial relationships observed in the resultant standardised residual values from all models constructed This suggests that there are additional spatial influences in the data that are unaccounted for by the models.

Given this, the application of geographically weighted regression analysis has the potential to provide further insight into factors that shape the geography of participation. As the turnout values by both measures applied, the various rates of change in the temporal data, and the residuals for all models constructed demonstrated spatial autocorrelation, to various extents, the data lends itself to the application of two forms of geographically weighted regression. The geography of the dependent variables suggests that the application of a spatial 'lag' model, which weights the dependent variable based on neighbouring values, may provide beneficial insight. Likewise, the spatial characteristics of the standardised residual values suggest that the application of a spatial 'error' model, which weights values based on neighbouring error terms, may also provide useful insight, as expanded upon in Chapter Three. Geographically weighted regression is applied to all data in the subsequent analysis, prior to the consideration of specific additional spatial factors. It is important to note that, in order to ensure a full contiguous area and a valid neighbours list for each analysis, models must utilise a full dataset with no outlier values removed. While some previous analyses removed outlier datapoints in model construction, the versions applied in subsequent analyses use the same predictor variables but with all datapoints included.

Voter Turnout Trends in General Election 2016

Due to the existence of positive spatial autocorrelation in both registered and voting-age population voter turnout, the spatial lag method of geographically weighted regression returns a model that better accounts for voter turnout levels than the unweighted linear model. This is reflected in the lower AIC value returned when geographical weighting is applied. Likewise, the presence of spatial autocorrelation in the model residual values also ensures that the spatial error method improves overall model accuracy and ensures a lower AIC value than the linear method. The resultant models may be viewed in Figure 5.8.1.

Registered Voter Turnout

Spatial Lag Model

```
Residuals:
      Min        1Q    Median        3Q       Max
-22.04402  -2.66698   0.38189   2.91694  16.50939

Type: lag
Coefficients: (asymptotic standard errors)
                Estimate Std. Error z value  Pr(>|z|)
(Intercept)     -4.799069   3.654763 -1.3131  0.189149
 PC Same Add.x   0.377087   0.044862  8.4054 < 2.2e-16
 PC LA Rent.x   -0.130668   0.021461 -6.0886 1.139e-09
 PC Retired.x    0.225050   0.035941  6.2617 3.808e-10
 PC Cat Two.x   -0.120128   0.039798 -3.0184  0.002541

Rho: 0.51695, LR test value: 202.42, p-value: < 2.22e-16
Asymptotic standard error: 0.033371
    z-value: 15.491, p-value: < 2.22e-16
Wald statistic: 239.96, p-value: < 2.22e-16

Log likelihood: -2749.948 for lag model
ML residual variance (sigma squared): 23.021, (sigma: 4.798)
Number of observations: 912
Number of parameters estimated: 7
AIC: 5513.9, (AIC for lm: 5714.3)
LM test for residual autocorrelation
test value: 10.572, p-value: 0.0011482
```

Spatial Error Model

```
Residuals:
      Min        1Q    Median        3Q       Max
-24.30503  -2.67819   0.36929   2.88937  16.87320

Type: error
Coefficients: (asymptotic standard errors)
                Estimate Std. Error z value  Pr(>|z|)
(Intercept)     20.320100   4.967492  4.0906 4.302e-05
 PC Same Add.x   0.472609   0.054925  8.6047 < 2.2e-16
 PC LA Rent.x   -0.166722   0.024010 -6.9439 3.815e-12
 PC Retired.x    0.201461   0.042050  4.7910 1.660e-06
 PC Cat Two.x   -0.127588   0.047495 -2.6863  0.007224

Lambda: 0.56615, LR test value: 165.13, p-value: < 2.22e-16
Asymptotic standard error: 0.036446
    z-value: 15.534, p-value: < 2.22e-16
Wald statistic: 241.31, p-value: < 2.22e-16

Log likelihood: -2768.596 for error model
ML residual variance (sigma squared): 23.67, (sigma: 4.8651)
Number of observations: 912
Number of parameters estimated: 7
AIC: 5551.2, (AIC for lm: 5714.3)
```

Voting-Age Population Turnout

Spatial Lag Model

```
Residuals:
     Min       1Q   Median       3Q      Max
-63.4699  -6.1992  -0.5556   5.1088 400.5538

Type: lag
Coefficients: (asymptotic standard errors)
                 Estimate Std. Error z value  Pr(>|z|)
(Intercept)    -41.860260  17.044655 -2.4559 0.0140526
 PC VAP 65+.x    0.957515   0.131674  7.2718 3.546e-13
 PC VAP 50-64.x  1.091540   0.190312  5.7355 9.722e-09
 PC Same Add.x   0.905595   0.222628  4.0677 4.747e-05
 PC LA Rent.x   -0.334067   0.094347 -3.5408 0.0003989
 PC Cat Two.x    0.293690   0.168349  1.7445 0.0810656

Rho: -0.28013, LR test value: 26.052, p-value: 3.3234e-07
Asymptotic standard error: 0.051594
    z-value: -5.4295, p-value: 5.6518e-08
Wald statistic: 29.479, p-value: 5.6518e-08

Log likelihood: -4054.963 for lag model
ML residual variance (sigma squared): 420.5, (sigma: 20.506)
Number of observations: 912
Number of parameters estimated: 8
AIC: 8125.9, (AIC for lm: 8150)
LM test for residual autocorrelation
test value: 1.3752, p-value: 0.24092
```

Spatial Error Model

```
Residuals:
      Min        1Q    Median        3Q       Max
-63.49918  -6.13477  -0.48272   5.03413 397.90094

Type: error
Coefficients: (asymptotic standard errors)
                 Estimate Std. Error z value  Pr(>|z|)
(Intercept)    -45.599149  14.420617 -3.1621  0.001566
 PC VAP 65+.x    0.850453   0.113541  7.4903 6.861e-14
 PC VAP 50-64.x  0.917364   0.180084  5.0941 3.504e-07
 PC Same Add.x   0.820404   0.190851  4.2987 1.718e-05
 PC LA Rent.x   -0.263017   0.084492 -3.1129  0.001853
 PC Cat Two.x    0.146352   0.145900  1.0031  0.315813

Lambda: -0.38879, LR test value: 35.296, p-value: 2.8321e-09
Asymptotic standard error: 0.05784
    z-value: -6.7218, p-value: 1.7945e-11
Wald statistic: 45.183, p-value: 1.7945e-11

Log likelihood: -4050.341 for error model
ML residual variance (sigma squared): 411.34, (sigma: 20.281)
Number of observations: 912
Number of parameters estimated: 8
AIC: 8116.7, (AIC for lm: 8150)
```

Figure 5.8.1: Geographically Weighted Regression Models for Voter Turnout in General Election 2016 at the Electoral Division Level

In the above analysis, the registered turnout data is best accounted for by the spatial lag method, while the most accurate voting-age turnout model is achieved via the spatial error method. The application of weighting and also the consideration of data with no outlier values removed in order to accommodate GWR leads to some notable differences in the strength of the relationship between predictor variables and turnout levels when compared to the previous linear models.

Despite these differences, the registered turnout data still demonstrates the notable positive associations between turnout, the proportion of the population at the same address for over one year, and the proportion of the population classed as 'retired'. In terms of negative associations with registered turnout, both methods identify associations with the proportion of individuals living in Local Authority rented accommodation, and the proportion of the population in 'category-two' employment, albeit with a lower level of influence than the aforementioned positive associations.

The voting-age population data outlines a number of notable positive influences on turnout, including the proportion of the population in the two oldest age cohorts, and the proportion of the population at the same address for over one year. While the proportion of the population in 'category-two' employment is identified as a positive influence with the spatial lag method, this has a low degree of statistical reliability in the spatial error model. In terms of negative associations detected, both methods again identify a negative correlation between turnout levels and the proportion of the population in Local Authority rented accommodation.

Temporal Turnout Trends from General Election 2007 to 2016

In a similar manner to the previous analysis, temporal turnout trends may also be examined via the application of geographically weighted regression techniques. As displayed in Figure 5.8.2, both the application of the spatial lag method and the application of the spatial error method for registered voter turnout change and voting-age population turnout change demonstrated an improved level of model accuracy in comparison to the unweighted linear regression models previously utilised.

Registered Voter Turnout Change 2007-2016

Spatial Lag Model

```
Residuals:
     Min       1Q   Median       3Q      Max
-26.7909  -2.6829   0.1176   2.8853  18.1346

Type: lag
Coefficients: (asymptotic standard errors)
                          Estimate Std. Error z value  Pr(>|z|)
(Intercept)              -3.791077   1.777343 -2.1330   0.03292
 PC VAP Single.x          0.044436   0.025864  1.7181   0.08578
 PC White Irish Traveller.x -0.373422   0.184213 -2.0271   0.04265
 PC LA Rent.x             0.149268   0.024473  6.0993 1.065e-09
 PC VAP 50-64.x          -0.045282   0.042843 -1.0569   0.29055
 PC Retired.x             0.064641   0.035916  1.7998   0.07189

Rho: 0.46402, LR test value: 125.6, p-value: < 2.22e-16
Asymptotic standard error: 0.039478
    z-value: 11.754, p-value: < 2.22e-16
Wald statistic: 138.15, p-value: < 2.22e-16

Log likelihood: -2757.261 for lag model
ML residual variance (sigma squared): 23.679, (sigma: 4.8661)
Number of observations: 912
Number of parameters estimated: 8
AIC: 5530.5, (AIC for lm: 5654.1)
LM test for residual autocorrelation
test value: 48.1, p-value: 4.0499e-12
```

Spatial Error Model

```
Residuals:
     Min       1Q   Median       3Q      Max
-26.44115  -2.77449   0.12686   3.00237  18.04915

Type: error
Coefficients: (asymptotic standard errors)
                          Estimate Std. Error z value  Pr(>|z|)
(Intercept)              -8.145215   2.005795 -4.0608 4.890e-05
 PC VAP Single.x          0.096839   0.033456  2.8946  0.003797
 PC White Irish Traveller.x -0.402149   0.193600 -2.0772  0.037782
 PC LA Rent.x             0.127794   0.026549  4.8135 1.483e-06
 PC VAP 50-64.x          -0.007982   0.044147 -0.1808  0.856520
 PC Retired.x             0.089510   0.042852  2.0888  0.036722

Lambda: 0.46891, LR test value: 101.86, p-value: < 2.22e-16
Asymptotic standard error: 0.040767
    z-value: 11.502, p-value: < 2.22e-16
Wald statistic: 132.3, p-value: < 2.22e-16

Log likelihood: -2769.13 for error model
ML residual variance (sigma squared): 24.278, (sigma: 4.9273)
Number of observations: 912
Number of parameters estimated: 8
AIC: 5554.3, (AIC for lm: 5654.1)
```

Voting-Age Population Turnout Change 2007-2016

Spatial Lag Model

```
Residuals:
      Min        1Q    Median        3Q       Max
-1299.4601    -5.8383    2.1316    9.6200  317.1308

Type: lag
Coefficients: (asymptotic standard errors)
                  Estimate  Std. Error z value Pr(>|z|)
(Intercept)    -143.975727   75.595856 -1.9045 0.056839
 PC VAP 18-29.x    0.021645    0.687435  0.0315 0.974881
 PC Same Add.x     1.685409    0.759045  2.2204 0.026389
 PC Students      -0.170460    0.692251 -0.2462 0.805496
 PC Cat Two.x     -1.614057    0.515317 -3.1322 0.001735
 PC LA Rent.x      0.660429    0.290352  2.2746 0.022931

Rho: 0.5837, LR test value: 201.47, p-value: < 2.22e-16
Asymptotic standard error: 0.035292
    z-value: 16.539, p-value: < 2.22e-16
Wald statistic: 273.55, p-value: < 2.22e-16

Log likelihood: -5068.788 for lag model
ML residual variance (sigma squared): 3653.1, (sigma: 60.441)
Number of observations: 912
Number of parameters estimated: 8
AIC: 10154, (AIC for lm: 10353)
LM test for residual autocorrelation
test value: 324.02, p-value: < 2.22e-16
```

Spatial Error Model

```
Residuals:
      Min        1Q    Median        3Q       Max
-1301.7766    -4.7087    2.1458    9.1669  317.1369

Type: error
Coefficients: (asymptotic standard errors)
                  Estimate Std. Error z value Pr(>|z|)
(Intercept)    -163.58986   83.22999 -1.9655  0.04935
 PC VAP 18-29.x   -0.45065    0.77662 -0.5803  0.56173
 PC Same Add.x     1.82192    0.83247  2.1886  0.02863
 PC Students       0.15047    0.75127  0.2003  0.84125
 PC Cat Two.x     -1.37540    0.61215 -2.2468  0.02465
 PC LA Rent.x      0.72325    0.31369  2.3056  0.02113

Lambda: 0.58807, LR test value: 201.22, p-value: < 2.22e-16
Asymptotic standard error: 0.035382
    z-value: 16.621, p-value: < 2.22e-16
Wald statistic: 276.25, p-value: < 2.22e-16

Log likelihood: -5068.91 for error model
ML residual variance (sigma squared): 3649.2, (sigma: 60.409)
Number of observations: 912
Number of parameters estimated: 8
AIC: 10154, (AIC for lm: 10353)
```

Figure 5.8.2: Geographically Weighted Regression Models for Voter Turnout Change between General Election 2007 and General Election 2016 at the Electoral Division Level

The application of geographically weighted regression in this instance outlines a number of potential relationships, with notably lower levels of significance in many observations in comparison to the previous analysis. This is again partially influenced by the inclusion of extreme values that were removed from the most accurate linear models. In terms of registered voter turnout change, the spatial lag method returns the lowest AIC value for both methods applied. This model outlines a number of potentially influential variables, with the lower level of statistical reliability leading to very few of these relationships achieving a false positive risk value of less than 5 percent. The most reliable indicators suggest a positive association between rates of turnout change and the proportion of individuals in Local Authority rented accommodation, and a negative association

between rates of turnout change and the percentage of the population classed as 'White Irish Travellers'. While the spatial error model has a lower noted AIC value, it does return a greater degree of reliability in terms of identifying individual variable relationships. In this sense, there is a positive association between the rate of registered turnout change, the proportion of the population classed as 'single', and the proportion of the population in Local Authority rented accommodation. There is also a potential suggestion that the proportion of the population classed as 'retired' has a slight positive influence, with a false positive risk of 8 percent in this observation. In terms of negative associations, the only reliable relationship is observed in terms of the negative association with the percentage of the population in the 'White Irish Traveller' category.

With regard to the observed changes in voting-age population turnout, both methods return an identical AIC value. The spatial lag model identifies a positive relationship between turnout change and the percentage of the population at the same address for over one year, and the percentage of the population in Local Authority rented accommodation. There is also a negative association between rates of change and the percentage of the population in 'category-two' employment. Both the variables for the percentage of the population in the 18-29 cohort and those classed as 'students' fail to return a reliable observation. The spatial error model in this instance echoes the same trends among predictor variables, with little deviation from the strength of observed relationships in the spatial lag model.

Model Accuracy Examination

Given that both methods of geographical weighting provide additional insight into voter turnout trends in the case study area, additional analysis considers the relative levels of accuracy of all models constructed. Table 5.8.1 demonstrates the results of Pearson correlations between model fitted values and actual voter turnout values and rates of change. For both the 2016 General Election data and the rates of turnout change between General Election 2007 and General Election 2016, both methods of geographical weighting improve the strength of the correlation observed in comparison to the previous linear model. This further demonstrates that geographical drivers outside of the socio-economic and demographic variables examined have a significant impact on voter turnout trends.

	Linear Model	
Data	**Correlation Coefficient**	**P-Value**
Registered Voter Turnout	0.6139286	< 2.2e-16
Voting-Age Population Turnout	0.4658113	< 2.2e-16
Registered Voter Turnout Change	0.4117751	< 2.2e-16
Voting-Age Population Turnout Change	0.1466625	8.70E-06
	Spatial Lag Model	
	Correlation Coefficient	**P-Value**
Registered Voter Turnout	0.7281554*	< 2.2e-16
Voting-Age Population Turnout	0.499383	< 2.2e-16
Registered Voter Turnout Change	0.5590054*	< 2.2e-16
Voting-Age Population Turnout Change	0.5478939	< 2.2e-16
	Spatial Error Model	
	Correlation Coefficient	**P-Value**
Registered Voter Turnout	0.7245865	< 2.2e-16
Voting-Age Population Turnout	0.516397*	< 2.2e-16
Registered Voter Turnout Change	0.5496241	< 2.2e-16
Voting-Age Population Turnout Change	0.550556*	< 2.2e-16

*Strongest Correlation for Each Dependent Variable

Table 5.8.1: Pearson Correlation of Model Fitted Values with Actual Turnout Values

The fitted values between the linear models and the geographically weighted models may be compared in order to examine the areas in which the geographical weighting leads to a higher or lower predicted value than the linear models. While there are a number of comparisons based on the four dependent variables considered and the application of either the spatial lag or spatial error method, the method which produces the highest correlation between fitted values and actual values is chosen for each dependent variable.

The resultant geography of the fit-ratio for each dependent variable may be viewed in Figure 5.8.3 and Figure 5.8.4. Figure 5.8.3 displays the fit-ratio for registered turnout under the spatial lag method and voting-age population turnout under the spatial error method. Figure 5.8.4 outlines the fit-ratio for the change in registered turnout under the spatial lag method and the change in voting-age population turnout under the spatial error method. It is worthwhile noting that while four fit-ratio comparisons are excluded in this instance, the geography of fit-ratio for each dependent variable is largely similar in nature under either the spatial lag or spatial error method.

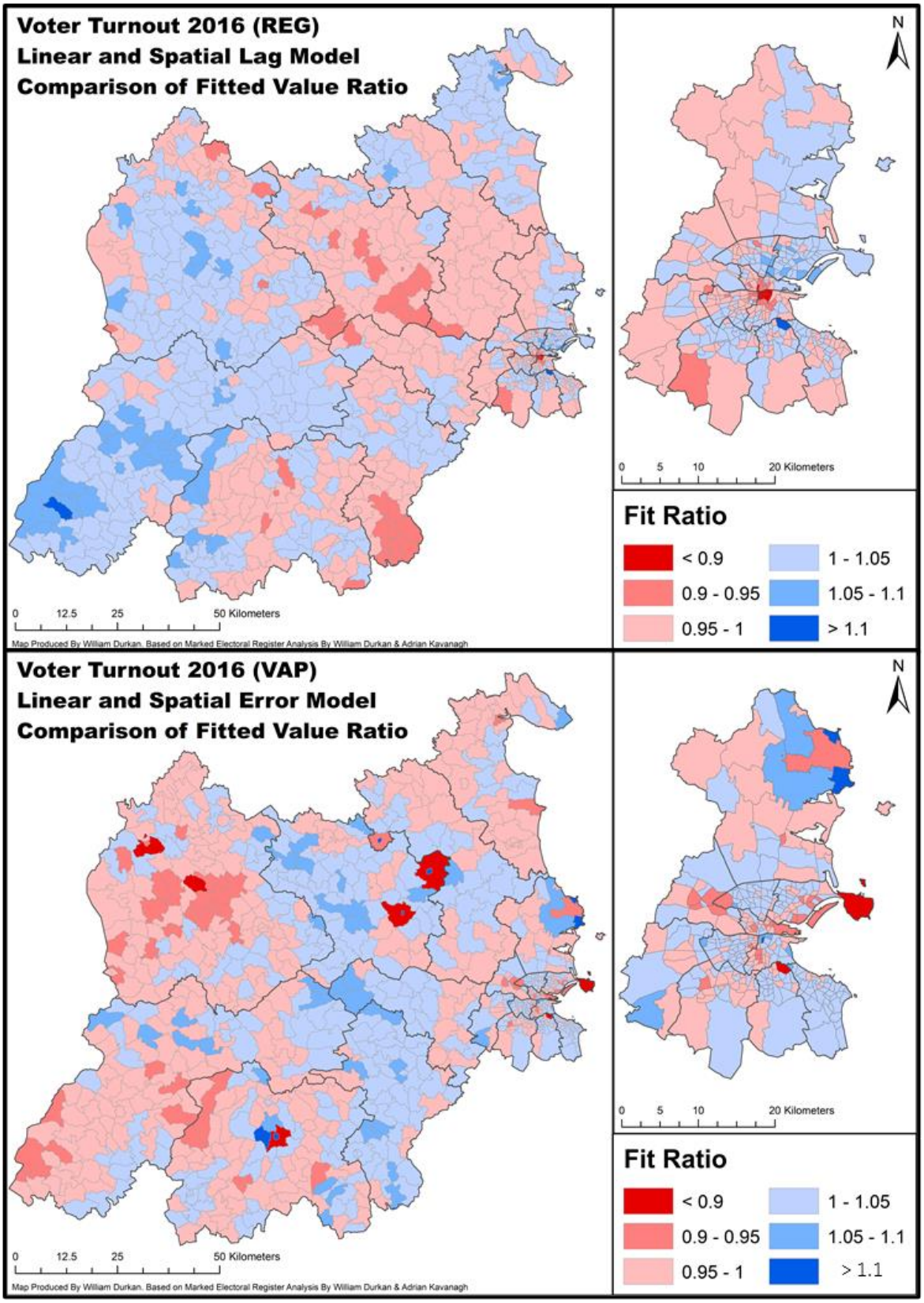


Figure 5.8.3: Fitted Value Ratio of Linear and Geographically Weighted Voter Turnout Models

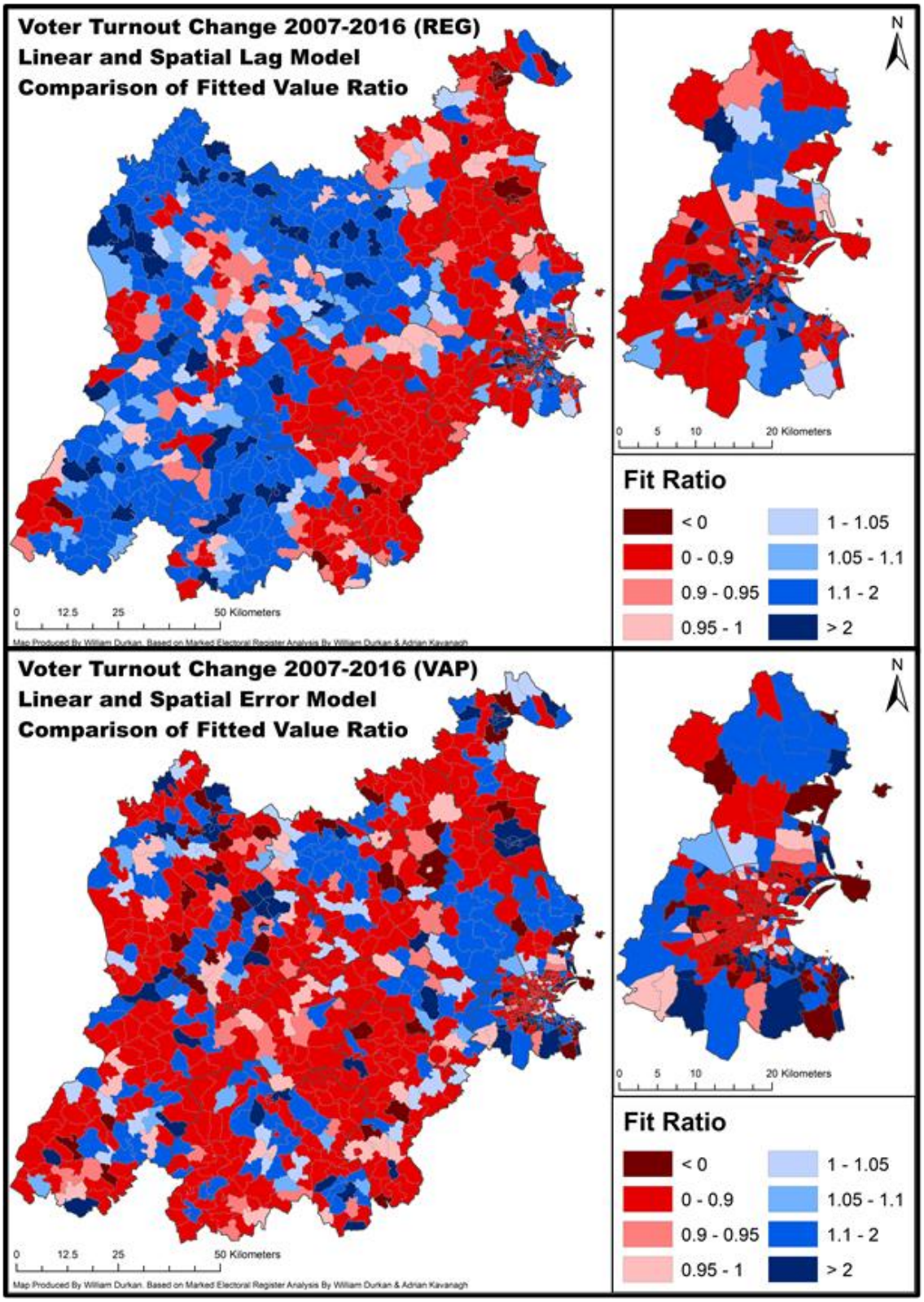


Figure 5.8.4: Fitted Value Ratio of Linear and Geographically Weighted Temporal Voter Turnout Models

The examination of the fit-ratio of various geographically weighted models in the context of the previous linear regression models outlines a tendency for both registered turnout models and registered turnout change models to have higher predicted values in the high-turnout west of the study area and lower predicted values in the lower-turnout east of the study area when geographical weighting is applied. Notably, there is a suggestion of a reversal in this trend when the voting-age population data is considered, with the temporal model having a less prevalent east-west divide in fit-ratio overall. There are also some notable clusters outside of these trends, with the aforementioned potential impact of candidate location and boundary divisions highlighted in North Tipperary, and the aforementioned issue of register inaccuracy reflected in the voting-age population data.

Further to the comparison of fit-ratios, the localised R-Squared values for the select predictors may also be considered through the application of Geographically Weighted Regression models. In the first instance, voter turnout trends are considered in the context of the HP Pobal Deprivation Index. (Haase & Pratschke, 2017). While the index was not included in the majority of the most accurate models, the variable tended to be excluded in the model construction process due to instances of multicollinearity with the other variables. This is to be expected, given the many census variables that are used in the construction process; variables that are also considered individually in the voter turnout analysis. Given this, GWR models are constructed with this single variable as an indicator, using the 'relative' deprivation measure in the case of General Election 2016 turnout, and the 'absolute' deprivation measure in the case of temporal data. Both methods apply the fixed Kernel method and include all neighbouring Electoral Divisions in the weighting process.

This process allows the representation of a localised R-Squared value for each Electoral Division. This is to say that the proportion of variability in turnout trends within each Electoral Division which is accounted for by the HP Deprivation Index score may be examined in more detail. Figure 5.8.5 outlines the geography of localised R-Squared values for both measures of turnout in General Election 2016 and in the rates of turnout change from General Election 2007 to General Election 2016.

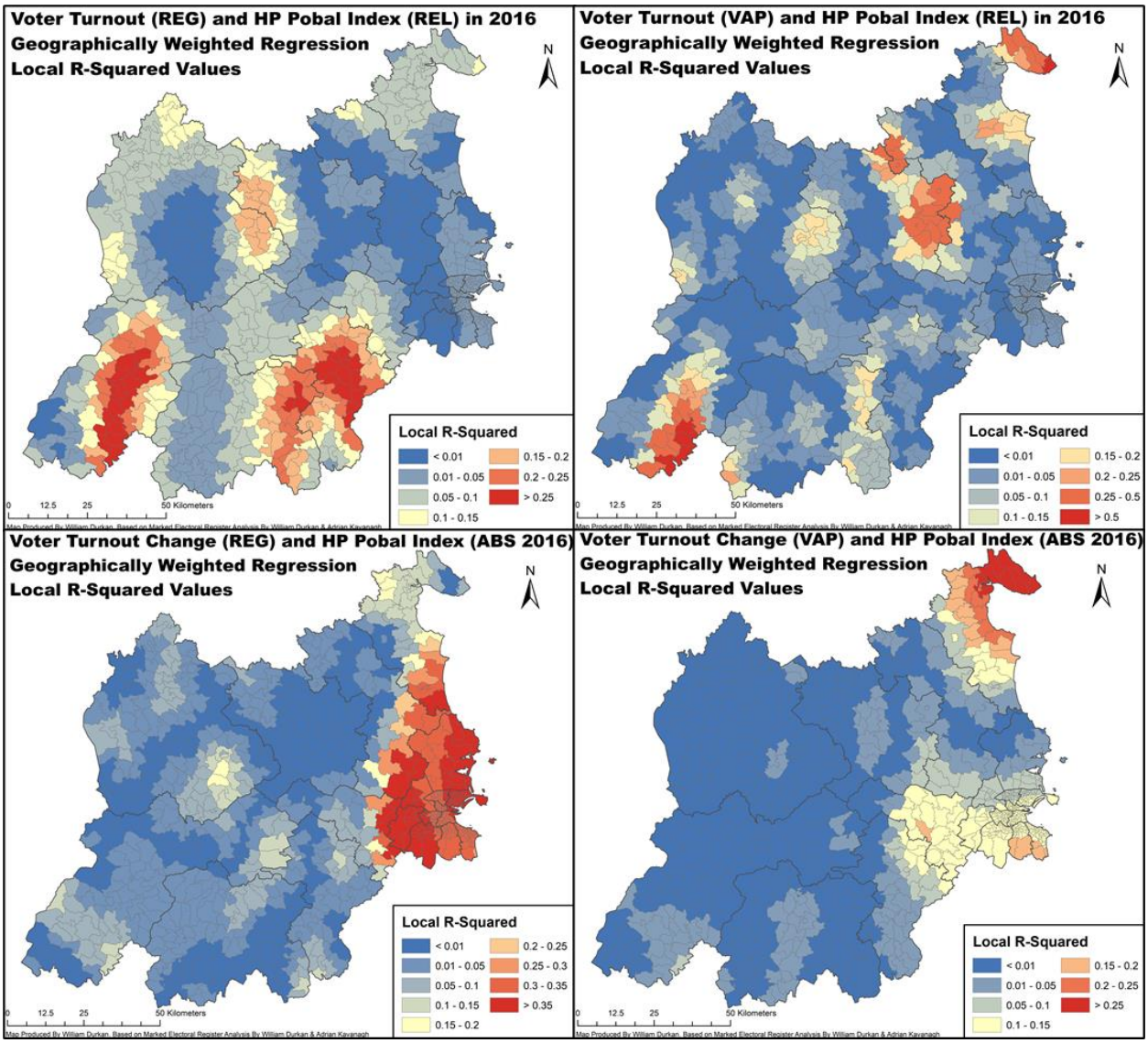


Figure 5.8.5: Localised R-Squared Values for Geographically Weighted Regression Models based on Voter Turnout Trends and the HP Pobal Deprivation Index

When viewed in this manner, the Pobal Deprivation Index score appears to best account for voter turnout levels in General Election 2016 in a number of select areas. The registered voter turnout is best accounted for in this manner in parts of North Tipperary and Offaly, Kildare South, and parts of the Longford-Westmeath and Meath West constituencies. This predictor appears to be less relevant within Co. Dublin, and other select clusters of low localised R-Squared values. The voting-age population turnout analysis points to a number of differences but does still highlight

parts of North Tipperary within the Offaly Constituency as having some of the highest localised R-Squared values, while also again pointing to low localised R-Squared values within Co. Dublin. It is also worth noting that the voting-age population data returns a number of much higher localised R-Squared values than the registered data, suggesting that the Pobal Deprivation Index appears to have a strong association with voting-age population turnout in a number of areas. This suggests a contradictory trend to the findings of Kavanagh (2002), who suggests that deprivation is more influential in urban environments. The apparently contradictory findings may be better understood in the context of the temporal analysis.

When the temporal data is examined, there is a greater degree of uniformity between the two measures of turnout change considered. The geography of localised R-Squared values points to a strong association between rates of registered turnout change and the Pobal HP Deprivation Index score within Dublin County and the surrounding commuter-belt areas, with this much less pronounced in the more rural west of the case study area. While this distinct geography is perhaps less pronounced in the voting-age population turnout data, there is still a notable east-west trend, with an additional cluster of pronounced values in north Co. Louth. This suggests a significant turnout increase in areas within Co. Dublin that is associated to the level of affluence or deprivation in a given area. As such, it appears that the trends observed by Kavanagh (2002) have changed significantly in the period from 2002 to 2016 in the Dublin area.

An additional examination of Localised R-Squared values may also be considered in the context of a wider range of predictor variables; those that have been previously identified as having a notable association with turnout trends. In this examination, initial models include the predictor variables that have been identified as influential in previous GWR and linear models for each dependent turnout measure. Given the application of this specific type of GWR, and the risk of increased localised multicollinearity among variables, some additional variables are required to be removed. This primarily impacts on the variable which measures the proportion of the population at the same address for over one year. As this variable has a distinct urban/rural divide, a tendency for large, localised clusters of similar values, and a low overall degree of variability, it is deemed unsuitable for inclusion in this method. Figure 5.8.6 outlines the geography of localised R-Squared values for each measure of turnout considered, alongside the predictor variables that are deemed suitable for inclusion in each instance.

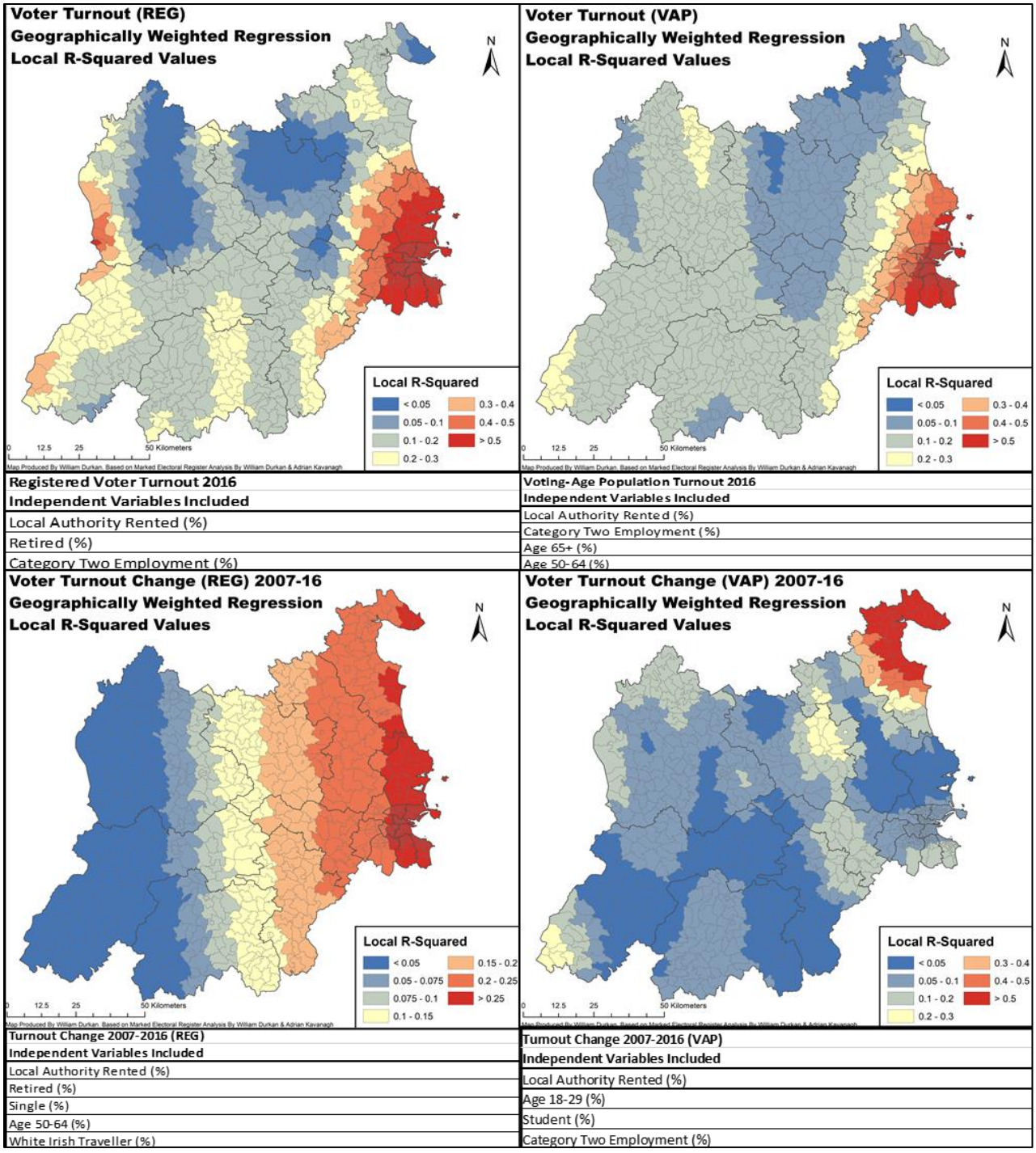


Figure 5.8.6: Localised R-Squared Values for Geographically Weighted Regression Models based on Voter Turnout Trends and Chosen Predictor Variables

In this analysis, both the registered voter turnout and voting-age population turnout models for General Election 2016 demonstrate a broadly similar overall geography of localised R-Squared values. In both instances, the chosen socio-economic and demographic variables are seen to account for a large degree of variability in turnout levels in the Dublin area and surrounding commuter-belt, with some other localised pockets of high R-Squared values throughout the more rural west of the case study area.

The temporal analysis again as a large degree of similarity in the overall geography of localised R-Squared values, with a broad east-west trend demonstrated in both instances. This trend is notably less pronounced in the voting-age population data, with the data again identifying a high cluster in north Co. Louth. Despite the differences in geography, the broad east-west trend is still present, with a notably higher range of localised R-Squared values demonstrated.

Overall, this examination outlines that there is a notable geography in most instances of investigation, suggesting that geographical factors outside of predictor variables have a significant impact on turnout trends. The improved accuracy of weighted models and their associated fit-ratios outlines the apparent east-west divide in most cases, with the difference between registered turnout and voting-age population turnout levels also reflected in this instance. The examination of localised R-Squared values for additional GWR models suggests that socio-economic and demographic indicators of turnout trends appear to be more influential in the urban east of the study area, as suggested by Kavanagh (2002), with a notable decline in the level of influence attributed to affluence or deprivation than was the case in previous studies. (Kavanagh, 2002).

While the apparent east-west divide may reflect a broad urban-rural divide in voter turnout trends, a more nuanced consideration of these factors is provided in the subsequent section via the application of Teljeur area classes. (Teljeur & Kelly, 2008). This approach also facilitates a deeper consideration of the urban-rural characteristics of select predictor variables and the extent to which this may shape overall voter turnout trends.

5.9: Urban/Rural Variation in Trends

When considering the wide array of potential influences on the voter turnout trends within a given area, and the resultant geography that emerges, it is important to consider the urban/rural variation among trends. The well documented urban/rural divide in participation rates in the Irish context (Kavanagh, 2002) is examined through the use of Teljeur Classes (Teljeur & Kelly, 2008) in the given study area at Electoral Division level, as outlined in Table 5.9.1. When examining the registered voter turnout rate in each individual class, there is a notable increase in the mean value from urban to rural environments. The data suggests that the mean participation rates observed align with expected trends, demonstrating a lower value in urban environments and higher values in more rural context.

This trend notably more pronounced in the voting-age population measure of turnout, with a linear increase again demonstrated in the average turnout levels across each Teljeur Class. The dataset with extreme outlier values removed is utilised for the voting-age population data in order to minimise influence from instances of register inaccuracy.

In both the registered data and the voting-age population data, the average standardised residual values from the most accurate linear models are also included. In both cases, while the values returned fail to demonstrate a clear sense of linearity among classes from urban to rural, it is notable that the highest value and under-prediction takes place in the most rural class, with much lower values in the more urban settings.

Study Area:	Full Study Area			
Teljeur Class	**VT REG 2016**	**STDRES**	**VT REG Change 07-16**	**STDRES**
City	62.25	0.02	0.20	0.20
Town	62.28	-0.05	-1.74	0.14
Village (Near)	64.35	0.08	-4.27	-0.30
Village (Remote)	64.26	0.02	-6.25	-0.76
Rural (Near)	65.96	-0.08	-4.48	-0.03
Rural (Remote)	68.15	0.28	-6.71	-0.47
Study Area:	**Reduced Study Area (Outliers Removed)**			
Teljeur Class	**VT VAP 2016**	**STDRES**	**VT VAP Change 07-16**	**STDRES**
City	60.96	-0.12	-5.69	0.10
Town	63.26	0.07	-5.11	-0.46
Village (Near)	66.82	-0.09	-7.71	0.06
Village (Remote)	68.38	-0.08	-16.44	-0.04
Rural (Near)	74.68	0.00	-9.80	0.03
Rural (Remote)	79.93	0.40	-8.89	0.07

Table 5.9.1: Voter Turnout Data by Teljeur Area Class

The temporal data also suggests a notable urban-rural divide in the average level of voter turnout change from 2007 to 2016 within each Teljeur class. With regard to the change observed in registered turnout values, there is a notable tendency for a greater decline in participation in more rural settings, and even a slight average level of turnout increase is recorded within the most urban Teljeur 'City' class. In the temporal voting-age population data, the same broad trend emerges, albeit in a less linear fashion. The most notable difference is perhaps the significant level of decline in the 'Village (Remote)' class, with a lower number of data points here leaving the average value open to influence by some severe instances of decline, even with outlier values removed. The standardised residual values from the most accurate linear models applied to the temporal data fails to return a clear strong trend, although it is worth noting that both measures indicate higher-than-expected rates of change in a positive direction within the 'City' class.

The relationship between voter turnout values and Teljeur classes is examined in more detail via the application of a binomial logistic regression model which is fitted to the categories. This model uses voter turnout values as a predictor variable to determine the given Teljeur class of that area. In this process, a high level of accuracy, or goodness of fit, of the model would suggest that there is a strong urban/rural trend in voter turnout values and values have a strong relationship to the

Teljeur class in which they are associated. Figure 5.9.1 outlines the effectiveness of this method using both the registered turnout and voting-age population turnout figures for General Election 2016.

Voter Turnout (REG)

```
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.8910  -1.3130   0.7574   0.8882   1.2834

Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept) -3.57662    0.68548  -5.218 1.81e-07 ***
VTGE16       0.06762    0.01072   6.307 2.85e-10 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1145.2  on 911  degrees of freedom
Residual deviance: 1102.3  on 910  degrees of freedom
AIC: 1106.3

Number of Fisher Scoring iterations: 4
```

Voter Turnout (VAP)

```
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-3.2952  -1.1336   0.6617   0.8317   2.1160

Coefficients:
                    Estimate Std. Error z value Pr(>|z|)
(Intercept)        -2.555856   0.356234  -7.175 7.25e-13 ***
`VT ELEIGABLE VAP`  0.049449   0.005293   9.343  < 2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1145.2  on 911  degrees of freedom
Residual deviance: 1035.0  on 910  degrees of freedom
AIC: 1039

Number of Fisher Scoring iterations: 5
```

Figure 5.9.1: Logistic Regression Model for Voter Turnout in General Election 2016 and Teljeur Classes

As Figure 5.9.1 outlines, the registered turnout model demonstrates a good degree of symmetry in terms of the deviance residuals, suggesting that this is a suitable analysis which demonstrates that registered voter turnout values have a statistically verifiable relationship with the Teljeur classes based on the associated p-value. This relationship is also reflected in the voting-age population turnout figures, with a strong level of statistical reliability in the findings. Both models indicate a positive relationship between the more rural classes and voter turnout levels, with the Teljeur ‘City’ class being the class against which all other values are compared.

The temporal data may be examined in the same manner, as outlined in Figure 5.9.2. In this instance, a negative association between levels of change and more rural Teljeur classes is observed, with both turnout measures serving as accurate predictors of Teljeur class. This is more pronounced in the levels of registered turnout change recorded, with a lower influence and lower level of statistical reliability observed in the voting-age population turnout data.

Voter Turnout Change 2007-16 (REG)	Voter Turnout Change 2007-2016(VAP)
Deviance Residuals: Min 1Q Median 3Q Max -2.9484 -1.0961 0.5991 0.8423 1.9581 Coefficients: Estimate Std. Error z value Pr(>|z|) (Intercept) 0.41452 0.07988 5.189 2.11e-07 *** VTREGCH0716 -0.15959 0.01551 -10.286 < 2e-16 *** --- Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 (Dispersion parameter for binomial family taken to be 1) Null deviance: 1145.2 on 911 degrees of freedom Residual deviance: 1011.7 on 910 degrees of freedom AIC: 1015.7 Number of Fisher Scoring iterations: 4	Deviance Residuals: Min 1Q Median 3Q Max -1.8940 -1.4247 0.8202 0.8886 2.2866 Coefficients: Estimate Std. Error z value Pr(>|z|) (Intercept) 0.564839 0.081938 6.894 5.44e-12 *** VTVAPCH0716 -0.023471 0.005664 -4.144 3.42e-05 *** --- Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 (Dispersion parameter for binomial family taken to be 1) Null deviance: 1145.2 on 911 degrees of freedom Residual deviance: 1121.0 on 910 degrees of freedom AIC: 1125 Number of Fisher Scoring iterations: 6

Figure 5.9.2: Logistic Regression of Voter Turnout Change 2007-16 and Teljeur Classes

The apparent urban/rural divide in the data may be further examined by conducting a comparison between the p-value associated with a chi-squared test on the difference between the null deviance and the residual deviance of the models. As viewed in Figure 5.9.3, the p-value is notably smaller when examining the residual deviance of the models, suggesting that the inclusion of the voter turnout predicators serve to provide relatively accurate predictors. The chi-squared test on the difference between residual and null deviance also points to the existence of a significant trend in the data, demonstrating that all turnout data have a statistically valid relationship with Teljeur classes within the case study area.

In many instances of model construction the association between voter turnout and Teljeur class is notably slight, based on the coefficient value that is returned. This suggests that while there may be a broad urban/rural variation, there is a large degree of variance in this trend. The AIC value that is associated with each model also provides a useful measure to compare accuracy. In the subsequent analysis, other variables are examined alongside voter turnout in order to determine the extent to which urban/rural trends in socio-economic and demographic characteristics may determine the observed urban/rural trends in voter turnout values. This analysis will aim to determine the extent to which an urban/rural divide in variables previously identified as associated with turnout drive the urban/rural divide in turnout, and to what extent that this turnout divide exists independently of these influences.

Registered Voter Turnout			
	Value	**Degrees of Freedom**	**P-Value**
Null Deviance	1145.2	911	1.77E-07
Residual Deviance	1102.3	910	1.12E-05
Difference of Values	42.9	1	5.76E-11
Voting-Age Population Turnout			
	Value	**Degrees of Freedom**	**P-Value**
Null Deviance	1145.2	911	1.77E-07
Residual Deviance	1035	910	0.002392505
Difference of Values	110.2	1	0
Registered Voter Turnout Change			
	Value	**Degrees of Freedom**	**P-Value**
Null Deviance	1145.2	911	1.77E-07
Residual Deviance	1011.7	910	0.01028077
Difference of Values	133.5	1	0
Voting-Age Population Turnout Change			
	Value	**Degrees of Freedom**	**P-Value**
Null Deviance	1145.2	911	1.77E-07
Residual Deviance	1121	910	1.89E-06
Difference of Values	24.2	1	8.68E-07

Figure 5.9.3: Comparison of Logistic Regression Model Accuracy

Urban-Rural Trends in Socio-economic and Demographic Variables

As a number of socio-economic and demographic characteristics are observed as having a perceived relationship with the extent of voter turnout within a given area, it is also important to consider the resultant geography of voter participation alongside these observed relationships. In this sense, the resultant geography may be shaped by the socio-economic and demographic characteristics to a certain extent, but also has the potential to be shaped by other geographical factors. When considering the impact of the aforementioned characteristics within a given area, it is important to investigate to what extent the geography of these characteristics drives the

geography of participation. Variables, such as housing tenure, employment level, marital status, and age demographics, are observed as having a notable linear urban/rural divide in their structure. In order to gain a better understanding of how the geography of these variables shapes the resultant geography of participation, a logistic regression model is applied in order to determine which variables serve as strong predictors of the Teljeur classes, and as such, may help shape the observed urban/rural divide in participation rates.

Figure 5.9.5 illustrates the urban/rural characteristics of a logistic regression model consisting of multiple socio-economic and demographic characteristics that were previously examined alongside voter turnout values. In this instance, a number of variables are seen to be effective predictors of a given Teljeur Class. Variables such as the percentage of the population at the same address over one year, the percentage of the population availing of Local Authority rented accommodation, the percentage of the population classed as 'retired', and the percentage of the population in 'category-two' employment are particularly strong predictors of a given Teljeur class. Collectively, these variables serve as relatively accurate predictors. The selection process of these variables consisted of multiple iterations of the model until a final version included influential variables, and a VIF value for all variables of less than two.

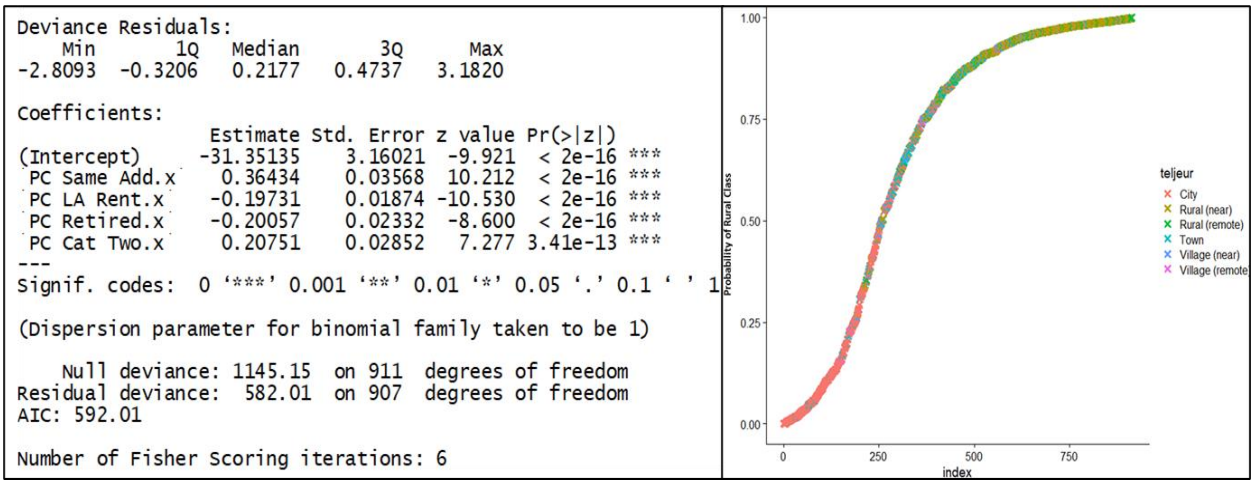


Figure 5.9.5: Logistic Regression for Teljeur Classes and Select Socio-Economic Variables

The ability of these variables to predict Teljeur class is further demonstrated by examining the model's ability to accurately predict the likelihood of an Electoral Division being in a rural Teljeur class. The predicted probability of Teljeur class based on these select predictor variables may be visualised, as also displayed in Figure 5.9.5. The socio-economic and demographic characteristics of a select area can predict a given Teljeur class with a relatively strong level of accuracy, with the majority of Electoral Divisions classed as 'City' observed as having a low probability of being in a rural class, and the majority of rural classes having a probability closer to one. While there is a relatively accurate level of prediction ability, there are also a number of areas which are outliers in this respect.

The next step of investigation consists of the inclusion of each dependent voter turnout variable in turn alongside the select socio-economic and demographic variables. This process aims to determine if the inclusion of the voter turnout variables improves the model's ability to predict Teljeur class, and as such, suggests an urban/rural divide in the turnout variables outside of the chosen socio-economic and demographic variables. All variables will also be assessed in terms of their VIF value in order to ensure that models are free of multicollinearity issues. Figure 5.9.6 outlines the resultant models that produce valid results, with the registered voter turnout values for General Election 2016 failing to produce a reliable result. All three remaining variables however are seen to improve model accuracy, with VIF values of less than two for all variables included across all models presented.

```
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-2.8173  -0.2853   0.2033   0.4530   3.2716

Coefficients:
                  Estimate Std. Error z value Pr(>|z|)
(Intercept)     -28.803204   3.275115  -8.795  < 2e-16 ***
`PC Same Add.x`   0.319301   0.038129   8.374  < 2e-16 ***
`PC LA Rent.x`   -0.192252   0.018960 -10.140  < 2e-16 ***
`PC Retired.x`   -0.236561   0.026035  -9.086  < 2e-16 ***
`PC Cat Two.x`    0.218749   0.029840   7.331 2.29e-13 ***
`VT ELEIGABLE VAP`  0.029438   0.007789   3.780 0.000157 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1145.15  on 911  degrees of freedom
Residual deviance:  564.77  on 906  degrees of freedom
AIC: 576.77

Number of Fisher Scoring iterations: 6
```

```
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-2.6709  -0.2615   0.1477   0.4012   3.1989

Coefficients:
                 Estimate Std. Error z value Pr(>|z|)
(Intercept)     -34.64701    3.57925  -9.680  < 2e-16 ***
`PC Same Add.x`   0.39263    0.04026   9.753  < 2e-16 ***
`PC LA Rent.x`   -0.17606    0.01990  -8.846  < 2e-16 ***
`PC Retired.x`   -0.20612    0.02504  -8.232  < 2e-16 ***
`PC Cat Two.x`    0.23008    0.03145   7.317 2.54e-13 ***
VTREGCH0716      -0.18876    0.02438  -7.743 9.71e-15 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1145.15  on 911  degrees of freedom
Residual deviance:  506.95  on 906  degrees of freedom
AIC: 518.95

Number of Fisher Scoring iterations: 6
```

```
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-2.8252  -0.2904   0.1970   0.4550   3.1720

Coefficients:
                 Estimate Std. Error z value Pr(>|z|)
(Intercept)     -34.135687   3.434922  -9.938  < 2e-16 ***
`PC Same Add.x`   0.392261   0.038570  10.170  < 2e-16 ***
`PC LA Rent.x`   -0.187757   0.018855  -9.958  < 2e-16 ***
`PC Retired.x`   -0.196611   0.023609  -8.328  < 2e-16 ***
`PC Cat Two.x`    0.195077   0.029498   6.613 3.76e-11 ***
VTVAPCH0716      -0.028733   0.008912  -3.224  0.00126 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1145.15  on 911  degrees of freedom
Residual deviance:  562.01  on 906  degrees of freedom
AIC: 574.01

Number of Fisher Scoring iterations: 7
```

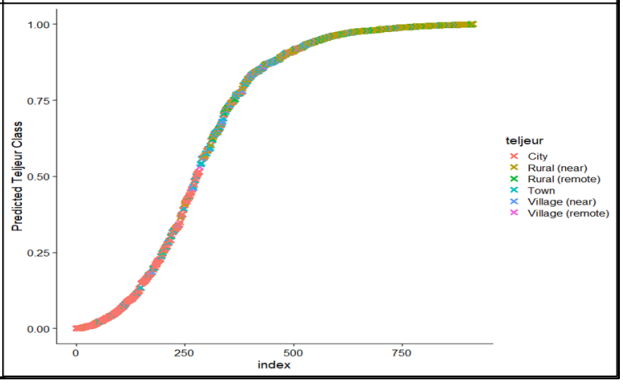


Figure 5.9.6: Logistic Regression Models for Teljeur Class with Socio-Economic and Voter Turnout Predictor Variables

The valid models demonstrate a tendency for voting-age population turnout to be higher in more rural classes independent of select socio-economic characteristics, as there is an improved AIC value and a lower residual deviance when the variable is included, with no collinearity issues detected. Likewise, the temporal data suggests a negative association with more rural classes independent of the select socio-economic characteristics. This trend is best reflected in the registered voter turnout rates of change analysis, which returns the lowest AIC value and residual deviance value of all models constructed. Figure 5.9.6 also presents the visualisation of this model's ability to predict Teljeur classes, with a strong degree of overall accuracy noted in this respect, and fewer obvious outliers than the previous iteration. Overall, this analysis suggests that the urban/rural variation observed in voter turnout trends is partially accounted for by the urban/rural variation in the chosen socio-economic and demographics characteristics but is also further shaped by factors outside of those included here.

Linear Regression Models of Voter Turnout with Teljeur Classes

The inclusion of the categorical Teljeur classes to the previous iterations of the regression models, when tested for multicollinearity, allows the potential impact additional urban/rural influences on voter turnout trends to be examined, outside of the associated relationship between Teljeur classes and chosen socio-economic and demographic characteristics. In other words, given the suggestion that the urban-rural trend in turnout is an influence independent of the chosen socio-economic and demographic characteristics within areas, the inclusion of Teljeur classes as categorical variables in linear regression models may serve to improve overall accuracy and better determine the extent of other urban/rural influences. In all iterations, as with previous cases, the most urban class, the Teljeur 'City' class, is used as a base measurement. The resultant coefficient value may then determine the influence of each class in relation to this. As viewed in Figure 5.9.7, the inclusion of Teljeur classes in the previously examined registered voter data model fail to return any statistically significant trends.

```
Residuals:
     Min       1Q   Median       3Q      Max
-24.2525  -3.0402   0.3009   3.2937  24.3850

Coefficients:
                          Estimate Std. Error t value Pr(>|t|)
(Intercept)                0.78456    4.77190   0.164  0.86944
`PC Same Add.x`            0.66488    0.05667  11.732  < 2e-16 ***
`PC LA Rent.x`            -0.19860    0.02853  -6.962 6.46e-12 ***
`PC Retired.x`             0.34756    0.04397   7.904 7.84e-15 ***
`PC Cat Two.x`            -0.14100    0.04771  -2.955  0.00321 **
Class2011Rural (near)     -0.77326    0.64478  -1.199  0.23074
Class2011Rural (remote)    1.26840    0.80280   1.580  0.11446
Class2011Town             -0.48161    0.68052  -0.708  0.47931
Class2011Village (near)    0.23084    0.90544   0.255  0.79882
Class2011Village (remote) -0.02327    1.41679  -0.016  0.98690
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 5.512 on 902 degrees of freedom
Multiple R-squared:  0.3842,   Adjusted R-squared:  0.3781
F-statistic: 62.53 on 9 and 902 DF,  p-value: < 2.2e-16
```

Figure: 5.9.7: Linear Regression of Registered Voter Turnout, Socio-Economic Variables, and Teljeur Area Classes in General Election 2016

While there is no observed relationship in the above analysis, there is a notable trend when this approach is applied to the voting-age population turnout model. As viewed in Figure 5.9.8, there is a notable increase in the level of variability accounted for in the model, up to a level of over 70 percent, with a number of significant observed trends in terms of the Teljeur classes. As demonstrated, there is a positive influence on voter turnout observed for all classes in comparison to the 'City' class, with this influence more pronounced for the more rural classes. The 'Village' classes with the lowest number of datapoints fail to return a statistically reliable finding in this case. All variables return a VIF value of less than 2.65 in this instance.

```
Residuals:
    Min      1Q  Median      3Q     Max
-34.277  -4.011   0.304   4.194  23.343

Coefficients:
                          Estimate Std. Error t value Pr(>|t|)
(Intercept)              -61.40060    7.33676  -8.369 2.45e-16 ***
`PC VAP 65+`               0.65022    0.04972  13.079  < 2e-16 ***
`PC VAP 50-64`             0.81564    0.07318  11.145  < 2e-16 ***
`PC Same Add`              1.08954    0.09260  11.766  < 2e-16 ***
`PC LA Rent`              -0.15395    0.03964  -3.884 0.000111 ***
`PC Cat Two`              -0.29200    0.06720  -4.345 1.56e-05 ***
Class2011Rural (near)      2.58483    0.84672   3.053 0.002340 **
Class2011Rural (remote)    5.46661    1.08598   5.034 5.90e-07 ***
Class2011Town              2.06823    0.91641   2.257 0.024276 *
Class2011Village (near)    1.25712    1.18103   1.064 0.287445
Class2011Village (remote)  1.41511    1.91171   0.740 0.459367
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 6.993 on 830 degrees of freedom
Multiple R-squared:  0.7077,   Adjusted R-squared:  0.7042
F-statistic:   201 on 10 and 830 DF,  p-value: < 2.2e-16
```

Figure 5.9.8: Linear Regression of Voting-Age Population Turnout, Socio-Economic Variables, and Teljeur area Classes in General Election 2016

In terms of the temporal voter turnout trends, there is a notable improvement in the registered turnout change model accuracy with the inclusion of Teljeur variables. As displayed in Figure 5.9.9, the construction process requires the removal of some socio-economic and demographic variables in order to produce a stable model which has a VIF value of less than 1.5 for all variables included. This model has a notable improvement in R^2 value when compared to the previous linear

model which excluded the Teljeur class variable. While this iteration still points to a notable positive association with the proportion of the population in Local Authority rented accommodation, and a negative association with the proportion of the population classed as 'White Irish Travellers', there is a striking negative association with the more rural Teljeur classes. While all classes have a negative association with rates of change in comparison to the 'City' class, this is not as pronounced in the 'Town' class, and most pronounced in 'Remote' areas.

```
Residuals:
     Min       1Q   Median       3Q      Max
-24.8207  -2.9593  -0.1297   3.1228  18.4457

Coefficients:
                          Estimate Std. Error t value Pr(>|t|)
(Intercept)               -1.63189    0.37594  -4.341 1.58e-05 ***
PC White Irish Traveller.x -0.47787    0.19684  -2.428   0.0154 *
PC LA Rent.x               0.19485    0.02364   8.242 5.91e-16 ***
Class2011Rural (near)     -3.20057    0.44297  -7.225 1.06e-12 ***
Class2011Rural (remote)   -5.66541    0.63565  -8.913  < 2e-16 ***
Class2011Town             -1.38449    0.60260  -2.298   0.0218 *
Class2011Village (near)   -4.13280    0.78876  -5.240 2.00e-07 ***
Class2011Village (remote) -6.56817    1.28313  -5.119 3.76e-07 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 5.142 on 904 degrees of freedom
Multiple R-squared:  0.2336,   Adjusted R-squared:  0.2277
F-statistic: 39.36 on 7 and 904 DF,  p-value: < 2.2e-16
```

Figure 5.9.9: Linear Regression of Registered Voter Turnout Change from General Election 2007 to General Election 2016, Socio-Economic Variables, and Teljeur Area Classes

The voting-age population turnout change data also points to a negative association with all Teljeur classes when compared to the 'City' class, also suggesting that rural turnout was more likely to decline in comparison to more urban areas during this time period, when this measure of turnout change is considered. As demonstrated in Figure 5.9.10, there is also still a positive association between the percentage of the population at the same address for longer than one year and the percentage of the population in Local Authority rented housing. The spatial element to the data suggests that turnout decline is more prevalent in more rural areas, with the lowest level of

difference from the ‘City’ class observed in the ‘Town’ class, with a much more pronounced negative association between rates of change and the more rural classes.

```
Residuals:
    Min      1Q  Median      3Q     Max
-74.531  -4.973   0.229   5.097  67.718

Coefficients:
                           Estimate Std. Error t value Pr(>|t|)
(Intercept)               -60.23267   10.21509  -5.896 5.28e-09 ***
`PC Same Add.x`             0.59758    0.11406   5.239 2.02e-07 ***
`PC LA Rent.x`              0.11602    0.04879   2.378 0.017614 *
Class2011Rural (near)      -7.43731    1.21191  -6.137 1.27e-09 ***
Class2011Rural (remote)    -7.03039    1.59511  -4.407 1.17e-05 ***
Class2011Town              -2.70803    1.38844  -1.950 0.051442 .
Class2011Village (near)    -5.12789    1.84552  -2.779 0.005575 **
Class2011Village (remote) -10.62706    3.16629  -3.356 0.000823 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 11.42 on 886 degrees of freedom
Multiple R-squared:  0.07674,  Adjusted R-squared:  0.06945
F-statistic: 10.52 on 7 and 886 DF,  p-value: 9.531e-13
```

Figure 5.9.10: Linear Regression of Voting-Age Population Turnout Change from General Election 2007 to General Election 2016, with Socio-Economic Variables, and Teljeur Area Classes

The above analyses demonstrate that there is a substantial urban/rural trend in a number of the socio-economic and demographic variables that may shape a resultant geography of electoral participation to a certain extent. However, outside of this urban/rural driver in associated variables, the inclusion of Teljeur classes still acts to improve the reliability of the voting-age population model with no issue of collinearity in the data. This highlights the tendency for turnout to be independently higher in more rural areas. Likewise, the temporal voter turnout data suggests a decline in the period from 2007-2016, which is again independent of select socio-economic and demographic variables.

In short, it is reasonable to conclude that the observed urban/rural divide in voting trends is in part shaped by the urban/rural nature of chosen socio-economic and demographic factors and, outside of this, is also likely to be shaped by additional urban/rural factors within an area, independent of this observed effect.

The tendency for a rural environment to increase participation is noted by a number of interview participants, with Deputy Bernard Durkan likening the level of devotion to voting with a religious commitment in some areas, while also noting the potential for a changing attitude among parts of the electorate in recent times. Minister McEntee points to the potentially greater degree of localism in rural areas with reference to the increased tendency for political loyalty to a given candidate or political party.

> 'Well there was a huge loyalty in rural Ireland and amongst rural people, and there still is in so far as responding to the turnout. And they have regarded it as almost religious… To miss a vote was really awful. In more recent times, there's been a criticism of politics you know, malfeasance, and all that kind of stuff… There's a lot more criticism of politics now than there was, some of it is justified, and some of it not'. (B. Durkan, 2020).

> 'You know I think in rural areas at the same time, you often tend to get people who are, I find, more local to the area and there's still more of a loyalty to particular parties or to particular individuals. So I think that can create quite a high turnout in rural areas as well' (McEntee, 2019).

In this sense, there are a number of additional factors that may shape rural electoral behaviour in a different manner than in more urban environments. When considering the wide range of factors that are observed to impact the resultant geography of participation, there are a number of additional potential influences that may impact participation rates within a given area. The potential presence of some of these additional factors is subsequently examined with the aim of improving model prediction ability further and providing as comprehensive an account as possible of the various factors that may shape electoral participation, alongside examining the potential implications of any trends.

5.10: Candidate Location and Voter Turnout

While the aforementioned relationship between candidate location and political trends is well examined, both internationally (Pattie & Johnston, 2009), and in the Irish context (Parker, 1982; O'Carroll, 1987; Kavanagh, 2002), research which directly examines the potential for candidate location to influence voter turnout rates specifically is less pronounced.

The presence of localised trends may be in part attributed the perceived role of a local candidate as a 'local promoter' and 'local social welfare officer' for a given area, and in part driven by the work that existing representatives do in their local areas. (Gallagher & Komito, 2010: 231). Localised trends in political voting are not something that is unique to Ireland, but it is notably very pronounced in the Irish context. Deputy Robert Troy discusses the reasons as to why Ireland has such a tendency to produce localised trends.

> 'I suppose the Irish electorate, because we're so close to the population, we're so close to the electorate, we're so accessible I suppose is a better way to describe it. We do a lot of representational politics. A lot of people do come to visit our clinics in the hope that we can help iron out whatever problem that they have. Some people are very critical of that. And you know, there are 'fors'. There are pluses and minuses with the clientelism that we have developed or that has developed over the last number of decades. One of the positives is that it very much keeps you on the ground. It's hard to get removed from society when you're so engrained with it'. (Troy, 2019).

In this sense, local representatives working within their community can build a strong localised support base over time. As addressed by Deputy Troy, many consider this clientelist approach to political representation to be problematic. Deputy Alan Farrell address these concerns, noting that while he is opposed to the culture of clientelism, he also recognises that individuals respond well to a more local candidate in practice.

> 'The big issue, I suppose in our electoral system is clientelism, and clientelism is a problem as far as I'm concerned… And ultimately, I know that I have voters who only vote for me

> because I did stuff for them in the community… local politics, you know it well. Locality is everything. And you know, I traded on it in Malahide and Portmarnock, and particularly in Portmarnock. You know I think I put out a leaflet that said: "I'm your local"'. (Farrell, 2019).

Whatever the drivers behind the various degrees of localism observed in the Irish context, the location of candidates and the potential influence that this may have can be examined in the context of participation rates in General Election 2016. Figure 5.10.1 outlines the location of each candidate, both successful and unsuccessful, in this electoral contest.

In order to examine the impact of candidate location, Electoral Divisions that are within a five-kilometre radius of a candidate and within the same constituency are considered to be in close proximity to a candidate's location. This buffer area is reduced to a two-kilometre radius within Co. Dublin, due to the smaller area of constituencies within the county. Figure 5.10.1 also demonstrates the same approach, with successful candidates considered separately, so that the findings of subsequent analyses may be examined in this context.

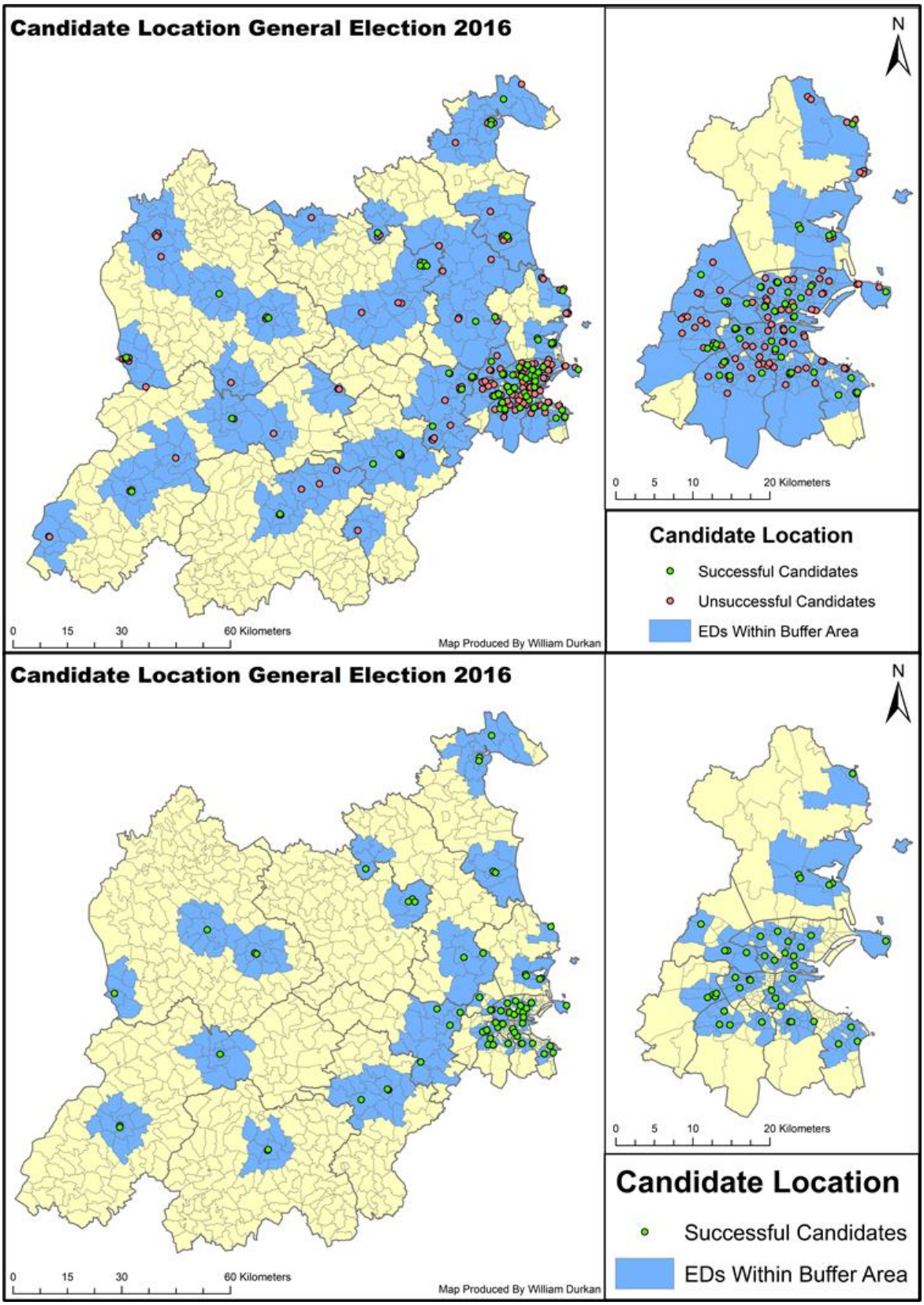


Figure 5.10.1: Candidate Location in General Election 2016

The addition of the candidate location variable to the previous registered voter turnout regression model as a distinct categorical binary variable has a notable impact on the model's ability to predict voter turnout levels within the select case study area. As Figure 5.10.2 outlines, when areas that are within the candidate location buffer are included, there is a notable positive impact observed, with an increase of overall model accuracy from 37 percent to almost 39 percent. While a notable increase in overall accuracy, the model still fails to account for the majority of variability. However, the observed impact of candidate location is significant in itself, as this suggests that the location of candidates in an election contest not only leads to localised impacts on candidate support trends as outlined in existing literature (Parker, 1982), but also specifically influences participation rates in that area.

```
Residuals:
     Min       1Q   Median       3Q      Max
-23.9300  -3.0170   0.0752   3.2697  25.7625

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)   -3.72547    4.34818  -0.857   0.3918
`PC Same Add`  0.69319    0.04867  14.242  < 2e-16 ***
`PC LA Rent`  -0.21631    0.02495  -8.671  < 2e-16 ***
`PC Retired`   0.35760    0.04060   8.809  < 2e-16 ***
`PC Cat Two`  -0.09643    0.04650  -2.074   0.0384 *
GE16ALL1       1.72130    0.41475   4.150 3.63e-05 ***
---
Signif. codes:
0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 5.481 on 906 degrees of freedom
Multiple R-squared:  0.3885,   Adjusted R-squared:  0.3852
F-statistic: 115.1 on 5 and 906 DF,  p-value: < 2.2e-16
```

Figure 5.10.2: Linear Regression Model for Registered Voter Turnout in General Election 2016 Including the Candidate Location Variable

While the above outlined increase in model accuracy with significant p-values indicates the impact of candidate location on voter turnout in the case of the proportion of registered voters that participated in General Election 2016, the relatively low R^2 value means that there is a very significant proportion of registered voter turnout variability unaccounted for. By returning to the examination of the voting-age population measure of voter turnout, we are presented with an

opportunity to examine the impact of candidate location alongside a wider range of variables that, as previously outlined, account for a much greater extent of variability observed in the voter turnout levels. It is important in this case to keep in mind the relatively large amount of outlier values that are removed from the final model, the majority of which are due to the aforementioned unreliable data in numerous areas.

In this iteration of the voting-age population model, as viewed in Figure 5.10.3, there are a significant number of variables included with a high degree of relative significance that collectively account for 72 percent of variability in the voter turnout levels, and a low level of multi-collinearity with all VIF values under 3.2. This is a relatively slight increase of just under 3 percent from the initial linear model, but a significant increase given the low level of variability left unaccounted for.

The inclusion of areas that are within the select buffer area of an election candidate is observed as having a notable positive influence on participation rates in those areas. This effect is observed when examining the impact of all candidates that ran for election, with no observable effect when this is restricted to just those that were successful. The lack of significance in terms of just examining successful candidates may be predominantly attributed to the reduced number of data points. While the increase of under three percent in overall model accuracy may be relatively small, it is still significant, as it reduces the unaccounted variability to less than 28 percent, and also further demonstrates the existence of a significant relationship between these variables.

```
Call:
lm(formula = `VT ELEIGABLE VAP` ~ `PC VAP 65+.x` + `PC VAP 50-64.x` +
    `PC Same Add.x` + `PC LA Rent.x` + `PC Cat Two.x` + Class2011 +
    GE16ALL, data = GD5B)

Residuals:
     Min       1Q   Median       3Q      Max
-25.7088  -3.9864   0.4455   4.3203  24.5494

Coefficients:
                          Estimate Std. Error t value Pr(>|t|)
(Intercept)             -65.82841    7.31880  -8.994  < 2e-16 ***
`PC VAP 65+.x`            0.64150    0.04926  13.022  < 2e-16 ***
`PC VAP 50-64.x`          0.73575    0.07106  10.354  < 2e-16 ***
`PC Same Add.x`           1.13513    0.09164  12.386  < 2e-16 ***
`PC LA Rent.x`           -0.21237    0.03933  -5.400 8.73e-08 ***
`PC Cat Two.x`           -0.23360    0.06718  -3.477 0.000533 ***
Class2011Rural (near)     3.55942    0.89323   3.985 7.35e-05 ***
Class2011Rural (remote)   7.71645    1.13953   6.772 2.41e-11 ***
Class2011Town             2.28636    0.91900   2.488 0.013046 *
Class2011Village (near)   2.97126    1.26946   2.341 0.019490 *
Class2011Village (remote) 5.70867    2.19221   2.604 0.009377 **
GE16ALL1                  1.87216    0.59730   3.134 0.001783 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 6.932 on 829 degrees of freedom
Multiple R-squared:  0.7213,   Adjusted R-squared:  0.7176
F-statistic: 195.1 on 11 and 829 DF,  p-value: < 2.2e-16
```

Figure 5.10.3: Voting-Age Population Turnout 2016 Linear Regression Model Including the Candidate Location Variable and Teljeur Area Classes

The overall accuracy of the final model may be further improved to almost 75 percent by the further removal of outlier values. However, this may be problematic when considering the volume of values previously removed, and the impact that this has on the statistical reliability of other relationships due to reduced datapoints. Most notably in this instance, there is a significant reduction in the reliability of the relationship observed in the case of the Teljeur ‘Village (Remote)’ class, the class which has the fewest Electoral Divisions.

In a similar manner to the examination of voter turnout trends in General Election 2016 in the context of candidate location, the temporal trends in turnout levels may also be considered in this respect. A number of models which examine the rates of registered voter turnout change between General Election 2007 and General Election 2016 point to a positive association between rates of change and the location of both successful candidates and all candidates that ran for election in 2016. As displayed in Figure 5.10.4, models note this positive association for both candidate location variables, with the associated relationship more pronounced when the location of all candidates is considered alongside socio-economic and demographic predictor variables. While

the inclusion of Teljeur classes leads to the removal of some socio-economic and demographic predictor variables in order to produce a valid model in both instances, the models with Teljeur classes included produce a higher overall R^2 value, and a lower AIC value. In all instances, the models displayed return a VIF score off less than two.

The inclusion of candidate location variables in models which assess the rates of voting-age population turnout change also point to a positive association between rates of change and the location of all candidates. The extent of this relationship may be viewed in Figure 5.10.5. While this model also suggests the existence of a positive association, it is worthwhile noting that the inclusion of the variable which considers only successful candidates fails to return a valid relationship, and the most comprehensive model still returns a notably low R^2 value, accounting for just eight percent of all the variability in the data. Despite this, the model returns VIF values for all variables of less than three and adds further weight to the suggestion that voter turnout is more likely to have declined in the period from 2007-2016 in areas that are not in close proximity to a candidate's home base.

Registered Turnout Change: Location of All Candidates

```
Residuals:
     Min       1Q   Median       3Q      Max
-25.6656  -3.1815   0.0154   3.2206  19.9995

Coefficients:
                            Estimate Std. Error t value Pr(>|t|)
(Intercept)                -8.11337    0.75746 -10.711  < 2e-16 ***
`PC VAP Single.x`           0.06563    0.02336   2.809  0.00507 **
`PC White Irish Traveller.x` -0.48132    0.19587  -2.457  0.01419 *
`PC LA Rent.x`              0.18595    0.02599   7.154 1.74e-12 ***
GE16ALL1                    3.10288    0.37440   8.288 4.13e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 5.182 on 907 degrees of freedom
Multiple R-squared:  0.2193,   Adjusted R-squared:  0.2158
F-statistic: 63.68 on 4 and 907 DF,  p-value: < 2.2e-16
```

Registered Turnout Change: Location of All Candidates and Teljeur Classes

```
Residuals:
     Min       1Q   Median       3Q      Max
-24.9787  -2.7868  -0.2533   3.0449  19.2296

Coefficients:
                            Estimate Std. Error t value Pr(>|t|)
(Intercept)                -3.52004    0.53120  -6.627 5.90e-11 ***
`PC White Irish Traveller.x` -0.50407    0.19438  -2.593 0.009663 **
`PC LA Rent.x`               0.19545    0.02334   8.375  < 2e-16 ***
GE16ALL1                     2.04606    0.41185   4.968 8.09e-07 ***
Class2011Rural (near)       -2.09631    0.49053  -4.274 2.13e-05 ***
Class2011Rural (remote)     -4.24666    0.68941  -6.160 1.10e-09 ***
Class2011Town               -1.14538    0.59680  -1.919 0.055274 .
Class2011Village (near)     -3.09440    0.80619  -3.838 0.000133 ***
Class2011Village (remote)   -5.16022    1.29796  -3.976 7.58e-05 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 5.076 on 903 degrees of freedom
Multiple R-squared:  0.254,   Adjusted R-squared:  0.2474
F-statistic: 38.43 on 8 and 903 DF,  p-value: < 2.2e-16
```

Registered Turnout Change: Location of Successful Candidates

```
Residuals:
     Min       1Q   Median       3Q      Max
-26.6818  -3.1141   0.1286   3.1021  19.3360

Coefficients:
                            Estimate Std. Error t value Pr(>|t|)
(Intercept)                -4.81934    1.81814  -2.651  0.00817 **
`PC VAP Single.x`           0.05825    0.02779   2.096  0.03632 *
`PC White Irish Traveller.x` -0.45668    0.19927  -2.292  0.02215 *
`PC LA Rent.x`              0.19015    0.02644   7.193 1.33e-12 ***
`PC VAP 50-64.x`           -0.08417    0.04607  -1.827  0.06803 .
GE16SUC1                    2.23582    0.38684   5.780 1.03e-08 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 5.267 on 906 degrees of freedom
Multiple R-squared:  0.1943,   Adjusted R-squared:  0.1899
F-statistic: 43.71 on 5 and 906 DF,  p-value: < 2.2e-16
```

Registered Turnout Change: Location of Successful Candidates and Teljeur Classes

```
Residuals:
    Min      1Q  Median      3Q     Max
-25.340  -2.957  -0.095   3.066  18.661

Coefficients:
                            Estimate Std. Error t value Pr(>|t|)
(Intercept)                -2.45468    0.45163  -5.435 7.05e-08 ***
`PC White Irish Traveller.x` -0.47401    0.19581  -2.421   0.0157 *
`PC LA Rent.x`               0.19647    0.02352   8.353 2.49e-16 ***
GE16SUC1                     1.32403    0.40749   3.249   0.0012 **
Class2011Rural (near)       -2.59337    0.47863  -5.418 7.72e-08 ***
Class2011Rural (remote)     -5.00897    0.66380  -7.546 1.10e-13 ***
Class2011Town               -1.41534    0.59951  -2.361   0.0184 *
Class2011Village (near)     -3.45934    0.81154  -4.263 2.23e-05 ***
Class2011Village (remote)   -5.91965    1.29191  -4.582 5.25e-06 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 5.115 on 903 degrees of freedom
Multiple R-squared:  0.2425,   Adjusted R-squared:  0.2357
F-statistic: 36.13 on 8 and 903 DF,  p-value: < 2.2e-16
```

Figure 5.10.4: Registered Turnout Change 2007-2016 Linear Regression Model Including Candidate Location Variables and Teljeur Classes

```
Residuals:
    Min      1Q  Median      3Q     Max
-75.641  -4.940   0.160   5.112  67.500

Coefficients:
                           Estimate Std. Error t value Pr(>|t|)
(Intercept)               -63.21036   10.31554  -6.128 1.34e-09 ***
`PC Same Add.x`             0.61240    0.11415   5.365 1.03e-07 ***
`PC LA Rent.x`              0.11423    0.04872   2.345 0.019265 *
Class2011Rural (near)      -6.56643    1.29150  -5.084 4.50e-07 ***
Class2011Rural (remote)    -5.87037    1.70237  -3.448 0.000591 ***
Class2011Town              -2.51968    1.38974  -1.813 0.070162 .
Class2011Village (near)    -4.24066    1.89920  -2.233 0.025807 *
Class2011Village (remote)  -9.54324    3.21095  -2.972 0.003038 **
GE16ALL1                    1.79989    0.93289   1.929 0.054004 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 11.4 on 885 degrees of freedom
Multiple R-squared:  0.08061,  Adjusted R-squared:  0.0723
F-statistic: 9.699 on 8 and 885 DF,  p-value: 5.854e-13
```

Figure 5.10.5: Voting-Age Population Turnout Change 2007-2016 Linear Regression Model Including Candidate Location Variables and Teljeur Classes

The comparative accuracy of models may be further considered in the context of the respective levels of correlation between model fitted values and actual values for the dependent variables. Table 5.10.1 outlines the degree of correlation in this respect for the valid models with the highest R^2 values the four dependent variables considered.

Fitted Value Comparison of Linear Regression Models With Binary Geographical Variables Included					
Data	**Pearson Coefficent**	**P-Value**	**Candidate Location**	**Teljeur Classes**	**DF (Model)**
REG	0.6233254	< 2.2e-16	All Candidates	No	906
VAP	0.8493017	< 2.2e-16	All Candidates	Yes	829
REG Change	0.5039698	< 2.2e-16	All Candidates	Yes	903
VAP Change	0.2839164	< 2.2e-16	All Candidates	Yes	885

Table 5.10.1: Pearson Correlation of Model Fitted Values with Actual Dependent Variable Values

While the impact of candidate location is demonstrated as having an influential role in composite regression models, the potential positive influence of candidate location on voter turnout trends is not as pronounced when examined in isolation. As Table 5.10.2 outlines, the average voter turnout for both measures of participation is notably lower within the buffer area when compared to the areas outside of this. There also is a similar level of decrease observed when candidates that were successful are considered. While there is a decrease observed in this instance, contrary to the previous relationship outlined, the examination of standardised residuals in most instances shows a tendency for voter turnout to be higher than expected inside the buffer radius, albeit a relatively small effect observed.

However, the temporal data does suggest a positive association when the location of candidates in General Election 2016 is viewed in this manner, with positive average rates of turnout change observed for both measures applied when areas within the buffer radius are compared to those outside this area. This trend exists when both the location of successful candidates and location of all candidates that contested the 2016 General Election is considered, with the trend more pronounced in the context of the areas within the buffer radius of all candidates. There is also a notable tendency for more positive-than-expected rates of registered turnout change within the buffer radius in both instances, with the voting-age turnout rates of change demonstrating slightly lower-than-expected values.

All Candidates				
Location	**VT REG**	**VT VAP**	**STDRES VT REG**	**STDRES VT VAP**
Outside Buffer	65.07	72.71	-0.15	-0.04
Inside Buffer	64.02	67.07	0.10	0.03
Difference	-1.05	-5.64	0.25	0.07
Location	**VT REG Change**	**VT VAP Change**	**STDRES REG Change**	**STDRES VAP Change**
Outside Buffer	-5.36	-10.11	-0.28	0.05
Inside Buffer	-1.22	-6.32	0.19	-0.03
Difference	4.14	3.79	0.47	-0.08
Successul Candidates				
Location	**VT REG**	**VT VAP**	**STDRES VT REG**	**STDRES VT VAP**
Outside Buffer	64.92	71.38	-0.30	0.01
Inside Buffer	63.57	65.64	0.06	-0.02
Difference	-1.35	-5.74	0.36	-0.03
Location	**VT REG Change**	**VT VAP Change**	**STDRES REG Change**	**STDRES VAP Change**
Outside Buffer	-4.06	-9.01	-0.12	0.05
Inside Buffer	-0.77	-5.75	0.23	-0.10
Difference	3.29	3.26	0.35	-0.15

Table 5.10.2: Average Turnout Variable Values by Candidate Location in General Election 2016

The above observed negative impact of candidate location on voter turnout trends can be best understood when the urban/rural characteristics of each area are also considered. Candidates overwhelmingly tend to be based in the more urban parts of a given constituency, close to large population bases. The relationship between candidate location and Teljeur class may be viewed in Table 5.10.3. As demonstrated, the majority of the predominantly urban areas tend to be located within the buffer area and close to a candidate in General Election 2016, even in the context of a smaller two-kilometre buffer in Dublin County and a five-kilometre buffer outside of this. The more rural areas tend to have the majority of Electoral Divisions located outside of this buffer area. The tendency for candidates to be located in more urban settings is to be expected for a number of reasons. In the case of the 'City' Teljeur class, this is simply a reflection of the tendency for Dublin based constituencies to be located near the majority of areas in this class. Outside of the 'City' setting, the tendency for candidates to be based in more urban settings may be in part attributed to the simple distribution of population, with candidates, like members of the general population, more likely to be urban-based. Outside of this factor, the location of candidates in urban settings may also be attributed to the geography of party strategy in a given electoral campaign, with parties aiming to place candidates in urban settings to take advantage of the aforementioned 'friends and neighbours' effect to a certain extent.

Teljeur Class	**EDs Outside Buffer**	**EDs Inside Buffer**
City	22 (7.51%)	271 (92.49%)
Town	19 (18.45%)	84 (81.55%)
Village (Near)	29 (58%)	21 (42%)
Village (Remote)	13 (76.47%)	4 (23.53%)
Rural (Near)	220 (61.45%)	138 (38.55%)
Rural (Remote)	70 (76.92%)	21 (23.08%)

Table 5.10.3: Candidate Location by Teljeur Class

When the impact of candidate location on voter turnout is re-examined with the inclusion of the Teljeur class variable, there is a more nuanced reflection of the potential impact of candidate

location on participation rates presented, as demonstrated in Table 5.10.4. In this instance, the location of all candidates is chosen to be examined, as previous analyses have deemed this to be more influential than the sole examination of successful candidates, and many classes have a lower number of datapoints in the latter instance, which fails to facilitate a reasonably reliable statistical comparison across all classes.

Contrary to the previous broad examination, when viewed in this way, there is a notable positive influence of candidate location throughout all Teljeur classes in the majority of instances. The only exceptions in this regard are viewed for the eligible voting-age population data in the 'Village (Near)' class, and the registered voter turnout in the 'Town' class. There is also a potentially greater influence observed in more rural areas, with the most rural 'Rural (Remote)' class demonstrating a notably large increase in both measures of participation when located near an election candidate. Besides the notable trend for voter turnout values to be higher in areas that are closer to the location of a candidate, there is also an observed trend in which the voter turnout models based on socio-economic and demographic data tend to under-predict turnout values in these areas. There is a notable increase in the standardised residual values inside the buffer area in almost all instances, with some deviation observed in the eligible voting-age population model for the 'village (near)' Teljeur Class.

The temporal data also reflects both the tendency for turnout to be more likely to decline in rural settings, and also the tendency for this decline to be most pronounced outside of the buffer radius surrounding the location of candidates. This is demonstrated in most instances, with the exception of the voting-age population rates of turnout change in the 'Village (Remote)' Teljeur class. The standardised residual values for the registered turnout change model also demonstrate a tendency for rates of positive change to be under-predicted in areas that are close to the location of a candidate, with this trend again more pronounced in rural settings. While the rates of voting-age population turnout change fail to reflect a clear trend in this instance, the analysis still serves to outline that the location of candidates tends to have a positive association with turnout levels and rates of change, a trend which is perhaps especially pronounced in more rural areas, areas that are potentially less likely to have a candidate situated nearby.

General Election 2016					
Teljeur Class	**Candidate Location**	**VT REG**	**VT VAP**	**STDRES VT REG**	**STDRES VT VAP**
City	Outside Buffer	61.77	57.59	-0.29	-0.24
	Inside Buffer	62.29	60.67	0.04	-0.07
	Difference	**0.52**	**3.08**	**0.33**	**0.17**
Town	Outside Buffer	62.92	66.84	-0.17	-0.08
	Inside Buffer	62.14	72.04	-0.02	0.33
	Difference	**-0.78**	**5.2**	**0.15**	**0.41**
Village (Near)	Outside Buffer	62.92	68.57	-0.11	-0.05
	Inside Buffer	66.31	62.66	0.35	-0.28
	Difference	**3.39**	**-5.91**	**0.46**	**-0.33**
Village (Remote)	Outside Buffer	63.82	62.9	-0.1	-0.33
	Inside Buffer	65.67	67.2	0.43	-0.13
	Difference	**1.85**	**4.3**	**0.53**	**0.2**
Rural (Near)	Outside Buffer	65.27	73.67	-0.22	-0.05
	Inside Buffer	67.05	74.73	0.14	0.05
	Difference	**1.78**	**1.06**	**0.36**	**0.1**
Rural (Remote)	Outside Buffer	67.18	79.61	0.13	0.11
	Inside Buffer	71.39	83.97	0.78	0.33
	Difference	**4.21**	**4.36**	**0.65**	**0.22**
Temporal Data General Election 2007-2016					
Teljeur Class	**Candidate Location**	**VT REG Change**	**VT VAP Change**	**STDRES REG Change**	**STDRES VAP Change**
City	Outside Buffer	0.06	-8.68	0.27	0.03
	Inside Buffer	0.21	-5.46	0.19	0.10
	Difference	**0.16**	**3.22**	**-0.08**	**0.07**
Town	Outside Buffer	-3.75	-7.83	-0.24	0.10
	Inside Buffer	-1.29	-4.50	0.23	-0.59
	Difference	**2.47**	**3.33**	**0.47**	**-0.68**
Village (Near)	Outside Buffer	-5.31	-8.28	-0.55	0.10
	Inside Buffer	-2.84	-6.92	0.06	0.01
	Difference	**2.48**	**1.36**	**0.61**	**-0.09**
Village (Remote)	Outside Buffer	-6.53	-15.07	-0.85	0.00
	Inside Buffer	-5.36	-20.89	-0.45	-0.18
	Difference	**1.16**	**-5.83**	**0.40**	**-0.18**
Rural (Near)	Outside Buffer	-5.29	-10.49	-0.15	0.04
	Inside Buffer	-3.20	-8.72	0.23	0.02
	Difference	**2.08**	**1.77**	**0.38**	**-0.02**
Rural (Remote)	Outside Buffer	-7.54	-9.85	-0.64	0.07
	Inside Buffer	-3.95	-5.70	0.09	0.09
	Difference	**3.59**	**4.15**	**0.72**	**0.02**

Table 5.10.4: Voter Turnout Trends and Candidate Location by Teljeur Class

The existence of pronounced localism in the Irish system is noted by Deputy Fiona O'Loughlin, who points to the tendency for voters to support candidates which they know personally or have a specific connection to, and whom the voter may feel is better situated to represent their needs and receive a higher level of trust.

> 'I often talk about the values of a candidate and that if people aren't sure of whether they want to go with a particular party or not I always say: "look at the candidate, look at the values that they espouse". And I think the more somebody is geographically located they're

going to know, if not them, a family member, a friend, a neighbour, or whatever, who can possibly vouch for them. So it's, that degree of separation is closer'. (O'Loughlin, 2019)

The potential rural amplification of this influence is addressed in a number of interviews with candidates in General Election 2016. The impact of candidates on political trends is widely expected to be more influential in predominantly rural areas, with less of an impact expected in more urban settings. This viewpoint is expanded upon by Dublin Fingal representative Louise O'Reilly, with reference to the impact of locality and visibility of an individual within an urban setting.

'I don't share the views that other people have. A lot of people will say that a local candidate will bring out a local vote. I don't think that's necessarily the case… I mean there's nothing like visibility. You know, your local candidate is the lad you see down in the Centra on a Saturday morning. He's out walking his dog or she's out. She's in the resident's association. So, a local candidate can make a big difference. That said, I wasn't a local candidate when I was elected [but], I was a Dub. And curiously enough Claire Daly, who did substantially better than I did in the election, Claire is from Kildare. She's not a Dub but got a local vote'. (O'Reilly, 2019).

While Deputy O'Reilly notes the potential positive impact of visibility in a given community to raise awareness and candidate support in that area, the Deputy also suggests that localism is less pronounced within Dublin than in more rural areas. Deputy O'Reilly highlights instances in which candidates have moved to an area, both from elsewhere in Dublin and from outside the county, noting that these candidates still draw a large support base, despite not being originally from the area. This topic is also addressed by Minister Richard Bruton, who outlines that while he does not consider candidate location to be the primary driver of participation rates, there is still potential for an impact within Dublin, especially in compact areas, with the urban setting not immune to the trends of localism that are observed in more rural settings.

'Voter turnout tends to be particularly influenced by age and demographics. The presence of local candidates is also an influence… I think local candidates can mobilise some extra

> turnout, but I would not consider it the top factor and will usually only impact in relatively compact areas…[however]…Dublin is still a City of Villages'. (Bruton, 2019).

The presence of localised impacts within Dublin City is further expanded upon by Deputy Maureen O'Sullivan. Having worked with the late Deputy Tony Gregory in Dublin Central for many years, and subsequently being appointed to Dublin City Council in 2008, followed by election to Dáil Éireann in the 2009 By-Election, Deputy O'Sullivan has a comprehensive insight into electoral mobilisation within Dublin City Centre.

> 'You know, to get elected, you need a strong base. Tony Gregory had that base in the inner city. When I came along in 2009, I would have always been involved in voluntary work, so I had it based where I live in East Wall and also in parts of the north inner city. And Tony would always have been strong, you have to have that base to move from and then build out from there. So, I do think a base is important. Now you might have a name for something. You know the way you have GAA stars or whatever, but I think that base is important'. (O'Sullivan, 2019).

While many representatives stress the importance of localism in both rural and urban settings, Deputy Sean Fleming and Minister Helen McEntee highlight the tendency for voters in rural settings, in constituencies that have a wide array of geographical variability, to be more aware of the geography of candidate location, pointing to the perception that having a TD close to an area can be beneficial for the community living there. This perception and awareness of the aforementioned role of a representative as a 'local promoter' (Gallagher & Komito, 2010: 231) has the potential to drive mobilisation, or lack thereof, within a select area, based on the geography of candidates running for election.

> 'There's some people who just go out and vote for their party. There's some people vote for the individual. There's some people vote based on geography; "it's good to have a TD in the area" … And it's hard to quantify. What I will say is that's more important in a rural area than in an urban area. But if I'm in Portlaoise, in a big urban area, people are

not as tuned in to the geography of it. But definitely; it's a factor in a rural area'. (Fleming, 2019)

'It's about relating to somebody who's in the community who lives in the county, who knows exactly what's going on, because they're there, and they live it, and eat it, and sleep it, and breathe it. So I think in rural Ireland there's a difference in that people expect to know you and see you'. (McEntee, 2019).

In addition to this, Mr. Roy Dooney, Advisor to Minister Mary Mitchell O'Connor, highlights the potential for local media outlets to magnify the degree of localism in rural communities, due to the increased presence of local news sources in more rural areas, as opposed to in Dublin City.

'I think probably in rural areas, you have to be very localised. When you look at the Healy-Rae's in Kerry, or Mattie McGrath in South Tipperary, or Michael Lowry in North Tipperary, you know that they have to "mind the patch" very carefully and be seen to be involved in everything. You know, and they have the benefit of local media the way Dublin doesn't'. (Dooney, 2019).

In this respect, there are many potential factors that may shape a difference in the degree of localism experienced in both rural and urban areas, with candidates highlighting that while a divide may exist, no area is void of this effect to some degree. While there is a sizable body of literature that addresses the presence of localism within the Irish context, and the resultant impact of this on political and candidate support trends, the specific impact on participation rates, and the potential implication of this, is substantially less examined. As demonstrated in this analysis, there is a notable tendency for voter turnout to be greater in areas that are located close to an electoral candidate. This trend may be observed in various degrees throughout both urban and rural areas, with a tendency for the impact to be more pronounced in rural settings. There is also strong evidence presented to support the existence of this trend, independent of socio-economic and demographic characteristics, with the inclusion of candidate location in previous regression models improving the overall accuracy and accounting for a greater degree of variability in the observed geography of participation within the case study area.

This points to the tendency of the electorate to perceive importance in having a political representative in their home community, and perhaps also the tendency for candidates to work to mobilise a given electorate close to their home base. In this sense, the ability of candidate placement to influence participation rates may be considered an important aspect of party electoral strategy, with candidate placement having the potential to influence the geography of participation, and as such, the socio-economic and demographic characteristics of the voter base in a given electoral area. While there are many considerations with regard to party electoral strategy, perhaps a topic worthy of further investigation in subsequent studies, this analysis is primarily concerned with the factors that shape participation and potential influences on the quality of representation for select communities and areas.

In this respect, the ability of a given community to put forward a candidate to compete in a given contest is an important consideration in terms of the subsequent level of political influence and representation that a community in a given area may have. Given this, the lack of such ability among a given community may be considered a serious drawback in terms of the quality of representation and quality of legitimate democracy in that area. In this sense, it is important to consider the structural characteristics that determine the ability of a given community to have a legitimate opportunity to put forward a competitive candidate in an electoral contest. When considering this aspect of participation, the makeup, competitiveness, and structure of constituencies becomes an important focal point. While constituencies are designed in line with the considerations put forward in both Article 16.2° of the Constitution of Ireland (Government of Ireland, 1937) and the Electoral Act 1997 (Government of Ireland, 1997), the broad aim is to construct areas that are geographically viable and make every effort to ensure equality of representation for all citizens of the State, as far as possible. When considering the apparent impact of candidate location, as is especially pronounced in rural communities, the urban/rural nature of constituencies is an important aspect to consider. There is potential, within constituencies that have a significant urban/rural divide, for some areas to have unrealistic chances of putting forward a viable candidate for election, and as such, are placed at a disadvantage in terms of the equality of representation in that area, the equality that the constituency construction process is supposed to provide and protect. While this may be an important consideration in terms of the overall quality, and equality, of democracy within the Republic of Ireland, this aspect may be better investigated in the context of the potential impact of boundary revisions on electoral participation.

5.11: Boundary Revisions and Voter Turnout

The boundary revision process in the Republic of Ireland may often be considered as the first eagerly awaited step in the run in to a General Election campaign. (Kavanagh, 2003; 2014). The role of determining Dáil (and European) electoral constituencies within the State in a fair and non-biased manner has been the primary function of the Constituency Commission since its formation in 1980, following on from the partisan revisions in earlier decades when the authority for boundary revision lay with the government of the day under the Department of the Environment's portfolio of responsibilities. (Kavanagh, 2014). While the Constitution of Ireland (Government of Ireland, 1937) and the Electoral Act of 1997 (Government of Ireland, 1997), with subsequent amendments, put forward the guidelines for constituency formation and revision, it is the role of the Commission to put these measures into practice with the aim of ensuring equality of representation across the State. Within the guidelines put forward to the Commission, revisions are required to ensure an equal ratio of members to representatives across all constituencies within the State, as far as practicable. When the given number of future members of the house is determined, within the constitutional requirement (Government of Ireland 1937: Article 16.2.2) of one member for each 20,000 – 30,000 members of the population nationally, the process of constituency revision, based on the latest census population statistics, can proceed. While each boundary revision process evokes some form of constituency change, the degree of change is not always uniform in terms of the volume and extent of suggested changes, and the geography of areas impacted. The 2012 revision process, which determined the constituency for General Election 2016 have been noted as being the 'most considerable in scope since those of 1980' through the application of the 'Kavanagh Index of Constituency Change'. (Kavanagh, 2014).

The process of boundary revisions has the potential to have a significant impact on the political and electoral landscape of a given region. Kavanagh (2003: 95) points to the potential impact of boundary revisions on a given area, stating that there is the potential for changes to 'demobilise populations in the affected areas, if they cannot recognise any of the political representatives in their new constituency or if they are left confused as to which constituency they now find themselves located in', as was viewed to be the case in the South-West Inner City during the 1997 General Election. (Kavanagh, 2002). In this sense, there is potential for newly moved areas to be

disconnected from a long-established constituency, or even be geographically removed from a representative that may have been considered the 'local promoter' for that area. (Gallagher & Komito, 2010). In this respect, Kavanagh (2003: 98) notes that 'some areas may lose out as a result of changes that cause them to lose their local representatives and to become peripheral units in their new constituencies. The consequent risk is that this will lead to increased levels of political alienation and lower voter turnout levels in these areas'.

With the potential for boundary revisions to impact directly on participation rates and the quality of representation within a given area, boundary revisions that took place in advance of the 2011 and 2016 General Elections are considered in the context of the select case study area, using the areas within the 2016 case study constituencies as a point of reference. As viewed in Figure 5.11.1, there are a number of areas of various sizes that are impacted by the revision process in both the 2007 report (Constituency Commission, 2007) which outlined changes in advance of General Election 2011 and the subsequent 2012 report (Constituency Commission, 2012) which outlined changes in advance of General Election 2016, within the select case study area.

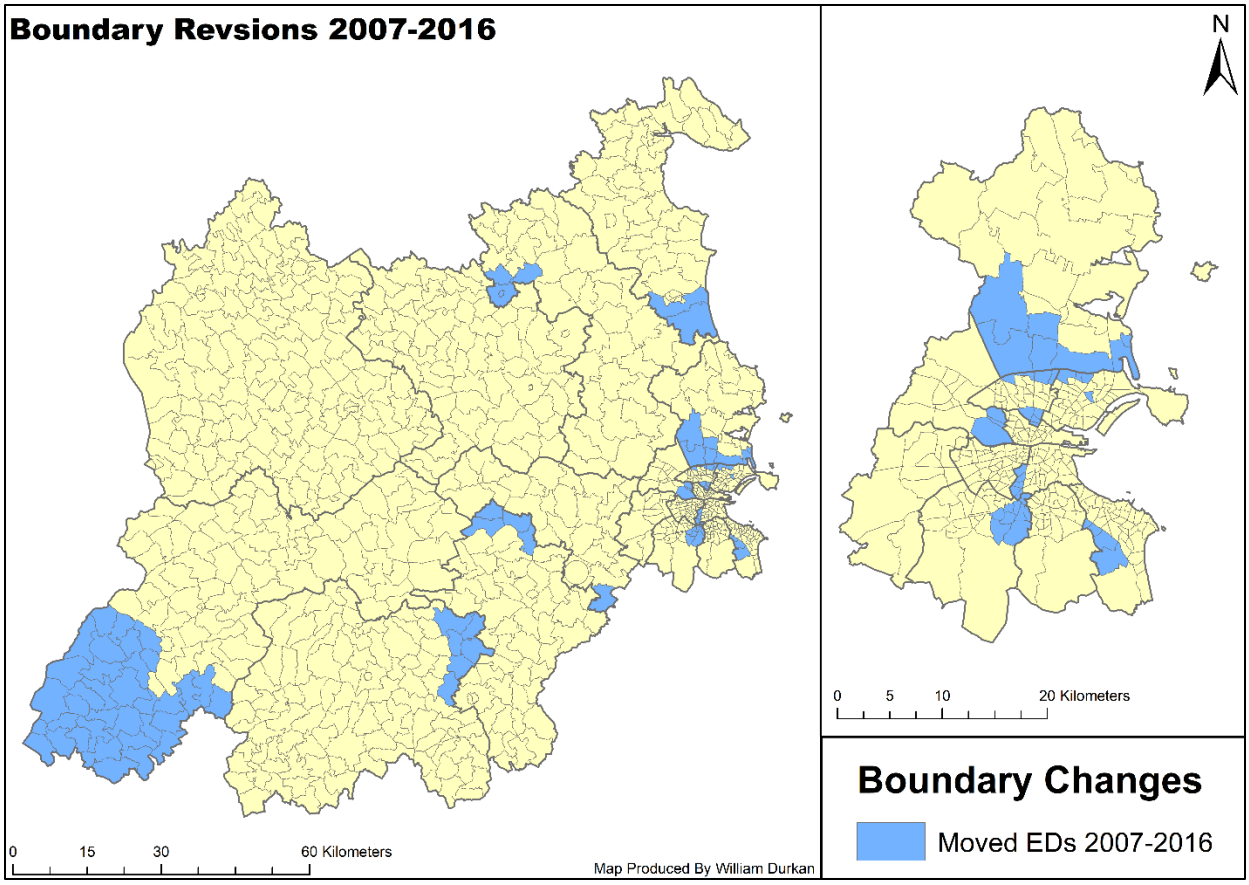


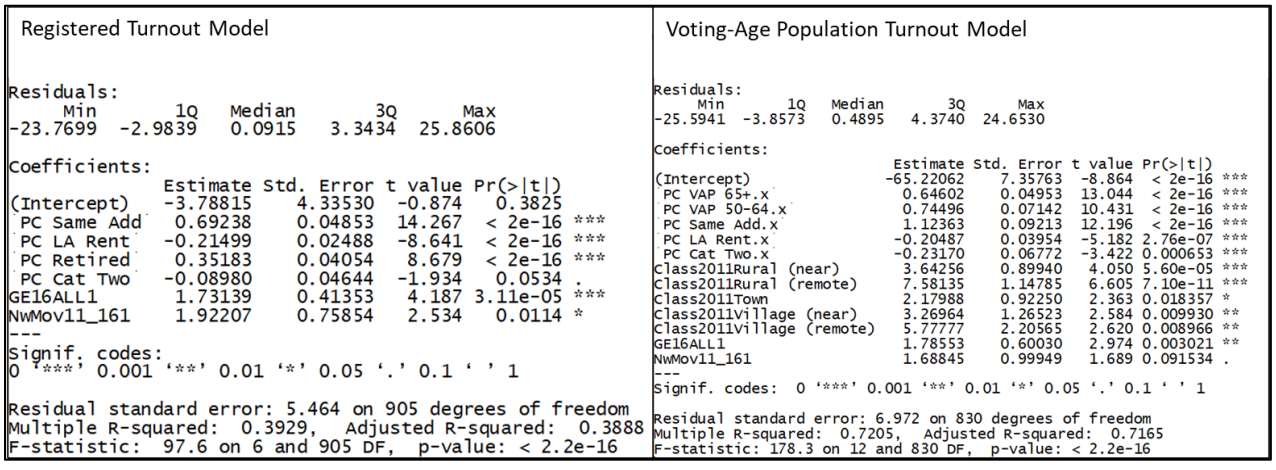
Figure 5.11.1: Electoral Divisions that Moved in the 2007 and/or 2012 Constituency Commission Revisions

As demonstrated in Figure 5.11.1, there are a number of areas that have changed in the revision process in all parts of the case study area. This consideration of boundary revisions does not take into account the partition of the Laois-Offaly constituency and creation of two separate entities in order to facilitate a more focused analytical process. In this instance, there are numerous small changes observed, which are especially pronounced along the periphery of the constituencies, with the largest area that experienced change observed in the south-west, revisions that saw multiple Electoral Divisions in Co. Offaly be included in the Tipperary constituency for the 2011 election, before this area, along with an even larger part of North Tipperary, being moved into the newly formed Offaly constituency in the 2012 report. In order to investigate the potential influence of the above outlined boundary revisions, specifically on voter participation rates, the various areas are

arranged into four categories for examination. The four categories that are constructed for the purpose of examination are as outlined below.

1) Electoral Divisions that moved in advance of General Election 2011.
2) Electoral Divisions that moved in advance of General Election 2016.
3) Electoral Divisions that moved in advance of General Election 2011 combined with those that moved in advance of General Election 2016.
4) Electoral Divisions that moved in advance of General Election 2016, having not moved in the previous revision.

When examined in context of the previous iterations of both the registered turnout and the eligible voting-age turnout models, only one of the categories has a statistically viable return, that of the newly moved Electoral Divisions in advance of General Election 2016, in category four above. The results of these models are displayed in Figure 5.11.2. While the results demonstrate a positive influence in these areas in both models, any inferences need to consider that the p-value is marginal in both instances, with the result based on a notably small number of data points, and the observed trend largely influenced by the largest grouping of Electoral Divisions moved, that of twenty-four Electoral Divisions from North Tipperary, an area that saw a local candidate come close to success in a campaign that specifically aimed to mobilise voters in the area, as previously outlined in the examination of standardised residual values for linear regression models.



Registered Turnout Model

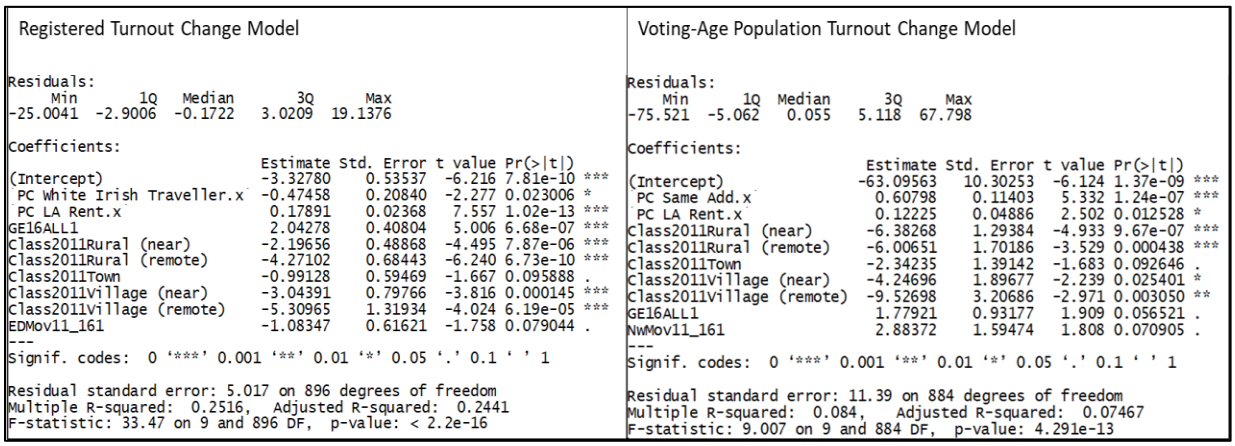
```
Residuals:
     Min       1Q   Median       3Q      Max
-23.7699  -2.9839   0.0915   3.3434  25.8606

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)   -3.78815    4.33530  -0.874   0.3825
PC Same Add    0.69238    0.04853  14.267  < 2e-16 ***
PC LA Rent    -0.21499    0.02488  -8.641  < 2e-16 ***
PC Retired     0.35183    0.04054   8.679  < 2e-16 ***
PC Cat Two    -0.08980    0.04644  -1.934   0.0534 .
GE16ALL1       1.73139    0.41353   4.187 3.11e-05 ***
NwMov11_161    1.92207    0.75854   2.534   0.0114 *
---
Signif. codes:
0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 5.464 on 905 degrees of freedom
Multiple R-squared:  0.3929,   Adjusted R-squared:  0.3888
F-statistic:  97.6 on 6 and 905 DF,  p-value: < 2.2e-16
```

Voting-Age Population Turnout Model

```
Residuals:
     Min       1Q   Median       3Q      Max
-25.5941  -3.8573   0.4895   4.3740  24.6530

Coefficients:
                         Estimate Std. Error t value Pr(>|t|)
(Intercept)             -65.22062    7.35763  -8.864  < 2e-16 ***
PC VAP 65+.x              0.64602    0.04953  13.044  < 2e-16 ***
PC VAP 50-64.x            0.74496    0.07142  10.431  < 2e-16 ***
PC Same Add.x             1.12363    0.09213  12.196  < 2e-16 ***
PC LA Rent.x             -0.20487    0.03954  -5.182 2.76e-07 ***
PC Cat Two.x             -0.23170    0.06772  -3.422 0.000653 ***
Class2011Rural (near)     3.64256    0.89940   4.050 5.60e-05 ***
Class2011Rural (remote)   7.58135    1.14785   6.605 7.10e-11 ***
Class2011Town             2.17988    0.92250   2.363 0.018357 *
Class2011Village (near)   3.26964    1.26523   2.584 0.009930 **
Class2011Village (remote) 5.77777    2.20565   2.620 0.008966 **
GE16ALL1                  1.78553    0.60030   2.974 0.003021 **
NwMov11_161               1.68845    0.99949   1.689 0.091534 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 6.972 on 830 degrees of freedom
Multiple R-squared:  0.7205,   Adjusted R-squared:  0.7165
F-statistic: 178.3 on 12 and 830 DF,  p-value: < 2.2e-16
```

Figure 5.11.2: Linear Regression Models for Voter Turnout with Socio-Economic, Demographic, Candidate Location, Teljeur Class, and Boundary Revision Predictor Variables

When the temporal data is examined in this manner, the rates of registered turnout change suggest a negative association between levels of change from 2007-2016 and all of the Electoral Divisions that moved in the most recent 2012 revisions. Arguably, the rates of change in registered turnout are the most appropriate means of assessing any potential impact as opposed to static turnout figures, with the negative association demonstrated in the registered turnout suggested by the most accurate model which considers rates of turnout change. Conversely, the voting-age population turnout rates of change suggest a positive association with revisions when considered in the context of Electoral Divisions that moved in the 2012 revisions, having not previously moved. In a similar manner to the previous examinations, this data is largely influenced by the largest area that moved, that of North Tipperary, one of the highest-turnout areas in the country in General Election 2016.



Registered Turnout Change Model

```
Residuals:
     Min       1Q   Median       3Q      Max
-25.0041  -2.9006  -0.1722   3.0209  19.1376

Coefficients:
                           Estimate Std. Error t value Pr(>|t|)
(Intercept)                -3.32780    0.53537  -6.216 7.81e-10 ***
PC White Irish Traveller.x -0.47458    0.20840  -2.277 0.023006 *
PC LA Rent.x                0.17891    0.02368   7.557 1.02e-13 ***
GE16ALL1                    2.04278    0.40804   5.006 6.68e-07 ***
Class2011Rural (near)      -2.19656    0.48868  -4.495 7.87e-06 ***
Class2011Rural (remote)    -4.27102    0.68443  -6.240 6.73e-10 ***
Class2011Town              -0.99128    0.59469  -1.667 0.095888 .
Class2011Village (near)    -3.04391    0.79766  -3.816 0.000145 ***
Class2011Village (remote)  -5.30965    1.31934  -4.024 6.19e-05 ***
EDMov11_161                -1.08347    0.61621  -1.758 0.079044 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 5.017 on 896 degrees of freedom
Multiple R-squared:  0.2516,   Adjusted R-squared:  0.2441
F-statistic: 33.47 on 9 and 896 DF,  p-value: < 2.2e-16
```

Voting-Age Population Turnout Change Model

```
Residuals:
    Min      1Q  Median      3Q     Max
-75.521  -5.062   0.055   5.118  67.798

Coefficients:
                           Estimate Std. Error t value Pr(>|t|)
(Intercept)              -63.09563   10.30253  -6.124 1.37e-09 ***
PC Same Add.x              0.60798    0.11403   5.332 1.24e-07 ***
PC LA Rent.x               0.12225    0.04886   2.502 0.012528 *
Class2011Rural (near)     -6.38268    1.29384  -4.933 9.67e-07 ***
Class2011Rural (remote)   -6.00651    1.70186  -3.529 0.000438 ***
Class2011Town             -2.34235    1.39142  -1.683 0.092646 .
Class2011Village (near)   -4.24696    1.89677  -2.239 0.025401 *
Class2011Village (remote) -9.52698    3.20686  -2.971 0.003050 **
GE16ALL1                   1.77921    0.93177   1.909 0.056521 .
NwMov11_161                2.88372    1.59474   1.808 0.070905 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 11.39 on 884 degrees of freedom
Multiple R-squared:  0.084,    Adjusted R-squared:  0.07467
F-statistic: 9.007 on 9 and 884 DF,  p-value: 4.291e-13
```

Figure 5.11.3: Linear Regression Models for Voter Turnout Rates of Change with Socio-Economic, Candidate Location, Teljeur Class, and Boundary Revision Predictor Variables

With this in mind, the inclusion of the boundary categorical variables in regression models demonstrates mixed results overall. Arguably, the negative association with the rate of registered turnout change is the most reliable interpretation, as this applies the most appropriate and accurate examination of any potential impact, as previously suggested.

While these suggestions may lack robustness due to the mixed results demonstrated and the limited instances of revision within the case study area, numerous political representatives address the potential for boundary revisions to have a negative impact on the electorate in affected areas.

Deputy Marcella Corcoran Kennedy outlines the potential impact on participation with reference to the significant changes in South Offaly and North Tipperary in two subsequent revisions, while Deputy Eamon Ryan notes the potential for rural areas to be impacted to a greater extent.

> ‘People get very, very, browned off. They really do. I mean it came up. I mean people cannot understand why they’d be voting for somebody in a different county… Like I mean, the Tipperary people were so livid over it. Now mind you I mean there was people in south Offaly in the previous election that were voting in North Tipperary. So, when I ran in 2011 for the first time, all of this section here was in North Tipperary. And I live here… I could only canvas up. I couldn’t canvas down because these people were all gone. Now it’s a small enough population but still in all it made a huge difference… And they were deeply resentful. For two elections they were voting in North Tipperary. And again, I’d say the turnout was low enough you know’. (Corcoran-Kennedy, 2019).

> ‘Dublin South hasn’t changed that much because of the physical boundaries, the Liffey and the sea and on the other side… It’s probably more pronounced in rural areas, I think. You know I’ve a friend who is a Councillor, and at a lot of local elections in the village of Inagh in West Clare, he’s a candidate there. And they were giving out billyo because the parish had been divided in three. And you know, so what? But for them it was not insufficient, as a parish. To be voting in three different wards took from their sense of connection and power or whatever you wanna’ call it. And I think if you look at places like Sligo/Leitrim/Roscommon, that as a constituency has been kind of chopped and changed. Does it have a Leitrim representative or does it have a Sligo/Roscommon representative is kind of important. Or if you don’t have one, maybe that might decrease turnout in the long run when you think about not really being represented. So I think it’s probably more pronounced in rural, less so in urban’. (Ryan, 2019).

In this respect, Deputy Ryan highlights the potential for frequent changes to have a significant impact the sense of community attachment that may facilitate political and electoral engagement within the locality. Former Tánaiste Eamon Gilmore highlights not only the damage that revisions

can do to the sense of identity in a given area, but also the difficulties that arise for representatives providing a service to their constituency in the context of revisions that breach the county boundary. Deputy Bernard Durkan also notes the difficulty in providing effective representation in an area that sees frequent revision and consists of multiple county boundary breaches.

> 'A classic case is where I come from in Galway… that was always part of East Galway, and now the part of East Galway where I live in is now in Roscommon… You don't identify with the political figures because of our county system of local government. You don't' have the same identification. So when boundary commissions are asked to look at boundaries, there's usually this rider in it that they should keep as far as possible to county boundaries. And you know, that makes sense because there's a lot of tradition in it and these counties have survived since, whenever, 1898, or whenever the county system was established. But loyalties because of GAA and because of all kinds of other reasons, but it's also because of the local government system. So you break the county. You have a big breach in the county boundary. I mean at one stage Leitrim was in two different constituencies… And in fact had representation, had nobody from the county. That gave rise to a lot of dissatisfaction and a sense of disenfranchisement'. (Eamon Gilmore, 2019).

> 'Normally the issue was to stay within the county boundaries, the natural boundaries. And then because the number of TDs was reduced from 166 to 158, and now back to 160. In order to comply with that, they had to start breaking it up… Like for instance in Sligo/Leitrim, it became Sligo, parts of Roscommon, Leitrim, South-Donegal, and North-West Cavan before the last election… Totally unnatural division. Impossible for Oireachtas members to service the constituency because the person in Donegal had to appear in Roscommon and in Cavan as well. A person in Cavan has to do likewise. And a person in Leitrim, Sligo/Leitrim, had to be attentive to south Donegal, northwest Cavan, North Roscommon, and Sligo/Leitrim. A long, long, drive. So they're just a couple of examples… But essentially, unnatural divisions are not conducive to identification with candidates in a particular area'. (B. Durkan, 2020).

To focus specifically on the areas of change within the case study area, the Deputy also notes the continued revisions in North-West Kildare. In this case, the tendency for small areas to be moved

in subsequent revisions along 'unnatural' boundaries, even in an instance where no county boundary is breached, may be considered to have a negative impact on the electorate.

> 'So people there say; "what do you mean it's South Kildare?". It's in South Kildare now. And it's an awful long way from the South Kildare constituency. Its miles away from it. You have to come into it through North Kildare and back out again through North Kildare. So it's an unnatural division in the constituency… We [Fine Gael] used to get a great turnout traditionally all the way from the Edenderry border right along there, a good turnout. That has dipped. It has dipped for us and I think it has dipped for everybody, hence the low turnout… [The issue is] lack of identification with the constituency and people saying, you know: "we voted in South Kildare in the last election, and where are we going to vote in the next election?" … and if you compare that now with [the high turnout in] Kilteel for example, Kilteel is in the same constituency all the time so there's a local recognition, natural recognition… Because there's no doubt in my mind it's [boundary revisions] are one of the main reasons for lack of voter turnout [in North-West Kildare]'. (B. Durkan, 2020).

In relation to the changes in the Monasterevin area, Deputy Martin Heydon outlines the extent of recent changes and potential impact on the area, while Deputy Fiona O'Loughlin discusses the potential impacts of the continued revisions on county identification, and the importance of maintaining a county boundary in the revision process.

> 'When you have a change in the boundary, and you break county boundaries, it's a disaster effectively. People get very upset with not being able to vote for their own county people. They feel very disenfranchised. So at that time we had Monasterevin, Quinsborough, Kildangan, all in with Laois. And now, that has since changed, with Portarlington, Killinard and Ballybrittis now in with Kildare. Either way, when you break the county boundary, people get very upset'. (Heydon, 2019).

> 'I think county boundaries should be respected. And we had that situation the last time in terms of Monasterevin and parts of Athy going into Laois. Now we've the opposite, because Portarlington and parts of Offaly have come into Kildare South as well as

> Monasterevin and parts of Athy. Parts of North Kildare have [also] come in. That doesn't matter as much because you've the county boundary… I think it's identification. I think it's no more than with your football team, with your parish, this is who you are. I'm a Lilywhite and proud of it. And even though I'm still a Lilywhite, if my vote is actually in Laois, that lessens my Kildareness and I'm voting for people in Laois… And people get really riled about it, really riled about it. So I honestly believe that the county boundaries should be respected in relation to boundary changes'. (O'Loughlin, 2019).

In terms of voter turnout levels, the Monasterevin area demonstrated a decline in turnout in the most rural Electoral Divisions that moved across a country boundary, and an increase in turnout in the more urban Electoral Divisions after the move. In this respect, Deputy O'Loughlin outlines the increased potential for disenfranchisement in a more rural area after a significant boundary change while Deputy Heydon notes the potential for either disengagement or activation, motived by the anger associated with a move.

> 'You see, it's easier in an urban area, in a new area, I suppose you know, to get out. But also within a town… Whereas in more rural areas, people feel more disenfranchised. They possibly feel disenfranchised anyway. Even say from the rural area in Monasterevin, well this is where they are, but they're not really part of Monasterevin. So, you're taking them further away from the access. And then what happens too is a lot of people feel; "it's probably gonna' be changed back the next time, so I'm not really going to engage"'. (O, Loughlin, 2019).

> 'I think Monasterevin felt very marginalised. It felt on the edge and they were angry. So in some ways it leads to apathy and in other places it leads to activation. People react in different ways to it, but it was a huge issue at the time. I remember people contacting me and saying they wouldn't vote for me and one thing and another. So yeah. As I say, it is a requirement we set down for the Electoral Commission to try and avoid breaking county boundaries, but we need to make it stronger because it comes down to what people identify with'. (Heydon, 2019).

While the investigation of the specific impacts of boundary changes on voter turnout are not clearly outlined by the previous statistical analyses, the suggestion that a negative impact occurs is further outlined by multiple interview participants. In this respect, instances in which county boundaries are breached, multiple revisions take place in the same area in a short timeframe, and the potential additional susceptibility of rural disentrancement are all highlighted. The interview participants also offer some insight into the level of anger felt by communities, the potential this has to either mobilise turnout or suppress turnout as a response, and the practical challenges that representatives face when unnatural and continued revisions occur. Overall, this research suggests that the micromanagement of electoral boundaries, a process that aims to ensure representational equality as far as possible, often does more harm than good in this respect as a result of the implications for participation and barriers to effective political representation that they produce.

While the findings in this regard are somewhat tentative based on the investigation of this issue within the select case study area, this investigation outlines the need for future research to consider this aspect in more detail on a national level, and in the context of the best practice of the Constituency Commission. Further to this, this study outlines that the revision of boundaries is one more geographical influence that is demonstrated as playing an important role in shaping the geography of electoral participation within the Republic of Ireland.

5.12: Further Discussion and Conclusion

In summation, the investigation of voter turnout trends in General Election 2016 and the examination of the rates of turnout change between General Election 2007 and General Election 2016 points to a number of relevant findings. In the first instance, both the voter turnout levels and rates of turnout change outline definite geographical traits, with a notably higher turnout in the more rural west of the case study area. This trend is notably more pronounced when the voting-age population data is considered, with high turnout in the west of the study area and significantly low rates in the more urban east, especially in Dublin City, outlining a significant geographical divide. Conversely, the rates of turnout change point to a significant narrowing of this divide in

the study area, with turnout rates in the east of the area demonstrating a tendency to increase in the period from 2007-2016.

The investigation of socio-economic and demographic variables highlights a number of associations with turnout trends. Some of the most pronounced relationships point to the tendency for a higher turnout in Electoral Divisions that have more settled communities, an older average age, and low unemployment levels. Areas with an older population, most notably the proportion of the population in the 50-64 age category, tend to have a notably higher level of engagement. This relationship also has an impact on associations between turnout and variables that are naturally associated with age, such as marital status. The inverse relationship between age and educational attainment that exists among the population may help contribute to the lack of a strong association between education levels and turnout, with a weak inverse-to-expected trend outlined in this instance. While the data also suggests a potential low level of engagement among foreign-born citizens and members of the Traveller community, this aggregate study is not structured in such a manner to arrive at conclusive findings in this respect. Further studies which utilise individual level data may potentially add more weight to these suggestions.

Perhaps the most notable finding is the tendency for the temporal data to suggest a change in these established relationships, with a notable increase in turnout among traditionally low-turnout groups in traditionally low-turnout areas. This is most pronounced among younger populations and is especially pronounced in areas which have large proportions of the population in Local Authority rented accommodation. While there are a notable number of associations between turnout and the socio-economic and demographic characteristics of an area, the examination of standardised residual values for linear regression models outlines that these characteristics are not a sole determining factor in shaping geographies of participation, with some notable spatial factors also having a significant influence on turnout trends.

The detailed examination of the geography of residual values and the geographical weighting of subsequent models again points to the notable east-west divide that exists within the case study area and points to significant differences between urban and rural settings. The consideration of a more nuanced categorisation of the geographic characteristics of specific areas via the application of Teljeur area classes outlines the extent of the urban rural divide. Further to this, this approach suggests that while the natural socio-economic and demographic difference between urban and

rural settings may partially drive the observed difference in voter turnout trends, this urban/rural turnout divide also exists independently of these influences, suggesting that it is the urban and rural nature of areas that directly impacts on voter behaviour, to a given extent.

The consideration of additional geographical factors also highlights the tendency for voter turnout to be higher in areas that are close to a candidate's home base and is also less likely to have declined in the 2007-2016 period. In a similar manner, while not as clear a trend is outlined in the case of boundary revision influences on turnout trends, there is a suggestion that moving areas, especially across county boundaries, and especially if moved frequently, can have a suppressing influence on voter engagement levels in many cases. Given this, it is worthwhile noting that these influences are both arguably more likely to have a negative impact on more rural areas. While these areas may still have a higher turnout than their urban counterparts, this turnout gap is observed as narrowing substantially over recent years. While this may point to a positive increase in turnout among some traditionally low-turnout urban-based communities, it may also be a serious cause for concern for smaller rural communities in terms of the level of political representation they may receive.

While this analysis highlights a number of relevant trends in voter turnout levels, subsequent analyses at the Small Area scale and across different election types have the potential to further explore these findings.

Chapter Six: Small Area Analysis of General Election 2016

Further to the detailed statistical analysis performed at the Electoral Division scale for voter turnout levels in General Election 2016, the degree of reliability for findings and level of insight into potential causal factors can be further enhanced by examining data at the Small Area scale. (C.S.O, 2016). The use of small-scale analysis has a number of benefits that serves to enhance the quality of research and mitigates potential risk from previous inferences.

Firstly, when examining voter turnout, the influence of locality and the lived experience of an individual has been identified has playing a key role in shaping behaviour. (Agnew, 2002). The smaller the level of analysis, the more potential there is to account for the impact of local networks and influences that individuals in a given community engage with on a daily basis. This is especially important to account for in a study that primarily utilises aggregate data in the analysis process, as a smaller scale allows for a more detailed insight that may be lost at larger scales of aggregation, such as the constituency level. As previously addressed, academics such as Agnew (2002), Dorling and Pritchard (2010), and Wong et al. (2018), have all stressed the importance of small geographical unit analysis, advocating the inclusion of such investigation in order to best account for political influences within a given community.

In the Irish context, Kavanagh, Mills, and Sinnott (2002) have also pointed to the benefits of examining trends on a smaller scale. In this respect, their first ever analysis of voter turnout at the Electoral Division level noted the benefit of using the smallest scale of aggregation available at that point in time. This approach served to increase the number of data points for analysis within a given area, and also allowed the analysis to better account for the level of variation in the data within a given areal unit. (Kavanagh, Mills & Sinnott, 2002:178). While the Electoral Division units were the smallest available unit for application at the point of the aforementioned analysis, the creation of the Small Area units from the 2011 census onwards allows for the examination of data at an even smaller scale. (C.S.O., 2011).

Besides the benefits of small-scale analysis in terms of best accounting for small-scale influences, the examination of a smaller geographical unit offers an opportunity to perhaps better understand the potential socio-economic, demographic, and geographical factors that shape observed trends.

As demonstrated in the previous analysis, factors that influence participation can act on a range of scales; often scales that impact on areas which include multiple Electoral Divisions. This may include a constituency-wide effect due to competitiveness, as observed in the case of Dublin Bay North in 2016, an impact from the presence of electoral candidates in a given area, the potential impact of a changing electoral boundary, or perhaps a particular service issue that has mobilised voters in a given region. A small-scale analysis, restricted to a small number of select Electoral Divisions, has the potential to offer a more comprehensive insight into the impact of socio-economic and demographic characteristics, as all areas are far more likely to be exposed to a uniform impact from constituency effects and other geographical impacts.

From the perspective of strengthening the reliability of statistical interpretations, not only does the use of this small-scale analysis allow the examination of trends in more detail, but it also serves to address potential concerns in relation to the influence of the Modifiable Areal Unit Problem (Gehlke & Biehl, 1934; Openshaw & Taylor, 1979), as previously discussed in Chapter Three. In this sense, the application of multiple scales in the analysis serves to mitigate the risk of observing a relationship due to the impact of data aggregation. This takes into consideration the points raised by Openshaw (1977), Hey et al. (2009), and Dark and Bram (2007), in the sense that select units at the Small Area scale are identified as an appropriate scale of analysis, due to their statistical characteristics and the availability of uniform levels of aggregation in the data, that allows for both sufficient exploration and comparison.

6.1: Case Study Areas

With regard to the choice of areas selected for detailed Small Area analysis, there are a number of considerations taken into account. The number and extent of case studies in this instance are somewhat limited by the nature of the data generation process. This process involves individually matching each voter to a select Small Area in the analytical process, and as such, is a time-consuming endeavour, which naturally limits the extent of the area examined. Given this, a number of areas are chosen to apply the Small Area analysis in, with a number of variables taken into account in the decision-making process. The case study areas are largely restricted to urban settings

for a number of reasons. Firstly, urban areas are more likely to have clear addresses, often accompanied by an Eircode on the marked electoral register. This practical point makes these areas much more suitable for an accurate and reliable Small Area analysis. Secondly, urban areas are more likely to consist of multiple Small Area units within one overarching Electoral Division, in units that have a large enough resident population included on the electoral register to allow reliable statistical investigation. This also ensures that the aggregate level of voter turnout reported includes enough members to guarantee the anonymity of individuals. This is not always the case in more rural settings. In more rural settings, there may be Small Areas that have so few individuals on the register that they need to be aggregated into larger units. This is problematic as it leads to the creation of customised spatial units, which may hinder comparative analysis, and also leads to a scenario in which the scale of analysis is not dissimilar to the previously applied Electoral Division level investigation. Given these considerations, a number of more urban settings were chosen for analysis, areas which seek to provide a suitable case study based on the size of settlement examined, and the geographical makeup of settlements. This includes some areas within the same constituency, but with different settlement sizes. This may be examined in the case of the Kildare North constituency, as both the Naas Urban Electoral Division and the Kilcock Electoral Division are re-examined at the Small Area scale. This serves to provide insight in a situation where constituency level effects are more uniform. Other case studies, as subsequently outlined, that have been chosen to provide a wide array of urban environments of various sizes and in various geographical contexts. When considering the accuracy of both measures, it is also important to consider that the aforementioned issue of register inaccuracy has the potential to influence Small Area analyses also due to instances of misallocation with regard to the chosen Electoral Divisions.

6.2: Naas Town in General Election 2016

The previous examination at Electoral Division level indicated that the level of registered voter turnout within the Naas Urban Electoral Division stood at 62.4 percent, and the eligible voting-age population turnout at 59.9 percent. In this case, while both measures at the Electoral Division level are close to the Kildare North constituency average, there is still a great deal of variance

among Small Areas within Naas Town; variance that is unaccounted for in the large-scale Electoral Divisions analysis, as displayed in Figure 6.2.1.

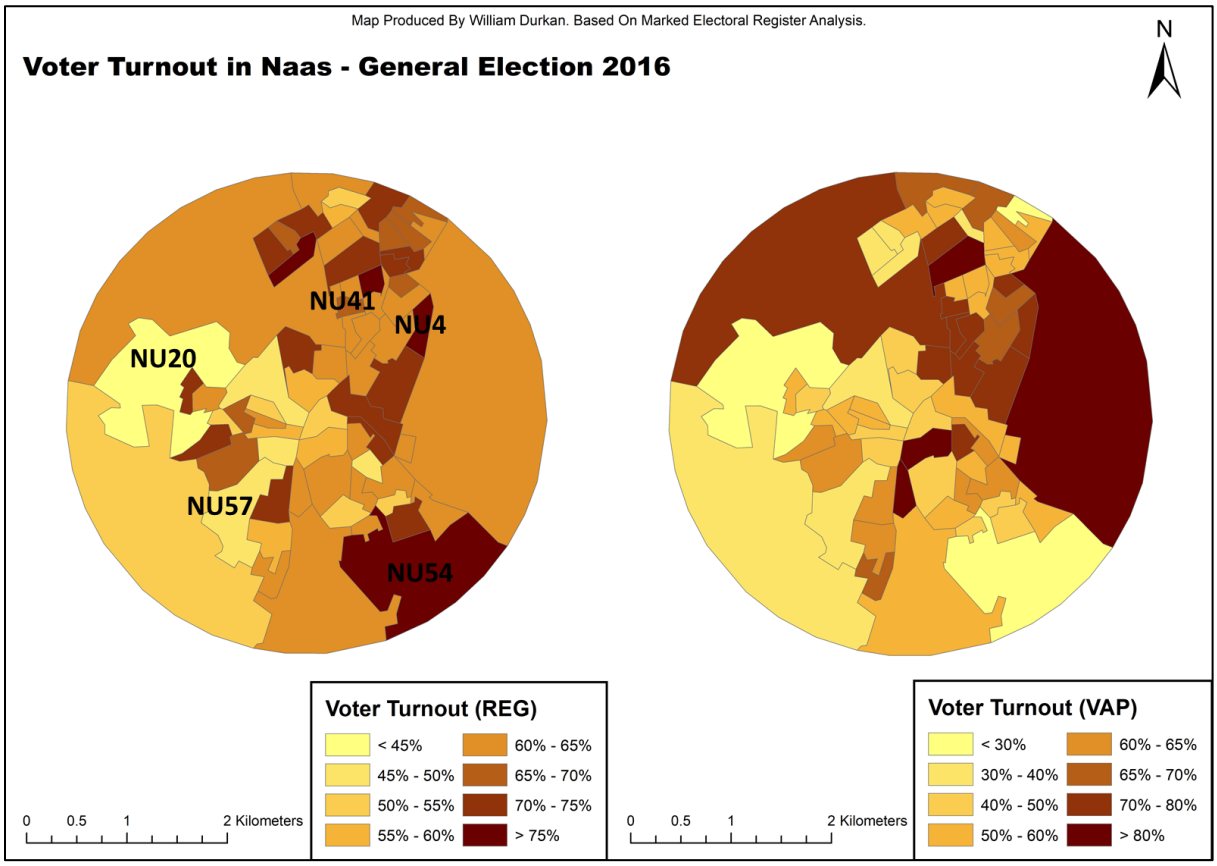


Figure 6.2.1: Voter Turnout in Naas Urban for General Election 2016 at the Small Area Scale

While the subsequent composite regression analysis of all Small Area case studies will provide an in-depth analysis of potential socio-economic and demographic drivers behind observed trends, there are some individual Small Areas and characteristics of note in this instance, as displayed in Table 6.2.1. The chosen selection outlines trends in select areas that have a notably high and notably low turnouts by both measures applied. Some areas, such as NU54 display a significant deviation between both measures of turnout. In the case of NU54, the most significant characteristic is the age of the population, with 29.8 percent of the population in the over-65 age cohort. This is particularly striking as it suggests a low level of registration among an older

population. This trend is not accounted for when considering the small number of postal votes in the area. The expected driver of this trend is the presence of Craddockstown Nursing Home. There is a notable tendency for nursing home complexes to either have a very high number of postal votes, or no registered voters. In this instance, the latter is the case, with the nursing home having a capacity for 68 residents as of 2006 (HSE, 2006) and very few registered voters. This case serves as an example of both the previously discussed tendency for turnout decline among older individuals (Crittenden, 1963), potentially relating to incapacity, and also serves as an example of how one specific facility can have a large impact on trends at the Small Area scale.

	Small Area	Age 18-29	Age 30-49	Single	Rented	LA Rented	Lower Education	Foreign Born	Traveller
Low Turnout	NU20	15.08	34.80	32.02	65.37	58.26	76.11	15.58	0.00
	NU57	21.43	41.79	41.07	68.55	24.19	41.29	20.68	3.76
High Turnout	NU04	7.02	30.88	11.93	7.72	0.00	35.26	8.99	0.00
	NU41	14.78	30.43	29.57	30.89	3.25	54.49	23.91	0.00

Table 6.2.1: Extreme Turnout Areas in Naas Town

In both low turnout areas examined in more detail, there is a notably significant proportion of individuals in the younger age categories, and a significant 'single' population, as may be expected. There is also a tendency for a significant proportion of the population to be in the 'lower' education cohort. Perhaps the most notable characteristic is the high level of renters in both areas, with a significant proportion in Local Authority rented accommodation. In terms of ethnicity, there is also a significant 'foreign-born' population. In the case of NU57, while there is not a very large Traveller community, it is the largest grouping within the town, in a notably low-turnout environment.

In the high-turnout examples provided, there is more of a contrast between areas. The NU04 area presents as a traditionally high-turnout environment, with an older population, a higher degree of residential stability, and a higher overall level of education attainment. In contrast to this, the NU41 area has a younger population and lower level of overall education and a relatively high level of rented accommodation. However, there is a smaller 'single' population than previous low-turnout examples, despite the similarities in age cohorts. The most notable difference is perhaps the much

lower level of Local Authority rented accommodation in both high-turnout cases, a factor which nay have a significant impact. In the case of NU41, a large ‘foreign-born’ population is also present, suggesting that this factor is not a primary driver of engagement levels in all cases.

In summation, the example of Naas Town in Co. Kildare demonstrates that a broad range of participation by both applied measures exists within small scale analyses. This case also offers insight into the potential factors that help to shape participation rates, with factors such as age and housing tenure again identified as having a notable association. This case also serves to highlight, that while age may be used as a broad indicator of expected participation, this association appears to be less pronounced in a number of instances. In this respect, subsequent analysis may point to other primary associations when all cases are considered.

6.3: Kilcock Town in General Election 2016

The examination of the town of Kilcock offers an alternative setting, also in the Kildare North constituency, in which to examine the impact of socio-economic and demographic characteristics on participation in a smaller town setting. The Electoral Division of Kilcock has a similar level of participation to the constituency average, with a registered turnout level of 63.1 percent, but a notably lower voting-age population participation rate of 53.1 percent. Within the town of Kilcock however, the Small Area analysis demonstrates a significant range in participation rates, as may be viewed in Figure 6.3.1.

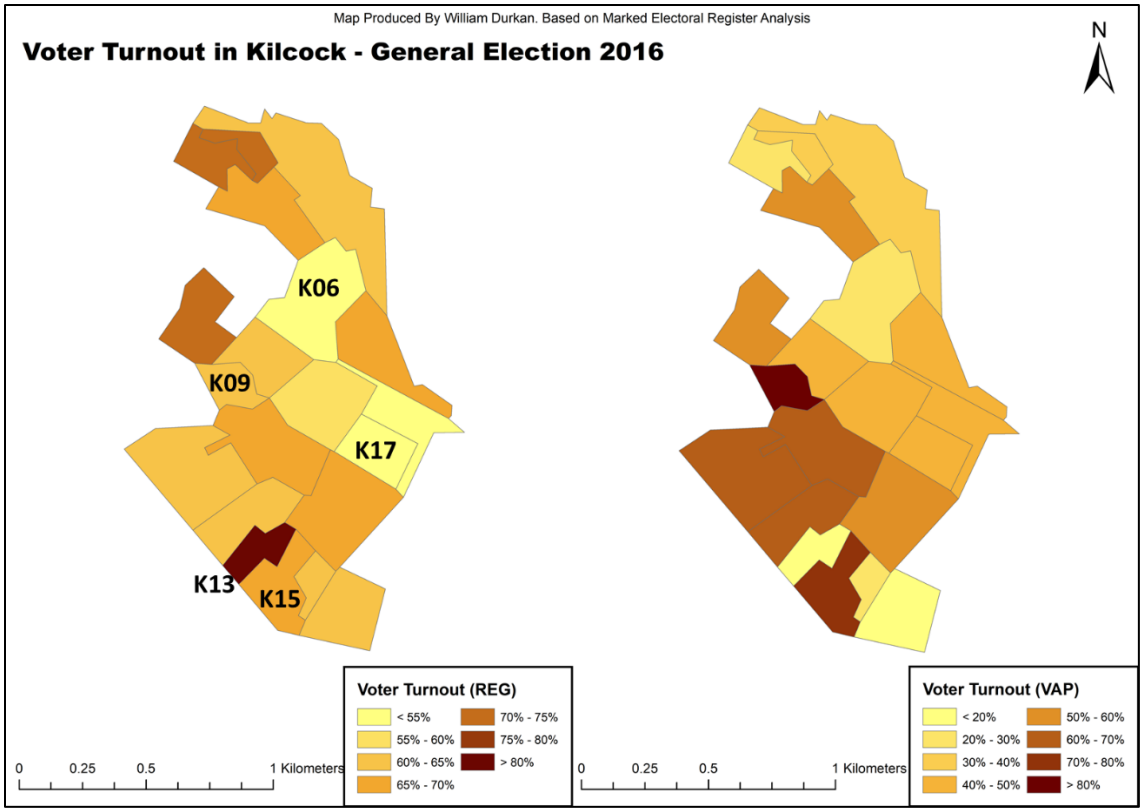


Figure 6.3.1: Voter Turnout in Kilcock Town for General Election 2016 at the Small Area Scale

In a similar manner to the previous examination, there are some notable areas of extreme turnout values by both measures applied. These areas are examined in more detail, with select characteristics of interest in each area also considered, as displayed in Table 6.3.1. Again, in this instance, there are also some areas that differ significantly between voter turnout measures, as is the case in the K13 Small Area. In this case, it was determined that misallocation to a neighbouring high-turnout area was not an issue in driving trends, as may be initially expected. The K13 area has a notably young population, and an apparent low level of voter registration associated with this. While the age profile is not dissimilar to the neighbouring K15, as subsequently outlined, the size of the population in the K13 area makes the data more vulnerable to extreme trends. The K13 area has the lowest registered electorate in all areas examined, just meeting the minimum threshold of 40 registered individuals. In this sense, while low registration among a young population appears to shape the difference observed, the extreme difference is aided by a small population sample in the area.

	SA	18-29	30-49	65+	Rented	LA Rented	Lower EDU	Higher EDU	Cat One	Cat Two	Foreign Born
Low Turnout	K17	8.18	46.70	1.06	34.04	0.00	45.95	40.09	52.15	15.57	24.27
	K06	14.59	38.43	19.93	67.07	6.91	46.91	36.60	35.59	16.01	38.55
High Turnout	K15	11.93	45.41	0.46	37.38	3.74	41.23	44.74	45.41	10.55	30.56
	K09	15.58	27.14	20.60	49.02	21.57	79.26	5.19	14.57	22.61	11.11

Table 6.3.1: Extreme Turnout Areas in Kilcock Town

In terms of areas with significantly low and significantly high levels of turnout within the town, there is a notably a lack of any clear associations with socio-economic and demographics drivers of trends observed. In terms of age variables, while there are notably young populations in low-turnout areas, there are similar levels also present in high-turnout areas. It is worth noting that the significant over-65 cohort in the low-turnout K06 area is significantly determined by the presence of the Shalom Nursing Home in the Presentation Convent within the area has a notable impact on the number of members in the older age cohort. The presence of this unit would at least partially account for the unusually low level of voting-age participation in an area with an older demographic. In contrast to the previously examined impact of a nursing home on trends in the Naas area, this area has 23 percent of the electorate registered for a postal vote, with the vast majority of these in the nursing home. The other sizable population of over-65s in the K09 area demonstrates a more traditional high-turnout environment associated with an older population.

Among other characteristics considered, the most notable trend is perhaps the lack of expected associations with education and employment variables. In this respect, there are largely similar traits across all areas with both low and high associated turnout vales. There is also no clear trend returned in terms of the proportion of individuals classed as ‘foreign-born’. The case of Kilcock also demonstrates an example of high-turnout areas with significant proportions of the population in rented accommodation, in particular, Local Authority rented accommodation.

6.4: Monasterevin Town in General Election 2016

The town of Monasterevin offers another case study from Co. Kildare; one that was included in the Laois constituency for the 2016 General Election. The Electoral Division of Monasterevin has an overall registered voter turnout level of 60.7 percent, and a voting-age population turnout of 54 percent. In a similar manner to the previous analyses, while the overall measures of participation within the area point to values that are close to the average within the constituency, there is a significant amount of variation observed at the Small Area scale, as demonstrated in Figure 6.4.1.

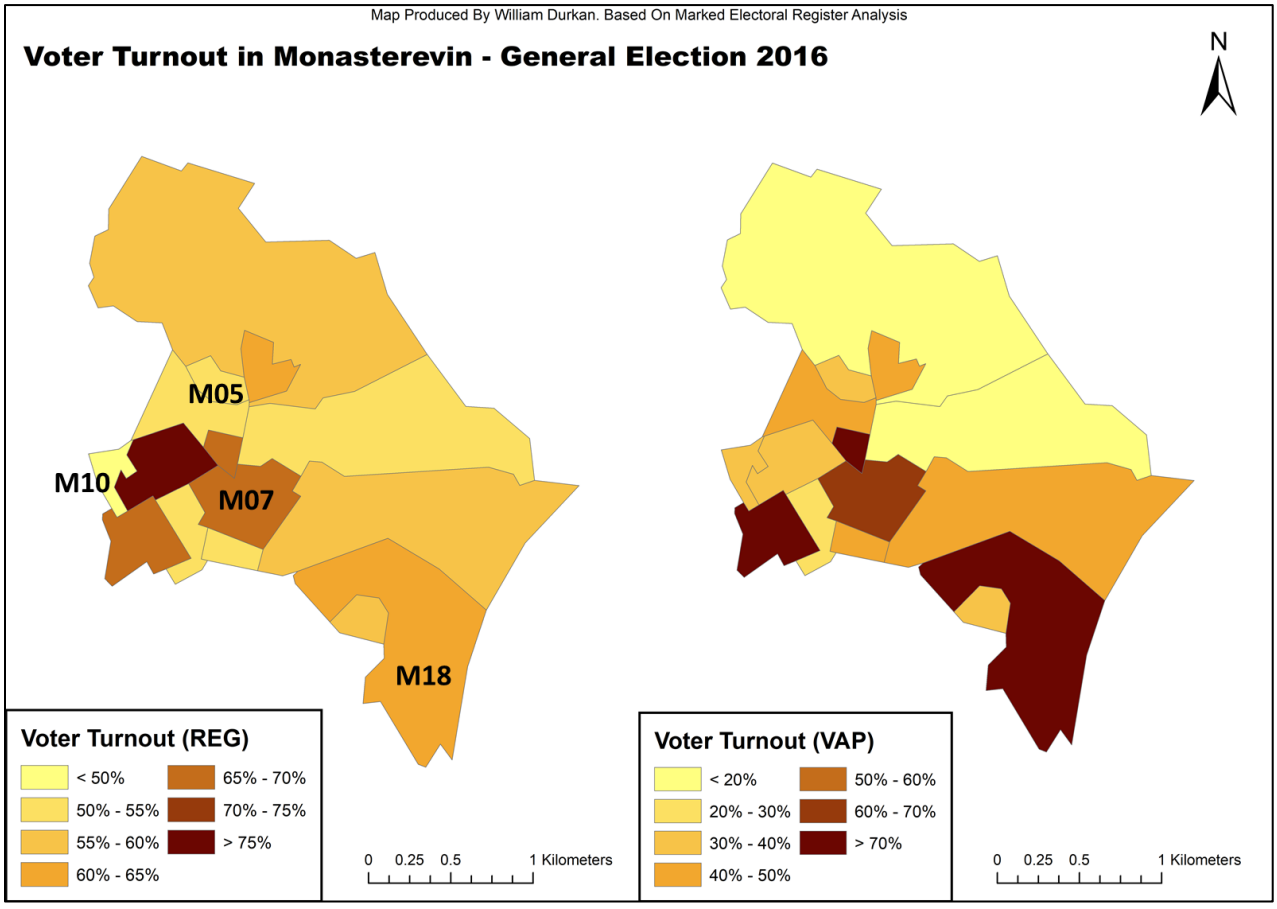


Figure 6.4.1: Voter Turnout in Monasterevin Town for General Election 2016 at the Small Area Scale

While the comparison of participation measures demonstrates a notable degree of inconsistency, there are a number of areas that are identified in both instances as having significantly low and significantly high levels of participation. These cases offer an opportunity to examine the socio-economic and demographic characteristics that potentially shape participation levels within the area in more detail. In a similar manner to previous examples, select characteristics in the relevant areas may be viewed in Table 6.4.1.

	SA	18-29	30-49	65+	Rented	LA Rented	Lower EDU	Higher EDU	Cat One	Cat Two	Unemployment
Low Turnout	M10	23.45	31.03	6.21	75.00	12.50	57.89	11.58	15.86	15.17	21.74
	M05	10.30	42.55	1.63	39.89	4.58	51.41	28.81	30.35	11.65	10.96
High Turnout	M07	16.32	26.94	14.25	37.60	8.88	72.80	9.58	19.43	19.43	10.97
	M18	16.12	31.95	7.47	23.39	5.24	64.86	20.27	34.02	12.86	9.09

Table 6.4.1: Extreme Turnout Areas in Monasterevin Town

In this example, there does not appear to be any one factor that is clearly associated with turnout. Both low turnout areas listed above have notable levels of younger age cohorts, and also a large level of rented accommodation. These areas also have large proportions of the population in the 'lower' education cohort, and relatively high levels of unemployment. In this respect, there are numerous factors present in each area that are traditionally associated with low turnout levels.

However, when the high-turnout examples are examined, there are some notable similarities across all characteristics. Unemployment levels may be somewhat lower, but are still significant, and the same is the case for levels of rented accommodation. The most striking trend is perhaps the even-greater proportion of the populations in the 'lower' education cohort, in two areas that have a much higher turnout than the previous examples. While this trend may be somewhat unexpected, it is important to consider this in the context of the different age profiles. The high-turnout examples have a tendency to have an older overall population. Not only does this appear to shape the difference in overall turnout, but also potentially explains the inverse-to-expected relationship between turnout and education levels. In this respect, an older population is less likely to have what is considered a 'high level' of education by today's standard. (Denny et al., 1999). With this in mind, while a low level of education is often associated with low turnout areas, this can often

be offset by the impact of an older population, as appears to be the case in this instance. In these cases, there are no clear associations between turnout and ethnicity noted, with a significant foreign-born population recorded in both low turnout and high turnout areas. There is only one area with a sizable Traveller population within the town, with 2.8 percent of the population in the low-turnout M10 area recorded as members of the Traveller community.

6.5: Portarlington Town in General Election 2016

The town of Portarlington provides another opportunity to examine a specific area in a greater level of detail. This area is partially located within the Laois constituency, and partially within the Offaly constituency for General Election 2016. (Constituency Commission, 2012). The Electoral Divisions included in this case study are that of both Portarlington North in the Offaly constituency, and Portarlington South in the Laois constituency, with the total voter turnout values for these Electoral Divisions listed in Table 6.5.1.

Electoral Division	**Voter Turnout (REG)**	**Voter Turnout (VAP)**
Portarlington North	64.48%	64.89%
Portarlington South	56.81%	56.97%

Table 6.5.1: Comparison of Voter Turnout in Portarlington Town Electoral Divisions

When examined at the Electoral Division scale, there are a number of notable characteristics within the area. In both Electoral Divisions, there is a low level of difference observed between the two applied measures of participation, suggesting that there is a reasonable level of accuracy within the register in this area. This is potentially due to improvements in the register as the area was ‘split’ during the boundary revision process and a strong level of accuracy was essential. Perhaps the most notable characteristic is the north-south variation in the voter turnout levels recorded,

with a notably higher level of turnout in the Portarlington North Electoral Division, as viewed in Figure 6.5.1.

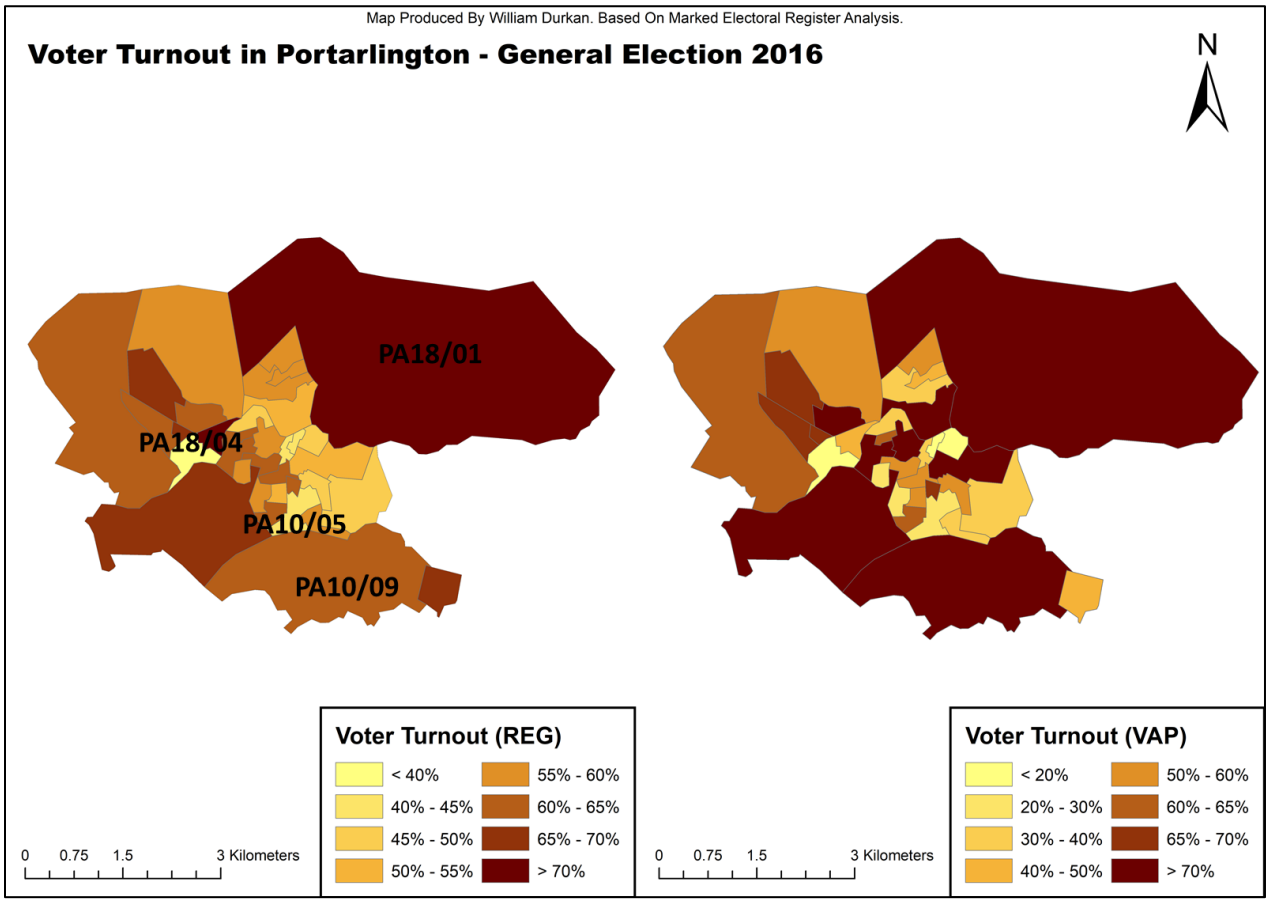


Figure 6.5.1: Voter Turnout in Portarlington Town for General Election 2016 at the Small Area Scale

The overall north-south variation may suggest that within the Small Area examination of Portarlington, there is a potential constituency-level effect, or a localised effect constrained to the constituency boundary, that may help shape participation rates. This does not appear to be shaped by a potential candidate location effect. In this respect, Portarlington South has been previously identified in Chapter Five as having a candidate based within a five-kilometre buffer, an effect that is not present in Portarlington North. However, Eddie Fitzpatrick was a candidate who performed well in the area, based just outside the selected buffer radius. Given that any effect from candidate

location may be considered equal in both instances, this is not determined to be a primary driving factor. Deputy Sean Fleming points to the level of competition among candidates in the 2016 contest as a potential contributing factor in the decline seen in Laois since the previous election, as outlined in Chapter Five, and also the difference in turnout between the Laois and Offaly constituency in 2016.

> 'We had less candidates running, very much so in Laois compared to Offaly, which was its own three-seater at that stage, with a bit of North Tipp. They had healthy competition within the parties and between the parties, whereas in Laois, I was on my own as a Fianna Fáil [candidate]. Never happened before. And then Charlie Flanagan [FG], Sinn Féin had one... So, you had very few candidates running in Laois, so, you had less interest in the election in Laois because people felt the outcome was a forgone conclusion'. (Fleming, 2019).

While the Electoral Division figures suggest a notable north-south divide within the town, there is a significant level of variation among all Small Areas. As was the case in previous examples, relevant characteristics may be compared across a selection of both low-turnout and high-turnout areas in more detail. In this instance, four select Small Areas with extreme values may be viewed in table 6.5.2, with two examples chosen from each Electoral Division within the town.

	SA	18-29	30-49	65+	Rented	Lower EDU	Higher EDU	Cat One	Cat Two	Unemployment	Foreign Born
Low Turnout	PA18/04	13.88	44.98	2.39	39.34	54.87	22.12	28.71	17.7	16.67	37.32
	PA10/05	13.66	36.12	4.85	39.71	52.11	26.06	31.28	11.89	19.62	23.79
High Turnout	PA18/01	13.04	26.45	9.42	3.13	70.45	21.02	35.87	15.94	3.24	5.82
	PA10/09	13.06	23.42	15.32	3.95	51.39	36.81	47.30	9.01	1.11	4.05

Table 6.5.2: Extreme Turnout Areas in Portarlington Town

The two low-turnout examples are broadly similar in terms of socio-economic and demographic characteristics, demonstrating a number of characteristics traditionally associated with low voter turnout areas. This includes a sizable younger population, a high volume of rented accommodation, high proportions of the population in the 'lower' education cohort, and high levels of overall

unemployment. Perhaps the most notable factor is the relatively large proportions of the population in both areas that are in 'category-one' employment, which may be expected to be associated with a higher turnout level. In terms of ethnicity, there is a notable foreign-born population in both instances, and it is also worth noting that the PA10/05 Small Area has the largest Traveller population within the town, with 12.8 percent of the population in this category.

There are a number of different characteristics observed in the high-turnout examples provided, with both high-turnout areas again having a broadly similar socio-economic and demographic makeup to each other. In these areas, there is a notably older population, a lower level of rented accommodation, and higher unemployment. However, the overall education levels are broadly similar, with an even higher proportion in the 'lower education' cohort in PA18/01. There is also a similar trend in respect of employment type, with higher levels of 'category-one' employment in the PA18/01 area. In terms of ethnicity, there is a notably lower level of 'foreign-born' members of the population in the high-turnout examples examined.

Overall, perhaps the most notable trend in this case is the more rural nature of the Small Areas with a higher level of voter turnout. While both Electoral Divisions are predominantly urban in nature, with both in the 'Town' Teljeur class (Teljeur, 2008), some Small Areas within these Electoral Divisions are notably more rural in nature, and in this case, have a notably higher level of turnout. The Small Areas in the town centre have a notably lower level of engagement than those in the more rural peripheral region. While some areas in these regions have socio-economic and demographic characteristics more suitable to a high-turnout environment, this is not always the case, again suggesting that the urban/rural nature of the area, outside of the impact of select characteristics, has a significant influence on voter turnout levels, with the urban nature of more densely populated centres having a distinct negative association. While this has previous been observed on a greater scale, this analysis serves to identify this divide at even the smallest of scales.

6.6: Longford Town in General Election 2016

The example of Longford Town provides a Small Area case study in the constituency of Longford-Westmeath in General Election 2016. While building on previous examples and exploring issues observed as being of importance in those instances, there are also some notable differences in the Longford Town case study. Perhaps the most unique aspect to this study is the issue of marked electoral register accuracy. As examined in greater detail in Chapter Four, Longford Town is one area which displays a case in which adjacent areas at the Electoral Division level present artificial high and low values, and as confirmed by examining the allocation of areas to Electoral Divisions, is generated via the misallocation of residents into Electoral Divisions. The difference in values returned at the Electoral Divisions level between both measures of voter turnout applied as a result of this misallocation may be viewed in Table 6.6.1.

Electoral Division	**Voter Turnout (REG)**	**Voter Turnout (VAP)**
Longford No.1 Urban	**61.55%**	**128.60%**
Longford No.2 Urban	**60.18%**	**115.58%**
Longford Rural	**63.59%**	**18.49%**
Caldragh	**65.49%**	**52.41%**

Table 6.6.1: Voter Turnout Levels Recorded in the Longford Town Case Study Electoral Divisions

The case of Longford Town also differs in some respects to previous Small Area analyses as the full study area is made up of numerous Electoral Divisions, and while this analysis includes the full Electoral Divisions of Longford No.1 Urban and Longford No.2 Urban, there are also some peripheral Electoral Divisions included in the form of Longford Rural and Caldragh. While the voting-age population data does not return useful values in most instances, perhaps with the exception of Caldragh, the registered voter data demonstrates relatively average values across all

Electoral Divisions, with higher values observed in the more rural instances. However, it is important to consider that the registered voter data is also impacted, albeit in a less obvious manner, by the aforementioned accuracy of the data. While the accuracy issue impacts the Electoral Division level analysis significantly, the Small Area allocation of voters is primarily unimpacted within the chosen case study area due to the manual allocation of voters into the relevant census tracts at the Small Area scale. There is potential however for voters initially misallocated to an Electoral Division outside of the select case studies to be excluded from this secondary allocation process.

When examined at the Small Area level, there is a significant level of variation in both measures of participation within the area, as viewed in Figure 6.6.1. In the case of the registered voter turnout levels, the values within the town range from a low of 37.50 percent to a high of 72.69 percent. As with previous case studies, the voting-age population measure demonstrates an even greater range in values, ranging from 21.43 percent to 99.62 percent. While there is some variation observed in areas of both low and high turnout when both available measures are compared, a number of areas are identified in both instances as having significantly extreme values, as may be observed in Figure 6.6.1.

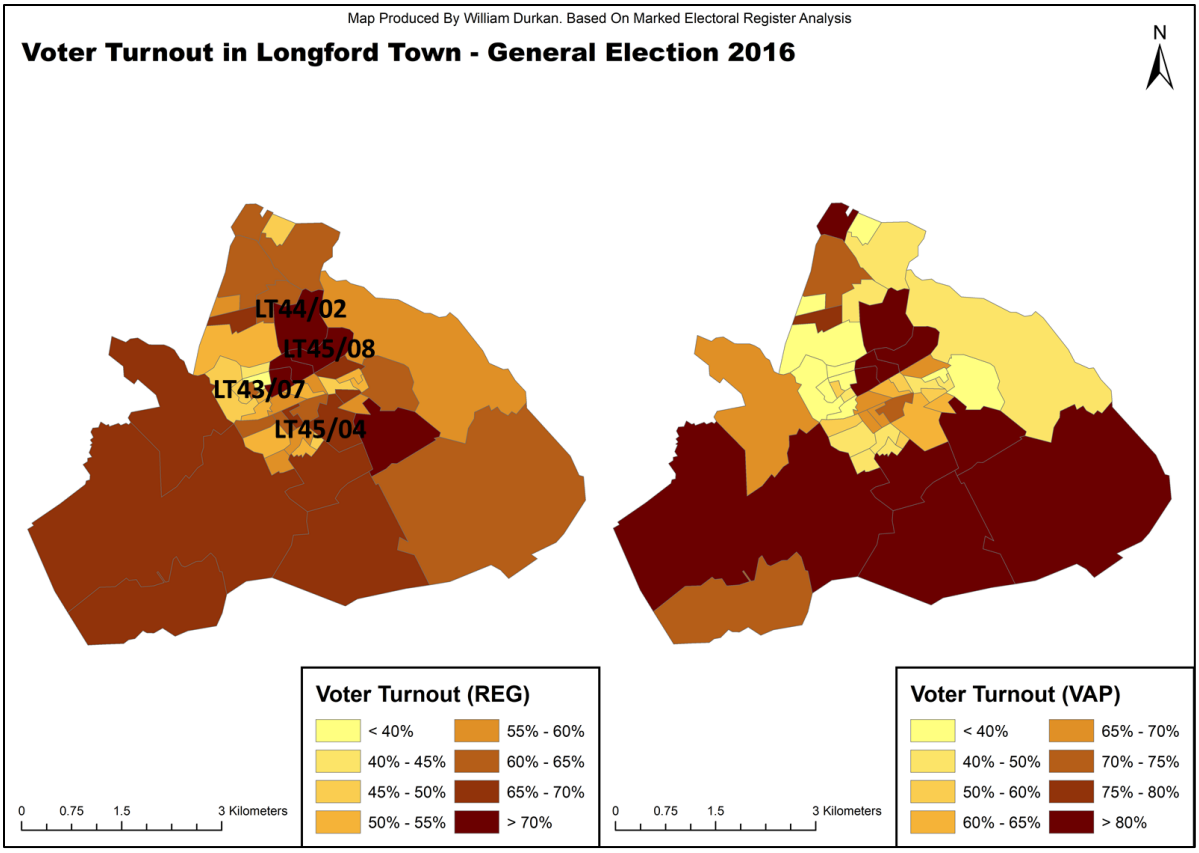


Figure 6.6.1: Voter Turnout in Longford Town for General Election 2016 at the Small Area Scale

A number of areas are identified as having significantly lower turnout values in the urban centre of the town than the predominantly high-turnout areas in the peripheral parts of the town. Despite the tendency for most high-turnout areas to be located at the edge of the town, there is also a significantly high turnout cluster in the central region. As with previous case studies, Table 6.6.2 outlines some select characteristics in areas that have extreme turnout values, at either end of the scale.

	SA	18-29	30-49	65+	Rented	LA Rented	Lower EDU	Higher EDU	Cat One	Cat Two	Unemployment	Foreign Born	Traveller
Low Turnout	LT43/07	31.56	26.23	2.05	84.19	17.52	62.22	11.85	7.38	27.05	24.19	68.35	3.8
	LT45/04	20.00	20.59	7.06	75.29	72.94	82.32	3.30	2.35	7.65	42.5	12.35	45.88
High Turnout	LT44/02	12.85	27.78	12.15	19.46	0.00	42.11	42.11	53.47	5.90	3.49	19.79	3.13
	LT45/08	13.51	21.62	28.19	29.07	1.94	68.16	23.88	29.73	16.60	5.33	20.39	3.92

Table: 6.6.2: Extreme Turnout Areas in Longford Town

In the low-turnout areas examined, there are a number of factors present that are traditionally associated with areas of low voter participation. This includes, a predominantly young population, a high level of rented accommodation, specifically Local Authority rented accommodation, low education levels, low employment levels, and low proportions of the population in 'category-one' employment. In many ways, these areas may be considered traditional low-turnout communities. There is also a significant foreign-born population in LT43/07 and a large Traveller population in LT45/04, which may further suggest a low participation rate among these communities when considered in the context of findings elsewhere.

In the two high-turnout examples that are examined in more detail, there are a number of notable comparisons that can be made. In these instances, there are a number of significant differences to the previously examined low-turnout areas. In terms of the age profiles in both areas, there is a notably older population, with larger groups in the over-65 cohort. There are also notable differences in terms of housing, with a much lower level of rented accommodation, and much less Local Authority rented accommodation also. There are also notable differences in terms of education and employment. In the high-turnout areas, while there are still large proportions of the population in 'lower' education bracket, there are also more individuals in the 'higher' education bracket. There is a much higher rate of overall employment in these areas, and also a greater number of individuals in 'category-one' employment. In terms of ethnicity, while the populations are smaller, there are still significant members of the 'foreign-born' cohort and the Traveller community in these areas, suggesting that these factors are not necessarily associated with low turnout, with turnout among these communities instead determined by other influential characteristics.

Besides the select areas that are examined in detail, there is also a notable band of high participation by both measures observed in the more rural peripheral regions of the town. This is particularly pronounced in the south of the town, with this area also tending to have older populations that are married homeowners with high levels of employment, particularly in the 'category-one' employment class. These areas also tend to have the vast majority of the population in the lower band of educational attainment, again highlighting the frequently observed lack of negative influence of this category, when considered in the context of older, more settled, populations.

6.7: Further Discussion of Individual Case Study Areas

The previously examined select case studies serve to identify a number of important factors that are observed as contributing to participation rates at the Small Area scale of analysis. The application of two measures of voter turnout serves to provide further support to observed trends in many instances, and often highlights the tendency for voting-age population rates to have more extreme values. This suggests that low-turnout areas, by a measure of registered turnout, often have an even lower turnout level when all eligible voters are considered. Similarly, at the other end of the scale, areas identified as having a high participation rate by the measure of registered voter turnout often tend to have an even higher rate when the full eligible population is taken into consideration. This observation highlights two important factors. Firstly, the more extreme 'true' measure of participation suggests that there are even greater proportions of the population in select low-turnout areas that do not participate in the electoral process, a serious cause for concern in its own right. Secondly, this observation suggests that the factors that shape abstention by members of the electorate are the largely same factors that shape low levels of registration in the first instance.

In terms of the identification of potential socio-economic and demographic causal factors, age is frequently observed as having a sizable impact. In some examples, such as the town of Naas, the age profile appears to be a key influential factor, even when other traits are taken into consideration. Conversely, there are also many observations in which significant values in relevant socio-economic factors appear to offset the expected influence of the age profile. In this sense, the observed traditional relationship between age and voter turnout, with older populations considered more likely to vote, appears only to be partly driven by age directly. In many instances, the observed correlation appears to be a secondary effect, with increased homeownership, marriage, and employment, traits that all tend to have a strong association with age, being observed as accounting for a significant proportion of the variation in participation rates. In relation to homeownership levels, this appears to be one trait that is seen to have a significant influence present across all case studies at all scales of analysis applied, with homeownership having a notable positive influence on participation rates. In terms of the negative association between turnout and the proportion of the population in rented accommodation, this may potentially be

offset in the case of long-term renters, with this examination somewhat restricted by the available tenure duration measure of just one year. It is also worth noting that most case studies also support the finding that local authority renters appear not to have different behaviour to private renters, in terms of electoral participation, as previous studies have also suggested. (Kavanagh, 2002: 314). Employment is one characteristic that is further examined in the above case studies, with a notable association observed in many instances. The most pronounced trait in this instance is that of the unemployment level, with this apparently having a strong negative association in many cases. Educational attainment appears to have varied impacts in various contexts, with associations in this respect expanded upon in more detail in subsequent analyses. One trait that is explored in more detail here is that of the potential impact of ethnicity on participation rates. While no conclusive associations are identified, the analysis does highlight many cases in which low-turnout environments tend to have a large foreign-born population. Likewise, areas that have large proportions of the population classed as 'White Irish Travellers' often present as low-turnout environments. The possible association with ethnicity implies that significant select ethnic minorities within many communities frequently abstain from participation in the electoral process, and as such, their voices are potentially unaccounted for in important relevant policy decisions.

The above Small Area examination also suggests the presence of an urban/rural divide at this small scale, a trend which may be unaccounted for in larger scale investigations. In many instances, areas at the periphery of towns tend to have higher participation rates, even higher than socio-economic and demographic traits may suggest, with the opposite observed in more-urban centres.

The example of Portarlington provides a unique insight into the apparent impact of constituency-wide effects on voter turnout levels. This case highlights a notable divide in participation along constituency and county lines. In terms of potential constituency effects present in this case, the previously identified issue of low competition (Fleming, 2019) within the Laois constituency for General Election 2016 may be a significant casual factor of this divide. This divide does not appear to be driven by other previously identified influential geographical traits such as the potential impact of candidate location.

The above individual case studies provide much additional insight into the various factors that shape electoral participation. These examples span a wide range of settlement types and sizes, with comparisons provided both within and across multiple constituencies. While these individual cases

suggest a number of causal factors that shape participation, a subsequent composite analysis aims to provide further information.

6.8: Composite Analysis of Small Area Case Studies

While a number of insightful relationships are observed in each case examined above, the investigation of Small Area data in one composite dataset provides an opportunity to explore the potential impact of socio-economic and demographics traits in more detail. While a composite analysis limits the specific level of geographical investigation in comparison to the Electoral Division level case study, due to the lack of contiguity among areas and small number of datapoints in each case study area, it provides enough datapoints to facilitate a more robust and statistically reliable investigation of all Small Areas examined.

As viewed in Table 6.8.1, there are a number of strong relationships observed between the selected variables and both applied measures of electoral participation. In terms of the relationship between participation and the various age cohorts examined, the registered voter turnout analysis identifies a reasonable negative association between turnout and the proportion of the population in the youngest 18-29 age cohort. This supports the observations in the individual analyses, adding further weight to the widely observed trend in which areas with predominately young populations are more likely to present low participation rates. While the remaining age cohorts do not return a strong level of significance in terms of their relationship to registered turnout figures, there is a slight positive association with registered turnout and the two older age cohorts. The voting-age population data provides further insight in this respect, showing a strong relationship with three age cohorts. There is a medium strength negative correlation observed with the 30-49 age cohort, and the inverse relationship observed in the cases of the older 50-64 and 65+ age cohorts, with strong evidence of a positive association in both of these cases.

	REG		VAP	
Varaible	**Pearson Co-Efficient**	**P-Value**	**Pearson Co-Efficient**	**P-Value**
PC 18-29	**-0.3025491**	2.70E-05	-0.05724256	0.4377
PC 30-49	-0.05284549	0.4738	**-0.5686222**	< 2.2e-16
PC 50-64*	**0.1339937**	0.06825	**0.5683792**	< 2.2e-16
PC 65+*	**0.144528**	0.04905	**0.4104336**	5.95E-09
PC Single*	**-0.2977779**	3.66E-05	**-0.1500926**	0.04088
PC Married*	**0.446643**	1.66E-10	**0.4335321**	6.37E-10
PC Foreign Born*	**-0.2690779**	0.0002042	**-0.4108736**	5.71E-09
PC White Irish Traveler	**-0.2487516**	0.0006179	-0.04864585	0.5097
PC Same Address	**0.1577697**	0.0315	**0.2874747**	6.94E-05
PC Owned*	**0.4596886**	4.11E-11	**0.3879513**	4.47E-08
PC Rent*	**-0.4378152**	4.13E-10	**-0.3822623**	7.28E-08
PC LA Rent	**-0.3146237**	1.22E-05	-0.06331051	0.3906
PC Working	**0.2695002**	0.0001994	**-0.2492312**	0.0006026
PC Unemployed*	**-0.4895517**	1.33E-12	**-0.2004991**	0.006071
PC Student	**0.1550652**	0.03457	**0.2234243**	0.002174
PC Retired*	**0.1623054**	0.02688	**0.4204845**	2.30E-09
PC Cat One*	**0.4837495**	2.66E-12	**0.1497144**	0.04139
PC Cat Two*	**-0.3391066**	2.19E-06	**-0.1657174**	0.02379
PC Lower EDU	**-0.3255336**	5.79E-06	0.1012931	0.1689
PC Higher EDU	**0.4018862**	1.30E-08	-0.01837515	0.8034
DF: 184				

***** A notable association across both measures of voter turnout

Table 6.8.1: Individual Variable Pearson Correlation Coefficients at the Small Area Level

There is a strong relationship observed with participation rates and marital status, with an observed negative association with the proportion of 'single' individuals and an observed positive correlation in terms of the proportion of individuals classed as 'married' in a given area, with a significance level of strong reliability in most instances. There is also an observed relationship with ethnicity variables, with a negative association presented in the case of both the proportion of the population classed as 'foreign-born' individuals and the proportion of the population that identify as members of the Traveller community. The most statistically reliable observation in this respect is the medium strength negative correlation between the level of voting-age turnout and the proportion of the population in the 'foreign-born' category. It is important to keep in mind in

this regard that the eligible voting-age population measure takes account of the potential level of the population that are ineligible for participation, with the observed trend suggesting that there is potentially a large foreign-born cohort that are eligible to participate in the electoral process but are not registered to do so. While there is a reasonable suggestion of this trend in the observed data, the structure of the analysis applied prohibits a conclusive observation. This does however serve to identify a topic worthy of further investigation in future analyses, particularly one that makes use of individual level data alongside aggregate figures.

The examination of housing related factors in the Small Area composite analysis supports previous Electoral Division level findings, with a number of strong associations observed in this respect. The housing factors examined return some of the strongest associations observed, with a positive impact observed in the case of the proportion of the population at the same address for over one year, albeit a mild relationship, a medium strength positive correlation with regard to the proportion of individuals in owner-occupied homes, and a medium strength negative correlation observed in terms of the proportion of individuals in rented accommodation. The registered voter data also demonstrates a negative association with individuals in Local Authority rented accommodation. However, this must be considered in the context of individual case studies, which suggests that it is the impact of renting as opposed to Local Authority renting specifically that appears to influence participation rates.

In terms of employment related variables that are examined, the most pronounced trend is the reasonable negative relationship observed between participation rates and the unemployment level in a given area. Other factors examined present fewer clear associations, with a mixed finding in terms of the potential impact of the proportion of the population classed as ‘working’. This must be considered however in the context of both the unemployment observations and also in terms of the retirement level, a factor with a strong logical association with age, and a factor that demonstrates a positive influence on participation rates, especially in the context of the voting-age population data. The ‘student’ variable examined fails to return a result in either instance that has a high level of validity but does point to a potential trend in the opposite direction than expected. The somewhat limited validity in results and lack of significant student populations in areas examined however limits any reliable potential insight gained into this specific factor.

Regarding the relationship between participation and the type of employment among the working population, investigated through the examination of the employment-based measure of social class, there are some notable observations. There is a significant positive association observed voter turnout and 'category-one' workers, consisting of those employed in 'skilled' and 'professional' sectors, and a negative association with the proportion of the population classed as 'category-two' workers, consisting of those in 'unskilled' and 'semi-skilled' employment. These trends are more notable and have a stronger level of statistical reliability in the case of the registered turnout figures, as opposed to the voting-age population turnout data.

With respect to educational attainment, there is a viable negative association between turnout and levels of the population in the 'lower' education grouping, with a positive association observed between turnout and those in the 'higher' educational attainment cohort, when examined in terms of the registered voter turnout. However, when examined in terms of the voting-age population participation level, there is no statistically valid relationship observed. When considered in the context of the individual town level analyses, this may suggest that education has a positive influence on participation levels within many urban contexts. The natural inverse relationship between education levels and age cohorts, especially when taking the tendency for many rural areas to have an older population with lower education levels, potentially offsets this relationship in many instances.

While the examination of socio-economic and demographic variables individually serves to identify a number of influential factors at the Small Area scale, the application of OLS multiple regression analysis serves to provide a more nuanced examination of the characteristics that potentially drive voter turnout. This process also provides additional insight into the extent to which these relationships may shape overall participation rates.

6.9: Multiple Regression Analysis of Registered Voter Turnout

The application of a multiple regression model identifies a number of variables that are observed as having a notable relationship with registered voter turnout levels. As viewed in Figure 6.9.1, the final iteration of the model uses four select variables that are observed as having a significant

relationship with turnout levels. The final iteration of the model, while having a strong level of overall performance under Cook's distance analysis and a low level of multi-collinearity among select variables with all VIF values under 1.3, accounts for just 30.22 percent of all the variance observed in participation levels across 186 Small Areas.

```
lm(formula = VT REG ~ PC SA + PC Unemployed + PC Retired +
    PC Cat Two , data = SASALL)

Residuals:
     Min       1Q   Median       3Q      Max
-29.4955  -4.9457   0.3092   5.2153  25.0423

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  46.55136   10.02133   4.645 6.52e-06 ***
PC SA         0.24905    0.10862   2.293  0.02300 *
PC Unemployed -0.50196    0.08793  -5.708 4.59e-08 ***
PC Retired    0.12845    0.06501   1.976  0.04971 *
PC Cat Two   -0.30136    0.10145  -2.970  0.00338 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.716 on 181 degrees of freedom
Multiple R-squared:  0.3022,   Adjusted R-squared:  0.2867
F-statistic: 19.59 on 4 and 181 DF,  p-value: 2.052e-13
```

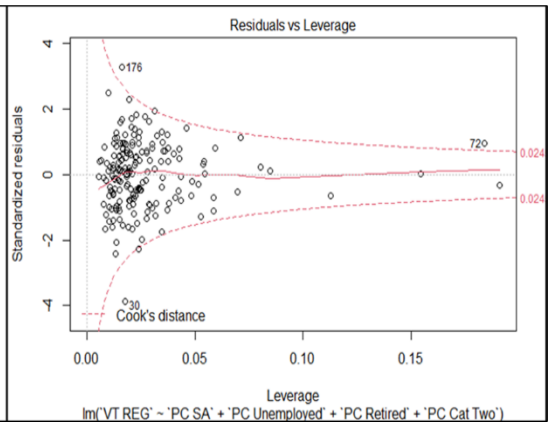


Figure 6.9.1: Linear Regression Model of Registered Turnout and Socio-Economic and Demographic Variables at the Small Area Scale

In terms of the variables that are observed as having a notable association with participation rates, there are variables observed as having both a positive and negative influence at the Small Area level. The variables that are observed as having a positive influence are the level of the population at the same address for over one year, and the proportion of the population that are classed as 'retired'. This supports previous observations, with the 'same address' variable having a strong association with homeownership, and the retirement variable having a strong association with older age cohorts. This serves to support the observed impact of both age and housing variables as widely having a very notable influence on participation rates.

In both instances that the variables are observed as having a positive association, there is a lower degree of influence in terms of the coefficient values returned and also the associated level of significance than is the case with the variables that demonstrate a negative association. The two variables that are observed as having a significant negative association with registered turnout rates are the proportion of individuals in the 'category-two' employment class, and most significantly,

the proportion of individuals classed as 'unemployed'. The negative association with unemployment levels is arguably the most significant finding, as the identification of this relationship at the Small Area scale identifies a relationship that is notably more pronounced than the larger scale analysis. This suggests that there is a significant relationship between areas of low employment and low participation, a trend which is not as evident at a larger scale of analysis. The association between low participation and those in 'category-two' is also quite significant, because as previously outlined, this relationship may often be masked at a larger scale of analysis. Both of these factors are perhaps most visible at this scale due to the case study areas being largely urban in nature.

6.10: Registered Voter Turnout Model Standardised Residual Examination

To a follow a similar approach to the previous Electoral Division level analysis, the Small Area data may be further examined by conducting analysis of the standardised residual values generated from the application of the multiple regression model. While keeping in mind that the final iteration of the model only accounts for 30 percent of the variability observed in the registered voter turnout levels, the examination of residual values still serves as a useful method to further identify and explore potential causal factors that shape overall trends.

By examining the areas which display the forty most extreme residual values, with the twenty highest and twenty lowest presented in Table 6.10.1, there are a number of inferences that may be made. By examining the data in this manner, there is a clear geographical divide in terms of areas where the model under-predicted, viewed with positive residual values, and areas in which the model over-predicted, viewed with negative residual values. The most extreme positive values have a strong tendency to be located in relatively high-turnout constituencies such as Kildare North and Longford-Westmeath, suggesting that there is a constituency-level effect present that drives a higher level of participation. The example of the Kildare North constituency perhaps best demonstrates this trend, as there are two case studies in the form of Naas Town and Kilcock Town that demonstrate a number of higher than predicted values. This adds support to the suggestion that a constituency effect impacts on the values, as opposed to localised effect present in either

town. There is also a notable constituency trend in terms of the over-predicted areas that have lower-than-expected values, most notably in the case of the Laois constituency. The suggestion that these values are lower-than-expected as the result of a constituency level effect has a reasonable level of support, as many lower-than-expected values are observed in both the case of Portarlington Town and Monasterevin Town. While there is a notable constituency divide in the residual values returned, there are also a number of other instances in which extreme values are returned outside of any potential constituency-level effect.

Registered Voter Turnout Regression Model Residuals							
Maximum Values				Minimum Values			
Small Area	Residual Value	Town	Constituency	Small Area	Residual Value	Town	Constituency
K13	3.27	Kilcock	Kildare North	NU44	-1.19	Naas	Kildare North
M09	2.49	Monasterevin	Laois	M12	-1.23	Monasterevin	Laois
NU46	2.30	Naas	Kildare North	NU11	-1.25	Naas	Kildare North
LT43/09	1.95	Longford	Longford-Westmeath	LT43/07	-1.30	Longford	Longford-Westmeath
LT45/20	1.82	Longford	Longford-Westmeath	PA10/29	-1.34	Portarlington	Laois
LT45/09	1.76	Longford	Longford-Westmeath	M05	-1.36	Monasterevin	Laois
LT45/13	1.70	Longford	Longford-Westmeath	PA10/06	-1.41	Portarlington	Laois
NU36	1.67	Naas	Kildare North	PA10/17	-1.42	Portarlington	Laois
LT43/01	1.62	Longford	Longford-Westmeath	M06	-1.48	Monasterevin	Laois
PA18/01	1.59	Portarlington	Offaly	PA10/25	-1.56	Portarlington	Laois
K22	1.43	Kilcock	Kildare North	M17	-1.60	Monasterevin	Laois
NU54	1.42	Naas	Kildare North	PA10/08	-1.61	Portarlington	Laois
NU28	1.39	Naas	Kildare North	NU57	-1.66	Naas	Kildare North
NU04	1.31	Naas	Kildare North	LT13/09	-1.67	Longford	Longford-Westmeath
NU18	1.30	Naas	Kildare North	NU20	-1.74	Naas	Kildare North
NU06	1.29	Naas	Kildare North	PA10/05 10/11	-1.97	Portarlington	Laois
PA18/05	1.23	Portarlington	Offaly	PA10/28	-2.06	Portarlington	Laois
LT43/12/02	1.22	Longford	Longford-Westmeath	NU19/02	-2.28	Naas	Kildare North
LT45/12	1.21	Longford	Longford-Westmeath	PA10/19	-2.41	Portarlington	Laois
K19	1.18	Kilcock	Kildare North	PA18/04	-3.86	Portarlington	Offaly

Table 6.10.1: Extreme Standardised Residual Values from Registered Voter Turnout Regression Model Analysis at the Small Area Scale

In summation, the examination of residual values from the registered voter turnout model serves to identify a number of important trends. This includes the further identification of constituency level effects in General Election 2016, as discussed in more detail in Chapter Five, that are present at even the smallest scale of analysis. This process also highlights a number of outlier areas in which select individual factors appear to have a significant impact on overall participation, even if

not observed as having a significant impact on overall trends. The examination of specific residual values also demonstrates that while a far-reaching statistical analysis identifies key characteristics that shape overall turnout trends to a given extent, these characteristics do not always explain individual observations, with many traits having the potential to shape a specific level of participation, within a given context.

6.11: Multiple Regression Analysis of Voting-Age Population Voter Turnout

The eligible voting-age turnout figures may also be examined in the same manner in order to better understand both the range of variables that are observed as having a significant impact on overall participation rates and the extent to which these variables account for the levels of participation observed. As may be observed in Figure 6.11.1, there are three variables observed as having a positive impact on eligible voting-age participation rates, and one variable observed as having a negative impact. Overall, this model is quite robust, with three outlier datapoints removed in the final iteration in order to ensure a reasonable level of accuracy in terms of Cook's distance analysis. In terms of testing for collinearity in the final model, the 'category-one' employment and 'low' education variables have slightly higher VIF values than desirable, with values of 5.56 and 5.32 respectively, but are deemed to be reasonable for inclusion. The final iteration of the model accounts for over 54 percent of the variability observed in the data, a notable improvement on the previous registered voter turnout model.

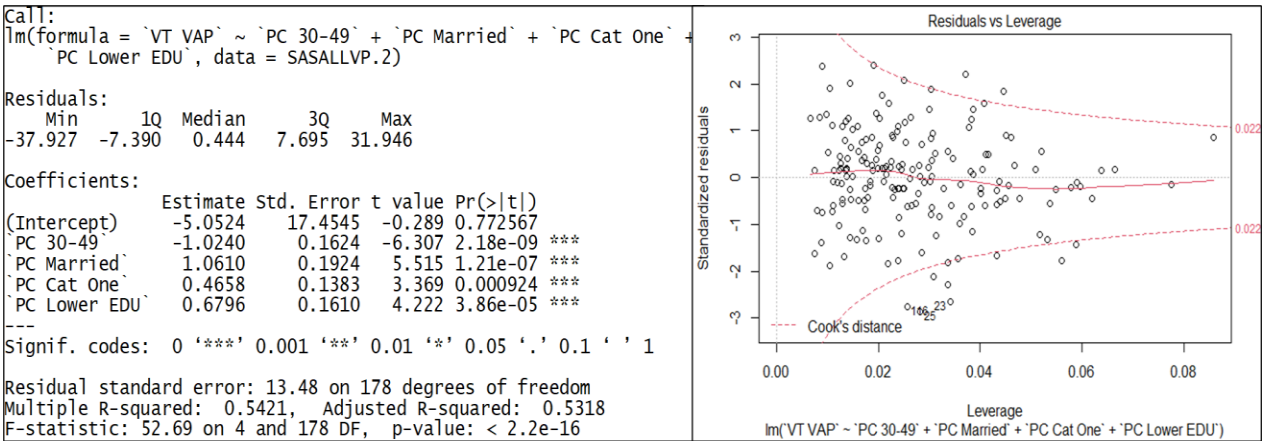


Figure 6.11.1: Linear Regression Model of Voting-Age Population Turnout and Socio-Economic and Demographic Variables at the Small Area Scale

In the above examination, a negative association is observed between voter turnout levels and the proportion of the population in the 30-49 age cohort. This supports the widely observed association in the previous individual town level Small Area analyses, in which low turnout is frequently associated with large proportions of the population in the younger age cohorts. There is also a strong positive trend observed between turnout and the proportion of the population that are classed as 'married'. The proportion of the population that is married has a strong association with age, with the youngest cohorts demonstrating lower marriage rates, and also a strong association with more settled communities, with both of these factors previously identified as having a notable impact on the likelihood of higher participation. There is also evidence of a strong employment-based class association, with a higher level of participation frequently observed in instances in which a significant level of the population is employed in the 'category-one' class, which consists of those employed in highly skilled and professional roles. Perhaps the most unusual finding in this analysis is the observed positive association between voter turnout and the proportion of the population in the 'lower' education cohort. This is contrary to the observed relationship in many previous instances, in which low education levels are frequently associated with low turnout areas. The potential reason for the observed relationship in this case is the strong association, as previously discussed, between older high-turnout populations, and their tendency to have lower education levels overall. (Denny et al., 1999). This relationship is demonstrated in more detail in Table 6.11.1, which outlines that there is a statistically robust correlation between those with a

'lower' level of education and the majority of the select age cohorts. In this respect, there is a negative association observed with the 30-49 age cohort, which consists of the younger generations that have had a significant amount of time to complete third-level education, and a somewhat linear increase in positive correlation observed with the two older age cohorts, which consists of generations that historically have a lower university attendance rate. As a result of this relationship, there is a significant degree of potential for trends to be misinterpreted when considering the natural affinity between age and education levels. In this sense, inferences that are made based on the possible impact that education levels have on electoral participation must take account of this existing relationship.

Correlation Between Age And 'Lower Education' Variable		
Age Variable	**Pearson Coefficient**	**P-Value**
PC 18-29	0.09992954	0.1748
PC 30-49	-0.4055443	9.342e-09
PC 50-64	0.1871918	0.01052
PC 65+	0.2955319	4.218e-05

Table 6.11.1: Pearson Correlation between Age Variables and the Proportion of the Population in the 'Lower' Education Cohort.

Overall, the application of multiple regression model analysis to the estimated eligible voting-age population turnout data further highlights a number of previously identified relationships, including the negative association with younger age cohorts, a positive association with the proportion of the population classed as 'married', and also a positive association with those in 'category-one' employment. Perhaps the most significant finding is the counter-intuitive relationship with education levels, with this providing an opportunity to demonstrate how analyses that seek to examine associations between turnout and education need to take account of the existing relationships between age and education, and age and voter turnout, with these relationships perhaps masking any 'real' relationship between education and turnout levels. While

the model accounts for a reasonable 54 percent of variation in the data, the subsequent analysis of residual values serves to potentially provide further insight into the factors that shape the overall geography of participation at this small scale of analysis.

6.12: Voting-age Turnout Model Standardised Residual Examination

In the same manner as the previous examination of registered voter turnout model residual values, the voting-age model residual values may also be examined in more detail. The most extreme values, as displayed in Table 6.12.1, also show some signs of a geographical divide, albeit perhaps less pronounced than in the registered turnout figures. In terms of the under-predicted areas, many instances are again located in the Kildare North and Longford-Westmeath constituencies, as was the case with the registered voter data. Similarly, many areas with extreme over-predicted values are again located within the Laois constituency. This divide is notably less pronounced in this examination however, with many areas in these constituencies recorded in both categories of extreme values. It is worth reiterating that the overall level of the model accuracy is greater in this instance, with the model accounting for over 54 percent of data variability. While the overall trends from extreme values lack a conclusive trend in this case, the data still suggests that wider effects unaccounted for within the Small Area analyses potentially play an important role in shaping the overall geography of model accuracy.

Voting Age Population Turnout Regression Model Residuals							
Maximum Values				Minimum Values			
Small Area	Residual Value	Town	Constituency	Small Area	Residual Value	Town	Constituency
K15	3.28	Kilcock	Kildare North	LT45/12	-1.24	Longford	Longford-Westmeath
M11	2.93	Monasterevin	Laois	LT45/17	-1.26	Longford	Longford-Westmeath
LT45/01	2.29	Longford	Longford-Westmeath	LT43/02	-1.29	Longford	Longford-Westmeath
LT43/14	2.29	Longford	Longford-Westmeath	NU19/01	-1.34	Naas	Kildare North
NU25	2.26	Naas	Kildare North	NU19/02	-1.38	Naas	Kildare North
M18	2.08	Monasterevin	Kildare North	NU42	-1.57	Naas	Kildare North
LT43/09	1.96	Longford	Longford-Westmeath	PA10/10	-1.59	Portarlington	Longford-Westmeath
PA10/20	1.91	Portarlington	Laois	M09	-1.60	Monasterevin	Laois
LT45/09	1.74	Longford	Longford-Westmeath	K23/24	-1.65	Kilcock	Kildare North
K09	1.67	Kilcock	Kildare North	LT45/16	-1.67	Longford	Longford-Westmeath
LT43/13	1.63	Longford	Longford-Westmeath	NU53	-1.72	Naas	Kildare North
LT43/01	1.52	Longford	Longford-Westmeath	LT43/07	-1.73	Longford	Longford-Westmeath
LT45/06	1.52	Longford	Longford-Westmeath	PA18/03	-1.79	Portarlington	Offaly
LT43/12/02	1.44	Longford	Longford-Westmeath	M12	-1.83	Monasterevin	Laois
K08	1.34	Kilcock	Kildare North	M14	-1.86	Monasterevin	Laois
LT45/11	1.32	Longford	Longford-Westmeath	K13	-2.01	Kilcock	Kildare North
PA10/09	1.29	Portarlington	Laois	NU54	-2.32	Naas	Kildare North
PA10/16 10/	1.29	Portarlington	Laois	PA10/25	-2.43	Portarlington	Laois
NU30	1.27	Naas	Kildare North	M15	-2.47	Monasterevin	Laois
LT43/03	1.16	Longford	Longford-Westmeath	PA10/28	-2.57	Portarlington	Laois

Table 6.12.1: Extreme Standardised Residual Values from Voting-Age Population Turnout Regression Model Analysis at the Small Area Scale

6.13: Further Discussion & Conclusion

In conclusion, the applied Small Area analysis provides a number of valuable insights into voter behaviour in the 2016 General Election. On a methodological note, the application of a smaller scale of analysis to the data serves as a verification for trends that are observed in both the previous Electoral Division analysis and this Small Area investigation. The application of multiple scales serves to somewhat mitigate any potential influence based on the Modifiable Areal Unit Problem (Openshaw & Taylor, 1979), while also demonstrating the intricate micro-geographies of voter turnout that are excluded from larger analyses, and potentially better accounts for the variations in social conditions and environments in which voters confront their everyday lived experiences. (Agnew, 2002). While previous studies within the Republic of Ireland have examined turnout trends at micro-scales (Kavanagh, 2002), this investigation is the first analysis which aligns small scale voter turnout data with census Small Area units. The strength of this method comes from its

ability to both account for small level changes within turnout trends and compare results with detailed socio-economic and demographic data. While the construction of voter turnout datasets at this scale is a mammoth task, future studies may take account of a larger, more diverse, area to gain a deeper insight into factors that impact turnout trends in a range of contexts.

In this analysis, the examination of both registered voter turnout levels and voter turnout among the estimated eligible voting-age population highlights that values tend to be more extreme in the case of the latter measure. As previously mentioned, this demonstrates that low-turnout areas tend to have an even-lower level of participation when the voting-age measure is applied, and similarly, high turnout areas tend to have an even-higher level of participation by this measure. This further demonstrates that academic inferences which have suggested that observed urban/rural variation in turnout trends is driven by register inaccuracy are unfounded. In reality, register inaccuracy serves to hide the true extent of these variations, as demonstrated at multiple scales of analysis.

In terms of the socio-economic and demographic drivers of voter turnout, a number of influential factors are again identified. This includes the widely observed association between turnout and age profile, with younger populations often less likely to participate. This association may be in-part attributed to the influence of age directly, but also appears to be partly shaped by secondary influences, driven by other variables that tend to have a strong age-association. Individual cases highlight instances in which the socio-economic conditions favour high turnout, but a young population appears to produce a lower-than-expected turnout. There are also individual cases that highlight a high voter turnout among predominantly younger areas, but only when other socio-economic factors are supportive of a high-turnout environment.

The socio-economic characteristics that are seen to have the most pronounced influence are similar to those identified in the Electoral Division analysis, with some relationships demonstrated in a clearer manner at this scale. The role of homeownership is again perhaps one of the most pronounced, with homeowners more likely to participate than renters, and no apparent difference observed between private and Local Authority renters, as other academic have also concluded in different contexts. (Kavanagh, 2002). The length of housing tenure is one factor that is again identified as having a positive association with turnout, although this analysis is somewhat restricted by the available data, which provides a one-year threshold in this respect. Employment characteristics are also observed as having a notable impact on participation, with unemployment

levels demonstrating a negative association with turnout levels in many cases. Employment type may also be understood as having an impact on turnout, with those in 'category-one', 'professional' employment more likely to participate than those in 'category-two', 'unskilled' and 'semi-skilled' employment. It is worth noting in this respect that the areas examined are predominately urban in nature, and as such, provides additional insight into driving forces in these specific environments. Education variables present some of the more difficult findings to interpret, with the Small Area analysis highlighting the potential impact of an inherent age-association. When this association is considered, low levels of education can be observed as having an apparent negative impact on turnout in a number of cases, especially in areas with a predominantly young, urban population. The trends associated with educational attainment make any potential impact difficult to identify on a larger scale of analysis, with the select Small Area case studies providing more in-depth insight on this specific topic. One trait that is identified as a potentially influential factor is ethnicity. Given the relatively small proportion of the overall population classed as either 'foreign-born' or classed as a member of the Traveller community, the Small Area analysis provides a more appropriate scale of analysis for these variables. While there are no conclusive findings in these instances, the data suggests that both ethnic groupings tend to frequently present a lower-than-average level of engagement.

In terms of the additional geographic factors that shape turnout trends, there is evidence to support the findings of Kavanagh, Mills, and Sinnott (2002), in that there is an apparent urban/rural divide observed even at this Small Area scale of analysis, with higher levels of turnout frequently observed in the peripheral regions of towns than at the more urban cores. While it cannot be conclusively stated that this does not result from the likelihood of a divide in influential socio-economic and demographic traits, the traits in both urban cores and rural peripheries broadly appear to be similar in nature to urban and rural Teljeur classes, respectively, as examined at the Electoral Division level. As the Electoral Division analysis served to identify an urban/rural divide in turnout that exists independently of the association with socio-economic and demographic characteristics examined, I would suggest that the same is the case in this instance, albeit a topic that requires further investigation. This analysis also serves to identify the presence of an apparent constituency level effect on voter turnout, as highlighted in the case of Portarlington Town. The impact of competitiveness within a constituency has previously been highlighted at the Electoral Division level, a factor that has been also identified by numerous academics in the international

context. (Jackman & Miller, 1995; Hunt, 2018). The interview process has specifically identified the issue of low competitiveness within the Laois constituency for General Election 2016 (Fleming, 2019), with this suggested effect demonstrated in the voter turnout divide along county and constituency lines in the town of Portarlington.

Overall, the Small Area analysis provides a more in-depth perspective on voter turnout trends in General Election 2016, identifies a number of apparent casual factors, highlights a number of concerns with regards to equality of representation, and identifies a number of issues worthy of further investigation. Hopefully, future studies may apply a more detailed Small Area investigation, potentially aided by modernisation of the electoral register. This process would be of particular interest for examining future elections, so that a temporal perspective of voter turnout may be developed. This would allow comparison with the changing socio-economic and demographic census characteristics at this small scale, and potentially provide great insight into the factors that shape the micro-geographies of voter behaviour.

Chapter Seven: Local Election 2019

Elections which elect the head of State of a primary governance body, such as general elections in the Republic of Ireland, may be considered as 'first-order' elections, while European elections, local elections or by-elections can be considered as 'second-order' elections. Second-order elections usually demonstrate a notably lower voter turnout, which may be attributed to the perceived importance of the election by the electorate, with more salient elections generating a greater degree of interest from the voters. Cllr. Gus O'Connell, a long-serving local representative in the Palmerstown area, highlights the difference in perception among the electorate between local and national representatives.

> 'People see TDs, I think as being a more serious class of a politician than the local guy… they think that the TD has more clout than a local Councillor, and they'll go to the TD. I think they would see it, like in any situation, people like to go to the top… Undoubtedly national politics has a higher profile than local politics has'. (O'Connell, 2020).

This is also reflected by Fianna Fáil's Cllr. Shane Moynihan, also based in the Palmerstown-Fonthill LEA, who highlights the perceived difference in salience between local and national levels in terms of the lack of visibility often associated with the various roles of a Local Authority in comparison to national legislators.

> 'Local elections traditionally we always think of as a second order election. So in terms of capturing the public imagination and capturing the public movement it isn't directly selecting the parties that will form the government that has the most impact on people's lives and on the policies that affect people most of all… There's a capacity still, I think, in terms of what local authorities can do and how they can directly influence a policy… But its more on the basis of; [citizens] don't see the direct impact, the direct link between local authorities and their vote in local elections'. (Moynihan, 2020).

Examining second-order participation rates in the international context, Elguie and Fauvelle-Aymar (2012) compare countries with semi-presidential constitutions, concluding that the perceived importance of an electoral contest does determine the extent of voter turnout at election time. In addition to the potential impact of perceived salience on participation rates, studies such as Cutler's (2008) analysis of voter turnout in Canadian second-order elections points to the impact of a range of contextual factors that influence voter turnout trends at the sub-national level, in a similar fashion to first-order elections. In this sense, while second-order elections may tend to have lower participation rates, it is important to consider the geography of difference in this respect in order to better understand the associated factors that shape participation.

7.1: Local Election 2019 Case Study Areas

Held every five years, the Local and European Elections took place within the Republic of Ireland on 24th May 2019. The Local Electoral Areas (LEAs) serve the same function as constituencies for general election contests, with multiple members elected in each area via the PR-STV voting system. Local Electoral Areas, unlike constituency boundaries, adhere strictly to county boundaries, as elected members will serve on the County or City Council of their given Local Authority. However, Local Electoral Area boundaries do not necessarily adhere to the same boundaries as constituencies, even within a cohesive county unit. As such, direct comparison between general elections and local elections can be somewhat challenging in instances where boundaries do not directly align. For the purpose of this analysis, voter turnout trends will be examined within the loose bounds of both the Dublin Mid-West and Dublin Fingal Dáil constituencies in order to best facilitate comparison to the previously examined General Election 2016 data. As with previous analyses, both the registered voter turnout and estimated eligible voting-age population turnout are included. However, it is important to consider that the voting-age data is generated off the latest census in 2016, and as such, is three years out of date in the comparison provided. The Local Electoral Areas included in this analysis may be viewed in Figure 7.1.1, with these LEAs within, or partially within, the two Dáil constituencies examined.

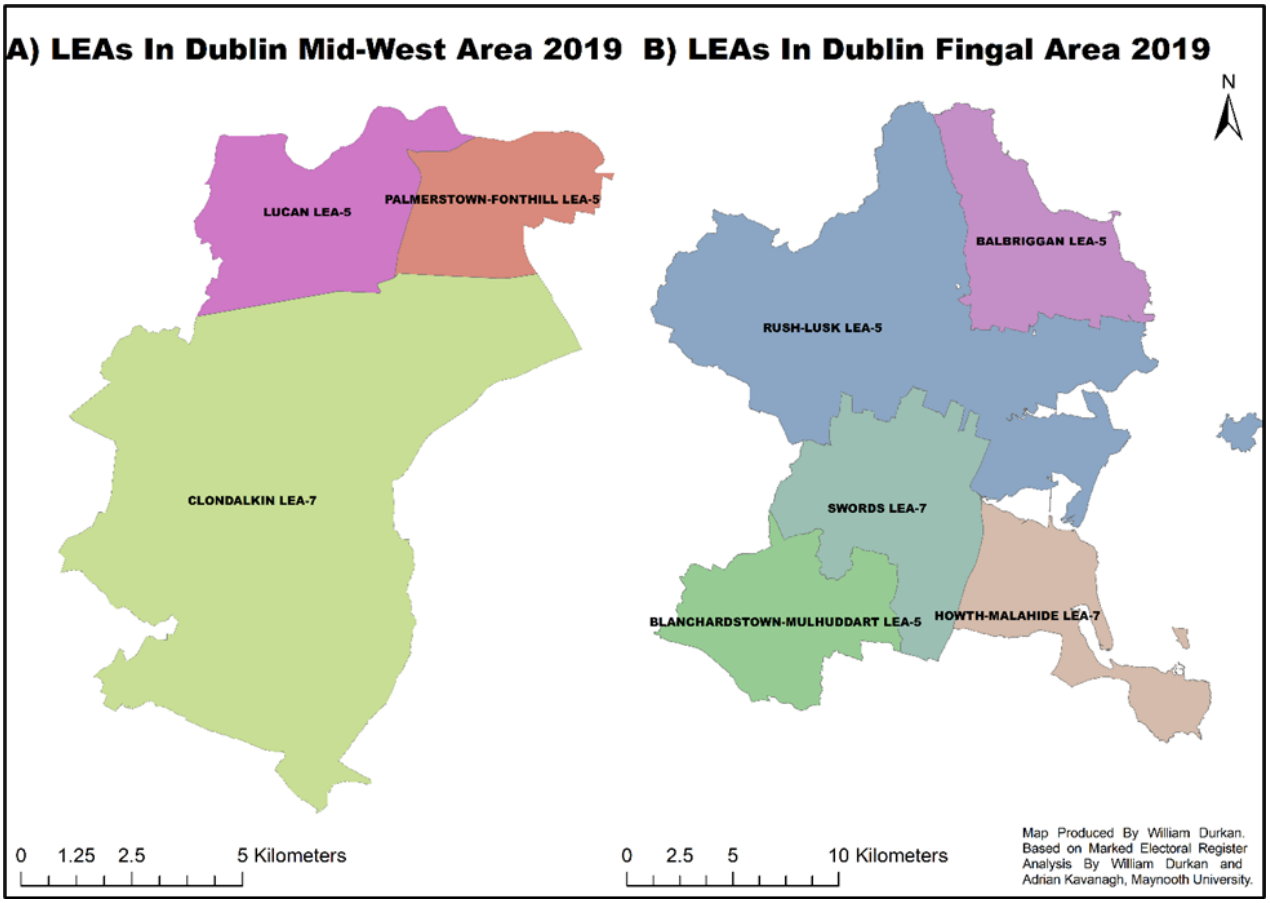


Figure 7.1.1: Local Electoral Areas in the Case Study Area and the Number of Seats in Each LEA for Local Election 2019

The voter turnout level for local elections in Ireland is noted as being consistently lower than first-order elections (Kavanagh & Durkan, 2018), with the national registered voter turnout in Local Election 2019 being 49.7 percent. As demonstrated in Table 7.1.1, there is a relatively narrow range of overall registered turnout levels between each Local Electoral Area examined. In all cases, the registered voter turnout levels are notably lower than the national average turnout level. This is an important point to consider, as it is important to note that all areas in this analysis may be considered a low-turnout environment by comparison to the national picture, by varying extents. When the voting-age turnout figures are taken into account, a similar overall picture emerges, with the overall order of participation rates largely unchanged. In most cases, the voting-age participation rates tend to be lower than the registered turnout, with this amplifying the extent of

relatively low turnout areas. In this sense, Local Electoral Areas that have a notably low level of participation overall have an even lower level of participation by the voting-age participation measure, with just over one-in-five eligible voters participating in the Blanchardstown-Mulhuddart LEA.

By-Election 2019 Constituency	Local Election 2019 LEA	LE Seats	Turnout (%REG) 2019	Turnout (%VAP) 2019
Dublin Fingal	Balbriggan	5	45.40	40.43
	Rush-Lusk	5	45.72	46.69
	Swords LEA (Majority of)	7	37.66	31.44
	Blanchardstown-Mulhuddart (Part of)	5	30.03	21.67
	Howth-Malahide (Part of)	7	43.73	44.93
Dublin Mid-West	Clondalkin	7	37.97	33.56
	Lucan	5	41.87	37.42
	Palmerstown -Fonthill	5	37.73	34.64

Table 7.1.1: Voter Turnout in each Local Electoral Area for Local Election 2019

The examination of turnout trends at the LEA level highlights the relatively low level of turnout throughout the case study areas with some notably areas of pronounced low levels by both measures of turnout considered. The difference reported between both measures of turnout applied must also be considered in the context of register accuracy in the area, as previous outlined in the context of General Election 2016 in Chapter Four. For Local Election 2019, turnout trends are subsequently examined in more detail at the Electoral Division level in both chosen case study areas.

7.2: Turnout Trends in the Dublin Mid-West Area

While the overall turnout levels of each Local Electoral Area are discussed above, as with previous analyses, examining the data at the Electoral Division level provides a greater variation in turnout levels observed. Within the Dublin Mid-West area, a broad range of values are observed, ranging from a low of 27.31 percent in the Clondalkin-Cappaghmore Electoral Division to a high of 50.01 percent in the Lucan Heights Electoral Division**.** When the full geography of participation in the Dublin Mid-West area is examined, as outlined in Figure 7.2.1, there is a suggested divide along LEA boundary lines with extreme values are highlighted in both measures of participation applied.

In both instances, the rates of participation are notably higher within the Lucan LEA, especially in the Lucan Heights Electoral Division.

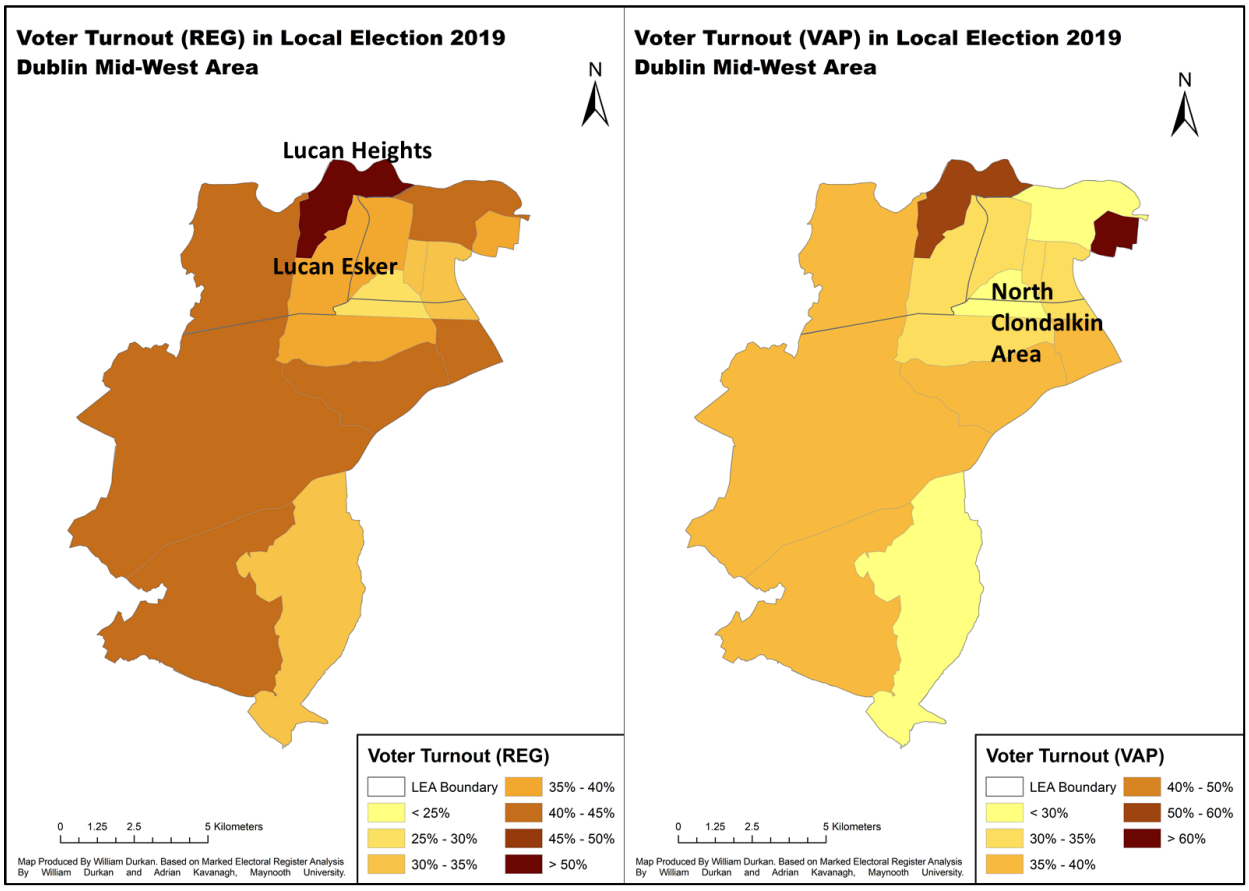


Figure 7.2.1: Voter Turnout in the Dublin Mid-West Area for Local Election 2019

Cllr. Joanna Tuffy, based in the Lucan LEA, highlights the difference between areas within the Lucan LEA, noting the greater degree of rootedness in the community in more established parts of the area, such as the Lucan Heights Electoral Division, when compared to newer communities in Adamstown, located in the Lucan St-Helen's Electoral Division. Cllr Tuffy notes that this degree of 'rootedness' may have the potential to shape engagement levels, particularly at the Local level.

> 'I think that kind of dynamic, of the older voter: more traditional, very settled. Probably in Lucan village, there's more of a sense of this thing of the local environment, that's not [present] to the same extent up in the newer part of Lucan... Maybe it's just the more, kind

> of, traditional older voters, they feel more motivated during a Local Election. Like if you go to new areas. Well, say if you go particularly to newer areas... the likes of Adamstown… I mean, Adamstown is in my Ward as well, and I would have done a lot of work there too. But if you go to somewhere like that, they're not as rooted in their area'. (Tuffy, 2020).

Cllr. Shane Moynihan also points to the potential lack of rootedness and connection to the local areas in communities that are less settled and often have a high rental population, as is the case in parts of the Lucan-Esker Electoral Division which is partly included in the Palmerstown-Fonthill LEA.

> 'Palmerstown would have always had a very strong turnout and that's reflected in the tallies on the day from the LEA. Whereas for Lucan, particularly that side of Lucan [Lucan-Esker], there would have been, I'm not gonna' say a transient population, but certainly more of a transient population in that part of Lucan [Esker] than in other parts, so that would have had an impact on voter turnout'. (Moynihan, 2020).

Further to the identified trends in the Lucan LEA, and potential drivers of observed differences, there is also a notable low cluster of low engagement in the North Clondalkin area. The subsequent examination of socio-economic and demographic characteristics within areas identified as having notable extreme levels of engagement may offer further insight into the factors that shape observed difference between areas.

While the examination of voter turnout levels at the Electoral Division scale provides insight into the unique geography of participation in Local Election 2019, examining the rates of turnout change from the previous Local Election in 2014 and the previous General Election in 2016 can be equally as informative. The various rates of change may be observed in Figure 7.2.2. This measure of change is based on the registered voter turnout figures. As the voting-age data for all elections examined in this instance is based on the same Census 2016 results, and the rates of change are relative comparisons of the number of total voters, the inclusion of the second measure would be largely arbitrary, with the same level of relative change demonstrated in this case.

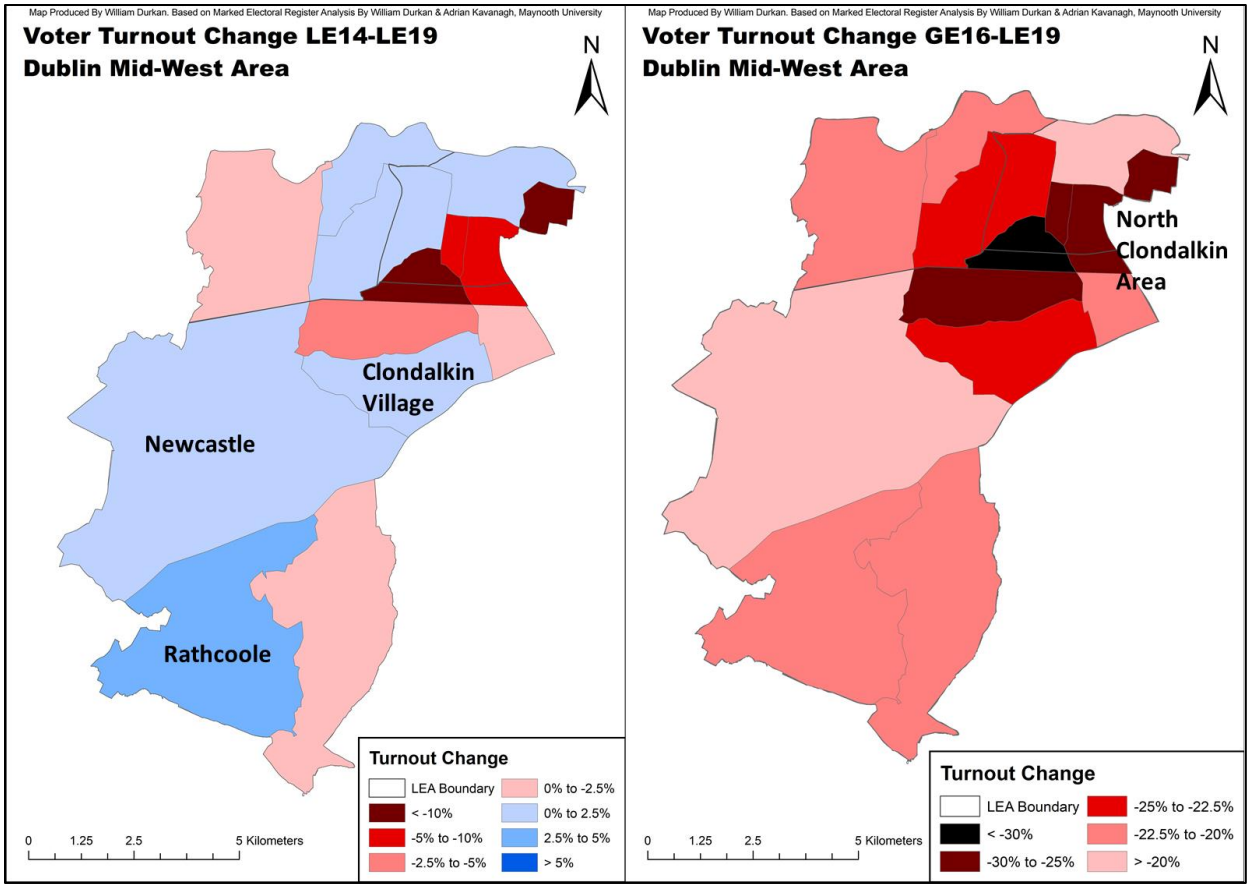


Figure 7.2.2: Voter Turnout Change in the Dublin Mid-West Area 2014-2019

While there is a degree of variation which appears to be based on the individual LEA influences, there is also a broad range of values that do not appear to have a strict LEA divide, with relatively high and low turnout values and areas of significant change observed in each LEA. The visual comparison does point to a trend in which many of the lowest turnout areas in Local Election 2019 have experienced a significant decline from preceding elections, as is especially apparent in the North Clondalkin area, with the exception of Clondalkin Village.

The notable differences in participation rates between Local Election 2014 and Local Election 2019 must be considered in the contest of the political and public atmosphere around the time of the elections. Cllr. Joanna Tuffy highlights the difference in atmosphere surrounding both contests.

> ‘What’s happening in (Local Election 2019) is you’re getting a type of voter who isn’t particularly cynical, or there’s very little protest vote involved in it… Now in the 2014

> Election; there was a protest vote. Labour obviously did badly in it… we lost our two seats here, and I felt that one issue might have been that they were putting in the water meters during the elections. And I'd look at somewhere like Dun Laoghaire, and Labour would do great, and you kind of think: "yeah, but were they putting in the water meters then?" So, you know, there could be little things like that'. (Tuffy, 2020).

In this sense, the area of notable turnout decline in the North Clondalkin area may partially be attributed to this effect, as the Clondalkin area saw some of the largest groups of anti-water charge protests in 2014. (Duncan et al., 2014). As with any pronounced change, there is also the potential for changes in local mobilisation efforts by political parties and organisations to impact on localised changes in voter turnout levels. Cllr. Shane Moynihan highlights the concern in relation to the direct mobilisation on Sinn Fein voters in particular in Local Election 2019 in the North Clondalkin area.

> 'In the [2019] Local Elections, the turnout in some of those [North Clondalkin] areas was as low, or lower, than it would have been in the past. And that at the time was a matter of concern to Sinn Féin because anecdotally, I remember seeing videos on Facebook of the Sinn Féin candidates going around with loud hailers around estates in North Clondalkin at 8 o'clock at night kind of calling people to go out and vote if they hadn't voted already. Meeting Sinn Féin candidates coming out of the polling stations, they looked very, very worried about how low the turnout was. But the turnout in those voting centres was an indicator, or a barometer of how successful they were going to be nationally, because that's where that would have been their mainstay'. (Moynihan, 2020).

The areas with the greatest registered turnout level in Local Election 2019 tend to be associated with an increase in participation from the previous 2014 contest. This is especially pronounced within the Lucan LEA, which saw an increase in participation in two out of the three Electoral Divisions in the area, and Lucan Heights had the highest rate of overall registered participation in 2019. The tendency for higher turnout areas in Local Election 2019 to have increased levels relative to the previous 2014 contest may also be observed within the Clondalkin LEA. In this

area, Electoral Divisions such as Newcastle and Rathcoole have a notable increase between contests, and a relatively high level of participation in 2019.

In terms of examining the rates of turnout change from the preceding General Election in 2016, as also displayed in Figure 7.2.2, there was a decline in participation in every Electoral Division between General Election 2016 and Local Election 2019. This is decline is notably more pronounced however in the North Clondalkin area. While there is a decrease observed in the North Clondalkin area by both comparisons, Cllr. Gus O'Connell highlights that turnout has improved in the area based on historic figures, with a potential atmosphere of disenfranchisement still present in the area.

> 'Some people may be disenfranchised and may feel; "what's the reason for voting for anybody?". Because I think you will find the same at national general elections; that the turnout (in North Clondalkin) traditionally is low. Now mind you in '91 when I ran first, my challenge was to cover that area as well, and the turnout at that time was, you know, down around 10% 15%. So, it has improved over the years'. (O'Connell, 2020).

In the examination of the Dublin Mid-West case study area for Local Election 2019, there are a number of Electoral Divisions with pronounced levels of voter participation and extreme rates of turnout change relative to preceding electoral contests observed. The localised trends in the area will subsequently be examined in more detail, alongside the potential influences of socio-economic, demographic, and geographical factors.

7.3: Foreign-Born Voters and New-Irish Candidates in the Dublin Mid-West Area

In contrast to previous analyses that were based on Dáil elections, the examination of Local Election 2019 provides an opportunity to better investigate the trends related to engagement from ethnic minorities. In this respect, non-Irish citizens that are resident in Ireland are eligible to participate, as indicated on the electoral register. In this respect, voters with an 'L' allocated on the register are non-EU citizens that can participate in local elections, and voters with an 'E'

allocated on the register are EU citizens that can vote in both European and local elections. As both cases are clearly outlined for each voter where relevant on the marked electoral register, voter turnout for these select groups may be calculated separately.

As local elections have a wider voter base and individual voters may be identified as non-EU citizens and EU citizens that are resident in Ireland, local elections are perhaps the best contest in which to examine foreign-born voter engagement levels. Specifically, the structure of the data allows for insight into the proportion of potentially eligible foreign-born voters that avail of registration, and also the comparative level of engagement of foreign-born voters when examined in the context of overall participation rates at the Electoral Division level.

The engagement level of foreign-born members of the electorate is also considered in the context of areas in which New-Irish candidates have a strong presence. In this sense, foreign-born engagement levels are examined in order to investigate if voter behaviour is potentially influenced by the effect of descriptive representation. This is to ask: Are foreign-born members of the electorate more likely to vote, or register to vote, in areas where there is also a foreign-born candidate? As previously discussed in Chapter One, while a potential for voting behaviour along the lines of descriptive representation has been examined in the Irish contest focusing on the specific association with gender (McElroy & Marsh, 2009), this analysis focuses specifically on the topic of ethnicity.

In the case of the Dublin Mid-West area, the turnout level for the combined ‘L’ and ‘E’ registered voters can be viewed in Table 7.3.1, alongside the support level for candidates that are classed as ‘New-Irish’, represented in terms of the percentage of first-preference votes received. The total percentage of the registered electorate that are classed as ‘L’ and ‘E’ voters is also presented, with no association observed in terms of the proportion of the electorate in these classes and the level of turnout within these groups. Turnout levels among the groups examined range from a low of 4.95 percent in the Clondalkin Village Electoral Division, to a high of 18.75 percent in the Newcastle Electoral Division. The corresponding support levels for New-Irish candidates show no clear association, with both relatively low and relatively high support levels observed in cases of extreme low and extreme high ‘L’ and ‘E’ voter turnout areas.

Dublin Mid-West Area				
	Electoral Division	**L/E Voters (% REG Electorate)**	**L/E Voter Turnout (REG)**	**New Irish Candidate Support (FPV)**
Low Turnout Area	Clondalkin Village	**5.34**	**4.95**	**0.59**
	Clondalkin-Moorfield	**4.12**	**5.76**	**14.24**
	Clondalkin-Dunawley	**4.17**	**7.72**	**0.51**
High Turnout Area	Lucan-Esker	**8.59**	**13.66**	**4.81**
	Palmerston West	**2.74**	**15.46**	**5.69**
	Newcastle (Dublin)	**2.86**	**18.75**	**0.38**

Table 7.3.1: Areas of Extreme Voter Turnout among Registered 'L' and 'E' Voters and Support Levels for 'New Irish' candidates in the Dublin Mid-West area for Local Election 2019

While the extreme values for turnout among 'L' and 'E' voters and associated levels of New-Irish candidate support are presented above, a full comparison of values within the Dublin Mid-West Area may be viewed in Figure 7.3.1. From this select case study, there is a notable lack of correlation in the geography of 'L' and 'E' voter turnout and support levels for New-Irish candidates, with the inverse-to-expected trend often the case. As observed, while some areas have relatively strong values in both instances, there are also many areas in which a high turnout among 'L' and 'E' voters is associated with a notably low level of support for New-Irish candidates, and vice-versa. In this case, support for New-Irish candidates appears to have a stronger association to the Local Electoral Area boundaries as opposed to the proportion of 'L' and 'E' voters that participate, due to the specific candidates that are running for election in that area, suggesting that the individual candidate support levels exist independently and do not appear to be driven by instances of voting along the lines of descriptive representation.

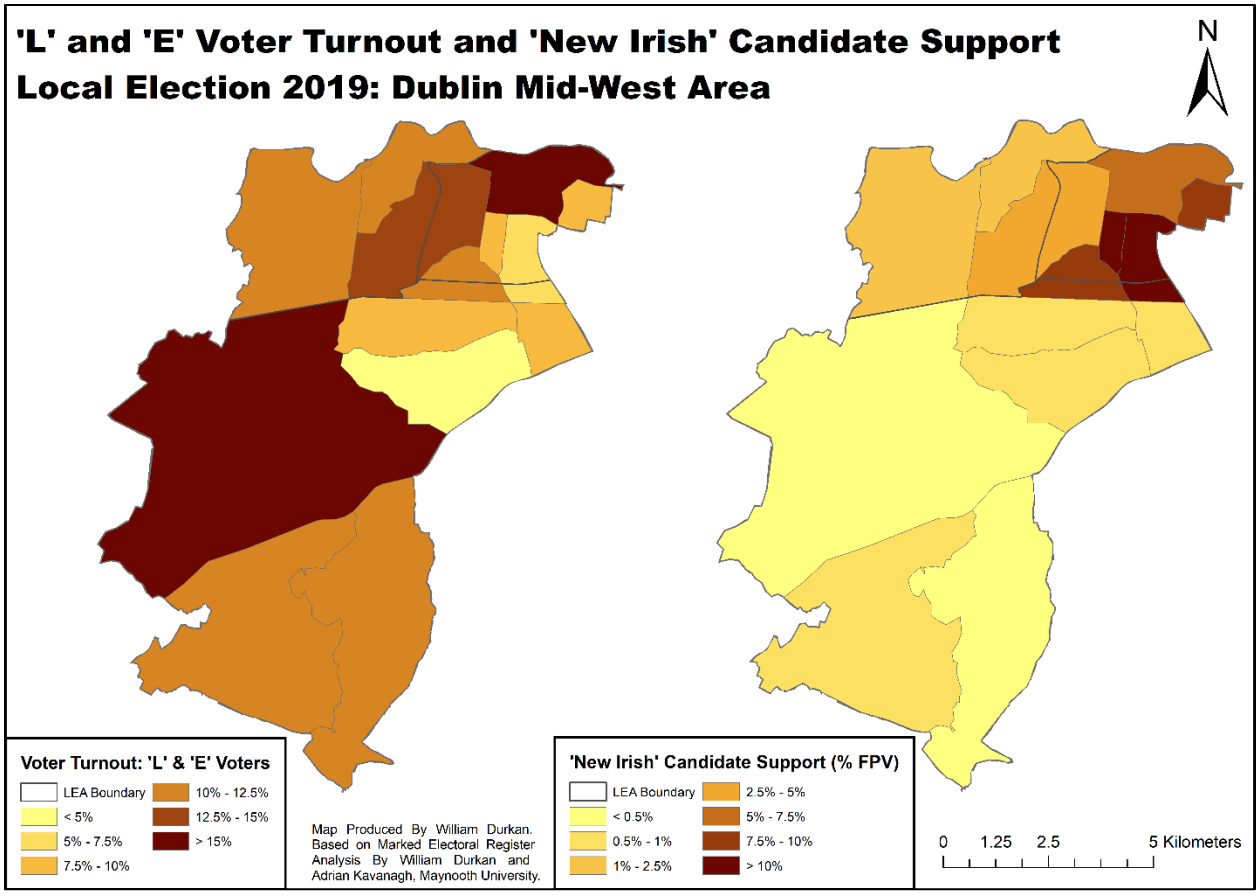


Figure 7.3.1: Voter Turnout among Registered 'L' and 'E' Voters and Support Levels for 'New Irish' candidates in the Dublin Mid-West area for Local Election 2019

Cllr. Joanna Tuffy highlights the lack of awareness that can exist among foreign-born members of the electorate, who can often be unaware that they are eligible to participate in the more inclusive form of Local Elections.

> 'Sometimes people would be kind of saying: "no, no, I don't have a vote" and you're saying: "yeah, but you can register to vote, you are actually entitled to vote". Now possibly there's more awareness among that sector of voters that they can do that, but they're not as mobilised around it even so'. (Tuffy, 2020).

Further to this, Cllr. Tuffy points to areas in which there have been noted measures to increase registration that may potentially address this issue, highlighting the case of the Adamstown area,

which is located in the Lucan-St. Helen's Electoral Division with 11.8 percent of the registered voters classed as 'L' or 'E' voters. Cllr. Tuffy highlights that some foreign-born individuals may not be aware of their voting rights, and also face a number of unique barriers in terms of having a working understanding of the Irish political system and registration process, while other communities are just as likely to engage as other members of the electorate.

> 'The mobilisation of people to register to vote, like say up in Adamstown, it would be the Indian community I think probably more than anything, and probably people from countries like Pakistan and African countries … who have settled here and are making their lives here… There's loads of people that don't engage at all still, of new residents and that. And you know language difficulties and all that kind of stuff … But there is a group of people who are, they're here long-term. That's how they identify. And they will have bought their own house or whatever, and they're very much mobilised about being integrated into the community and all that kind of stuff. (Tuffy, 2020).

The select examination of 'L' and 'E' voter engagement, which is facilitated by the voting structure of local election contests, provides a somewhat unique insight into the frequently observed low level of engagement among foreign-born groups. While there may be additional barriers to members of foreign-born communities in terms of participating in the electoral process, the above analysis suggests that there does not appear to be the presence of voting along the lines of descriptive representation. In this sense, there is no apparent relationship between engagement levels and the presence of New-Irish candidates, as descriptive representation theory may suggest. Further insight may be gained by examining the second case study area for Local Election 2019 and conducting subsequent statistical and geographical analyses that aim to provide additional specific insight into any potential casual factors that shape overall participation rates and rates of change observed.

7.4 Turnout Trends in the Dublin Fingal Area

In Local Election 2019 there was a wide range in registered voter turnout levels at the Electoral Division level in the LEAs that broadly align with the Fingal Dáil constituency. As displayed in Figure 7.4.1, values range from a low of 24.2 percent in the Airport Electoral Division to a high of 51.3 percent in the Donabate Electoral Division.

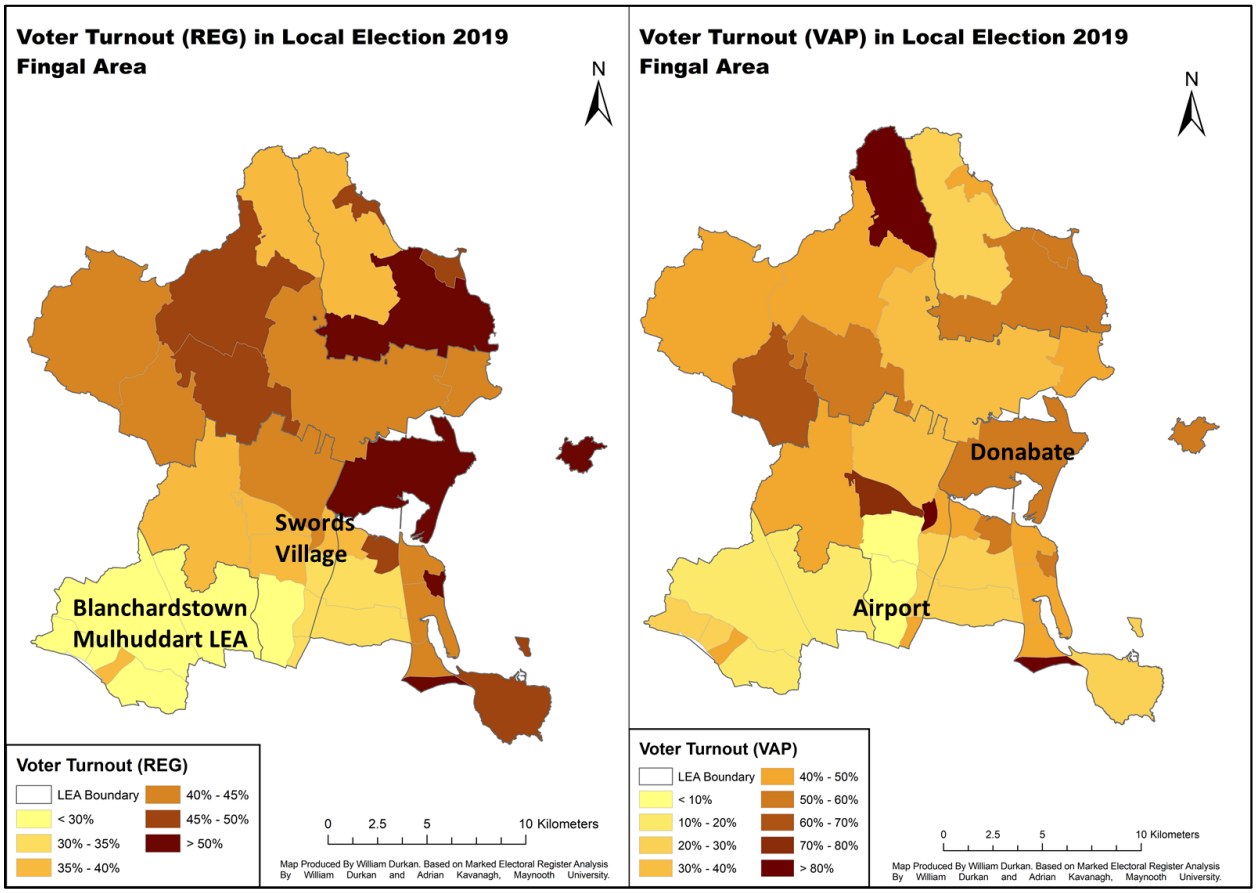


Figure 7.4.1: Voter Turnout in the Fingal Area for Local Election 2019

There is a notable LEA divide in the most extreme registered turnout values, with three of the four lowest values situated in the Blanchardstown-Mulhuddart LEA, which as previously outlined, has a registered turnout value of just 30 percent, the lowest of all LEAs examined. There is a striking comparison between registered turnout figures and voting-age population data in this instance,

with the most extreme values most likely to be significantly impacted by register inaccuracy and misallocation of populations to Electoral Divisions on the register. This potential for misallocation perhaps best accounts for extreme values in the Swords area, with over-registration observed in the Swords Village and Swords-Glasmore Electoral Divisions and significant under-registration recorded in the neighbouring Swords-Forrest Electoral Division. Besides the apparent impact of constituency influences observed in the most extreme low values returned, there is a broad geographical trend in which the highest values tend to be located along the coast in the more middle-class areas, while the more western areas tend to present lower values. This trend is perhaps not as apparent as the suggested LEA divide, and less pronounced when the voting-age population data is also considered.

Registered voter turnout may also be examined from a temporal perspective in order to provide additional insight into the potential casual factors that influence observed trends, as observed in Figure 7.4.2. In this example, some areas of severe decline in participation rates from Local Election 2014 to Local Election 2019 again suggests a potential LEA divide in the rates of change observed. In this respect, the Balbriggan LEA provides an example of an area that has a significant net increase in participation, with only one area experiencing a decline in participation, a decline which is relatively small. While the Blanchardstown-Mulhuddart LEA has previously been identified as having a particularly low turnout level, the majority of Electoral Divisions have also seen a significant decline from the previous Local Election in 2014, with only one electoral Division demonstrating a slight increase in registered voter participation in Local Election 2019. In terms of changes recorded in individual Electoral Divisions, the most extreme decline of -16.1 percent is observed in Blanchardstown-Tyrrelstown. At the other end of the scale, the greatest increase of 7.9 percent was recorded in the Swords-Lissenhall Electoral Division. While some potential causal factors of participation change between the two electoral contests may be attributed to influences at the LEA scale, this only accounts for some variation in changing participation levels, with a great deal of variance beyond observed LEA trends also present.

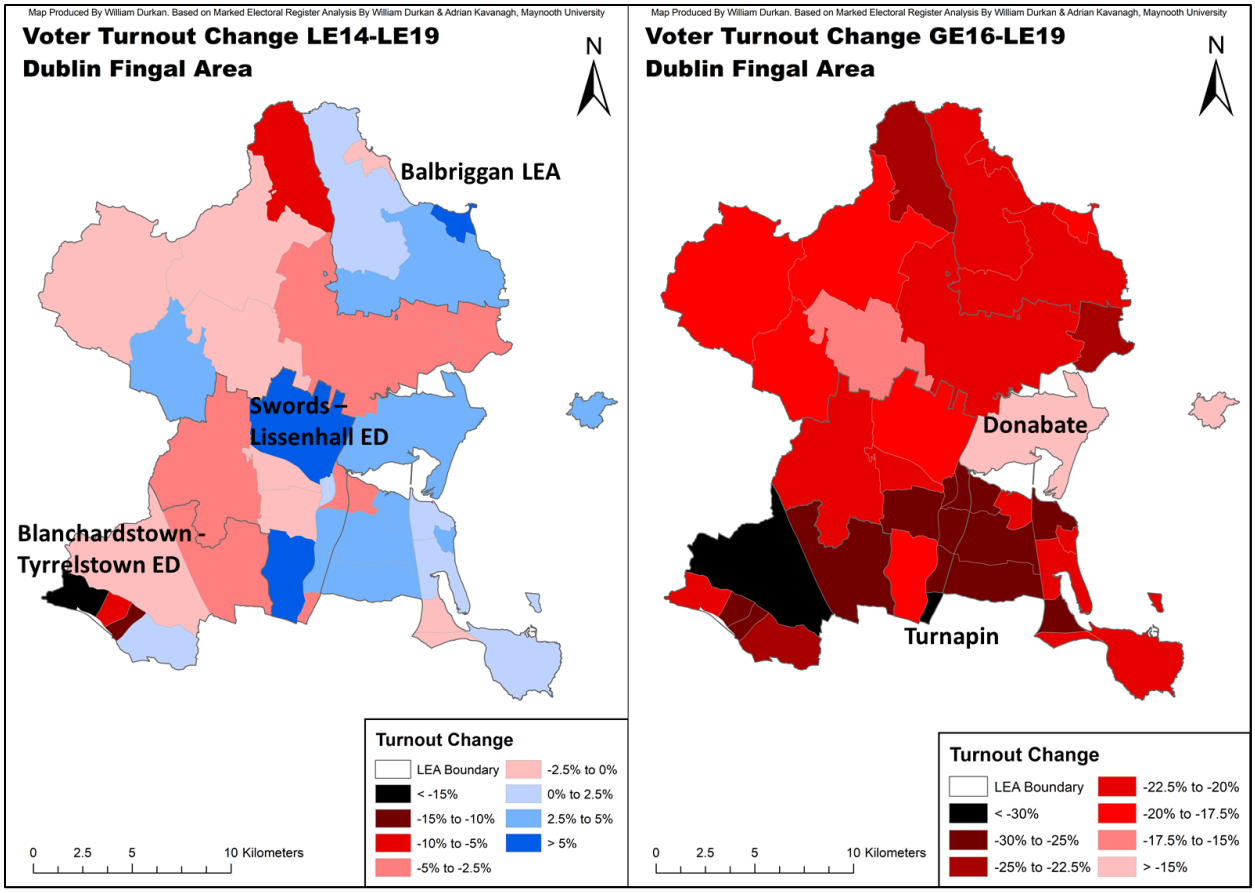


Figure 7.4.2: Voter Turnout Change in the Dublin Fingal Area 2014-2019

With regard to changes observed in relation to other electoral contests in the area, in a similar manner to the Dublin Mid-West case study, a broad decline can be observed in participation from General Election 2016 to Local Election 2019. As demonstrated in Figure 7.4.2, this decline is not uniform across the case study area, with many Electoral Divisions having a more pronounced rate of decline.

Decline ranged from a modest rate of -12.3 percent in the Donabate Electoral Division to an extreme decline of -33.1 percent in the Turnapin Electoral Division. The most extreme values in terms of decline do not have a strong trend associated with specific LEAs. However, there are significant extreme declines in the Swords LEA. A potential LEA divide in values is more apparent when considering the least extreme rates of decline, with the Rush-Lusk LEA having a number of areas that have a relatively small rate of change. Outside of the most extreme values examined, some LEAs have a broad trend of significant decline, such as the aforementioned Swords LEA,

and also the Blanchardstown-Mulhuddart LEA, which was previously identified as having a notably low rate of participation overall. In this respect however, it must be considered that not all Electoral Divisions in the LEA are in the same Dáil constituency. In this sense, the pocket of significant decline in the south-west part of the Blanchardstown-Mulhuddart LEA may be potentially attributed to a constituency-wide trend in the Dáil election.

7.5: Foreign-Born Voters and New-Irish Candidates in the Fingal Area

To return to the specific examination of trends in the 2019 Local Election contest, the proportion of registered 'L' and 'E' voters may be examined separately, in the same manner as the previous Dublin Mid-West case study. In terms of the overall trends apparent in 'L' and 'E' voter turnout in the Fingal area, there is a broad range of values observed, as demonstrated in Table 7.5.1. Voter turnout among registered 'L' and 'E' voters ranges from a low of 7.4 percent in the Turnapin Electoral Division to a high of 41.7 percent in the Hollywood Electoral Division. While the previous case study demonstrated no apparent relationship between the proportion of the register made up of 'L' and 'E' voters and the associated level of turnout, this case does suggest that low turnout figures among this select group tend to be located in areas with a lot of 'L' and 'E' voters present, while areas of high turnout among the group tend to be driven by relatively low numbers of select voters present. Similarly, the relationship to support levels for New-Irish candidates demonstrates some mixed results in this instance. While many areas with a high 'L' and 'E' turnout demonstrate a lower level of support for New-Irish candidates, this is not always the case, especially in instances with a high volume of 'L' and 'E' voters on the register. It is clear however that 'L' and 'E' voters frequently tend to have a notably low level of participation in comparison to the overall electorate, especially when considering that this is most pronounced in areas where 'L' and 'E' voter constitute a significant proportion of the registered electorate.

Dublin Fingal Area				
	Electoral Division	**L/E Voters (% Electorate)**	**L/E Voter Turnout**	**New Irish Candidate Support (FPV)**
Low Turnout Area	Turnapin	6.08	7.41	4.96
	The Ward	22.56	8.82	24.21
	Swords-Seatown	11.72	9.03	3.40
High Turnout Area	Howth	1.92	30.56	0.00
	Holmpatrick	0.67	37.50	1.85
	Hollywood (Dublin)	1.18	41.67	8.16

Table 7.5.1: Areas of Extreme Voter Turnout among Registered 'L' and 'E' Voters and Support Levels for 'New Irish' candidates in the Dublin Fingal area for Local Election 2019

While the above trends may be demonstrated with regard to the most extreme values recorded, there are a number of wider trends when the full case study area is considered, as demonstrated in Figure 7.5.1. When examining the overall level of 'L' and 'E' voter engagement within the area, there is evidence of a divide based along LEA boundaries, with a number of low levels in the Blanchardstown-Mulhuddart and Swords LEAs, and high levels in the Rush-Lusk and Balbriggan LEAs. There is also an apparent divide in this sense with regards to the proportion of first-preference votes received by New-Irish candidates, with high support levels most pronounced in the Blanchardstown-Mulhuddart LEA. Notably, there was no New-Irish candidate present in the Howth-Malahide LEA, hence the absence of support trends in this area.

The Howth-Malahide LEA demonstrates that areas of high voter turnout among 'L' and 'E' groups exist even in the absence of a New-Irish candidate. It is important to remember that in all above analyses, turnout figures must be considered with regard to the number of 'L' and 'E' voters in a given area, and support trends must similarly be considered with regard to the number of New-Irish candidates in a given LEA, and the varied support levels that all candidates receive, independent of ethnicity.

When all factors are considered, there is only weak evidence to suggest the possibility that a considerable proportion of the electorate vote along the lines of descriptive representation. Contrary to the expected trend if this were the case, voter turnout among 'L' and 'E' voters often tends to be at its lowest in areas where New-Irish candidates gain a significant proportion of votes overall. This suggests that the potential effects of descriptive representation are not present in this context, even when the number of 'L' and 'E' voters and existence of strong New-Irish candidates is considered.

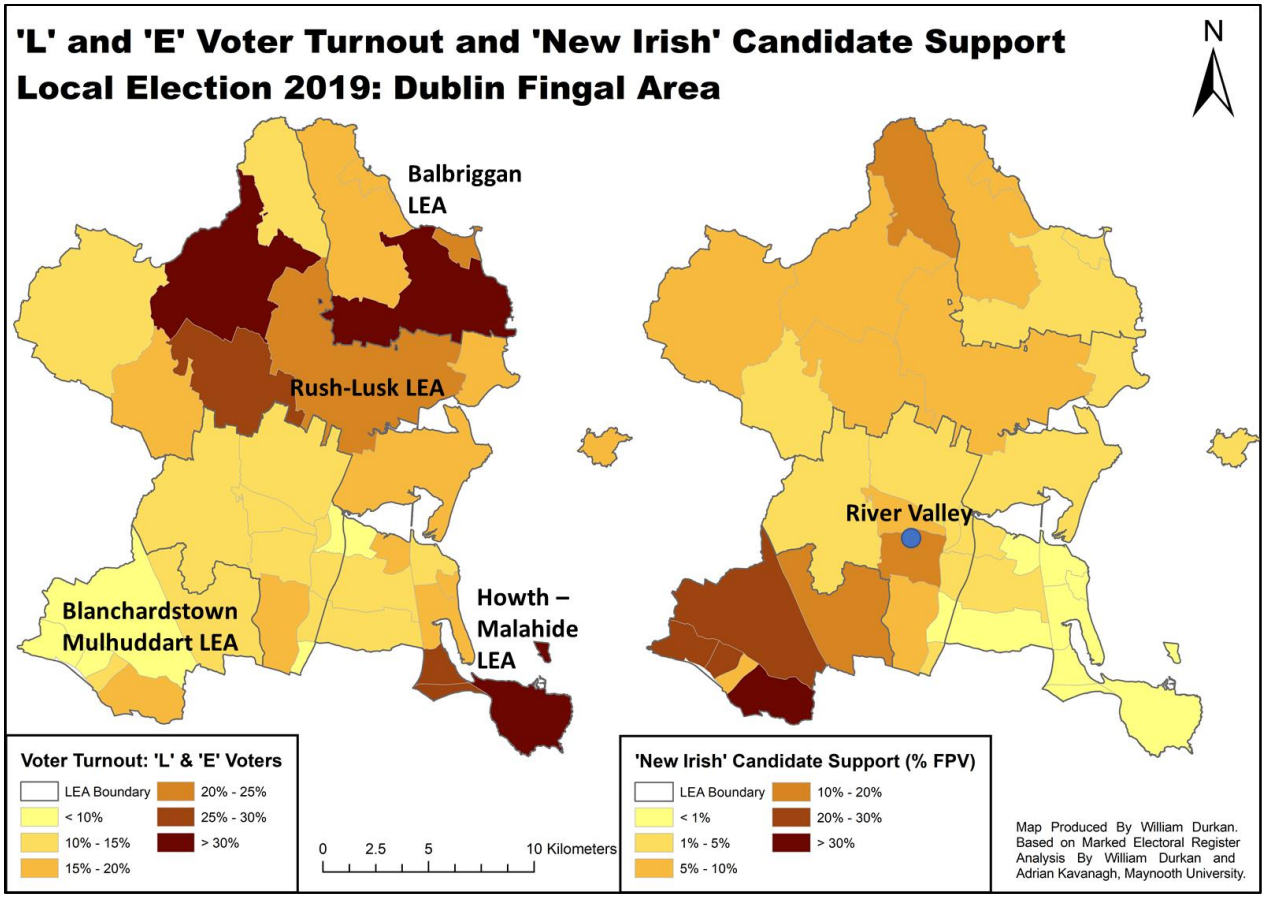


Figure 7.5.1: Voter Turnout among Registered 'L' and 'E' Voters and Support Levels for 'New Irish' candidates in the Dublin Fingal area for Local Election 2019

Dublin Fingal TD Deputy Darragh O'Brien highlights his experiences of engagement with New-Irish citizens in the constituency, outlining that while some groups have a high level of political engagement, often when they become more settled and rooted in the community, many other groups don't engage to the same extent.

> 'Last week I met with the Swords Africa network. I had members of our Indian community in today. They want to get involved, okay. Strangely it's our Eastern-European communities that I find are nearly more difficult to [engage with] … We've a big piece of work to do on that. The Indian community, and I'm just giving you my real-life example, I have a lot of engagement with them. They're substantial in our area…. [you often engage more] when their kids and sons and daughters are going to school here and you see more

> and more buying houses. Look at the Rebuilding Ireland Home Loan scheme… I think actually nearly the majority of the loans offered in the Dublin area were to New-Irish or Non-Irish born citizens… But is the engagement anywhere where it should be? Absolutely not. It's nowhere. It's nowhere close to that. And that's something that I am continually working on'. (O'Brien, 2019).

In terms of New-Irish candidate support levels in the areas for Local Election 2019, Deputy O'Brien points to the example of Paul Uzo, an Independent candidate in the Swords LEA. Originally from Nigeria, Mr. Uzo is a notable New-Irish community activist based in River View in Swords and was narrowly defeated in Local Election 2019 following elimination on the eleventh count. (Phelan, 2020). Deputy O'Brien highlights the success of the campaign and broad support in the area, while noting that turnout among foreign-born communities was quite low and suggesting that voting along the lines of descriptive representation does not appear to be a notable trend in the area.

> 'Paul first time out got over 500 votes. And I'm actually engaging with Paul quite a lot. There was a lot of excitement around his campaign within the community. The turnout wasn't anywhere close to where it should have been, but he did really well, and he was very proud of himself to do that… Will people engage more with their own candidate? Possibly. It's like people saying "do women vote for women? Do men vote for men?" I don't think so… I don't want that. I want people to vote for people because they're good or because they agree with what they're doing. Paul was able to generate a lot of interest in his campaign'. (O'Brien, 2019).

While there is no evidence to suggest voting along the lines of descriptive representation in both examples provided, there is evidence to highlight the low level of engagement from 'L' and 'E' voters overall. This is a significant trend in itself, as low levels of engagement from any select cohort within a community that may have unique needs from the political system may potentially lead to instances of legislative neglect.

7.6: Socio-economic and Demographic Influences on Local Election Turnout

In order to investigate the potential associations between voter turnout trends and socio-economic and demographic characteristics, both case study datasets are combined to increase the robustness of statistical testing. The full dataset constitutes forty-nine Electoral Divisions in total, with the relevant socio-economic and demographic data drawn from Census 2016 information. While this analysis is again constrained by the time difference of three years between the Census in 2016 and election in 2019, the analysis is still considered to be viable due to the moderate volume of observations included. As with previous analyses, both measures of voter turnout data have a relatively normal distribution, which deems them suitable to apply a Pearson correlation method. While the majority of independent variables also have a relatively normal distribution, those considered to have a lower degree of normality were also examined using a logistic value, and also with a Spearman correlation to evaluate based on the rank of values. This process identified no significant difference in findings, and as such, correlation coefficient values are generated using the Pearson method in order to ensure comparability over all observations. The varying coefficient values and their associated degree of statistical reliability, represented with the P-value, may be observed in Table 7.6.1. Again, as with previous analyses, specific reliability levels are undetermined, with a raw P-value presented so that the reader may interpret as appropriate and view the true extent of difference in values observed. The correlations are applied to both the registered voter turnout data and the voting-age population data in this analysis. In Table 7.6.1, variables that are identified as having a notable association with both measures of participation considered are highlighted as potential causal associations in this instance.

Local Election 2019				
	Voter Turnout (REG)		Voter Turnout (VAP)	
Variable	Pearson Coefficient	P-Value	Pearson Coefficient	P-Value
PC 18-29*	**-0.6652925**	1.84E-07	**-0.2888787**	0.0441
PC 30-49*	**-0.536927**	6.97E-05	**-0.5235402**	0.0001133
PC 50-64*	**0.6634325**	2.05E-07	**0.5514374**	4.02E-05
PC 65+*	**0.6005047**	5.08E-06	**0.4756425**	0.0005523
PC Single*	**-0.6967936**	2.68E-08	**-0.4400278**	0.001557
PC Married*	**0.6217254**	1.86E-06	**0.3615347**	0.0107
PC Foreign Born*	**-0.572927**	1.69E-05	**-0.4740367**	0.0005802
PC White Irish Traveller	**-0.3676667**	0.009351	0.1558788	0.2848
PC Same Address	0.2382617	0.09923	0.2762731	0.05466
PC Owned*	**0.7628841**	1.87E-10	**0.5352768**	7.41E-05
PC Rent*	**-0.7483718**	6.35E-10	**-0.5183438**	0.0001361
PC LA Rent	**-0.4413772**	0.0015	-0.2280533	0.115
PC Working	-0.2385517	0.0988	-0.2674503	0.06319
PC Unemployed*	**-0.5805298**	1.23E-05	**-0.3011038**	0.03552
PC Retired*	**0.6374265**	8.43E-07	**0.487789**	0.0003778
PC Student	0.09557872	0.5136	0.1720712	0.2371
PC Category One	**0.5738346**	1.63E-05	0.2503939	0.08269
PC Category Two	**-0.5007734**	0.000248	-0.1808207	0.2137
PC Lower Education	-0.02912218	0.8425	-0.2596679	0.07158
PC Higher Education	**0.3433082**	0.01573	0.08556659	0.5588
Pobal REL 2016	0.2595861	0.07167	0.0156986	0.9147

* A notable correlation observed with both measures of voter turnout

Table 7.6.1: Pearson Correlation between Voter Turnout and Socio-Economic and Demographic Variables in Local Election 2019

In this analysis there are a number of strong associations highlighted between voter turnout levels and socio-economic and demographic variables. The most uniform observations are noted in the case of the age variables considered. In this respect, older populations are notably more likely to participate on Election Day. This is also reflected in the martial status variables, with a higher rate of marriage associated with higher voter turnout. Some of the strongest relationships observed are again associated with homeownership rates. In this case, there is a very pronounced tendency for

voter turnout to be higher in areas where people live in owner-occupied housing. While associations with employment and education are less uniform in this analysis, there is a moderate negative association observed between turnout and unemployment levels. The final variables that are suggested as having a strong association with voter turnout levels are those relating to ethnicity, with a negative association observed between the proportion of the population classed as 'foreign-born' by both measures of turnout. While not as pronounced, the registered turnout analysis also suggests a negative association between turnout and those classed as 'White Irish Travellers'.

Associations between voter turnout trends and socio-economic and demographic characteristics in a given areas for Local Election 2019 may be further examined with regard to the temporal data. In this analysis it is again important to note that registered turnout measures are used to examine rates of change, as voting-age population data would be based on the same population statistics in all instances, with more variation in levels accounted for in the registered turnout data. It is also worth noting in this respect that as the population statistics would hold relatively constant, the rates of change would remain broadly reflective of the trends in both turnout measures should both be applied. As displayed in Table 7.6.2, there are a number of relationships observed between areas of significant registered turnout change and select characteristics across the three electoral contests examined.

In this analysis, age is again seen to have an apparent association with rates of change, with turnout decline from both previous elections more pronounced in areas that have a large proportion of the population in the 18-29 age cohort. This age-association is again reflected in the marital status variables, with decline more pronounced in areas that have a large 'single' population. Rates of change again have a notable association to housing variables in this analysis, with decline more pronounced among renters, and especially pronounced when Local Authority renters are considered independently. There are also a number of trends observed in relation to employment, with a strong decline among areas with high levels of unemployment and decline less pronounced in areas with a large proportion of the population working in 'category-one' employment, with a higher overall level of education. Given the observed relationship between rates of change and a number of variables associated with 'affluence' and 'deprivation', it is perhaps unsurprising that there is a notable correlation returned for the Pobal Deprivation Index also, with decline more pronounced in areas with a higher level of deprivation.

Voter Turnout Change (REG)				
	Local Election 2014-2019		General Election 2016-Local Election 2019	
Variable	Pearson Coefficient	P-Value	Pearson Coefficient	P-Value
PC 18-29*	**-0.4698953**	0.0006579	**-0.361741**	0.01065
PC 30-49	0.102324	0.4842	-0.09306678	0.5248
PC 50-64	-0.05669932	0.6988	0.1635933	0.2614
PC 65+	0.1309231	0.3699	0.1913026	0.1879
PC Single*	**-0.3690668**	0.009064	**-0.397488**	0.004682
PC Married*	**0.4456602**	0.001332	**0.391553**	0.0054
PC Foreign Born	0.08191411	0.5758	-0.1535454	0.2922
PC White Irish Traveller	**-0.3336905**	0.01912	-0.2130684	0.1416
PC Same Address	**-0.5128179**	0.0001649	-0.005824987	0.9683
PC Owned*	**0.3766957**	0.007634	**0.3038374**	0.0338
PC Rent*	**-0.3874198**	0.005955	**-0.3390244**	0.01717
PC LA Rent*	**-0.6530686**	3.66E-07	**-0.3395503**	0.01699
PC Working	**0.4929857**	0.0003197	0.06195494	0.6724
PC Unemployed*	**-0.6906123**	3.99E-08	**-0.3962847**	0.00482
PC Retired	0.1560505	0.2843	0.1867806	0.1988
PC Student	**-0.3942591**	0.005061	0.03484671	0.8121
PC Category One*	**0.6266389**	1.46E-06	**0.3587761**	0.01136
PC Category Two	**-0.642272**	6.54E-07	-0.08542269	0.5595
PC Lower Education	**-0.6624394**	2.17E-07	-0.2096751	0.1482
PC Higher Education*	**0.6609827**	2.35E-07	**0.2494373**	0.08391
Pobal REL 2016*	**0.7276458**	3.16E-09	**0.3427621**	0.01591

* Variables identified as having a notable correlation in the same direction for both rates of turnout change

Table 7.6.2: Pearson Correlation between Rates of Voter Turnout Change and Socio-Economic and Demographic Variables in Local Election 2019

The pronounced level of decline in areas identified must also be considered in the context of the mobilisation of voters in previous elections, a mobilisation of select groups that was arguably much less pronounced in Local Election 2019. This is highlighted by Cllr. Joanna Tuffy in relation to the mobilisation of communities in response to government-backed water charges at the time of previous elections.

> I suppose there was obviously a lot of mobilisation over the water charge [in Local Election 2014]. So, there's a mix of things I suppose. People protesting, but also, it's been mobilised too by the people who are behind it… So, when the voters mobilised, it very much was more emotional mobilising to come out and vote against the Labour party as much as anything else. You know, there's a particular thing that's going on, but that wasn't present in 2019'. (Tuffy, 2020).

Overall, the investigation of the relationship between turnout and rates of turnout change from preceding elections suggests that areas with characteristics traditionally associated with low levels of engagement experienced the most decline in terms of turnout for Local Election 2019. This leads to a scenario in which turnout is notably lower than previous contests in affected areas, with a wider gap exiting between areas of traditionally high and traditionally low turnout. Further analysis and the construction of linear regression models may provide further insight into the factors which may contribute to observed trends and changes in the case study areas.

7.7: Regression Model Analysis of Local Election Trends

While a number of notable trends are identified in the analysis of individual socio-economic and demographic influences, the application of multiple regression model analysis serves to provide a more comprehensive insight into potential casual influences on participation levels and rates of change. This process also facilitates the identification of the extent to which chosen variables shape overall participation levels and serves to identify areas in which other factors may have a significant impact.

The registered turnout model construction process produces a relatively robust model, given the somewhat limited datapoints in this analysis, and identifies a number of notable associations between select characteristics and registered voter turnout levels in Local Election 2019. As outlined in Figure 7.7.1, the chosen predictor variable account for over 73 percent of the variability in the data.

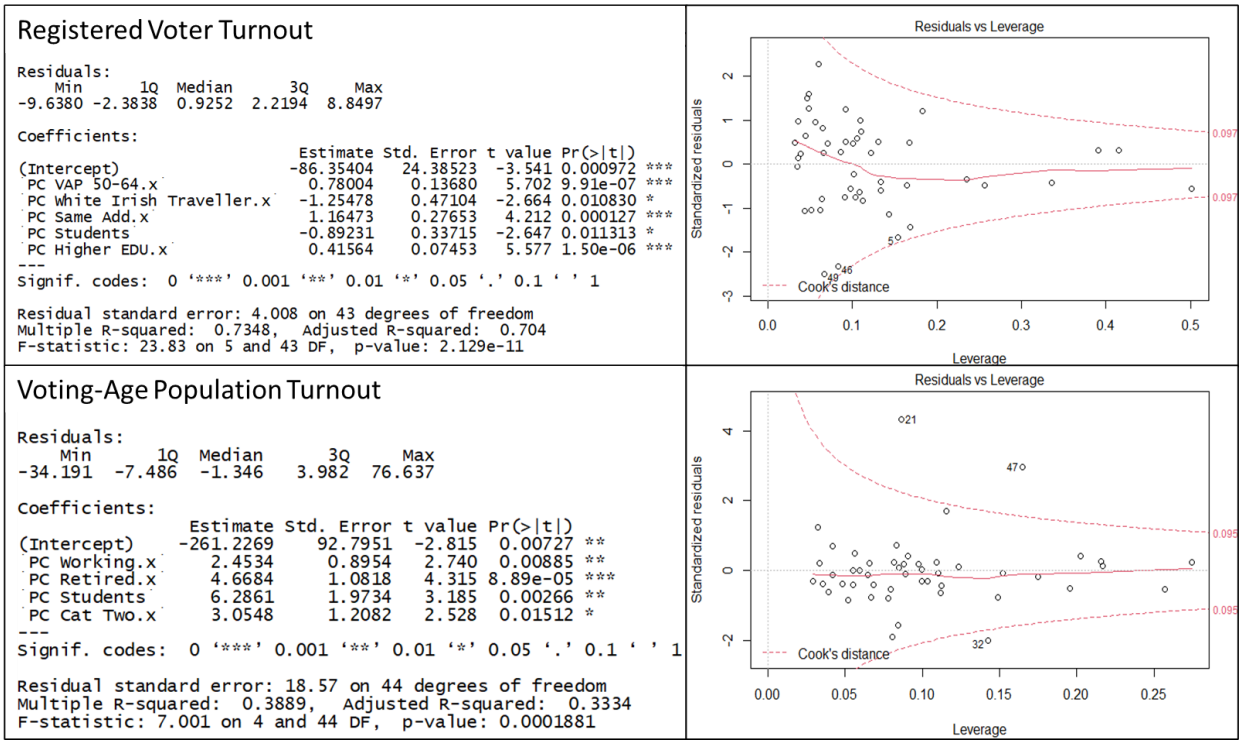


Figure 7.7.1: Linear Regression Model Analysis of Voter Turnout in Local Election 2019

Similarly, the estimated eligible voting-age population model also produces a relatively robust model which identifies a number of notable relationships. However, in this instance, there is a much lower level of variability accounted for in the data, with a resultant R^2 value of less than 39, and a less reliable overall p-value.

The comparison of variables identified by each model as having a significant relationship with voter turnout levels points to a number of differences and similarities between models. The most notable difference in this instance is the contradictory relationship identified for the proportion of the population classed as students. Besides some notable inconsistencies between both measures of turnout considered, both models identify a positive association with older populations. In terms of the registered turnout data, there is a positive association between turnout levels and the proportion of the population in the 50-64 age cohort. While the final voting-age data model does not include age variables directly, there is a notable positive association between turnout levels and the proportion of the population classed as 'retired', a variable with a logical association to older age cohorts.

Further to these variables, the register turnout model suggests a positive association between turnout and the proportion of individuals at the same address for over one year, a variable that indicates an increased degree of residential stability in the community. The model also points to a positive association with education levels, with neither of these associations reflected in the voting-age turnout data. The voting-age turnout data again presents a potentially contradictory finding in the case of education in terms of the positive association with turnout and 'category-two' employment. While not directly contradictory, areas with more individuals in 'category-two' employment relative to those in 'category-one' employment tend to have lower levels of overall education. The findings in terms of employment variables must also be considered in the context of the previously identified negative association between turnout levels and unemployment levels. In this instance, while unemployment is not identified as a notable variable, the variables that examine the proportion of the population that are 'working', working in 'category-two' employment, 'retired', and 'students', all broadly tend to be higher in areas with low unemployment. The final variable to note in this investigation is that of the proportion of the population that are members of the Traveller community. As with previous case studies, this select group within society is again identified in this instance as having a notable association with low levels of voter engagement.

Overall, the application of liner regression model analysis identifies a number of potential influences among the chosen variables. In most instances, these tend to be variables that are traditionally seen to influence turnout levels, with a very high level of variability in the data accounted for by the registered turnout model. This may suggest that the effect of traditionally influential variables is even more pronounced in local level elections. Further consideration of the temporal trends in turnout levels and the consideration of additional geographical factors may provide further insight in this regard.

The rates of registered turnout change from Local Election 2014 to Local Election 2019 are examined through the construction of three separate models that account for similar degrees of variability in the data and consists of different variations of available predictor variables. The three iterations of this model, as viewed in Figure 7.7.2 account for 56-60 percent of all the variability in rates of change observed. Models A and B include all available datapoints, while Model C has four extreme outlier values removed in order to produce a stable model.

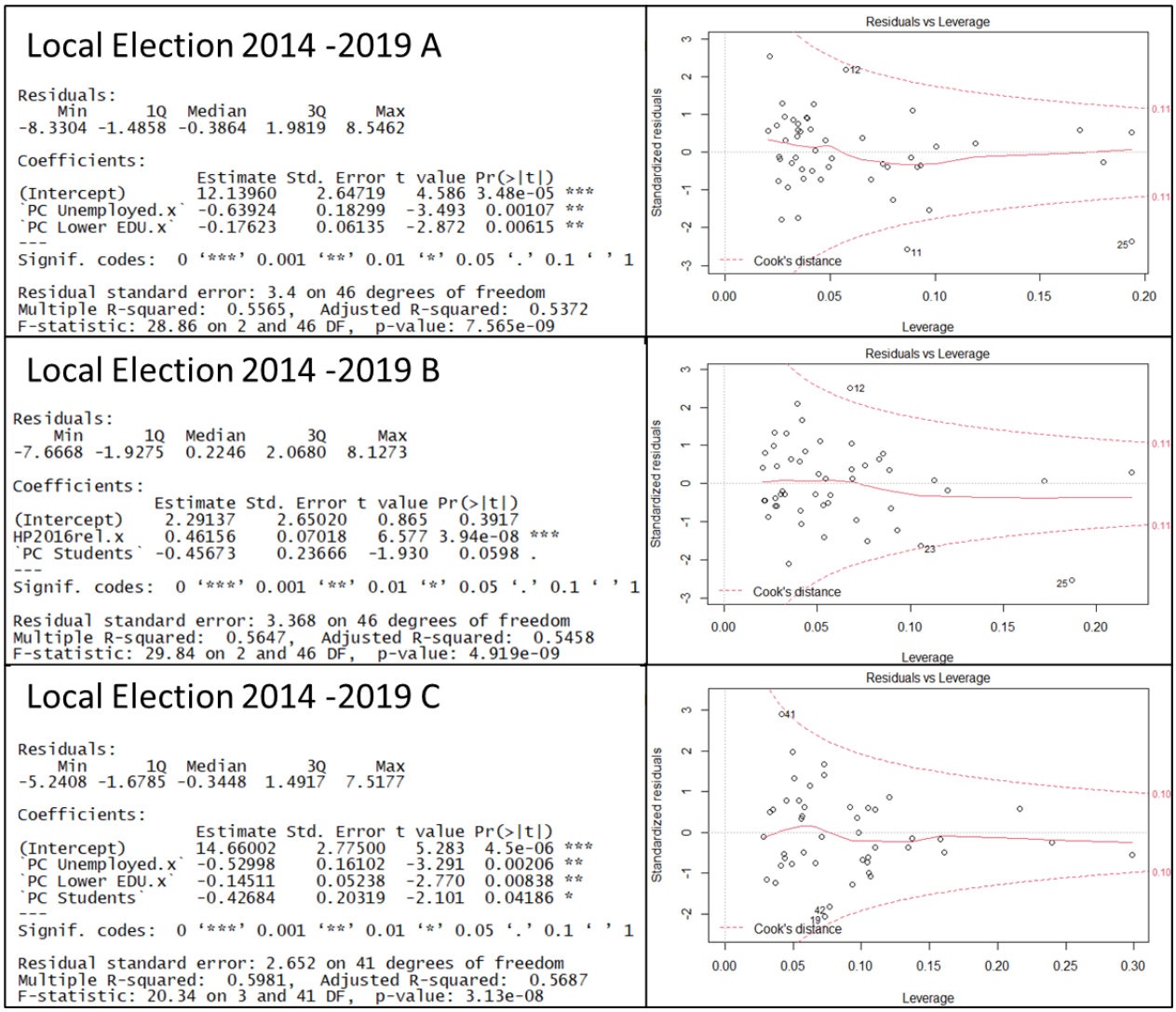
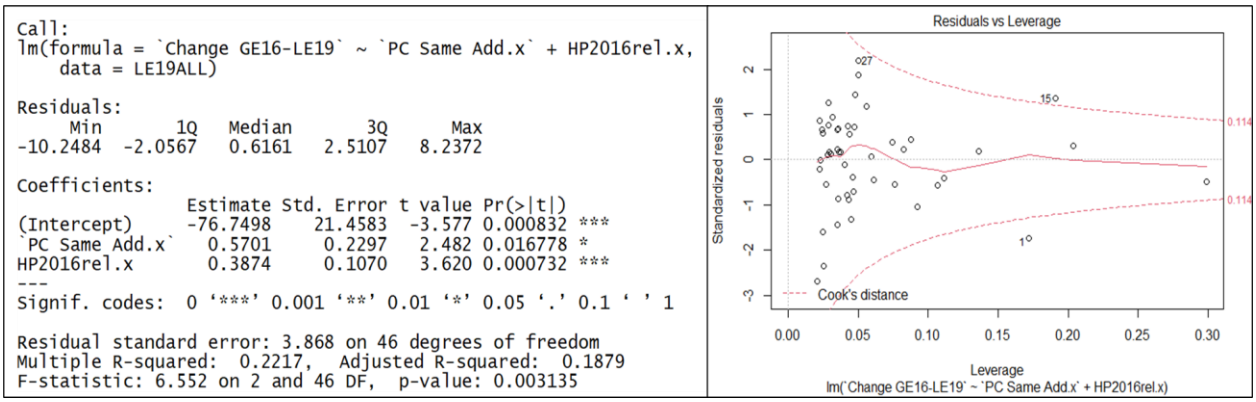


Figure 7.7.2: Regression Model Analysis of the Rates of Registered Turnout Change from Local Election 2014 to Local Election 2019

Across all iterations of this model, there are a number of similarities and differences in terms of the potential relationships identified. Model A points to pronounced turnout decline in areas that have large populations that are unemployed and areas with large population in the 'lower education' cohort. Given that these are factors which are broadly associated with overall 'deprivation', it is perhaps unsurprising that Model B identifies a notable association between rates of turnout change and the Pobal Deprivation Index, with turnout decline again more pronounced in areas with significant 'deprivation'. Model B also suggests pronounced turnout decline in areas

with a large student population. However, this observation is less statistically reliable. Model C accounts for just under 60 percent of all variation, and with outlier values removed, suggests that there is a pronounced decline in voter turnout in areas that have a significant student population, a significant proportion of the population with a 'lower' level of education, and high levels of unemployment. The clearest broad association which emerges from the regression analysis is the apparent decline in more 'deprived' areas. This trend is perhaps partly accounted for by the aforementioned lack of mobilisation of specific areas in 2019 that were previously associated with the water charge protest movement in 2014, a movement that tended to gain much support in less-well-off areas which were particularly impacted by the issue.

The examination of the rates of decline in participation between General Election 2016 and Local Election 2019 via the construction of a multiple regression model suggests that select socio-economic and demographic characteristics are not as influential as in the previous case. In this instance, there is much difficulty in constructing a stable model, which is an expected characteristic of data which lacks a significant level of influence on the dependant variable. However, the most stable version, as viewed in Figure 7.7.3, does suggest a link to both the proportion of individuals at the same address for over one year and the 2016 Pobal Relative Deprivation Index.



```
Call:
lm(formula = `Change GE16-LE19` ~ `PC Same Add.x` + HP2016rel.x,
    data = LE19ALL)

Residuals:
     Min       1Q   Median       3Q      Max
-10.2484  -2.0567   0.6161   2.5107   8.2372

Coefficients:
               Estimate Std. Error t value Pr(>|t|)
(Intercept)    -76.7498    21.4583  -3.577 0.000832 ***
`PC Same Add.x`   0.5701     0.2297   2.482 0.016778 *
HP2016rel.x       0.3874     0.1070   3.620 0.000732 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 3.868 on 46 degrees of freedom
Multiple R-squared:  0.2217,   Adjusted R-squared:  0.1879
F-statistic: 6.552 on 2 and 46 DF,  p-value: 0.003135
```


Figure 7.7.3: Regression Model Analysis of the Rates of Registered Turnout Change from General Election 2016 to Local Election 2019

Both variables included are observed as having a positive association with rates of change, suggesting that overall decline is less pronounced in areas that have a high degree of residential stability and in areas that are more affluent, with more socially deprived areas expected to have a greater decline in voter turnout levels. The overall model in this instance accounts for a notably low level of overall variance in the rates of change observed, with just over 22 percent of all variance accounted for by the predictor variables.

While all models based on socio-economic and demographic variables within each area account for some of the variability in turnout trends, the data may be considered in the context of additional geographical variables that are not included in the model construction process. Voter turnout levels, rates of turnout change, and the resultant standardised residual values from the model construction process may be considered in the context of additional geographical variables. While previous analyses of General Election 2016 included detailed cluster identification techniques, namely LISA and Moran's I statistical testing to identify spatial autocorrelation in residual values, the limited number of datapoints and lack of contiguity in these case study areas makes the application of these techniques unfeasible. As such, residual examination will be included as a factor of interest in the context of subsequently investigated geographical variables.

7.8: Candidate Location and Voter Turnout in Local Election 2019

As with the previous investigation of geographical influences in General Election 2016, the examination of candidate location and the potential influence it may have on voter turnout in Local Election 2019 provides an opportunity to account for some of the spatial variation that exists in turnout values and rates of participation change observed. In order to investigate the impact of candidate location on turnout trends, Electoral Divisions are divided into three categories: those that had a successful candidate present; those that had any candidate present; and those than had no candidate present. For the purpose of this investigation, each candidate is assigned to their 'home' Electoral Division, with candidates that reside outside of the LEA in which they appeared on the ballot excluded from the analysis. Some exceptions are made in this respect for candidates that reside marginally outside of the LEA boundary, with these candidates assigned to the closest

Electoral Division within the relevant LEA in which they contested the election, so as to account for a reasonable local impact based on their location, while also avoiding interference with categories in a neighbouring LEA. In this analysis there is no buffer radius applied, as was the case with the examination of General Election 2016 candidates. The decision not to apply a buffer radius around each candidate location is made based on the perceived increased level of 'localness' in Local Election contests, and also to increase the variability in categories assigned, as the smaller electoral areas and often increased number of candidates would fail to return significant difference among categories if even a small buffer radius is utilised. As displayed in Figure 7.8.1, this process highlights a reasonable level of variation across both case study areas in terms of the geography of candidate location. In each case study area, while the majority of Electoral Divisions have a successful candidate present for Local Election 2019, there are a number of Electoral Divisions that only had a candidate present that was unsuccessful, and also a number of Electoral Divisions that had no candidate present.

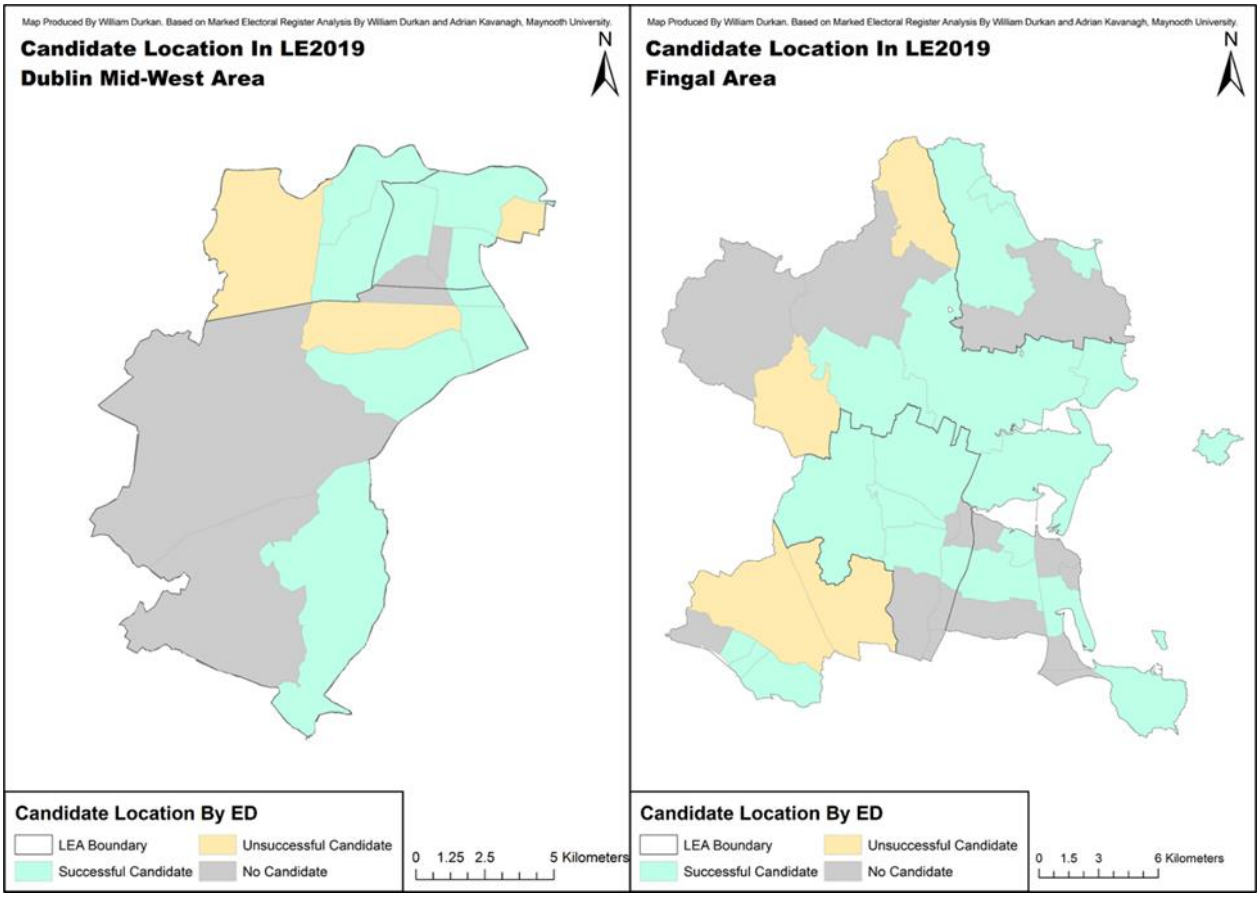


Figure 7.8.1: Candidate Location in Local Election 2019

When considered in the context of voter turnout levels and the various rates of participation change, the candidate location variables highlight a number of areas in which significant values were previously observed. In the case of the Dublin Mid-West area, Clondalkin-Cappaghmore and Clondalkin-Rowlagh are highlighted as Electoral Divisions that lack a Local Election candidate, with both areas having been previous highlighted as areas with notably low voter turnout levels, and areas of significant decline when figures are compared to both Local Election 2014 and General Election 2016. Further to this, the Clondalkin-Dunawley Electoral Division to the south which also displays a notably low turnout level and significant rate of decline, while having a candidate present, does not have a successful candidate in the area.

The potential impact of candidate location may help to explain some of the turnout levels and rates of decline in these low-turnout areas, with a number of relatively high-turnout areas also identified as lacking a successful candidate within the Dublin Mid-West area. This may be observed in the case of the Lucan LEA, which is the highest turnout LEA within the area. Within this LEA, while the Lucan St. Helen's Electoral Division has a candidate present for Local Election 2019, it is the only area without a successful candidate returned. This is also the only area within the Lucan LEA which records a decline in participation between Local election 2014 and Local Election 2019, albeit a relatively slight decline. Any relationship between candidate location, turnout levels, and rates of turnout change is less pronounced in the more rural parts of the Clondalkin LEA, with the inverse-to-expected trends observed in the area. Despite having no Local Election candidates present in the majority of this area, a relatively high level of participation is observed alongside an increase in turnout between local election contests. It is also important to consider that given the more rural nature of this area, there is the potential for the perceived 'locality' of candidates to be unaccounted for when no buffer radius is applied. In this respect, if the 5km radius around the location of candidates that was utilised in the examination of more rural settings in General Election 2016 was applied in this instance, the results would be significantly different.

In the Fingal area, there are again a number of regions in which candidate location may be observed as potentially contributing to levels of voter turnout and rates of change recorded, with this potential association not uniformly observed throughout the area. The potential impact of candidate location on turnout levels may be observed in areas that present some of the lowest turnout figures with the Fingal area. In this respect, Electoral Divisions such as The Ward, Dubber,

and Blanchardstown-Tyrrelstown, in the Blanchardstown-Mulhuddart LEA, all return low turnout figures of less-than 30 percent, with either no candidate present, or no successful candidate present. Not only is there a significantly low level of turnout in these areas, but also a significant decrease in turnout rates when compared to either the previous Local Election in 2014 or the preceding General Election in 2016. Outside of this LEA, there are relatively low levels of participation in the Airport Electoral Division, and also in the Swords-Seatown Electoral Division, with these areas also having a notable lack of candidate presence.

Deputy Duncan Smith, a successful Labour candidate in the 2019 Local Election based in the Swords area, notes that localised votes have a tendency to be very contained during a local election contest, with many voters in the area to lacking a level of rootedness in the community that would encourage localised participation to a greater extent.

> 'For local elections, I pulled the vast majority of my vote from the nine or ten estates around me. So it becomes very, very localised in Local Elections. But the more you go up, I think in a constituency like Fingal as well where you have an awful lot of people who've moved there over the last ten or fifteen years and don't have a historic connection to the constituency. They're moving from Dublin mainly or come up from the country to commute to Dublin for work. They wouldn't be as interested in the fact that someone from Swords is running and they live in Swords. They want to vote for someone who's gonna' represent them well in the Dáil, or some party that matches their views. That's my sense from a very young constituency, and a constituency that's seen an awful lot of growth in population from outside over the last ten or fifteen years'. (Smith, 2020).

The north-west of the Rush-Lusk LEA is the largest contiguous area that has no successful candidate present. In this area, while the overall turnout is not significantly low, it is lower than many parts of the high-turnout Rush-Lusk LEA and demonstrates significant rates of participation decline in comparison to previous elections. Conversely, there are also many Electoral Divisions in which there is a significant presence of successful candidates, an overall high level of turnout, and a notably more positive change in participation from both preceding elections. This includes the Donabate Electoral division in the Rush-Lusk LEA, and also the Howth Electoral Division in the Howth-Malahide LEA.

While these areas all display a potential relationship between candidate location and significant turnout values and rates of turnout change, there are also many areas in which this is not the case. For example, the Holmpatrick Electoral Division in the Balbriggan LEA has a relatively high registered participation rate of over 50 percent, despite there being no candidates located in the area, while the Blanchardstown-Abbotstown, Blanchardstown-Corduff, and Blanchardstown-Mulhuddart Electoral Divisions all display low levels of turnout, despite having successful candidates present.

In order to better determine the potential impact of candidate location on participation trends, an examination of mean values in each candidate location category across all Electoral Divisions in the case study areas is applied. In this sense, despite the aforementioned inconsistencies in some areas, the full examination points to some notable trends. As viewed in Table 7.8.1, there is a notable tendency for mean registered voter turnout levels to be higher in Electoral Divisions which have a successful candidate present, and areas that have any candidate present tend to be still higher than those with none at all. This observed trend appears to exist independently of any socio-economic and demographic influences, with the standardised residuals for the regression models also displaying an apparent association with candidate location. In this respect, models are notably more likely to under-predict turnout levels in areas that have a successful candidate, and less likely to do so in areas which have any candidate present, or no candidate present.

While this trend is consistent across both areas in terms of registered turnout levels, the voting-age population data often displays mixed results, and also suggests an opposite trend in the case of the Fingal area. This is not only reflected in the voting-age turnout levels, but also in the examination of the standardised residual values from the relevant regression models. The aforementioned disparity between registered voter figures and voting-age population data, and the time difference between the census and election in question may play a significant role in these observations, with the registered turnout data perhaps more likely to give an accurate account of turnout levels in this instance. It is also possible that this trend is shaped by a tendency for more rural areas to have a much higher voting-age turnout, as outlined in Chapter Five, with these areas often tending to be most removed from candidate locations.

Average Values	Fingal Area			Dublin Mid-West Area		
	Successful Candidate	All Candidates	All Areas	Successful Candidate	All Candidates	All Areas
Voter Turnout (REG)	41.1	39.75	39.62	40.43	40.03	38.53
Model Residuals: Voter Turnout (REG)	0.26	0.09	-0.04	0.26	0.12	0.07
Voter Turnout (VAP)	38.60	42.04	43.83	34.44	37.93	36.76
Model Residuals: Voter Turnout (VAP)	-0.24	0.03	0.06	-0.26	-0.25	-0.13
Turnout (REG) Change LE14-19	-0.48	-0.79	-0.79	-0.76	-2.04	-2.63
Model A. Residuals: Turnout Change Le14-19	0.13	0.03	-0.13	0.57	0.24	0.3
Model B. Residuals: Turnout Change Le14-19	0.15	0.05	-0.1	0.52	0.22	0.24
Model C. Residuals: Turnout Change Le14-19	0.81	0.55	0.53	0.11	0.16	0.10
Turnout Change GE2016-LE2019	-21.76	-22.27	-22.70	-22.29	-22.89	-23.55
Model Residuals: Change GE16-LE19	0.20	0.03	-0.05	0.32	0.18	0.13

Table 7.8.1: Candidate Location and Voter Turnout Trends

The impact of candidate location may also be examined in this manner by considering any potential impact on rates of change between elections, and also by comparison of candidate location categories with the resultant standardised residual values from these models. As Table 7.8.1 outlines, the rates of change between Local Election 2014 and Local Election 2019 appear to have a notable association with candidate location, with decline significantly more pronounced in areas that have no successful candidate, and especially pronounced in areas that are void of any candidate in 2019. Similarly, the standardised residual values for all three models applied to the rates of turnout change between local election contests also display a notable association with candidate location. In this sense, all models are likely to have more positive residuals in areas where successful candidates are present, with more negative residual values in areas that are void of candidates.

When the rates of registered turnout change between General Election 2016 and Local Election 2019 are examined, a similar trend emerges, in which turnout decline is more pronounced in areas that are void of candidates, and less pronounced in areas in which there is a candidate present, with this trend especially pronounced when a successful candidate is present. The widely observed association with candidate location may be further explored in the context of fitting the existing models with an additional variable to better account for this influence.

In a similar manner to the examination of candidate location and potential influences in General Election 2016, the candidate location data for Local Election 2019 may be inserted into existing regression models as a factor variable in a binary format in order to better account for any

association between participation rates and the location of candidates. This process can also provide a better understanding of the extent of variability in data accounted for when candidate location is considered alongside socio-economic and demographic factors that are previously determined to have a notable association with turnout trends.

As displayed in Figure 7.8.2, when the presence of a successful candidate within a given Electoral Division is considered, it has a notable positive influence on registered voter turnout levels, with a reasonable degree of reliability given the relatively low number of datapoints across all candidate location categories within the select case study areas. While the model adds further weight to the suggestion that candidate location has a significant impact on voter turnout levels in a given area, this process also outlines the increased proportion of variability that the model accounts for when this factor is considered. In this respect, the inclusion of the variable in the model leads to a final iteration which accounts for almost 76 percent of all the variability in registered voter turnout levels recorded. This is a 3 percent increase from the previous iteration. While this is a relatively small increase in the R^2 value, this is a significant increase given the high level of overall variability accounted for. The voting-age population turnout data fails to return a result that is statistically reliable when candidate location data is included.

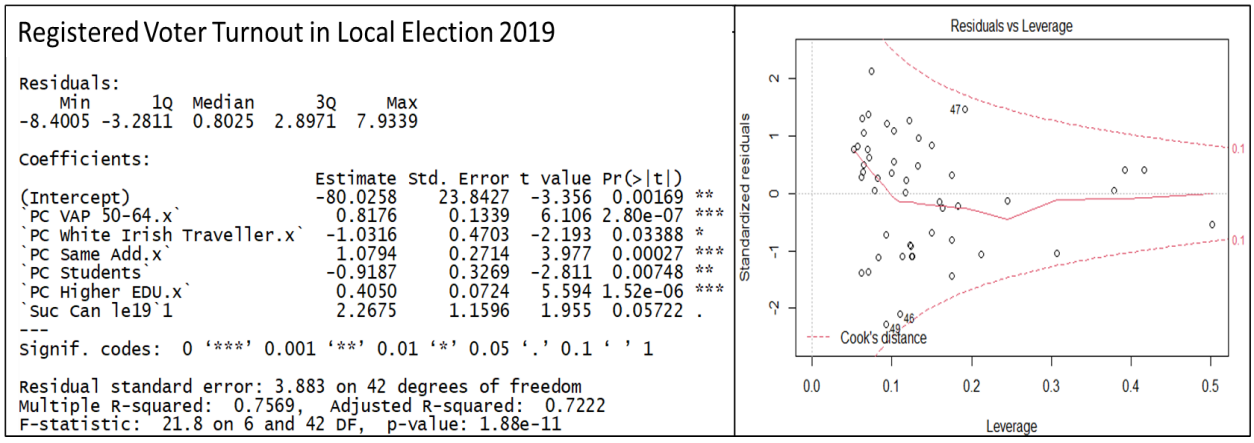
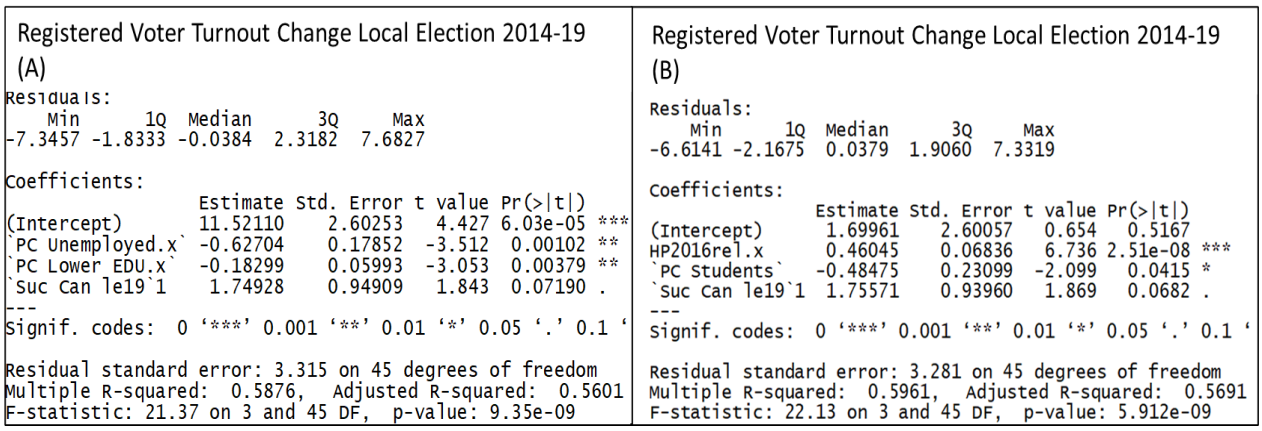


Figure 7.8.2: Regression Model Analysis of Registered Voter Turnout in Local Election 2019 with Candidate Location Included

The inclusion of the candidate location variables in the models that examine various rates of change also points to a positive association between areas with successful candidates and areas with a more positive turnout change between Local Election 2014 and Local Election 2019. In this respect, two of the three models return valid findings, as viewed in Figure 7.8.3, with the third model failing to demonstrate a statistically reliable result. It is worth noting in this sense that the third model, which has extreme outliers removed, has an even lower number of datapoints and a more pronounced lack of significant differentiation among candidate location categories, with these factors undoubtedly contributing to the lack of a valid output.



Registered Voter Turnout Change Local Election 2014-19 (A)

```
Residuals:
    Min      1Q  Median      3Q     Max
-7.3457 -1.8333 -0.0384  2.3182  7.6827

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)     11.52110    2.60253   4.427 6.03e-05 ***
`PC Unemployed.x` -0.62704    0.17852  -3.512  0.00102 **
`PC Lower EDU.x`  -0.18299    0.05993  -3.053  0.00379 **
`Suc Can le19`1    1.74928    0.94909   1.843  0.07190 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘

Residual standard error: 3.315 on 45 degrees of freedom
Multiple R-squared:  0.5876,   Adjusted R-squared:  0.5601
F-statistic: 21.37 on 3 and 45 DF,  p-value: 9.35e-09
```

Registered Voter Turnout Change Local Election 2014-19 (B)

```
Residuals:
    Min      1Q  Median      3Q     Max
-6.6141 -2.1675  0.0379  1.9060  7.3319

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)      1.69961    2.60057   0.654   0.5167
HP2016rel.x      0.46045    0.06836   6.736 2.51e-08 ***
`PC Students`   -0.48475    0.23099  -2.099   0.0415 *
`Suc Can le19`1  1.75571    0.93960   1.869   0.0682 .
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘

Residual standard error: 3.281 on 45 degrees of freedom
Multiple R-squared:  0.5961,   Adjusted R-squared:  0.5691
F-statistic: 22.13 on 3 and 45 DF,  p-value: 5.912e-09
```

Figure 7.8.3: Regression Model Analysis of Registered Voter Turnout Change from Local Election 2014 to Local Election 2019 with Candidate Location Included

Both models that return significant findings highlight the sizable positive association between areas with successful candidates and a more positive change in participation levels, even when the socio-economic and demographic characteristics of a given area are also considered. When the candidate location variable is included, models both demonstrate an increased R-squared value, with the models respectively accounting for 59 percent and 60 percent of the variability in rates of change observed. This trend is not observed to the same extent when the rates of change from the preceding General Election in 2016 are considered, with no reliable results returned in this instance.

While some forms of analysis return mixed results, there is a strong suggestion that there is a positive association between candidate location and voter turnout, in particular, candidates that are successful. The resultant findings may point to a trend in which areas that have a strong candidate present during an electoral contest tend to have a notably higher level of turnout on Election Day. Given the well documented process of 'friends and neighbours' voting (Pattie and Johnston, 2009: 412; Kavanagh, 2016), and the potential for this effect to be even more pronounced in a local election contests, it stands to reason that local mobilisation efforts by a strong candidate can raise the turnout level of their given community significantly. By contrast, communities without a strong candidate present may be less likely to experience a focused mobilisation effort, and also may be less likely to participation as no available candidate is perceived as an obvious 'local promoter' for issues within their community. (Gallagher & Komito, 2010: 230). While the effect may not be adequately captured at the Electoral Division scale for local election contests, due to smaller-scale localised mobilisation, there is still evidence to suggest a notable relationship in this analysis.

The second related suggestion is not that a strong candidate produces a strong turnout area, but rather that a strong turnout area produces a strong candidate. In this sense, if a given socio-economic group, demographic group, or given area is mobilised, this broader mobilisation and the local nature of voting trends may determine who the subsequently successful candidates are. In either interpretation, a constant remains in which areas that are void of any candidate are less likely to have a strong resultant level of turnout and are subsequently left at a potential disadvantage when it comes to equality of representation for that community.

7.9: The Impact of Boundary Revisions on Voter Turnout

Another geographic factor which may have a significant impact on turnout levels and rates of change within a given area is the boundary revision process. While this process takes place in a similar manner to the process of general election boundary revision, as previously examined in Chapter Five, there are also some notable differences. The responsibility for the revision process lies with the Minister for Local Government, with an independent commission appointed in order to produce a boundary report which outlines suggested changes in advance of each election. This

report aims to construct Local Electoral Areas in line with the terms of reference provided to them, which outlines the need to ensure a reasonable degree of proportionality in terms of the population-per-seat ratio, and also the suggested number of members in each area. In this sense, the process differs from the previously examined general election constituency revision process. For the 2019 Local Election, the report aimed to construct Local Electoral Areas with between 5-7 seats in Co. Dublin, and 3-7 seats in the rest of the country, with the smaller seat options only to be considered in certain circumstances. (Government of Ireland, 2018). This highlighted a significant change from the previous terms which outlined a broader range of 6-10 members in each area. (Government of Ireland, 2013). Significant changes in this respect are perhaps the biggest difference between local election boundary revisions and those of a general election constituency revision. A significant change such as this leads to a process in which many boundaries are reconstructed, with new Local Electoral Areas created, and many Electoral Divisions moved across existing boundaries in order to accurately 'balance the books' in terms of proportionality.

In both case study areas examined, the above outlined changes produced some significant differences between 2014 and 2019, with these differences potentially having a significant influence on the electorate that is directly affected. Any potential impact in this respect may be more difficult to directly quantify and determine when compared to the previous General Election 2016 analysis, as not only do some areas find themselves in a different LEA than the previous contest, but many of these areas are newly created, or perhaps are constructed by splitting an existing area. In this sense, an Electoral Division is more difficult to assign a binary value based on revisions, and as such, a broad geographical comparison is perhaps a more appropriate manner in which to initially assess potential impacts on the electorate, prior to any form of inclusion in existing models.

In the case of the Dublin Mid-West region in South County Dublin, there are a number of significant changes between Local Election 2014 and Local Election 2019 in terms of Local Electoral Area form, as may be viewed in Figure 7.9.1. The changes that are relevant to the case study areas examined see the Lucan LEA returned in a much smaller form, and the creation of a new Palmerstown-Fonthill LEA which incorporates some of the old Lucan area, and also a significant area that was previously within the Clondalkin LEA. This is not the only change to the old Clondalkin LEA, with the Clondalkin-Monastery Electoral Division moved to the

Rathfarnham-Templeogue LEA, and also the Saggart Electoral Division added to the new Clondalkin LEA. While these changes saw the creation of smaller units, units that are potentially more focused around a given community such as the Lucan Area and Palmerstown Area, other communities are arguably more fragmented than ever before. This may be observed in the broader Clondalkin community, with parts of the Clondalkin area now located in four sperate Local Electoral Areas, and more select parts of this community in North Clondalkin experiencing a new division. Outside of these revisions, other more rural areas such as the Saggart Electoral Division are a potential victim of 'book-balancing', with the area being moved from the Tallaght-South LEA in 2014 to the Clondalkin LEA in 2019.

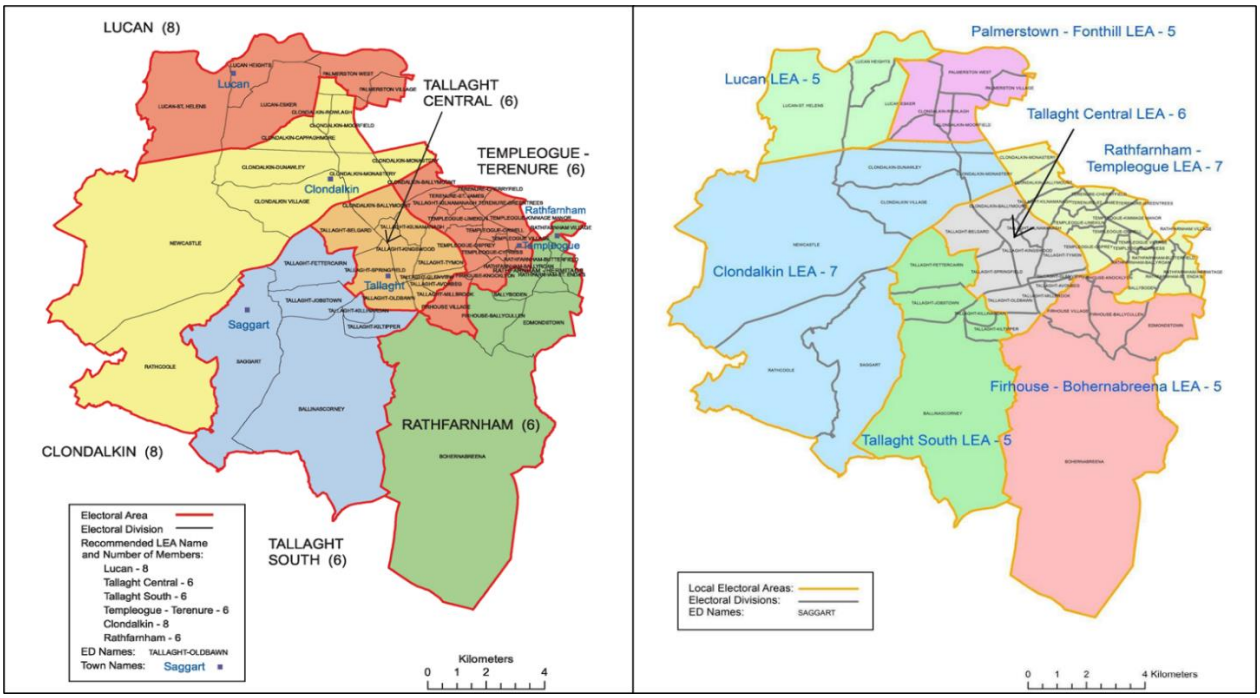


Figure 7.9.1: LEA Boundary Revisions in the Dublin Mid-West Area from 2013-2018

Source: Government of Ireland (2013; 2018)

In terms of the voter turnout trends in areas that are particularly affected by these revisions, there is evidence to suggest a notable impact. In this respect, the Lucan LEA demonstrated the highest overall level of turnout, with the majority of Electoral Divisions increasing from 2014 and also tending to have positive standardised residual values from previously applied models. The

boundary revision process that saw the construction of a smaller, more cohesive LEA around the majority of the Lucan community may have had a significant positive contribution to turnout levels in the area. Cllr. Joanna Tuffy, notes that the revisions may tend to have a positive impact on voter engagement within cohesive units such as Lucan and Palmerstown, and potentially have a negative impact on areas that are now removed due to the revisions.

> ‘The change the boundaries and all that, there could be a lack of a sense of identity there. You know in Lucan village, they’re in the middle of the Lucan Electoral Area. They know exactly where they are. They’re rooted… But like the Lucan area could say, on the other side of the outer ring road, they might have felt a bit like: “why are we away from the rest of Lucan?” So that might actually depress the vote there a little bit… If you look at Palmerstown, like the fact that Palmerstown was in a ward in itself probably maybe helped to get a turnout there’. (Tuffy, 2020).

While these revisions may have been viewed positively for the town of Palmerstown itself, the North Clondalkin area that demonstrated some of the lowest levels of turnout, a significant level of decline, and instances of severe over-prediction by models applied, was also impacted by some of the most significant boundary changes in this case. In particular, the Electoral Divisions of Clondalkin-Cappaghmore, Clondalkin-Rowlagh and Clondalkin-Moorefield appear to be severely impacted by the revision process, with these areas being removed from the Clondalkin LEA and the majority of the North Clondalkin community. Cllr. Gus O’Connell highlights the extent of the changes between the 2014 and 2019 Local Election and lack of cohesiveness and identity surrounding the North Clondalkin area.

> ‘In 2014 it was part of the wider Clondalkin-Newcastle electoral area that time… so there may have been a closer identity…they were part of Clondalkin. Now that they’re part of Palmerstown, Lucan, and North Clondalkin, [that may not be the case] … I was furious at the redrawing of the constituency at local level because we’ve been trying to create a sense of identity in the newer [areas]. Palmerstown has been settled going back to the 50’s and 60’s you know…but you take a place like North Clondalkin and then South Lucan and they have only been settled over the last thirty years forty years…So we’re still trying to create a sense of identity among those communities. So, from that point of view, it was a pity that

> the boundaries were changed… and that Clondalkin was divided into two'. (O'Connell, 2020).

Cllr. Shane Moynihan also outlines the same potential issue in the area following the boundary revision process, highlighting the lack of identity and lack of community recognition in the areas most impacted by the revisions.

> 'If you think of somewhere like Lucan or Clondalkin, you think of a cohesive coherent urban grouping, urban settlement. There's an identification as a community in Lucan. Whereas in Palmerstown-Fonthill, [there is] the entire community of Palmerstown which is definitely coherent [and also] the community of North Clondalkin, which by itself identifies as a community, but would have traditionally associated themselves with Clondalkin. And then you have, and this is what gets forgotten by a lot of people, you have about 4,000 homes in Lucan in the Palmerstown Fonthill LEA as well... So you had three sections that all had different identities. And I guess one of the things that you learn is that people like to relate to the political entities that represent them'. (Moynihan, 2020).

A potential negative association between participation rates and boundary revision is also demonstrated in the case of the Saggart Electoral Division. In this case, the area which moved from the South-Tallaght LEA to the Clondalkin LEA had a much lower turnout than surrounding areas, recorded a decrease in turnout from 2014 levels, and also demonstrated some of the greatest rates of over-prediction by the previously applied models, despite having a successful candidate based close to the area.

The Dublin Fingal area also experienced a significant level of boundary revision between Local Election 2014 and Local Election 2019. As displayed in Figure 7.9.2, each LEA saw some form of revision between both electoral contests, with the creation of some new LEAs, such as the Balbriggan LEA, the Blanchardstown-Mulhuddart LEA, and the Ongar LEA. There were also some smaller boundary changes, such as the Swords LEA and Howth-Malahide LEA boundary, and also around the Castleknock LEA boundary. Some Electoral Divisions were also re-assigned to a neighbouring LEA, as is the case with the Dubber Electoral Division and with the Donabate

Electoral Division. Overall, there are a number of significant changes observed in this area, with these revisions potentially having a significant influence on the electorate that are impacted by these changes.

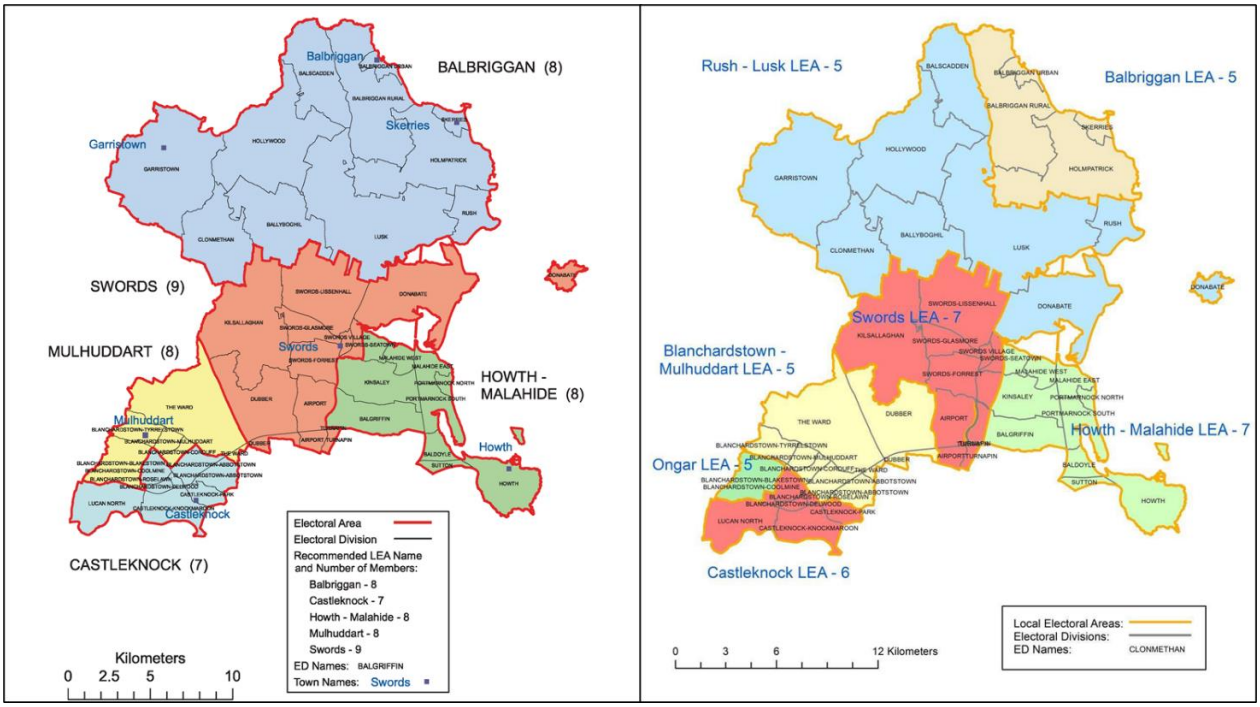


Figure 7.9.2: LEA Boundary Revisions in the Dublin Fingal Area from 2013-2018

Source: Government of Ireland (2013; 2018)

In terms of the potential influence that these changes have had, each area of change will be considered in the context of the resultant voter turnout levels and rates of change observed in the area. The Balbriggan LEA saw the creation of a more cohesive unit that includes the town of Balbriggan and Skerries and surrounding hinterlands. The Electoral Divisions that are included in this new LEA display relatively high levels of registered voter turnout in Local Election 2019, with the majority of these areas also demonstrating an increase in participation from the previous contest, in a cluster that follows LEA lines. This newly formed LEA also demonstrates a significant cluster of positive model standardised residuals, which again strictly follows LEA lines. This demonstrates that both the voter turnout and rates of change are more positive than the predictor

variables would suggest within this LEA. These observed trends suggest that the newly formed LEA and cohesive nature of the smaller area surrounding Balbriggan and Skerries led to a more positive level of electoral engagement, in a manner which is somewhat similar to the Lucan LEA in the previous case study. There is also an apparent positive association with revisions and participation levels in the Donabate Electoral Division, which moved from the old Swords LEA to the new Rush-Lusk LEA. In this instance, there was a notable increase in turnout, positive model residuals in most instances, and a resultant participation rate that is one of the highest overall values recorded. This may suggest that the local area potentially has a more natural affinity with the Rush-Lusk LEA than the Swords area.

While the Balbriggan and Donabate examples highlight an apparent positive impact of revised boundaries, a potential negative association may be observed with regard to changes made in the very low-turnout Blanchardstown-Mulhuddart LEA. In this instance, the newly created LEA takes in the majority of the old Mulhuddart LEA, parts of the Swords LEA, and parts of the Castleknock LEA. The newly created Ongar LEA consists of an area that was previously part of the old Mulhuddart LEA. In terms of the voter turnout trends in the area, all Electoral Divisions in the newly created Blanchardstown-Mulhuddart LEA have a comparatively low level of participation, with negative model residuals in most areas. Turnout decline is far more pronounced in the parts of the Blanchardstown area that were previously adjoining the Ongar area, but are now separated by the new LEA divide. This is also reflected in the negative residuals from models that examine the rates of turnout change in the area. There is further evidence to suggest that this decline is related to LEA revisions when the Electoral Division of Blanchardstown-Abbotstown that moved from Castleknock LEA to the new Blanchardstown-Mulhuddart LEA are considered. Despite the fact that this Electoral Division is directly adjoining the area of pronounced decline, it is the only Electoral Division in the area that records an increase in participation between Local Election contests. Decline is also recorded in the Dubber Electoral Division, which consists of the area moved from the old Swords LEA, with this area presumably moved as part of the aforementioned process of ‘book-balancing’ upon the creation of the new LEA. Arguably, the Electoral Division in this area that experienced the least amount of change as a result of boundary revisions was The Ward, with a only a slight decline in participation recorded here, despite the lack of a successful candidate in Local Election 2019.

While the aforementioned Balbriggan example demonstrates a positive influence within the newly created LEA, there is a potential example of a negative impact on the other side of this new boundary when the Balscadden Electoral Division is examined. In this instance, while the overall turnout level is not comparatively low, there is a sharp decline in turnout from the preceding 2014 Local Election. This apparent impact is perhaps best demonstrated in the model residual trends which highlight a rate of model over-prediction that is far more pronounced here than in surrounding areas, despite the presence of an election candidate in the area. In this case, the data suggests that the separation of the area from the near-by urban centre of Balbriggan had a notable negative impact on participation rates in the area.

The final area of interest is the central Swords area, in particular, along the lines of the divide between the Swords and Howth-Malahide LEAs. In this case, the revisions saw the movement of partial sections of the Balgriffin and Kinsealy Electoral Divisions, with the partial movement restricting the ability to examine any potential impact at the Electoral Division scale. While the divide that splits the Swords-Seatown Electoral Division, with part of this area separate from the central Swords area, is not newly created in this revision process, the process also does not address this split in an area that has a significant level of decline and lower level of participation than the models predict.

Overall, the boundary revision process may be considered to have a sizeable impact on the level of political participation in a number of communities that were directly impacted by changes. While this analysis suggests a negative impact on communities that are divided by boundary revisions, there is also evidence to suggest a positive impact in revisions that adhere to the lines of natural community boundaries. This insight is reflected by Cllr. O'Connell, who notes the potential for smaller, more cohesive electoral units to improve the level of political representation and electoral engagement in a given community.

> 'You will get a better representation at local level… Communities that have an identity that can be represented'. (O'Connell, 2020).

In this respect, while the current boundary revision process at the local level aims to achieve a sense of equality of representation, future processes would benefit from a more coherent adherence

to natural community boundaries and less frequent revisions around existing cohesive community units. The creation of more cohesive units and less frequent changes allows a better opportunity for communities to identify with their representatives, and through a prolonged sense of attachment, better engagement with the political system. With frequent low levels of engagement in many areas for local elections a notable cause for concern, a revised revision process has the potential to foster a stronger level of community engagement, and a greater sense of community representation at the local level.

7.10: Further Discussion & Conclusion

In conclusion, the consideration of geographical influences on turnout trends serves to highlight the impact that candidate location and boundary revisions can have on overall participation. When viewed alongside the select socio-economic and demographic characteristics, this array of influences accounts for a significant proportion of both voter turnout levels and rates of change between elections. With overall national Local Election 2019 turnout demonstrating that less than half of all registered voters cast a vote on Election Day, turnout in local election contests should be considered a serious concern. The even lower level of turnout throughout the case study areas examined, and the tendency for this to be most pronounced in communities with specific socio-economic and demographic characteristics, potentially leads to a situation in which these communities and groups do not receive equality of representation at the local level. Cllr. Moynihan highlights this cause for concern, while also noting the positive steps taken to date in the establishment of an Electoral Commission to address issues.

> ‘[High] voter turnout is the only way of vindicating that sense of [democratic] legitimacy. So it’s one thing for people to say they choose not to vote. It’s another thing for people to say that if I vote it doesn’t really matter. And that has consequences for the quality of our decision-making… Legislation is being voted on at the moment [regarding] the establishment of an Electoral Commission, a full-time State agency whose job it is to safeguard the voting process, to regulate the voting process, and to encourage and promote

> participation in the voting process… And that I think is a big one for me in terms of how we improve the quality of democracy'. (Moynihan, 2020).

In this respect, it is important to consider that while equality of representation may not be solely achieved with a higher level of voter turnout, there is still a need for the electorate to be informed and engaged with the pollical system in order to ensure issues are addressed effectively. This point is highlighted by other political representatives in the area who suggest that a high turnout does not necessarily mean better representation, it depends on the context.

> 'If there's a big turnout and it's not focused on the local, and the person, then it's not gonna lead to better representation… I've seen the thing of the swing, where maybe if it's a protest or whatever, then you can end up kind of unrepresented, you know what I mean, as a local community… That can translate into your issues not being raised… I mean I think a good turnout is good, but I think it needs to be a very engaged electorate'. (Tuffy, 2020).

Cllr. Guss O'Connell echoes this point, noting the need for people to feel part of the political system, and to be invested in their local communities, and noting that direct engagement through the process of voting is just one measurement of this process.

> 'I'm not too worried about voter turnout. I'm much more worried about the disconnect between what we are all trying to do and the average person on the street… Voting is one of the, I suppose, measurements as to whether people feel that they're part of the system or not. I would be much more anxious that they would be part of the system even though they mightn't come out and vote on the day itself, which can happen. But when both happens when people don't have a sense of identity on the one hand and they don't come out to vote on the other… I think that's an awful pity'. (O'Connell, 2020).

While voter turnout may not be the sole measure of political engagement, it still undoubtedly plays a role in who gets elected, and what groups and areas are formally represented in the political process as a result. As Cllr. O'Connell highlights, while elected representatives are elected to

represent all of the members of their constituency, or other area, or even the national interest, candidates undoubtedly bring their own perspective to the table, a perspective which is formed somewhat by the people and the area that elected them. Further to this, Cllr. O'Connell also highlights the more worrying trend in which some representatives may be more inclined to ignore the needs of areas that are disengaged from the formal process.

> 'Once you're elected, you're one of forty people who now has to have the county wide interest at heart. But of course, you're bringing that perspective from your own community to play around that you know… (but)… It can manifest itself like this. And I have heard some politicians or elected people saying to me "well you know they're shouting now about something up there in that side of the constituency and do you know something; only 10% voted from there so they can feck off". Now that's not democracy'. (O'Connell, 2020).

In conclusion, the wide array of influences that shaped voter turnout in the 2019 Local Election highlight a number of areas in which there is a worrying level of political disengagement, with this issue shaped by abstention by select groups within society, and specific administrative practices that damage the level of representation in select areas. This investigation not only highlights a need to raise awareness and encourage specific groups to participate in the political process, but also highlights the negative influences of the current boundary revision practice which serves to further create spaces of disengagement and representational neglect.

Chapter Eight: By-Election 2019

By-Elections take place in the Republic of Ireland in order to elect members of Dáil Éireann in instances in which sitting members of the house take up a new political role elsewhere, retire, or pass away. In this sense, while by-elections elect members of the lower house in the same manner as a general election, the limited extent of the contest and the limited number of available seats make these contest more similar to 'second-order' elections in many regards.

The 2019 By-Election in the Republic of Ireland saw the contestation of four available seats in Dáil Éireann for the constituencies of Dublin Fingal, Dublin Mid-West, Cork North-Central and Wexford. The election took place against the backdrop of speculation that a general election may be imminent, with the announcement of the By-Elections serving to dampen this speculation to a certain degree. (O'Halloran, 2019b). The expectation that a general election may be just around the corner may have contributed to the somewhat muted atmosphere surrounding the By-Election contests, combined with the limited number of seats that were being contested.

The issue of low turnout in by-election contests, and in this 2019 contest in particular, is also reflected in the viewpoint of Deputy Duncan Smith, who was a Labour candidate in the 2019 By-Election in Dublin Fingal and was subsequently elected in General Election 2020.

> 'In terms of a by-election, I think people don't see a by-election as determining the shape a country's going to go, or change of government, or anything like that… The fact it took place in November, and the fact it wasn't going to change things one way or another, people just weren't that motivated to actually get out on the day'. (Smith, 2020).

Deputy Smith highlights the perceived salience, or lack thereof, as a potential barrier to engagement in the electoral contest, with resultant low levels of participation observed throughout both of the case study areas examined here. Senator Lorraine Clifford-Lee, a 2019 By-Election candidate in Dublin Fingal, also highlights the various barriers to participation, including the lack of awareness among the electorate and the perceived salience of the election.

> 'Firstly, I think people's knowledge around by-elections in general is very, very low. People don't generally home into them or understand why they occur. So I think there

needs to be, maybe a kind of an education piece, around that going forward… People didn't know it was going on until I knocked on the door and I said "look, I'm running in the by-election". Then there was another category of people that knew it was going on, but they didn't know why it was happening… Then there was another category of people who knew that the outcome of the by-election in our constituency wouldn't change the government. It wouldn't change anything materially about the parliament make-up. So they were disinterested from that point of view. And then there was another category of people that knew a general election was going to be very close anyway, so we'd only be electing somebody for a very short period, and as it turns out, it was only six weeks'. (Clifford-Lee, 2020).

8.1: Voter Turnout in By-Election 2019

Overall, there was a notable trend of low voter turnout in By-Election 2019, with significant variance observed among the constituencies in which an election took place. As displayed in Table 8.1.1, voter turnout by constituency ranged from a low of just 25.6% in Dublin Fingal, to 35.3% in the Wexford constituency. The 2019 By-Election saw the first members elected to the lower house since General Election 2016. With this in mind, it is important to consider the difference in participation rates between these two events, with both using the same constituency structure for the elections. As displayed in Table 8.1.1, not only are the two Dublin constituencies the lowest turnout areas in the 2019 By-Election, but also demonstrate the greatest degree of decline from General Election 2016.

Constituency	Voter Turnout BY2019	Voter Turnout GE2016	Voter Turnout Change (%)
Dublin Fingal	25.6%	65.1%	-39.5%
Dublin Mid-West	26.6%	62.8%	-36.2%
Cork North-Central	30.2%	63.3%	-33.1%
Wexford	35.3%	65.9%	-30.6%

Table 8.1.1: Registered Voter Turnout at the Constituency Level for By-Election 2019 and Rates of Change from General Election 2016

While there is a recognised trend of by-elections having a notably lower level of participation than preceding General Election contests, the 2019 By-Election saw a more pronounced decline in this respect than in previous instances. As outlined in Figure 8.1.1, all four constituencies largely have a more pronounced decline than in previous By-Election contests.

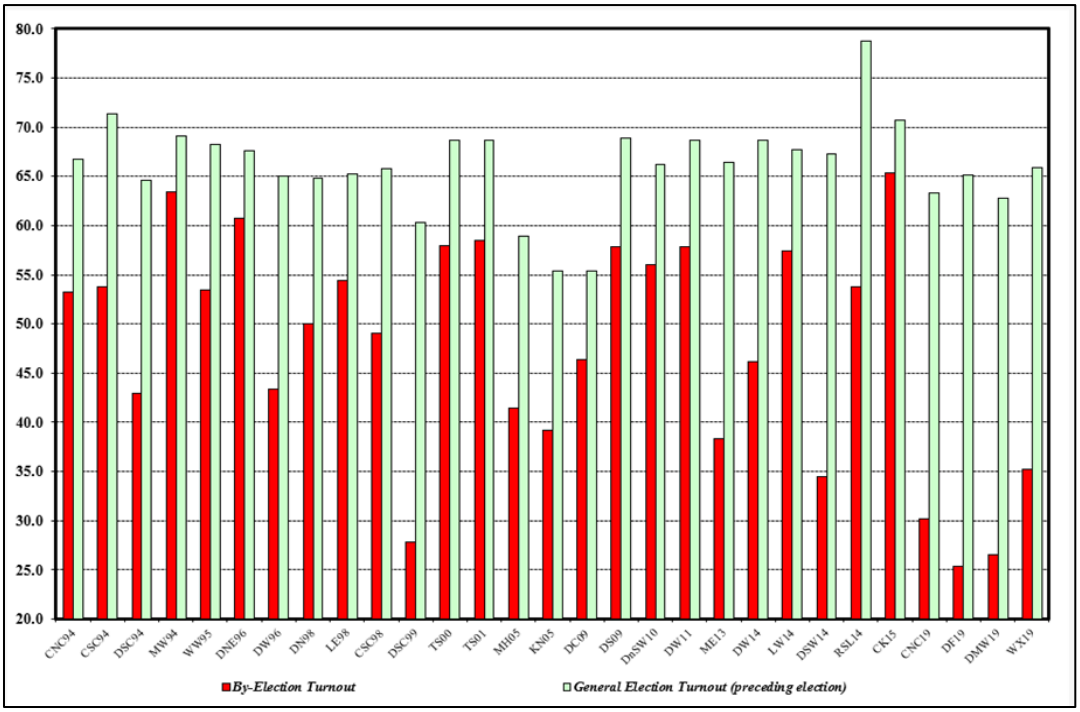


Figure 8.1.1: By-Election and General Election Turnout Comparison 1994-2019

Source: Data provided by Dr. Adrian Kavanagh, Maynooth University (2019)

Deputy Mark Ward, the successful Sinn Fein candidate in the Dublin Mid-West constituency in By-Election 2019, and subsequently in the 2020 General Election, highlights the difference circumstances surrounding both of those contests.

> 'What people were doing in the last (2020) General Election was, they were going out to vote for change. They were looking for change. They were looking for government to change, a change of policy, and a change of direction that the country was going in. So that would enthuse more people to take part in a general election over a by-election… People are more inclined to vote in a general election because they know that the general elections are the ones that can change the way the country is run, the way the policy of the country is run, and it can change things for them on a daily basis as well… People would have stayed at home because the By-Election doesn't really matter to them, things will still be the same, and they were waiting for the General Election to happen. (Ward, 2020).

In this sense, while the low turnout overall may be attributed to a perceived lack of salience surrounding By-Election 2019, that is not to say that a low level of engagement is not a cause for concern. This is highlighted by Deputy Duncan Smith, who points to the serious issue of disenfranchisement among the electorate.

> 'I think (some) people feel disenfranchised, and being part of their democracy is vital. And we need to encourage greater participation. It was very, very disappointing that the turnout was so low'. (Smith, 2020).

While there is a significant decline in voter turnout observed in both case study areas between General Election 2016 and By-Election 2019, and also between Local Election 2019 and By Election 2019, there is also a significant level of variation observed in participation rates and rates of change at the sub-constituency level. A detailed analysis at the sub-constituency level provides an opportunity to examine the resultant levels of participation, and rates of decline, alongside the opportunity to examine potential causal factors. In order to investigate this in more detail, the constituencies of Dublin Mid-West and Dublin Fingal are subsequently examined.

8.2 Voter Turnout in Dublin Mid-West

The By-Election in Dublin Mid-West took place in order to fill the Dáil seat left vacant following the election of Frances Fitzgerald to the European Parliament in May 2019. The contest saw thirteen candidates competing for one available seat, with Sinn Fein's Mark Ward emerging as the eventual winner. The election potentially highlighted the change in Sinn Fein support from the Local Elections in 2019, foreshadowing the national change of support seen in General Election 2020, and potentially giving the party a crucial sense of momentum in advance of this contest. Within the constituency of Dublin Mid-West, there is a notable level of variance observed in participation rates at the Electoral Division level. In this investigation, the level of participation is examined via the application of two measures of voter turnout. The first measure is the proportion of the eligible registered electorate that voted on Election Day, while the second alternate measure is calculated based on the estimated eligible voting-age population. As displayed in Figure 8.2.1, both measures in the case of Dublin Mid-West demonstrate a similar geography of participation.

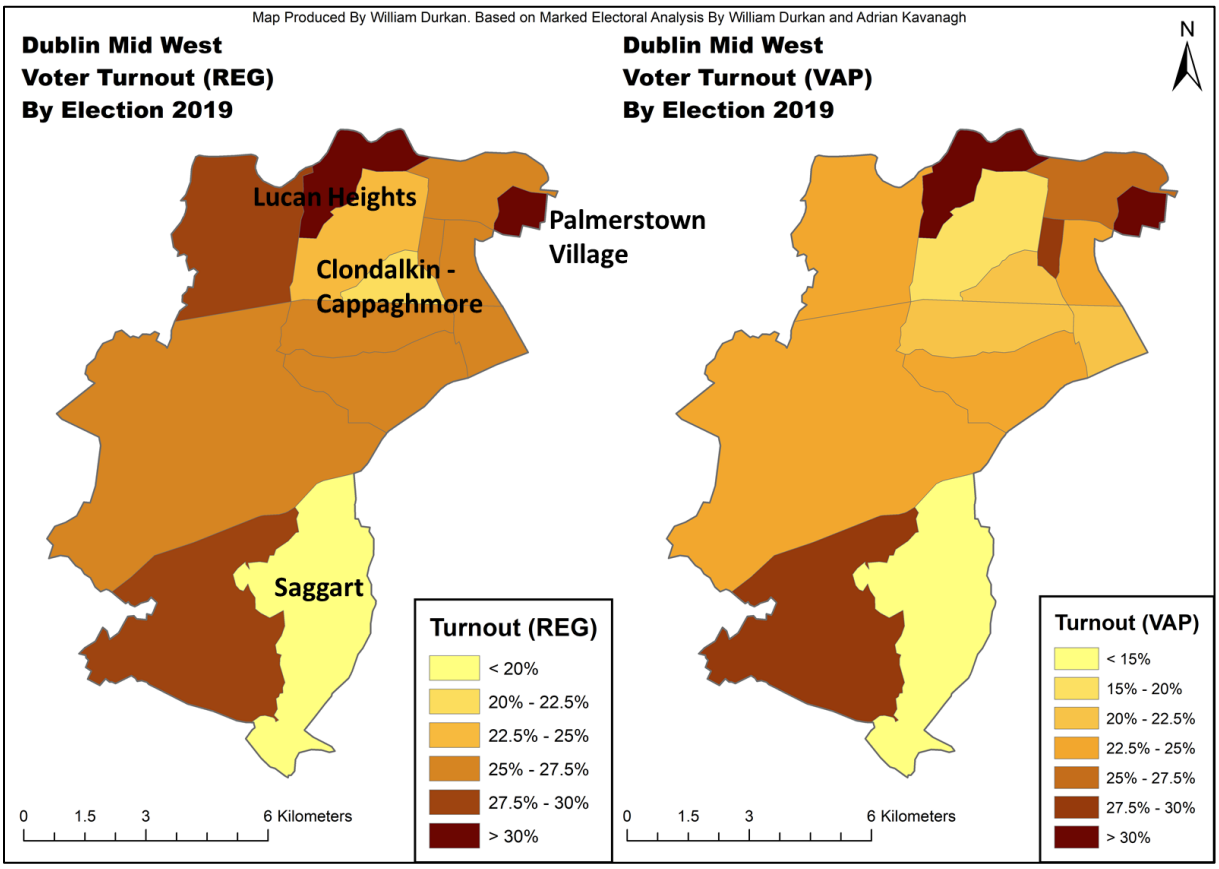


Figure 8.2.1: By-Election 2019 Voter Turnout in Dublin Mid-West

When both measures of participation are applied, a number of Electoral Divisions demonstrate relatively high and relatively low levels of participation within the constituency. While the rate of participation differs between both measures, the locations of the highest and lowest values are largely similar. In the case of the eligible voting-age population measures, it is striking that the most extreme values are notably more pronounced, with an especially striking low voter turnout of just 11.6 percent observed in the Saggart Electoral Division in the south-east of the constituency.

Besides the extreme case of low participation in the Saggart Electoral Division, a number of low turnout values are observed in parts of the Clondalkin area, and also in the Lucan-Esker Electoral Division. At the other end of the spectrum, the remaining Lucan Electoral Divisions of Lucan Heights and Lucan-St. Helen's have some of the highest values by both measures applied, as do the Electoral Divisions of Palmerstown Village and Rathcoole.

In order to examine the potential causal factors that shape the result trends of participation in Dublin Mid-west, the socio-economic and demographic characteristics of the constituency will be examined, alongside the potential influence of geographical factors, such as candidate location. Prior to this examination, the turnout levels within the constituency must firstly be understood in the context of changes observed from previous contests.

8.3: Temporal Turnout Trends in Dublin Mid-West

Besides the observed geography of voter participation in the 2019 By-Election contest, examining the geography of participation decline relative to the preceding General Election in 2016 serves to provide additional insight into the potential factors that shape observed trends. As displayed in Figure 8.3.1, both measures of voter turnout highlight various degrees of variability in terms of the given rates of change across Electoral Divisions within the constituency.

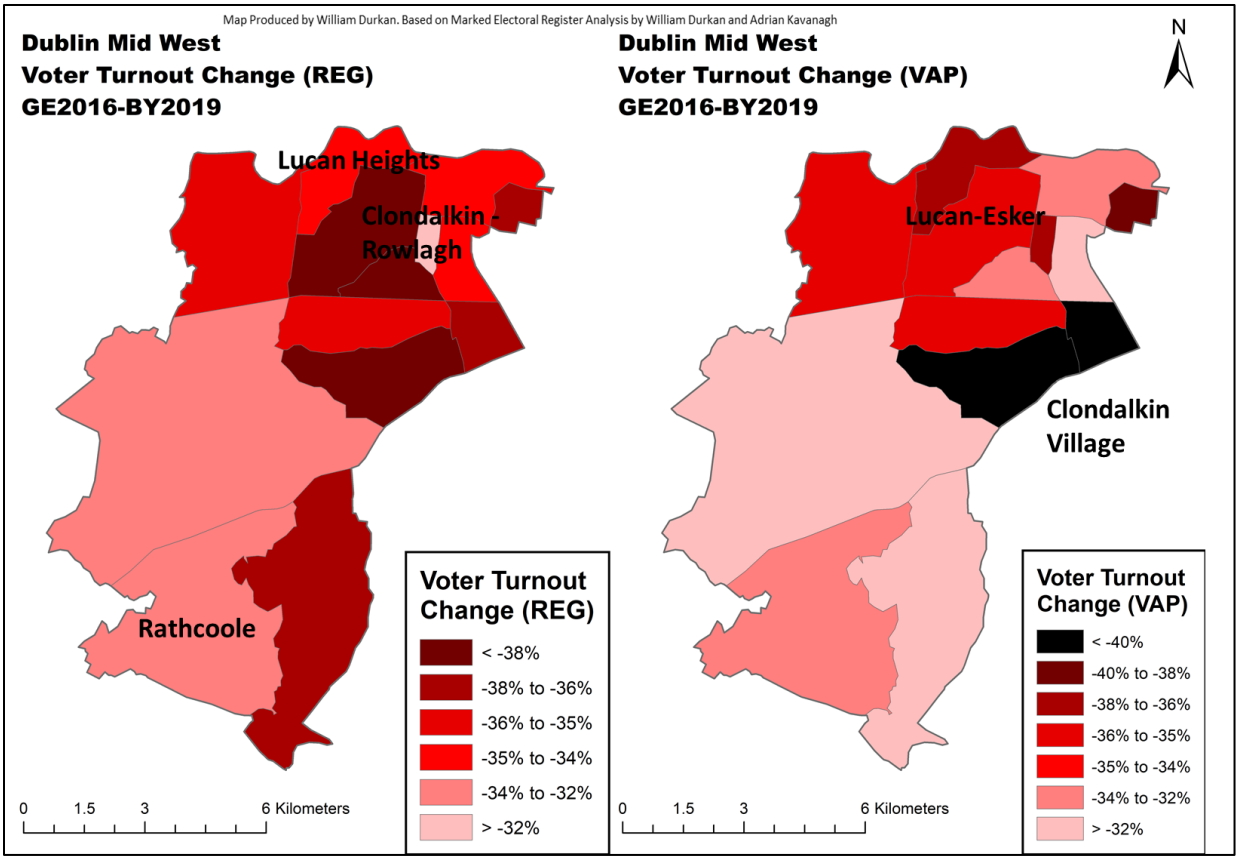


Figure 8.3.1: Voter Turnout Change from General Election 2016 to By-Election 2019 in Dublin Mid-West

When considering the various rates of turnout change, which are all instances of decline in the case of Dublin Mid-West, there is significant deviation observed. The registered voter turnout decline ranges from the lowest extent of -30.9 percent in Clondalkin-Rowlagh to the greatest extent of -39.5 percent in Clondalkin-Cappaghmore. In a different sense to both measures of overall voter turnout rates, there is a greater extent of difference observed between both measures of the rates of change from General Election 2016. The voting-age population measure highlights the greatest extent of decline in the Clondalkin Village area, with less of a decline throughout the south-west.

When examining the rates of decline alongside the voter turnout rates, there are a number of Electoral Divisions that have notable trends. In terms of the Lucan-Esker and Clondalkin-Cappaghmore Electoral Divisions, not only do these areas demonstrate the lowest levels of participation within the constituency, but also demonstrate the greatest levels of decline in terms

of the registered voter measure, and quite significant levels of decline when considering the voting-age population measure. At the other end of the scale, Electoral Divisions such as Lucan-Heights and Rathcoole have some of the highest participation rates, while also demonstrating some of the lowest levels of turnout decline.

Rates of change may be further examined via a comparison with turnout levels in the preceding Local Election 2019 contest that took place just six months prior to By-Election 2019. The resultant geography of change for both registered turnout levels and voting-age population turnout levels may be viewed in Figure 8.3.2.

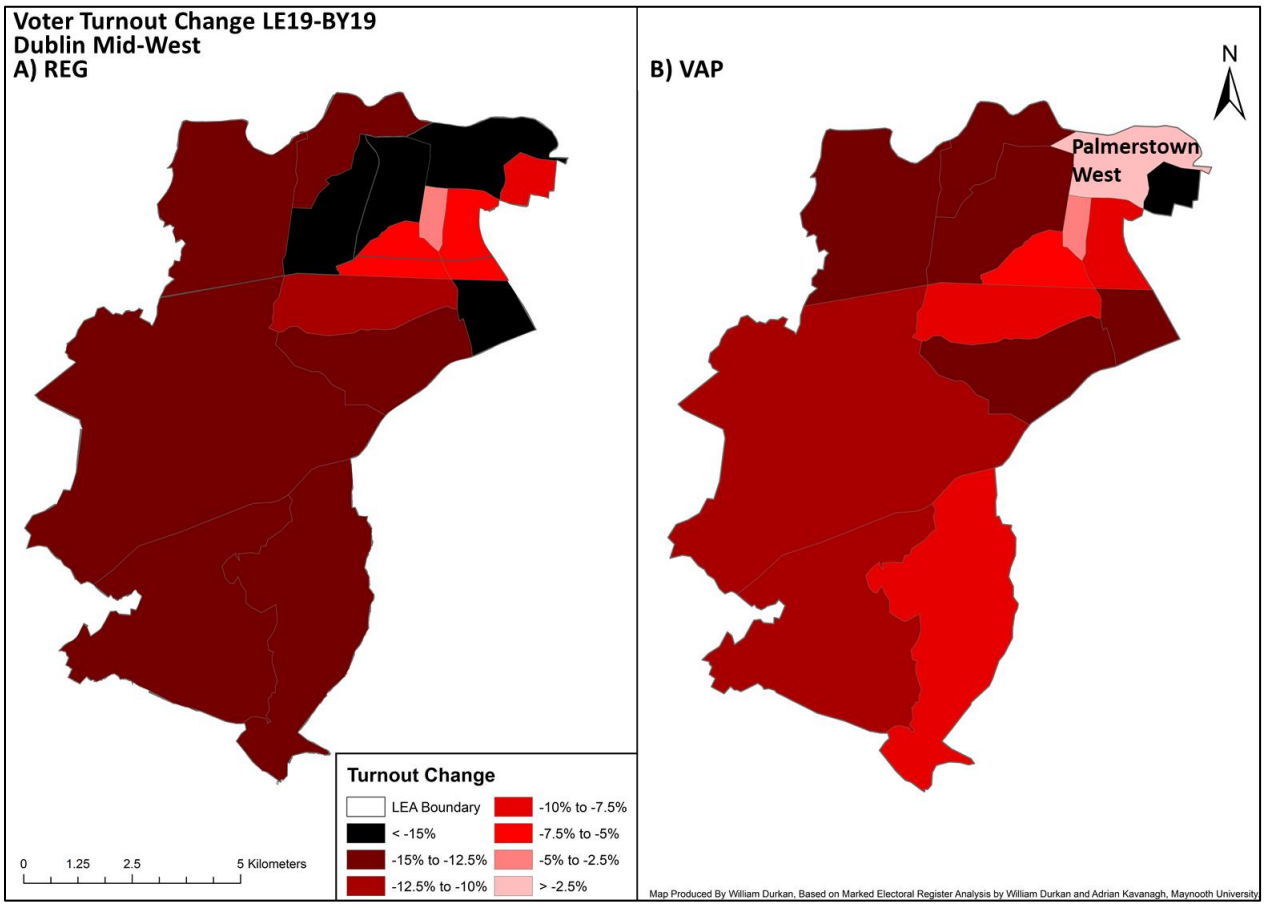


Figure 8.3.2: Voter Turnout Change from Local Election 2019 to By-Election 2019 in Dublin Mid-West

The examination of the rates of change in the 2019 Local Election, as discussed in Chapter Seven, provides not just an intermediate measure in terms of the timing of the election in relation to General Election 2016 and the By-Election in 2019, but also in terms of the overall rates of participation. In this sense, there was a decline in participation in every Electoral Division between General Election 2016 and Local Election 2019, and a further decline in every area between Local Election 2019 and By-Election 2019 later in that year.

When the various rates of decline from Local Election 2019 to By Election 2019 are examined, it is clear that the trend of decline is subsequently less pronounced in the majority of the North Clondalkin area, with the smallest registered turnout decline of -3.5 percent recorded in the Clondalkin-Rowlagh Electoral Division, and a much more significant registered turnout decline observed in the wider Lucan area and also in Palmerston West, which saw the greatest decline recorded of -17.2 percent. In this sense, the areas which experienced some of the biggest declines in participation in the period from General Election 2016 to Local Election 2019 are the same areas that experienced less of a decline from Local Election 2019 to By-Election 2019. In this respect, it is important to consider if changes are driven by a change in voter turnout among select groups, or simply as a result of participation rates in these areas hitting a low 'floor' in voter turnout, having traditionally been a low-turnout environment. In either case, the resultant participation in these areas marks a significant relative change to participation in surrounding areas. When the voting-age population rates of change are considered, while there are a number of discrepancies and a much lower recorded rate of decline in the Palmerstown West area, the overall geography is notably similar.

The higher-than-expected turnout in traditionally low-turnout areas was also addressed by Deputy Mark Ward, with the Deputy noting the tendency for a strong turnout for a number of candidates across traditionally working-class areas; areas that traditionally have a much lower turnout than other parts of the constituency.

> 'The ones that actually made the news on the day, which are generally areas of low turnout, actually had one of the higher turnouts in the constituency. The likes of Quarryvale, Rowlagh, Neilstown; them areas turned out more than the more-established areas that would come out and vote… So, them areas came out... I can only talk about myself, so, the likes of say, Lucan village, I'd be well known, and Palmerstown, and the likes of the

> working-class areas around Clondalkin would have come out and supported, I'm not just saying myself , but they would have come out and supported their local candidates as well'. (Ward, 2020).

These observations point to a potentially significant shift in voter turnout trends in the community, with subsequent analyses providing an opportunity to examine the extent to which rates relate to socio-economic and demographic influences and additional geographical factors in more detail.

8.4: Voter Turnout in Dublin Fingal

The 2019 By-Election in Dublin Fingal took place in order to fill the Dáil seat left vacant following the election of Clare Daly to the European Parliament in May 2019. The contest involved twelve candidates in total, with the eventual winner being the Green Party's Joe O'Brien, who defeated his closest competitor, Fianna Fáil's Lorraine Clifford-Lee, on the eight count. Contrary to the election in Dublin Mid-West, the election results in Dublin Fingal continued the 'Greenami' (Kavanagh, 2019), or wave of support for the Green Party, that dominated Local Election 2019. In a similar fashion to the By-Election in Dublin Mid-West, the overall lower level of turnout in Dublin Fingal was not uniform when examined at the sub-constituency level. As observed in Figure 8.4.1, there is a significant level of variation across the constituency at the Electoral Division level, with some notable similarities and differences observed between the registered voter turnout figures and the eligible voting-age population measure of participation.

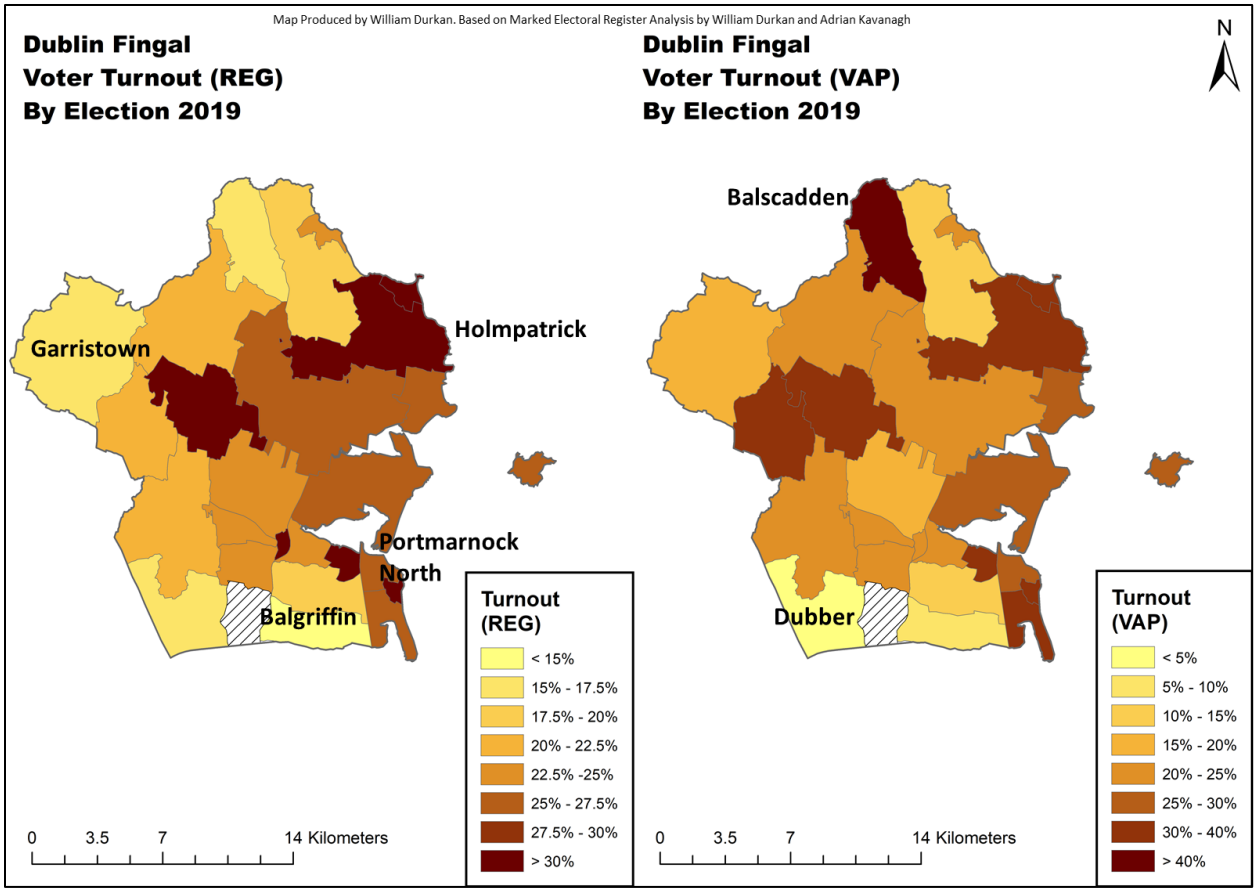


Figure 8.4.1: By-Election 2019 Voter Turnout in Dublin Fingal

Registered voter turnout ranges from a high of 33.57 percent in the Portmarnock North Electoral Division, to a low of just 13.55 percent in the Balgriffin Electoral Division. While comparison to the voting-age population turnout figures have a number of apparent discrepancies, such as in the Balscadden and Dubber areas, the majority of values reflect the overall trend of greater participation in areas such as the aforementioned Portmarnock North and Holmpatrick Electoral Divisions, and much lower rates of participation in the aforementioned Balgriffin and Garristown areas.

The geography of turnout within the constituency was somewhat similar to traditional expectations, with Deputy Duncan Smith outlining that the high turnout areas tend to be associated with more middle-class communities, and communities that have a predominantly settled population.

> ‘Well I think Skerries, Portmarnock, and Malahide have always had high turnouts. They’re sort of middle-class areas, so traditionally, we know that middle-class areas vote in greater numbers than working-class or more deprived areas. In terms of Balgriffin… I just don’t think it’s as settled as a community yet as, let’s say Balbriggan, Holmpatrick, and Skerries’. (Smith, 2020).

Senator Lorraine Clifford-Lee also points to the lack of community cohesiveness in the Balgriffin area and the high level of residential mobility as potential reasons for the low levels of voter turnout. Senator Clifford-Lee also notes that the lack of a local candidate in the Balscadden area may have contributed to a lack of mobilisation around the election, potentially shaping the lower-than-expected turnout in the more-rural area.

> ‘Balgriffin is on the very, very edge of the constituency. A lot of people living in Balgriffin wouldn’t be culturally connected to the constituency... They wouldn’t see themselves as North County Dubliners like say people in Rush or Skerries or Balbriggan might. You know, they’re more kind of culturally connected with the city. And a lot of people living there wouldn’t be from North County Dublin. They would have moved out from the city very recently because it’s a new kind of built-up area. So I think a lot of people, maybe this was the first election that they would have been living in the constituency for, and they wouldn’t have been really aware of any of the people, any of the candidates... And then Balscadden, I was surprised to see that, but it’s a rural area. And I guess you know, there wasn’t a local candidate for them. And it’s harder to canvas a rural area than a more urban area… The awareness levels would have been low’. (Clifford-Lee, 2020).

The various socio-economic and demographics factors which potentially shape the resultant geography of participation within the constituency are subsequently examined in more detail, alongside additional geographical factors. Prior to this examination, the geography of participation in By-Election 2019 must first be understood in the context of the various rates of participation change from previous electoral contests within the constituency.

8.5 Temporal Turnout Trends in Dublin Fingal

Besides the rates of electoral participation, it is also important to consider the various rates of change in participation in comparison to the preceding General Election in 2016. As displayed in Figure 8.5.1, there are notable differences in the areas in which change is most pronounced between the two measures of participation applied. Despite the notable difference in this regard, there are also a number of areas that demonstrate pronounced rates of change across both measures.

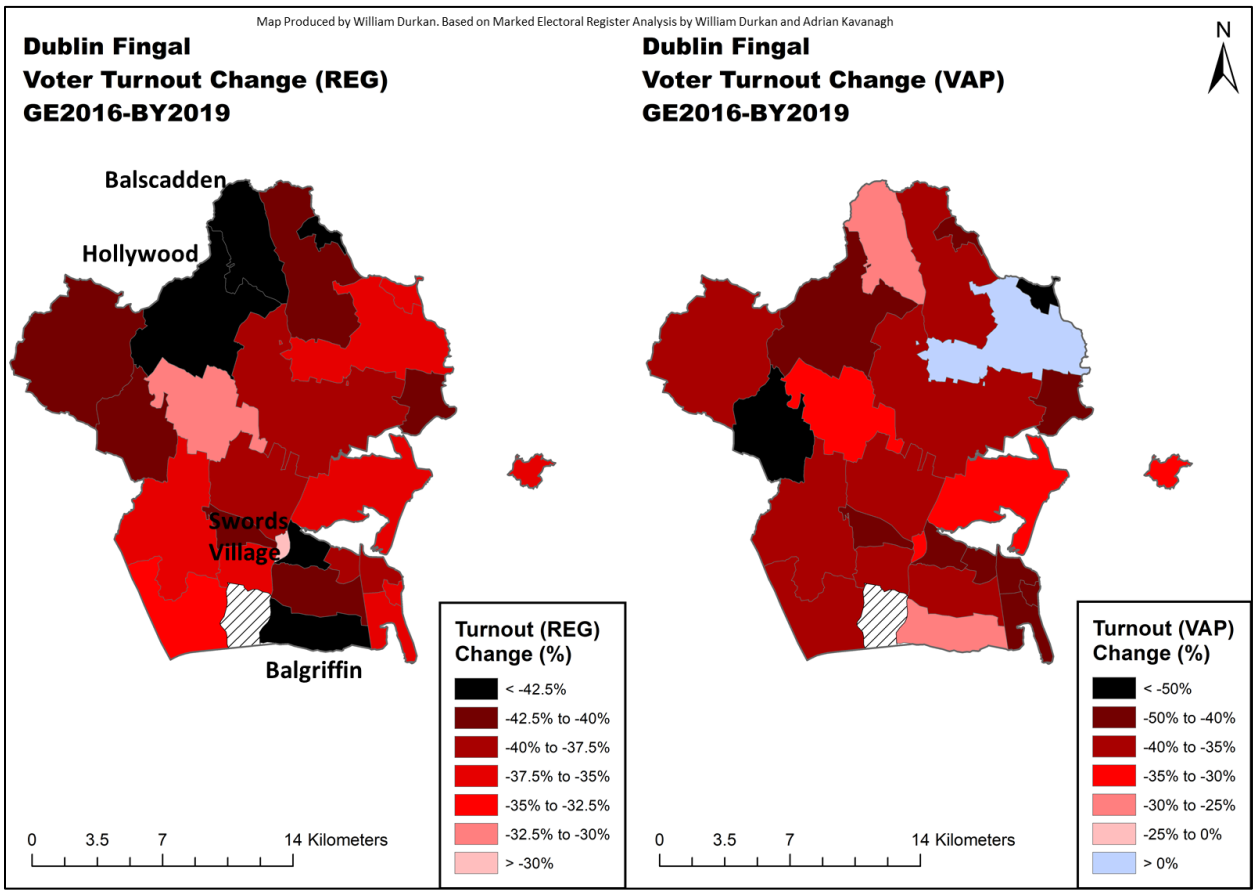


Figure 8.5.1: Voter Turnout Change from General Election 2016 to By-Election 2019 in Dublin Fingal

The most extreme values in the rates of change observed in registered voter turnout figures point to a greater decline in areas such as the Hollywood, Balgriffin, and Balscadden Electoral Divisions, compared to areas such as the Swords Village and Ballyboughal Electoral Divisions. Almost all areas in both measures register a significant decline in participation rates, with the most pronounced decline in registered voter turnout figures of -45 percent observed in the Balscadden area, compared the least pronounced measure of -29 percent in the Swords Village area. While there is a lack of direct uniformity between trends in both measures of participation, there is a similar overall geography. In this sense, a resultant geography, not just of participation, but also of change relative to General Election 2016 is observed. In order to examine the potential causal factors that shape this resultant geography, a wide range of socio-economic, demographic, and spatial factors must be considered.

The various rates of change from previous electoral contests may also be viewed with regards to the rates of change from the preceding Local Election in May 2019, just six months prior to the By-Election taking place in November 2019. While the case study area is somewhat restricted in this instance due to the lack of uniformity between LEA and constituency structure, it is still possible to examine the remaining Electoral Divisions within the Fingal area, as displayed in Figure 8.5.2. In this examination, there is a clear tendency for some of the most extreme values to have an apparent geographical influence, as observed in the more rural north-west of the constituency, which has a significant decline by both measures of turnout change examined.

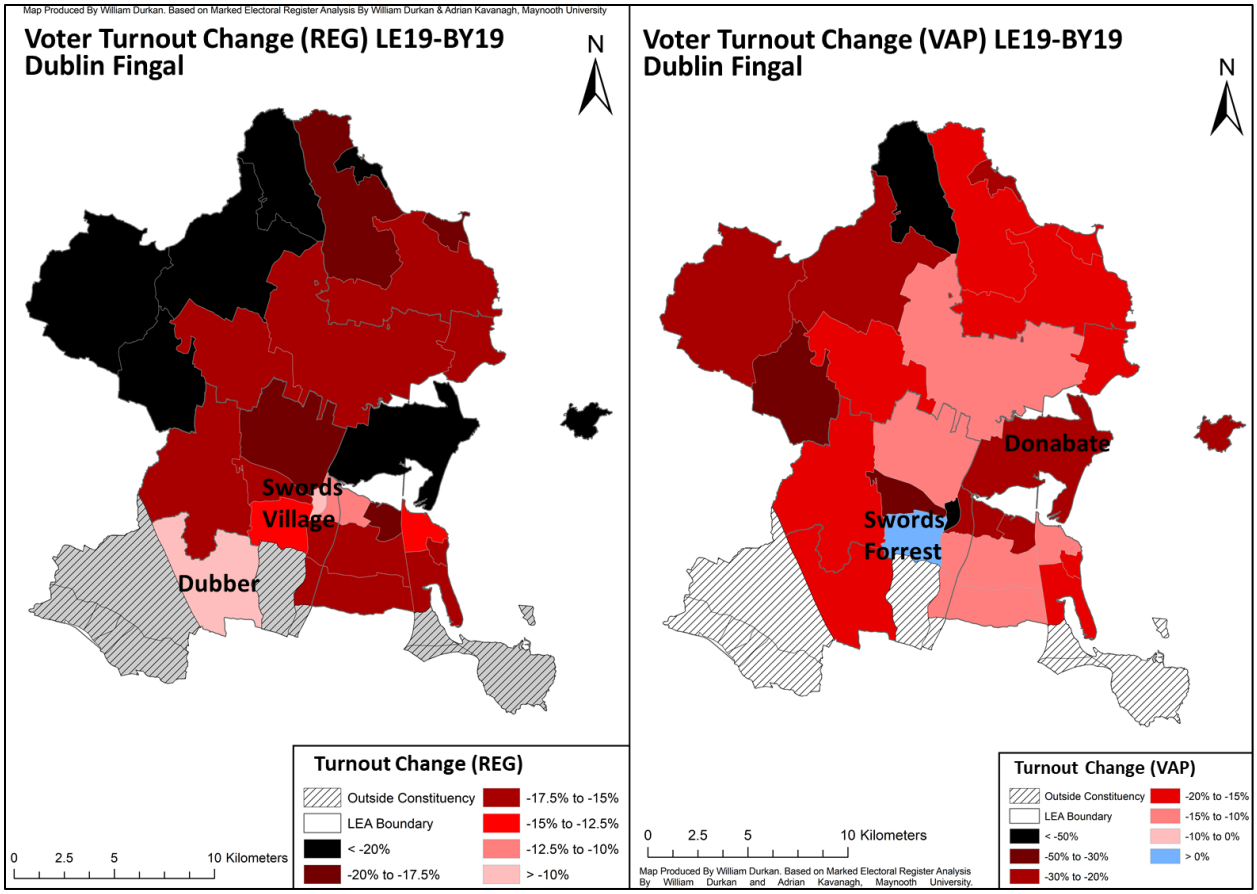


Figure 8.5.2: Voter Turnout Change from Local Election 2019 to By-Election 2019 in Dublin Fingal

The most extreme registered turnout decline of -24.8 percent takes place in the Hollywood Electoral Division, with the smallest decline of -8.5 percent recorded in the Dubber Electoral Division. In terms of the areas with the smallest decline, there is a clear cluster of smaller values in the Swords area, which points to a strong influence of geographical factors. This may be due to the location of candidates, as subsequently examined, and also possibly due to the area having declined substantially in the previous election, not leaving much room for further decrease. This trend appears not to have a strong association with LEA structure, as the cluster of mild decline in the Swords area is present in two adjoining LEAs. While the voting-age population turnout data contradicts the values in the Swords Village Electoral Division, there is still a cluster of below-average decline in the surrounding area, and even an increase recorded in the Swords Forrest Electoral Division.

In terms of the areas with the most severe decline from Local Election 2019 to By Election 2019, there appears to be a more pronounced influence of LEA structure, with the most extreme areas of registered turnout decline located in the Rush-Lusk LEA, the area that previously had the least decline from General Election 2016 to Local Election 2019. In this case, an area with relatively high levels of turnout for the Local Election previously had substantial turnout levels subject to greater decline than existing low-turnout regions. The voting-age population turnout also supports these findings, with the north-west and the Donabate area again highlighted as areas of pronounced decline.

While both areas of pronounced decline and areas of less-severe decline appear to have a geographical influence, participation rates and rates of decline must also be considered in the context of various potential socio-economic and demographic influences, as subsequently outlined.

8.6: Socio-Economic and Demographic Influences on Voter Turnout

When examining the geography of participation in By-Election 2019, it is important to consider the extent to which previously identified influential socio-economic and demographic characteristics shape observed trends. In this regard, participation levels at the Electoral Division scale may be examined in the context of census data (CSO, 2016) at the same scale in order to determine which factors are most influential, in the same manner as previous analyses. Given the relatively low number of Electoral Divisions within the select case study area, both constituencies are examined in the same dataset in order to support statistically sound analytical processes. While this may limit the examination of constituency-level effects to a certain extent, it allows the examination of select variables in greater detail. Associations between voter turnout and individual variables are examined via the application of Pearson correlation testing. The majority of variables have a predominately normal distribution, and as such, are deemed suitable for this method. A selection of variables is also examined via the application of the Spearman method, and also with logarithmic values, due to their abnormal distribution, with no significant results retuned that demonstrate a significant deviation from previously identified trends via the application of the

Pearson method. As such, results are presented using the Pearson method in order to ensure uniform comparability.

As displayed in Table 8.6.1, a wide array of variables is examined in order to determine their potential level of influence on participation rates and rates of change, in terms of both the proportion of eligible registered voters that participated and the proportion of the estimated eligible voting-age population that voted on Election Day. Contrary to previous investigations of General Election 2016, the small number of datapoints in this case reduces the number of reliable observations made. It is also worth noting that the voting-age population data is based on Census 2016, and as such, may not be the most appropriate measure of trends in elections held in 2019. This is especially pronounced when considering the rates of change from Local Election 2019 to By-Election 2019, with the population data outdated by three years in each instance. Given the time difference between observations, the significant changes that may take place in small geographical units, the expected high likelihood of significant change in the Dublin area, and the low number of datapoints, the registered figures are arguably the most reliable measure of rates of change.

When examined individually, a number of factors are observed as having a strong correlation with voter turnout levels in By-Election 2019. In terms of both measurers of voter participation applied, the factors with the greatest level of correlation tend to be those associated with the proportion of various age cohorts that are resident in a given Electoral Division. While examination of the youngest age cohort fails to return a statistically reliable result in both measures of participation, the remaining three age cohort investigations demonstrate a tendency for areas with large proportions of the population in the two oldest age cohorts to have a higher level of voter turnout. While there is a medium-strong negative association with the proportion of individuals in the 30-49 age cohort, there is a medium-strong positive association observed for areas with large proportions of individuals in both the 50-64 and 65+ age cohorts.

	Voter Turnout BY19 (REG)		Voter Turnout BY19 (VAP)	
Variable	**Pearson Correlation Coefficent**	**P-Value**	**Pearson Correlation Coefficent**	**P-Value**
Age 18-29 (%)	-0.1707986	0.2985	-0.2164509	0.1857
Age 30-49 (%)*	**-0.5580991**	0.0002227	**-0.7205246**	2.32E-07
Age 50-64 (%)*	**0.4379158**	0.005301	**0.7078605**	4.66E-07
Age 65+ (%)*	**0.5695676**	0.0001541	**0.632804**	1.54E-05
Single (%)	-0.208423	0.2029	**-0.4629146**	0.003003
Married (%)	0.1384007	0.4008	**0.3921701**	0.01354
Foreign Born (%)	-0.2458205	0.1314	**-0.6596311**	4.94E-06
White Irish Traveller (%)	**-0.3529591**	0.02752	0.2205426	0.1773
Same Address Over One Year(%)	0.2229072	0.1726	**0.434247**	0.005742
Owner Occupied (%)*	**0.3493943**	0.02924	**0.5989675**	5.61E-05
Rented (%)*	**-0.2963384**	0.06698	**-0.5570126**	0.0002305
LA Rented (%)	-0.126548	0.4427	-0.08504771	0.6067
Working (%)*	**-0.421193**	0.007579	**-0.5092489**	0.0009298
Unemployed (%)	-0.1745029	0.288	-0.2403911	0.1405
Retired (%)*	**0.643316**	1.00E-05	**0.6528862**	6.64E-06
Students (%)	0.1037547	0.5296	**0.4189946**	0.007934
Category One (%)	0.2100892	0.1992	0.2943509	0.06892
Category Two (%)	-0.2105093	0.1983	-0.3026446	0.06111
Lower EDU (%)	0.05611883	0.7344	0.09670127	0.5581
Higher EDU (%)	0.1618192	0.325	0.1649844	0.3155
Pobal HP2016rel	-0.02545943	0.8777	-0.03553874	0.8299
	Voter Turnout (REG) Change GE16-BY19		**Voter Turnout (VAP) Change GE16-BY19**	
Variable	**Pearson Correlation Coefficent**	**P-Value**	**Pearson Correlation Coefficent**	**P-Value**
Age 18-29 (%)	0.01232965	0.9406	0.006793928	0.9673
Age 30-49 (%)	-0.1194014	0.4691	-0.028496	0.8633
Age 50-64 (%)	-0.1406222	0.3932	0.01563833	0.9247
Age 65+ (%)	0.1753852	0.2855	0.02639661	0.8733
Single (%)*	**0.3528618**	0.02757	-0.02141025	0.8971
Married (%)*	**-0.3853292**	0.01542	0.06338041	0.7015
Foreign Born (%)	0.08909046	0.5897	-0.09718595	0.5561
White Irish Traveller (%)	-0.2305192	0.158	0.3142419	0.05138
Same Address Over One Year(%)	0.07373324	0.6555	-0.09571116	0.5622
Owner Occupied (%)	-0.167975	0.3067	0.03780701	0.8193
Rented (%)	0.1781935	0.2778	-0.03100018	0.8514
LA Rented (%)	0.1189844	0.4706	0.05289854	0.7491
Working (%)	-0.1955736	0.2328	-0.08401694	0.6111
Unemployed (%)	0.241131	0.1392	0.06430591	0.6973
Retired (%)	0.1803891	0.2718	0.03699701	0.8231
Students (%)	-0.2820547	0.08192	0.005526469	0.9734
Category One (%)	-0.2652396	0.1027	-0.03075044	0.8526
Category Two (%)	0.2634112	0.1052	0.03436062	0.8355
Lower EDU (%)	0.2562054	0.1154	-0.01683431	0.919
Higher EDU (%)	-0.113843	0.4902	-0.01612101	0.9224
Pobal HP2016rel	-0.272861	0.09283	-0.01965867	0.9054
	Voter Turnout (REG) Change LE19-BY19		**Voter Turnout (VAP) Change LE19-BY19**	
Variable	**Pearson Correlation Coefficent**	**P-Value**	**Pearson Correlation Coefficent**	**P-Value**
Age 18-29 (%)*	**0.5514111**	0.0002744	0.06086902	0.7128
Age 30-49 (%)	-0.05029016	0.7611	0.2372056	0.1459
Age 50-64 (%)	-0.2478803	0.1281	-0.2161696	0.1863
Age 65+ (%)	-0.01726588	0.9169	-0.2152578	0.1882
Single (%)*	**0.6216496**	2.40E-05	**0.2413112****	0.1389
Married (%)*	**-0.6412749**	1.09E-05	**-0.1826628****	0.2657
Foreign Born (%)	0.1378936	0.4025	0.05875312	0.7224
White Irish Traveller (%)	0.1099662	0.5051	-0.2585697	0.112
Same Address Over One Year(%)	0.03206114	0.8464	-0.04507466	0.7853
Owner Occupied (%)*	**-0.5513915**	0.0002746	-0.2800342	0.08423
Rented (%)*	**0.5695016**	0.0001544	**0.266408****	**0.1011**
LA Rented (%)*	**0.4794728**	0.002012	**0.2253209****	**0.1678**
Working (%)	-0.2744201	0.09091	0.007766339	0.9626
Unemployed (%)*	**0.5811669**	0.0001047	0.2031527	0.2148
Retired (%)	-0.01595646	0.9232	-0.2008063	0.2203
Students (%)	-0.1747288	0.2874	-0.08189111	0.6202
Category One (%)*	**-0.4981034**	0.001251	0.6202	0.635
Category Two (%)*	**0.4509937**	0.003958	-0.009551299	0.954
Lower EDU (%)*	**0.3521562**	0.0279	0.001335508	0.9936
Higher EDU (%)*	**-0.3967849**	0.01239	-0.04975128	0.7636
Pobal HP2016rel*	**-0.5011823**	0.001154	-0.07815359	0.6363

* Variables observed as influential

** Values that fail to return a p-value < 0.05 and have a FPR value of 20%-30%

Table 8.6.1: Correlation of Individual Variables and Voter Turnout Trends for By-Election 2019

Besides the observed associations with select age variables, there are also a number of other relevant results returned. Among the most pronounced additional correlations observed are those associated with both housing and employment.

In terms of the various housing variables examined, there is a notable positive association observed in terms of the proportion of residents that live in owner-occupied homes and voter turnout levels. Conversely, there is a notable negative association with the proportion of the population that lives in rented accommodation. This suggests that areas with low levels of rented accommodation and high levels of owner-occupancy were notably more likely to participate in By-Election 2019. In terms of the employment-related variables examined, the most pronounced trend is observed in relation to the proportion of the population that are classed as 'retired'. It is important to note that this variable that has a strong logical association with the age variables examined. In terms of the levels of the population classed as 'retired', there is a medium-strong positive correlation with both measures of participation, with a high level of statistical reliability in both instances. Besides the notable trend observed in terms of the proportion of the population classed as 'retired', there is also a notable negative association with the level of the population classed as 'working'. This correlation may be best understood as a resultant impact of the previously identified relationship between the level of participation and level of retirement, as opposed to a direct influence relationship in its own right. There is also a striking trend associated with the proportion of the population in each category of employment. In this respect, there is a notable positive association observed between the proportion of 'category-one' workers, and also a negative association in the case of 'category-two' workers. The association between participation and this employment-based measure of 'class' is highlighted by Deputy Duncan Smith.

> 'The consistent truths over the years in terms of middle-class settled areas voting in greater numbers than working-class areas, or more remote areas, or maybe newer kind of community areas, I mean that remained true in this By-Election'. (Smith, 2020).

Further to this, the Deputy outlines how greater electoral engagement tends to be associated with a stronger level of overall engagement in the community, and this tendency has the potential to cause a positive feedback among community members through local networks of political engagement and political discussion. In this sense, the lived experience (Agnew, 2002) of a

constituency member around election time, in an area that is actively canvassed, and in an environment which political issues are discussed, has the potential to support further engagement.

> ‘You know it kind of perpetuates itself, because if you’re down in the local shop, or you’re in the butchers, or collecting your kids at the school, and you’re talking about the posters that are up and you’re talking about who you’re going to vote for. The likelihood is that you’ve been canvassed by more than one candidate, given that you’re in a high voter turnout area, and it kind of, continues to perpetuate’. (Smith, 2020).

In this sense, the overall turnout trends in By-Election 2019 appear to be consistent with traditional observations, which demonstrate higher engagement among more settled communities, in areas with older populations, and in areas with individuals predominately employed in ‘category-one’ employment. However, an examination of the rates of change from previous elections in the context of the socio-economic and demographic characteristics of a given area has the potential to provide further insight into the extent in which traditional characteristics shape trends in By-Election 2019.

As previously demonstrated in Table 8.6.1, the various rates of turnout change from General Election 2016 to By-Election 2019 lack the same level of apparent association to socio-economic and demographic traits as the previous analysis. In this instance, very few variables return a statistically reliable result. The most notable correlation, as indicated, is in relation to marital status. While the correlation observed with rates of registered turnout change is more reliable than other variables, there is still a False Positive Risk of between 5-10%, partly driven by the low number of datapoints. This is still the most notable observation however, with the data suggesting that turnout levels were more likely to decline among more settled communities with high levels of marriage, and less likely to decline to the same extent in areas with large numbers of younger, single residents.

The examination of turnout change from Local Election 2019 to By Election 2019 returns more notable results, with a number of variables demonstrating an association with rates of registered turnout change. In this respect, the analysis suggests that voter turnout was less likely to decline in areas with younger, single, populations that have high levels of rental accommodation, and

Local Authority rental accommodation specifically. Turnout is also noted as less likely to decline in areas that have 'lower' levels of education, and more individuals employed in 'category-two' professions. One of the strongest trends observed is with the level of unemployment in a given area, with turnout notably less likely to decline in these areas also. Given the number of associations with related variables, it is perhaps unsurprising that there is also a notable negative correlation between rates of registered turnout change and the Pobal Deprivation Index. This trend suggests that more-affluent areas were the most likely to see a sharp decline in turnout from Local Election 2019 to By Election 2019.

In summation, the previous investigation of Local Election 2019 turnout in Chapter Seven outlines a trend in which more socially deprived areas, and predominately younger areas, display more pronounced levels of decline from both Local Election 2014 and General Election 2016. This trend is then reversed in the turnout change between Local Election 2019 and By-Election 2019, with more socially deprived areas experiencing the smallest rate of decline, and more affluent areas having a more serve level of decline in overall participation rates. While this trend is highlighted in the composite 2016 Pobal Deprivation Index correlations, it is also reflected in other more specific variables that are broadly considered as related to 'deprivation'. Outside of this association, areas that have a predominately younger population also highlight an apparent relationship.

The difference in the socio-economic and demographic characteristics of individuals that are coming to cast their vote on election day is noted by Deputy Mark Ward. In this respect, the Deputy highlights the change observed in relation to previous electoral contests, and the narrowing of the 'gap' in turnout between areas.

> 'The areas of traditionally low turnout are starting to turn out now… and they're starting to be on par with the areas that would have statistically high turnouts. So, there's not much difference anymore. But that used to be a huge gap. Where you would have huge gaps in the more areas which social demographic kind of issues, and social problems, they're starting to turn out now'. (Ward, 2020).

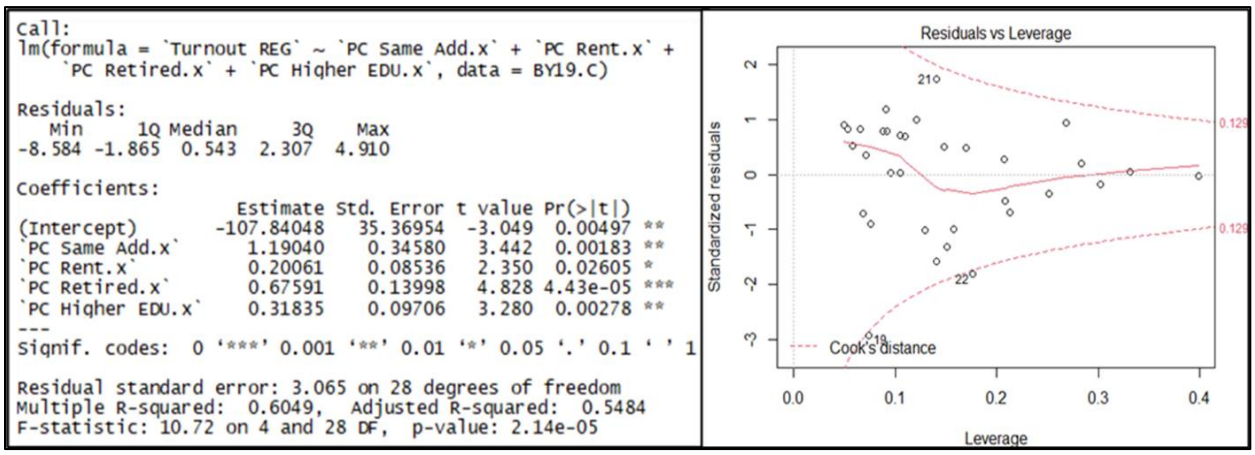
While the level of correlation observed across all variables provides a strong suggestion of this overall trend, more detailed investigation via the application of multiple regression models serves to offer further insight into the select variables that have a specific relationship to turnout, and also has the potential to better uncover the extent of overall variation in turnout change that is accounted for by these socio-economic and demographic associations.

8.7 Multiple Regression Model Analysis of Voter Turnout

While a number of significant correlations are observed among individual variables, the application of multiple variable regression analysis serves to offer a more nuanced perspective in terms of the potential causal socio-economic and demographics factors that shape participation rates in By-Election 2019. This approach serves to determine the extent to which these influences shape participation, while also taking account of the potential for collinearity among variables. The process is first applied to the voter turnout measure based on marked electoral register turnout, and secondly applied to the voting-age population turnout measure, prior to being applied to the temporal data.

The registered turnout model performs reasonably well in terms of Cook's analysis, as displayed in Figure 8.7.1, with no significant deviation observed. The final model in this instance serves to account for over 60 percent of the variability in voter turnout levels, with a notable positive influence observed in the select predictor variables. The two most influential variables in this respect are the proportion of individuals at the same address for over one year, and the proportion of the population classed as 'retired'. This broadly supports the investigation of individual variables, especially when considering the logical associations between homeownership and age, and retirement and age, pointing towards a tendency for areas with high levels of individuals in the older age cohorts, and high levels of long-term residency, to have a higher level of voter turnout. The model also points towards the positive impact of a 'higher' level of education. While this is not a factor that is highlighted in the previous analysis, there is a strong logical association with those in the 'category-one' class of employment. Perhaps the most surprising contrast that emerges from the multiple regression model is the outlined positive association with the proportion

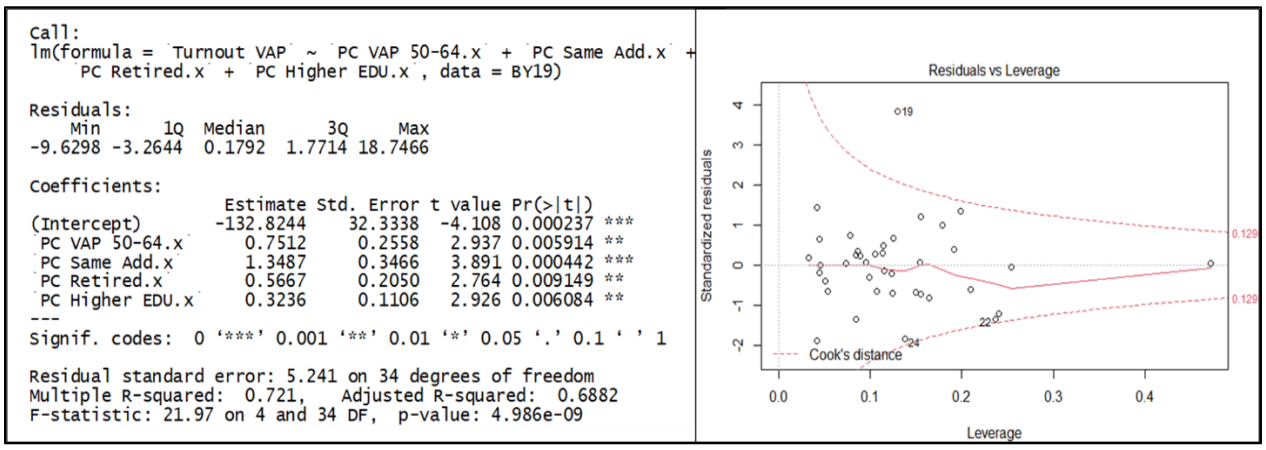
of individuals that are classed as ‘renting’. It is worth noting in this regard that the observed trend is an influence that is in contrast to the individual variable investigation. This may suggest that the level of residency in a given area is the most influential variable with regard to housing, with long-term renters perhaps being as likely to participate as homeowners.



```
Call:
lm(formula = `Turnout REG` ~ `PC Same Add.x` + `PC Rent.x` +
    `PC Retired.x` + `PC Higher EDU.x`, data = BY19.C)

Residuals:
    Min      1Q  Median      3Q     Max
-8.584 -1.865  0.543   2.307  4.910

Coefficients:
                  Estimate Std. Error t value Pr(>|t|)
(Intercept)     -107.84048   35.36954  -3.049  0.00497 **
`PC Same Add.x`    1.19040    0.34580   3.442  0.00183 **
`PC Rent.x`        0.20061    0.08536   2.350  0.02605 *
`PC Retired.x`     0.67591    0.13998   4.828 4.43e-05 ***
`PC Higher EDU.x`  0.31835    0.09706   3.280  0.00278 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 3.065 on 28 degrees of freedom
Multiple R-squared:  0.6049,   Adjusted R-squared:  0.5484
F-statistic: 10.72 on 4 and 28 DF,  p-value: 2.14e-05
```


Figure 8.7.1: Linear Regression Model for Registered Voter Turnout in By-Election 2019

While the above outlined model serves to identify a number of influential factors that help to shape the participation rates observed, there is a large proportion of variability unaccounted for by the select predictor variables. The final version of the voting-age population turnout model performs well in terms of Cook’s distance analysis, no VIF values above two, and accounts for over 72 percent of variance in participation rates, as displayed in Figure 8.7.2.



```
Call:
lm(formula = `Turnout VAP` ~ `PC VAP 50-64.x` + `PC Same Add.x` +
    `PC Retired.x` + `PC Higher EDU.x`, data = BY19)

Residuals:
    Min      1Q  Median      3Q     Max
-9.6298 -3.2644  0.1792  1.7714 18.7466

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)
(Intercept)      -132.8244    32.3338  -4.108 0.000237 ***
`PC VAP 50-64.x`    0.7512     0.2558   2.937 0.005914 **
`PC Same Add.x`     1.3487     0.3466   3.891 0.000442 ***
`PC Retired.x`      0.5667     0.2050   2.764 0.009149 **
`PC Higher EDU.x`   0.3236     0.1106   2.926 0.006084 **
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 5.241 on 34 degrees of freedom
Multiple R-squared:  0.721,    Adjusted R-squared:  0.6882
F-statistic: 21.97 on 4 and 34 DF,  p-value: 4.986e-09
```


Figure 8.7.2: Linear Regression Model for Voting-Age Population Turnout in By-Election 2019

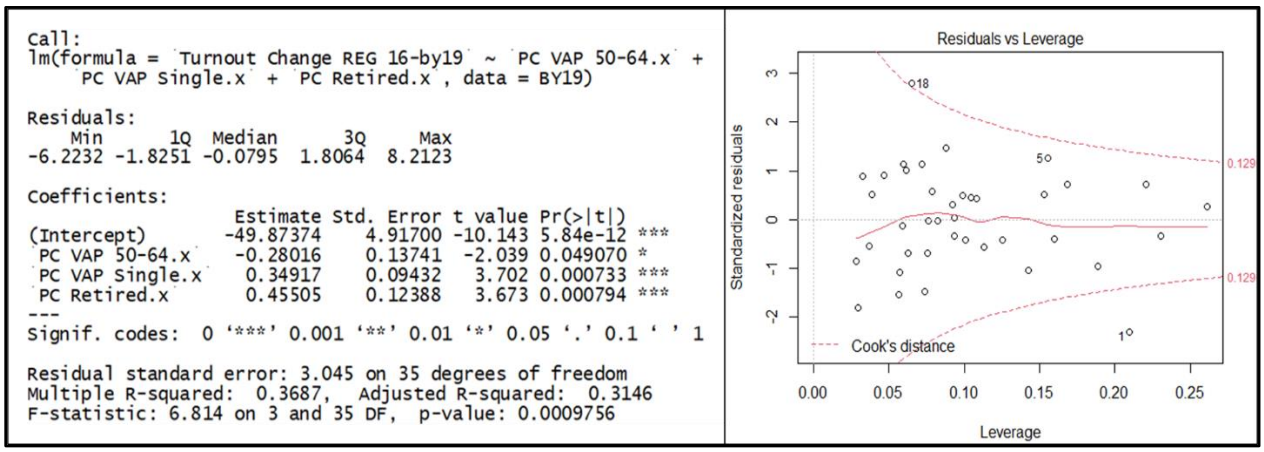
As displayed in Figure 8.7.2, there are a number of similarities and differences to the previous analysis. In this instance, age, housing, and employment variables are seen as having a significant impact on the resultant trends. The proportion of individuals at the same address for over one year in the 2016 census data is deemed to have the most significant impact. As previously noted, while this is not an exact measure of residency tenure due to the nature of the data available, it still may be considered a viable measure in terms of identifying areas in which residency tenure tends to be more stable. In a similar manner to the examination of registered voter turnout levels, variables associated with age are also seen to be highly influential. There is a strong positive association with the proportion of individuals in the 50-64 age cohort. There is also a notable positive influence observed in the case of the proportion of the population that are classed as 'retired', a variable that again has a strong association with an older population. The influence of the proportion of the population within the higher education cohort is also present in this instance, in a similar manner to the previous analysis. The apparent relationship to education levels is one relationship that is more pronounced when all variables are considered, as opposed to the individual level of variables analysis. This relationship has been identified in a number of instances, both internationally (Putnam, 1995; Hillygus, 2005), and in the Irish context. (Kavanagh, 2002). Deputy Duncan Smith points to the potentially greater level of awareness of political issues in general among those that attend further education, noting the long-observed tendency for these individuals to be more likely to vote on election day.

> 'I think it's just a greater engagement with politics and what's going on. And whether that comes down to education, or you know whatever the case may be. They're kind of simplistic analyses that have you carried down through the years. Those who go to third-level or fourth-level education are more likely to vote in greater numbers'. (Smith, 2020).

When considered alongside the previous analyses, the examination of the eligible voting-age population turnout primarily serves to strengthen the observed relationship of higher levels of voter turnout in areas that tend to have older populations, a stable housing situation, and tend to have more professional employees with a higher level of education. Secondly, the increased ability of the voting-age population model to account for the observed degree of variability in the data suggests that while the select variables have a notable impact on the level of the registered

electorate that participate on Election Day, the same characteristics may tend to shape the proportion of the population that register to vote in the first instance. As with previous analyses, this must also be considered in the context of register accuracy, suggesting that perhaps inaccurate registers hide a number of traits associated with 'true' turnout levels.

Besides the select characteristics that may influence participation rates within a given area, the various rates of change in comparison to General Election 2016 and Local Election 2019 may be examined. In the first model construction process, which examines rates of turnout change from General Election 2016 to By-Election 2019, various iterations of the model are produced until a final iteration is generated, as displayed in Figure 8.7.3. The final version of the model is relatively robust, with no extreme impact from outlier values observed and all Variance Inflation Factor values below two. While a final stable model is produced, the final iteration accounts for just 37 percent of all variability in the data. The most influential variables in the multiple regression model are those broadly associated with age. While the only direct age variable included suggests a more pronounced decline in areas that have large proportions of the electorate in the 50-64 age cohort, there is also a notable trend of decline being less pronounced in areas that have both high levels of 'single' individuals and areas that have high levels of 'retired' individuals. This may suggest that while traditionally high voter turnout areas that have older retired populations are still participating at a higher rate, there are also a greater number of young, single individuals that participate.



```
Call:
lm(formula = `Turnout Change REG 16-by19` ~ `PC VAP 50-64.x` +
    `PC VAP Single.x` + `PC Retired.x`, data = BY19)

Residuals:
    Min      1Q  Median      3Q     Max
-6.2232 -1.8251 -0.0795  1.8064  8.2123

Coefficients:
                  Estimate Std. Error t value Pr(>|t|)
(Intercept)      -49.87374    4.91700 -10.143 5.84e-12 ***
`PC VAP 50-64.x`  -0.28016    0.13741  -2.039 0.049070 *
`PC VAP Single.x`  0.34917    0.09432   3.702 0.000733 ***
`PC Retired.x`     0.45505    0.12388   3.673 0.000794 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 3.045 on 35 degrees of freedom
Multiple R-squared:  0.3687,   Adjusted R-squared:  0.3146
F-statistic: 6.814 on 3 and 35 DF,  p-value: 0.0009756
```


Figure 8.7.3: Linear Regression Model for Registered Voter Turnout Change from General Election 2016 to By-Election 2019

Due to the observed relationship between voter turnout change, age factors, and associated variables, and due to the low degree of overall variability accounted for in the models, it suggests that socio-economic and demographic factors are not overtly influential on the degree of change observed between General Election 2016 and By-Election 2019 at the Electoral Division level in the select constituencies. When the level of voter turnout difference from General Election 2016 to By-Election 2019 is examined with reference to the eligible voting-age population, there is no apparent relationship with the select socio-economic and demographic variables. In this sense, the process of investigation fails to build a stable model that accounts for a reasonable level of variance within the rates of change observed.

The examination of changes in voter turnout between Local Election 2019 and By Election 2019 points to a strong association with select socio-economic and demographic characteristics in the case study area. It is important to note that this analysis is restricted to Electoral Divisions that are within the Fingal and Dublin Mid-West Dáil constituencies in which the By Elections took place in 2019, with some sections of Local Electoral Areas previously examined in Chapter Seven excluded as a result. As displayed in Figure 8.7.4, the final iteration of the registered turnout model identifies a number of associations between rates of registered turnout change and the selected predictor variables, with the final model accounting for over 68 percent of all the variation observed. The final iteration of the registered voter turnout model is constructed without the removal of outlier values, with a reasonable degree of performance in terms of the impact of extreme values and returns a VIF value of less than 3.2 for all variables included. The final voting-age population model has three outlier values removed to produce a stable model, with a lower R^2 value of 43 percent. This final model has VIF values of less than 2.6 and outlines a number of different trends to the registered turnout model.

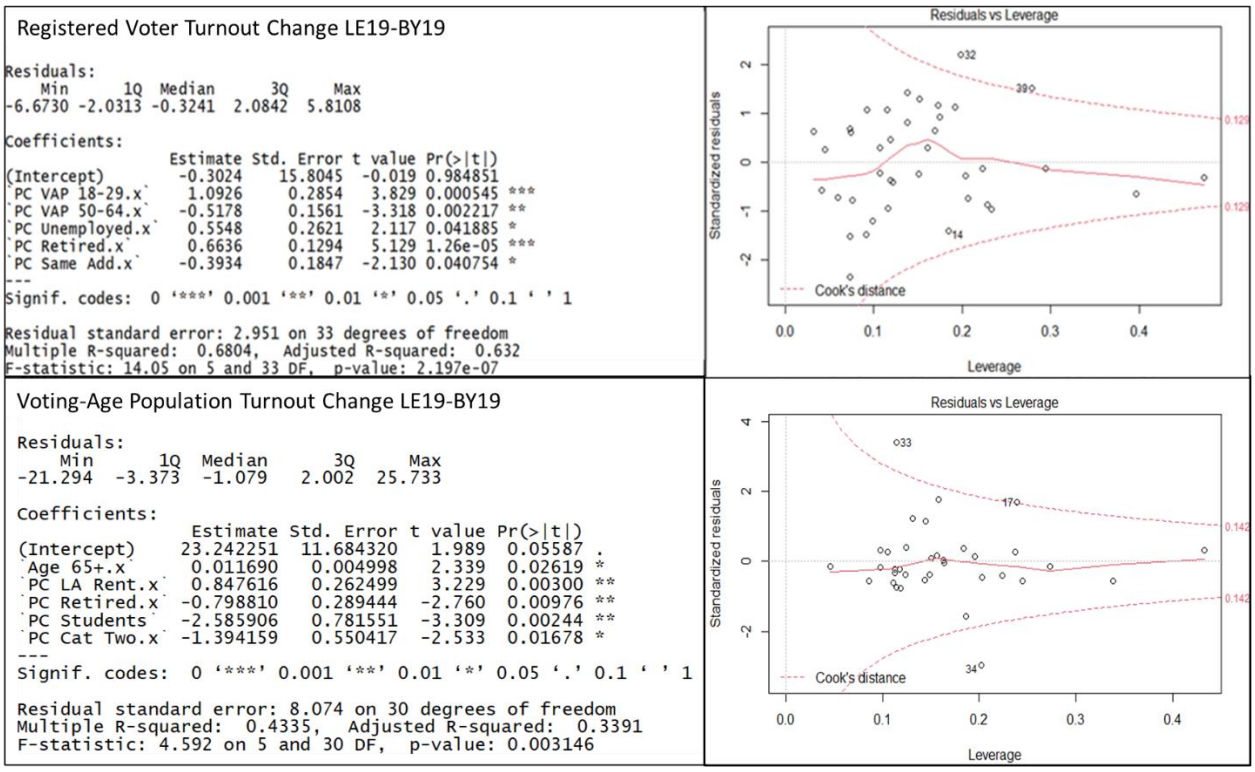


Figure: 8.7.4: Linear Regression Models for Voter Turnout Change from Local Election 2019 to By-Election 2019

The registered turnout model highlights the apparent relationship between rates of change and the age cohorts that are included. In this sense, while all Electoral Divisions in the case study area displayed a decrease in registered turnout between electoral contests, this decline is less pronounced in areas that have a large proportion of the population in the 18-29 cohort and is more pronounced in areas in which have a large proportion of the population in the 50-64 age cohort. This suggests that younger voters were notably more likely to participate in the By-Election, and older voters were more likely to abstain. However, the positive association between retirement levels and rates of change suggests that this is not always the case, when considering that retired individuals are logically more likely to be part of an older age cohort. This could suggest that the overall trend of younger population being more likely to participate does not apply in all areas, but may also suggest that both younger and older populations were more likely to vote, with those in the middle-age cohorts being most likely to abstain. Most likely, given that the previously observed characteristics that shape participation in Local Election 2019, the data suggests that with an

overall low level of turnout in the By-Election and a lack of salience associated with it, older members of the population that are likely to regularly participate in electoral contests continued to do so, to a certain extent, while younger populations were perhaps specifically motivated to participate, leaving the middle-age cohorts to present a more significant level of decline. The voting-age population turnout rate of change demonstrates mixed results in terms of age variables, showing a positive association with the proportion of the population in the over 65 age cohort, but a negative association with retirement levels. There is also a strong negative association observed with the student population, suggesting that there is a significant decline in areas with large student populations; individuals that predominantly tend to be younger.

Besides the predictor variables that are related to age groupings, there is also a notable trend in which registered turnout decline is less pronounced in areas that have a high level of unemployment, and more pronounced in areas that have a high level of residential stability. Again, when considered in the context of turnout change in contests prior to Local Election 2019, this suggests that communities in more socially deprived areas with a higher rate of residentially instability, which experienced a great deal of turnout decline up to Local Election 2019, were those communities that were particularly motivated to participate in By-Election 2019, or at the very least, were less susceptible to continued decline. In other words, observed trends may occur due to the particular mobilisation of these areas for the By Election contest, or simply because these communities had already reached a potential 'floor' of lower participation rates, and as such, did not decline to the same extent as other communities. The most valid interpretation is likely that the observed trends are driven by a combination of these factors. This is supported by the voting-age population data, which points to a positive association between rates of turnout change and the proportion of the population in Local Authority rented accommodation, which is again a trait that tends to be present in traditionally low-turnout environments. The voting-age data also points to a decline among areas that have large proportions of the population in 'category-two' employment, but with a lower degree of reliability in this observation.

In any case, the overall trends mark a significant deviation from expected results, with often a linear relationship traditionally observed between age variables and voting participation, or in other studies (Milbrath, 1965:134; Skipworth, 2009), a curvilinear relationship, but in the reverse direction to what is observed in this instance. The growing engagement among younger cohorts is

something which has been noted in the media in advance of recent electoral contests (Holland, 2020), and also something which candidates have recognised during the campaigns.

> ‘I’m speaking to South Dublin county council and we’re processing all the new applications for voter registrations. And they have never seen such a high amount of applications from young people registering to vote for the first time. It was on par with the [Marriage Equality] Referendum. And a lot of young people came out [to vote] in that. So, the same happened in the last General Election. And the reason for that is its down to the way the country has been going the last couple of years. When young people see that the government, they feel that the government are in charge at this given time and not representing them. They see their older siblings and their mother and father struggling through housing, through lack of infrastructure, through lack of community infrastructure, all that kind of stuff, the very basics. And they decided that they wanted to come out and vote and vote for something different, and that’s what happened’. (Ward, 2020).

While Deputy Mark Ward points to a growing level of voter registration among younger cohorts as a sign of growing engagement, Deputy Duncan Smith also points to his experiences on the campaign-trail during the election as a sign of greater engagement from younger voters.

> ‘I think the youth are more engaged now than I’ve ever seen before, and that became evident in the Local Elections in 2019 and through the By-Election [in 2019] and through the General Election [in 2020], whereby, you’d be speaking to a parent and then a sixteen/ seventeen/ eighteen/ nineteen-year-old will present themselves, and engage in a really high-level conversation, which is brilliant, and really encouraging’. (Smith, 2020).

Senator Lorraine Clifford-Lee also notes the growing level of engagement among younger cohorts in the campaign, an effect that may have especially pronounced in the Dublin Fingal constituency, due to the overall young demographic in the area. The Senator also highlights the potential for mobilisation in advance of recent referenda among younger age cohorts, while also noting that many of these newly registered voters may not have continued to engage with electoral processes after these specific instances.

> ‘I was involved in the Repeal campaign a couple of years ago. Now that was a big kind of mobilisation effort to get people registered… I think this constituency had the highest number of people registering to vote in advance of that referendum… It’s the fastest growing part of Europe and it’s the youngest constituency, and it’s one of the most educated constituencies in Ireland as well. I think a lot of people registered for the referendum and went out and voted in the referendum and were very, very engaged with that issue, but are less engaged with wider political issues or by-elections, general elections, local elections, European elections’. (Clifford-Lee, 2020).

In summation, the data suggests that there is a relatively strong association between the socio-economic and demographic characteristics examined and the rates of turnout change between Local Election 2019 and By-Election 2019. While age, employment, and housing variables are all identified as having a notable relationship to rates of change, there are some significant differences between observations depending on which turnout measure is applied. Further insight into potential causal factors may be provided by subsequent analysis of additional potential geographical influences on turnout levels and rates of turnout change.

8.8: Candidate Location and Voter Turnout

As with the examination of other electoral contests in previous chapters, the potential influence of geographical factors, outside of the socio-economic and demographic characteristics of a given area, must be considered. While the nature of the small case study area and limited number of datapoints limits more advanced geographical methods, the turnout values, rates of change, and standardised residual values from the linear regression models must be considered in the context of the location of candidates in By-Election 2019. By-elections are somewhat unique in terms of candidate success rates, given that each contest is held for just one available seat. In this sense, unlike in previous examinations, while there are many candidates in each constituency, there is only one successful candidate in each. This limits the style of approach applied to both previous analyses, as does the rather limited case study area. Despite these limitations in analysis, the location of candidates and successful candidates may still be considered in terms of the potential

influence that it may have on voter turnout trends in By-Election 2019. The location of each candidate may be observed in Figure 8.8.1 and may be compared with the geography of trends previously examined throughout this chapter.

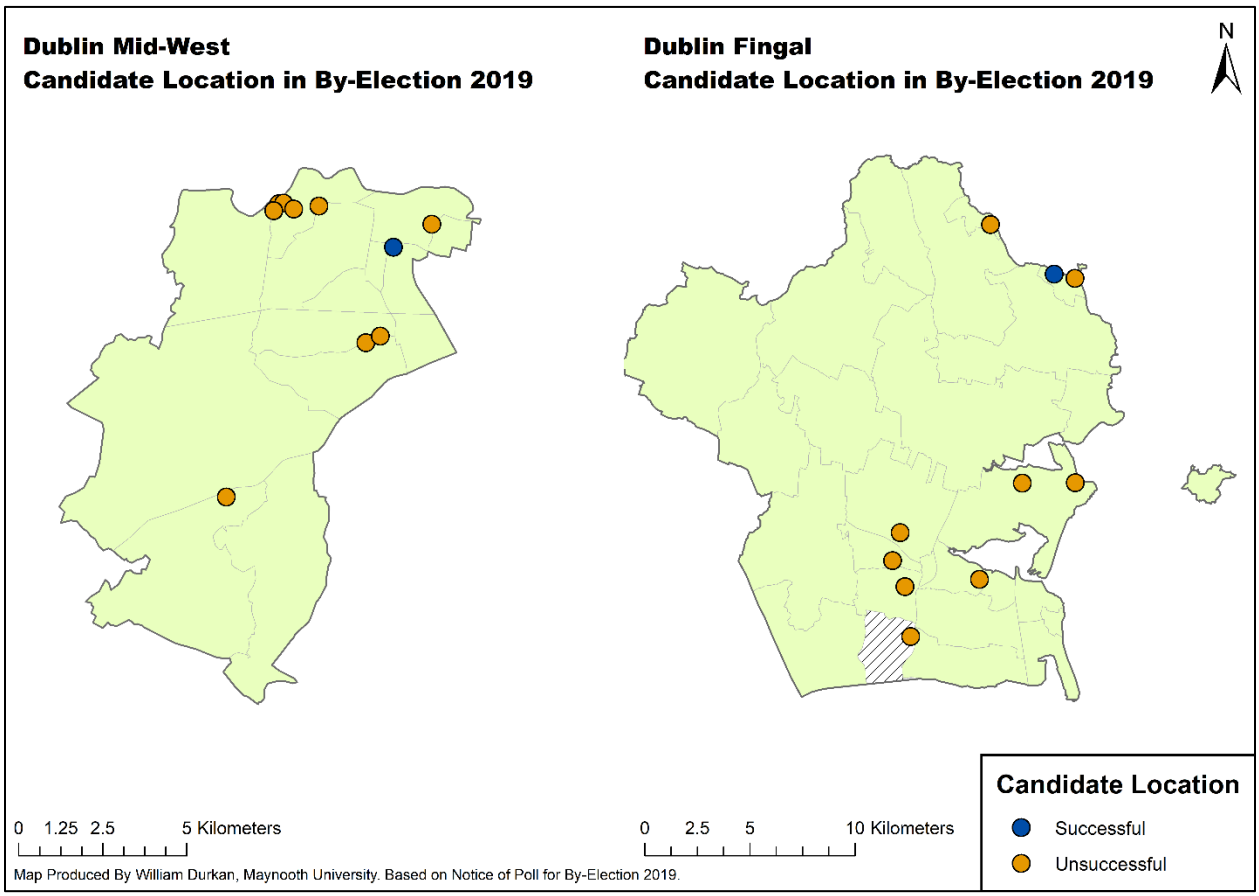


Figure 8.8.1: The Location of Candidates in Dublin Mid-West and Dublin Fingal in By-Election 2019

In terms of previously noted voter turnout levels within the case study areas, the location of candidates in Dublin Mid-West has the potential to partially contribute to the overall high rates of turnout in the Lucan area, with the lack of candidates in parts of Clondalkin also potentially contributing to the low turnout levels recorded here.

In terms of potential causal factors, as previously mentioned, it is also notable that five of the candidates that contest the election reside in the Lucan area, perhaps suggesting that the presence of a large number of candidates in the area served to heighten participation rates through increased levels of competition in the community, close to the candidates' home base, or bailiwick. Deputy

Mark Ward suggests that the higher-than-expected turnout in the area is due to the presence of a large number of election candidates, with candidate location also potentially mobilising other areas throughout the constituency.

> 'I can only speak for myself. And I'd say the reason maybe Lucan village might have been higher, is because they would have had a Lucan Village candidate in the By-Election as well, a couple of Lucan Village candidates in the By-Election that would have been associated with that area. But people will come out and support their local representatives… I would have been very strong in the North Clondalkin, kind of Lucan areas, myself, so that would have been associated with the high turnout of them areas as well'. (Ward, 2020).

In terms of trends observed in levels of turnout change within the area, the areas surrounding the successful candidate Mark Ward displayed a lesser rate of decline from the preceding Local Election 2019, suggesting a significant mobilisation effect in this area.

Overall, while comparison between observed trends and candidate location may suggest some instances of relatedness, there is also a great deal of variation which lacks any apparent association. In this sense, any potential influence of candidate location on By-Election 2019 voting trends may be further considered in the case of the Dublin Fingal constituency, a constituency which is larger in size and has a greater degree of variation in terms of candidate location, and as such, is perhaps more suitable for analysis.

In the Dublin Fingal constituency, there appears to be a more pronounced relationship between observed voting trends and the location of election candidates. In terms of the overall voter turnout levels within the area, the voter turnout level tends to be higher in the easter section of the constituency, close to urban centres where candidates are based, with a notable lack of candidates and lower turnout in the more rural western part of the constituency. Likewise, the rates of change between General Election 2016 and By-Election 2019, and between Local Election 2019 and By-Election 2019, also highlight a more pronounced rate of decline in the western part of the constituency which is furthest from the location of candidates.

The relationship between turnout trends and candidate location may be examined in more detail by comparing the mean values for participation levels, rates of change, and model standardised residuals in various locations. As previously mentioned, this comparison is somewhat restricted by the size of the case study areas, and also by the number of candidates, especially the number of successful candidates. However, a broad range of mean values for variables in Electoral Divisions can be considered in the context of candidate location, as displayed in Table 8.8.1.

Fingal Area (Mean Values)				
	All EDs	Candidate 2km Buffer	Successful Candidate 2km Buffer	Difference
Turnout (REG)	24.33	24.94	32.34	8.01
Turnout (VAP)	25.23	23.56	36.01	10.78
Change GE16-BY19 (REG)	-38.87	-38.97	-36.87	2.00
Change GE16-BY19 (VAP)	-38.08	-37.12	-21.47	16.61
Change LE19-BY19	-17.27	-16.67	-17.23	0.04
STDRES VT (REG)	-0.19	0.12	1.05	1.24
STDRES VT (VAP)	-0.07	-0.07	0.28	0.35
STDRES Change GE16-BY19 (REG)	-0.47	-0.55	2.05	2.52
STDRES Change LE19-BY19 (REG)	-0.27	-0.12	0.45	0.72
STDRES Change LE19-BY19 (VAP)	-0.77	-0.53	2.21	2.99
Dublin Mid-West Area (Mean Values)				
	All EDs	Candidate 2km Buffer	Successful Candidate 2km Buffer	
Turnout (REG)	26.58	N/A	27.23	0.65
Turnout (VAP)	24.69	N/A	26.07	1.38
Change GE16-BY19 (REG)	-35.5	N/A	-35.55	-0.05
Change GE16-BY19 (VAP)	-35.29	N/A	-36.16	-0.87
Change LE19-BY19	-11.95	N/A	-10.74	1.21
STDRES VT (REG)	0.27	N/A	0.27	0.00
STDRES VT (VAP)	0.12	N/A	0.09	-0.03
STDRES Change GE16-BY19 (REG)	0.84	N/A	0.48	-0.36
STDRES Change LE19-BY19 (REG)	0.48	N/A	0.4	-0.08
STDRES Change LE19-BY19 (VAP)	1.37	NA	2.08	0.72

Table 8.8.1: Candidate Location and Voter Turnout Trends in Dublin Mid-West and Dublin Fingal in By-Election 2019

In this analysis, mean values of variables are compared across three categories, with the first including all Electoral Divisions, the second including all Electoral Divisions within a two-kilometre buffer area of a candidate's home area, and the third including all Electoral Divisions within a two-kilometre buffer radius of a successful candidate's home area. In this comparison, within the Dublin Fingal constituency, there is a notable tendency for voter turnout to be higher and rates of decline to be less pronounced in areas close to candidates' home location. This effect is especially pronounced in the case of successful candidates, and the effect can be considered as

independent of socio-economic and demographic influences within a given area, as reflected in the model residual value trends.

In the Dublin Mid-West area, the presence of this effect is less pronounced. In this comparison, the second category of candidate location is not applicable, as all Electoral Divisions are within a two-kilometre radius of a candidate. While there is some evidence to suggest a relationship in the overall levels of participation and location of the successful candidate, the examination of all other categories demonstrate mixed results. This may suggest that the aforementioned mobilisation of select socio-economic and demographic groups was more pronounced than the select mobilisation of an area close to the candidate's home base, or alternatively, that the scale of analysis is unsuitable to examine any potential effects in a relatively small constituency with few Electoral Divisions overall.

8.9: Further Discussion and Conclusion

This analysis highlights a number of factors that shape participation in By-Election 2019. While overall participation rates tend to be shaped by factors that are traditionally associated with turnout levels, the By-Election also highlights a potential change in these observed trends. In the first instance, the analysis points to a stronger-than-expected level of engagement from younger populations.

In the Fingal constituency, Deputy Duncan Smith highlights the role that secondary level education plays in increasing awareness among younger citizens, and points to the success of Green Party candidate Joe O'Brien in both the 2019 By-Election and 2020 General Election, in an atmosphere of increased awareness about environmental issues among the youth. Further to this, Deputy Smith suggests that if engagement in the political process leads to a successful outcome for a younger, perhaps first-time voter, this in-turn has the potential to spur further engagement in future processes.

> 'I think that's down to CSPE, you know, transposing into Politics as a subject in secondary school… So, we are definitely seeing a more engaged younger generation. And I think that bodes well not only for political participation in terms of active participation, in terms of

> campaigning, or maybe getting involved in parties or campaigning groups, but you know, in terms of voting. They do value their vote... and in that By-Election, you saw a Green party candidate win… An awful lot of young people who would have voted, they would have seen value for their vote… And I think if you back a winner early-on, then you're more likely to stay engaged. (Smith, 2020).

Deputy Mark Ward similarly highlights this point, with reference to the potential impact of recent referenda, in which younger people tended to be very involved in campaigning, with many perhaps registering to vote and casting a ballot for the first time at that point.

> 'You see around the Marriage Equality and the Repeal the Eighth [referenda], they were single items in some areas, very divisive areas, but there was a lot of young people on one side of that, that feel that they wanted to get the change for their friends, their families, their futures… And what happened was, because they won, they won… They feel that their vote really, really did make a difference. So, when they feel that they've won, and they know that their vote has made a difference, they're more likely to vote in upcoming elections going forward'. (Ward, 2020).

While Senator Lorraine Clifford-Lee also pointed to the role of recent referenda in fostering participation among the youth, as previously discussed, the Senator also notes that engagement with single issues doesn't necessarily foster continued wider political engagement, unless the salience of these processes is demonstrated to potential voters.

> 'Great voter mobilisation in the [Repeal the Eighth Amendment] Referendum and the [Marriage Equality Referendum] changed the direction of this country, and it's up to the likes of me to convince people that it's not only in referendums that you can change how this country progresses and develops. It's by electing people to the Dáil. It's by electing people to your local council'. (Clifford-Lee, 2020).

Deputy Mark Ward also points to the important role that second-level education plays in fostering a level of engagement with the political system. In this respect, Deputy Ward stresses the importance of engaging with younger citizens, especially in areas that have traditionally low levels of engagement. Deputy Ward highlights the potential engagement with secondary level students has, to not just provide awareness of important political issues through formal teaching , but also making younger citizens aware of the role of public representatives, through engaging directly with them, and demonstrating that representatives and decision-makers can be people that they can identify with. Deputy Ward speaks about his experiences when engaging with transition year students and local youth groups in his former role as Mayor of South Dublin County Council, and the reaction he received from younger members of the community.

> ‘They were enthused. They were engaged. I took a couple of students on a week work-experience that year up to the Mayor’s office for a week as well, so they really enjoyed that interaction as well. Especially in working-class areas where I’m from, when they see somebody from their own area that talks the same as them, that walks the same as them… like I have tattoos. I remember one of the lads saying to me: “you can’t be a politician, you can’t be a TD, or you can’t be the Mayor because you talk like us and you have tattoos”. So, they have this opinion, that probably I would have had as a young man growing up, that all politicians were in suits and they spoke differently than the way I spoke. So it’s just to let people know that anybody can become a public representative, and people can be public representatives that have the same values and talk the same as you do and have the same backgrounds as you do. So that was really encouraging as well’. (Ward, 2020).

Further to this, Deputy Ward highlights the positive impact that specific targeted efforts to increase engagement among younger citizens in traditionally low-turnout areas can have. In this sense, accessibility to services can increase awareness, and also facilitate the necessary administration for the registration process.

> ‘One of our youth centres, I know one in particular up in Neilstown, Ronanstown youth service, they had an election registry day for young people in there, within their organisation. So, people came in, and I think they had a Guard on site, so they were able

to get things stamped and all in the one go. So that's one of the other drives. There's a couple of similar drives across the constituency as well'. (Ward, 2020).

Besides the noted potential for increased political awareness among the youth through formal and informal education, and through engagement with topical issues such as recent referenda and environmental issues, candidates in the 2019 By-Election also point to the growing use of social media in election campaigns. While this may not be directly restricted to engagement with younger citizens, it does offer a medium for candidates to engage with a wide audience, an audience which includes younger voters. Deputy Smith highlights the role that social media has played in recent elections, noting that this isn't a replacement for traditional forms of engagement, but rather an additional medium that needs to be included.

'We had a very strong social media campaign in the By-Election, and you know, our vote was very strong compared to our national average… we would have credited social media with that. So, you know, we're at a stage now where you need a strong grounding, but if you don't have a strong social media game to go with it, you're operating at a disadvantage. You need both to be operating at as high a level as possible… (Face-to-face contact) is still the most effective tool there is. Meeting people, shaking their hands… having a conversation with them, be it for thirty seconds, three minutes, five minutes, however long that conversation is. And if a connection is made, be it on personality, or on policy, or whatever, that will trump anything else, a poster, or a video on YouTube, or a Facebook add, or whatever. But they're all part of what's important now for an election'. (Smith, 2020).

The growing use of social media alongside traditional methods is also highlighted by Deputy Mark Ward, who notes the recent shift towards online campaigning on a range of platforms.

'I would have run in a couple of local elections over the years, but the By-Election was the first time that we had an online strategy to go alongside our knocking on door strategy, and it worked… It's important to get [your] message out on Facebook and Instagram, and Twitter to a lesser extent. But the face-to-face knocking on doors thing, that can't be pushed

> aside just to go with social media, because to me, that's the most important part, the actual face-to-face engagement that you have with the public when you're knocking around'. (Ward, 2020).

The growing level of engagement form younger populations is widely noted by candidates in recent campaigns. There is a potential association between this and recent topical issues that fostered this engagement, an increase in formal civic education in secondary schools, and the potential for the move toward online campaigning to include a wider, younger audience. Senator Lorrain Clifford-Lee outlines the importance of awareness campaigns among younger populations, and populations that may be unfamiliar with our political system, noting the benefit of existing efforts that aim to raise awareness and facilitate engagement.

> 'It's educating kids in school first of all about the ins and outs of our electoral system and how places are filled. I think there could be a greater public awareness campaign… there could be an online campaign informing voters… [and] any public awareness campaign needs to be held in different languages as well, because we've a very diverse constituency here… Some groups of foreign-born electors are very, very engaged and come from countries that have similar systems to us, and would be very, very, engaged and very knowledgeable… I do find then; some other groups would have a reluctance even to engage and a nervousness talking to a politician or even talking about politics'… [A colleague] held a night where locals came along and actually register on the night, and then there was people there to, kind of, give a lecture in relation to how you cast your vote or how it's counted, what it all means, and a questions and answers kind of session. And she thought they were fantastic'. (Clifford-Lee, 2020).

There was also a notable tendency for specific communities that had a traditionally low level of engagement to be more involved in By-Election 2019. This is best reflected in Dublin Mid-West, with models demonstrating a tendency for a lower level of decline in participation in more socially deprived areas. Further to this observed trend, even when socio-economic and demographic characteristics are considered, the residual values from the models demonstrate a tendency for

areas of North Clondalkin to still have a higher-than-expected level of voter engagement in this election. Deputy Mark Ward points to the efforts that have been made to increase awareness in the area over the past number of years as a potential causal factor in this instance.

> ‘There has been a lot of work done by ourselves and other parties, and I suppose other people around the area, to encourage people to vote and to inform people of the value of their vote and what they’re getting’. (Ward, 2020).

This change in established turnout trends in the Dublin Mid-West constituency is perhaps the most remarkable observation in By-Election 2019, with this significant shift in political engagement not just shaping changes in the geography of voter turnout, but also shaping the resultant landscape of political representation in the area. This is highlighted by both the successful By-Election candidate Deputy Mark Ward and Cllr. Gus O’Connell, the long-serving local representative for the Palmerstown-Fonthill LEA.

> ‘Turnout was hugely important (in determining the result) … Some areas that I wouldn’t be as strong in, or Sinn Féin, or my party wouldn’t be as strong in, that would be traditionally a Fianna Fáil kind of area, or a Fine Gael area, or maybe a Labour area, or whatever. It might be they didn’t turn out in the same numbers as they normally turn out. So, what you have is the areas that traditionally didn’t (vote), turn out more, and the areas that traditionally do turn out, turned out less. That had an impact. (Ward, 2020).

> ‘In the recent By-Election for example, in our own area again, the turnout in the area we’re talking about that’s in Clondalkin was nearly twice what turned out in Lucan… So, you ended up with a Sinn Féin Councillor getting elected as a TD, Mark Ward, and partly because, if you like, the people came out in his own area and voted massively for him of course… because he was “one of their own”. And in other parts of the constituency where the turnout was very low, people lost out’. (O’Connell, 2020).

The change in this sense has the potential to have a long-term impact on engagement levels in the area. In the first instance, as previously outlined, the visible impact of an individual’s vote has the

potential to foster future engagement, as does the presence of a newly elected candidate into an area that traditionally had few representatives, partially as a result of the low-turnout environment. This is highlighted by Deputy Mark Ward who notes the change in this regard over his lifetime and, in the same words as Cllr. O'Connell, notes the perceived impact of community members being represented by 'one of their own'.

> 'In North Clondalkin, I know this was my own experience growing up in the area, we would have had a lack of visible public representation over the years. And its only in the last number of years that's changed. And when people actually see the benefit of having somebody, "one of their own" as they call it, working for them, they're more inclined to come out and vote for that person… When people see that you're actually out doing a bit of work for them and you're doing your best for the area they're more inclined to come out and vote for you. So the gaps are narrowing between the more traditionally higher turnouts and the more traditional lower turnout areas'. (Ward, 2020).

> 'So, when I was growing up in my area, I knew who the local TDs were, but I never seen them. And if I did have any encounters with them, they weren't somebody that I could relate to. So, I never had that connection to any of the public representatives around, say the North Clondalkin area, who would have represented me over the years. And that's because they have low turnout in them areas as I said, which is changing now, so that's why you're seeing [change]. For example, in Dublin Mid-West, we have four TDs, and two of them are from the North Clondalkin area… People are actually voting, people from their own area, people that they identify with, but it's also people that they know would do their upmost and their best for the areas that they represent'. (Ward, 2020).

While specific targeted efforts by members of the community, community organisations, and political parties may be understood as driving some of the observed trends in the Dublin Mid-West area, the Dublin Fingal area does not appear to have the same level of active mobilisation present among select communities. As Deputy Duncan Smith notes, while some organisations make active efforts to increase engagement and registration, there is far less of an ongoing initiative than is present in the Dublin Mid-West area.

> ‘There’d be pop-up drives from political parties outside of election time. You know, they might run a campaign for a week, get people signed up. And I know there’s an awful lot of talk in youth groups and that from people who are turning eighteen, or just turned eighteen, to get registered and that. But you know, in terms of an ongoing, dynamic, engaged group, there’s nothing really there’. (Smith, 2020).

In this respect, as demonstrated in the previous analysis, the predominant drivers of voter turnout in the Dublin Fingal area in By-Election appear to be the aforementioned socio-economic and demographic characteristics, alongside a notable tendency for areas of low or declining turnout to be located in the parts of the constituency that are most removed for the location of candidates. The examination of model residuals highlights this issue, with the more rural parts of the constituency having both a lower-than-expected rate of participation in the election, and also a greater-than-expected level of decline from previous contests. Deputy Smith also highlights this issue with reference to the Balscadden Electoral Division.

> ‘Balscadden... you have that extra bit of distance. Its right up at the top. So, I know I didn’t get a chance to canvass Balscadden personally from the By-Election. I imagine others didn’t either. So maybe they felt excluded by the participants in the election, you know, as well as being geographically a little bit further away’. (Smith, 2020).

In this respect, the impact of candidate location on the electorate in Dublin Fingal, is perhaps the most notable geographical influence on voter turnout rates, outside of the previously outlined socio-economic and demographic influences. This raises concerns around constituency structure, and resultant engagement levels, as also outlined in previous chapters. In this sense, if some communities are removed from large urban centres that can viably support successful candidates, perhaps they find themselves at a disadvantage in important policy decisions, and perhaps, lack the equality in representation that the constituency structuring process and political system is intended to provide and protect.

In conclusion, the examination of the 2019 By-Election offers a number of insights into the factors that shape voter turnout trends in the Republic of Ireland. In the first instance, the election provides

an example of the significant decrease in participation for a contest that is perceived as being less salient than other contests by the electorate. This supports findings in international comparisons by academics such as Elguie and Fauvelle-Aymar (2012) and Leininger et al. (2018). Further to this, the examination of By-Election 2019 also supports the findings of Cutler's (2008) Canadian analysis, in that contextual factors are also observed as having a notable impact on turnout trends in this 'second-order' election in the same manner as additional factors shape participation in 'first-order' elections in the Republic of Ireland.

In terms of the socio-economic and demographic factors that shape participation rates, there are a number of significant findings. Traditional factors that are identified in previous chapters as shaping participation rates in General Election 2016 and Local Election 2019 are also observed as having a notable association in By-Election 2019. In this respect, areas that have older populations, a lower degree of residential mobility, and a higher level of education, are observed as having a higher level of voter turnout. What differs in this election however is the extent to which these trends are observed. This is best demonstrated by examining the characteristics in areas that experienced significant changes in participation rates from previous elections. In this respect, while voter turnout appears to remain high among areas with significant members in the oldest age cohorts, there is a significant decline in the areas with a high proportion of the population in the middle-age cohorts, and a significant increase in participation among younger voters. This analysis suggests that this significant change is shaped by a range of factors, which includes a number of topical issues at the forefront of political debate in the Republic of Ireland over recent years. This includes an increase in the salience of environmental issues, the recent referenda, an increased level of political education in schools, and potentially also as a result of an increase in the use of social media in election campaigns.

Further to the noted association with age, there is also a noted increase in participation among select cohorts that traditionally have very low engagement, and in specific communities in which there has been historically low levels of engagement. This is best demonstrated in the North Clondalkin area in the Dublin Mid-West constituency. In this instance, direct efforts to increase engagement by both community groups and political organisations appear to have a notable impact. While this may not be clearly reflected in overall engagement levels, it is quite pronounced when considering the relative rate of change in comparison to other areas within the constituency.

Besides the observed trends, the most news-worthy issue that stemmed from By-Election 2019 was the notably low level of participation overall, spurring the conversation about electoral engagement in the country, to a certain extent. Candidates in the election note the need to have an increased level of engagement, and the potential for select communities to be neglected if they do not engage in the electoral process.

> ‘In an ideal world you’d want 100% turnout, so that means everybody’s opinion, everybody’s beliefs, whether you agree with it or not, is reflected in the ballot. But as I said, what happened over the years for a long time was that areas of social disadvantaged, areas were not turning out to vote. Now that’s changing over the last while, but they weren’t turning out to vote, so therefore, their needs weren’t being reflected by government policy. So that’s really important’. (Ward, 2020).

> ‘We want turnout at locals, by-elections, referenda, general elections, to be as high as possible. Because, if people are enfranchised, and feel included, and feel like their vote counts, they’re going to pay attention. They’re going to hold their politicians and their candidates to a higher standard, because they will feel self-involved in the process... But like, on our best day, three out of ten people don’t vote… and feel they have no voice in the system, and that is wrong’. (Smith, 2020).

Perhaps the most notable finding in this analysis is the demonstrated potential of mobilisation efforts in increasing levels of engagement, even among some of the lowest-participation areas in the country. While low levels of engagement are certainly a cause for concern, this analysis suggests that this issue is able to be effectively addressed. In this case, the mobilisation efforts in the North Clondalkin and surrounding communities is noted as having a significant impact on voter turnout, and election results. While an increase in turnout is a positive measure for the democratic process, the party-political involvement in this positive increase may have negative connotations. In this sense, the need to have efforts driven by non-partisan organisations is also echoed by Deputy Duncan Smith.

> ‘We need to have voter drive… We need people to vote because it’s their choice to vote, and they’re going to make a choice based on who is available. We need to make them want

> to go out and vote. So, we need some non-partisan organisations to run it, or the State to run it. I think the schools are playing a really good role at the moment… But we need to get to the stage in ten/fifteen years whereby we have, you know, way higher levels of turnout. But it can't be left to political parties because they've a vested interest in their own growth, and not the growth of the overall democratic franchise'. (Smith, 2020).

The mobilisation of select communities not only demonstrates that spaces of neglect have the potential to be addressed in our current system through increased mobilisation, but also suggests that addressing these concerns has the potential to be a long-term solution. As initial engagement has the potential to elect a candidate from a given community, with the presence of 'one of their own' working on behalf of the community in-turn having the potential to foster a long-lasting level of engagement, engagement which is informed and reproduced through local networks, to equalise inequalities in political representation.

Chapter Nine: Conclusion

This thesis set out to investigate the factors that shape rates of political engagement in recent elections in the Republic of Ireland, with the aim of identifying spaces and communities that are at risk of encountering issues with representational inequality and outlining policy relevant solutions to address these issues. In order achieve this, the associated research objectives outlined the need to analyse voter turnout trends in a range of contexts to determine the extent to which established theories explain the resultant geography of participation; to investigate areas of changing trends and identity the factors that influence rates of change; and to investigate the administrative and structural factors that may impact on equality of representation. The resultant analysis identified a number of instances in which existing research in both the international and national context is confirmed in the trends observed, while also identifying a number of additional factors that are noted as having a significant association with voter turnout levels in recent Irish elections.

Throughout the research process, this thesis utilised a range of spatial statistical methods to explore the geography of voter turnout in a range of electoral contests at multiple scales. The resultant findings serve to highlight a number of strong trends in terms of identifying spaces and communities that have a notably lower level of voter turnout, and as such, are at risk of under-representation in the decision-making process. Further to this, analysis suggests that there are a number of socio-economic, demographic, and geographical factors that have a notable association with levels of participation, resulting in some spaces and communities being more exposed to this risk than others. As such, a number of communities are identified as suffering from this democratic deficit, while others are demonstrated as having a pronounced exposure to declining engagement.

The identification of geostatistical trends, informed and expanded upon by expert insight from representatives and political actors, highlights various causes for concern. In this respect, analysis points to a number of factors than may negatively influence electoral engagement and create spaces of representational neglect in the current political system. Further to this, there are a number of insights provided into the root causes of electoral disengagement; insights which may serve to better inform progressive policy generation aimed at tackling low and declining engagement among select communities.

The insights provided within this analysis expand on a number of aspects of existing work, highlighting the wide array of factors that can influence engagement among the electorate. The insight provided may be expanded upon by future works that aim to provide a more comprehensive understanding of political and electoral behaviour in the Republic of Ireland. This is undoubtedly an important topic that requires continued in-depth examination in order to address the various causes of concern for the strength and legitimacy of our democratic system; a system that lies at the core of a fair and functioning modern State.

9.1: Voter Turnout

In the range of case study areas considered in this research project, there are a number of clear trends identified in terms of the geography of electoral participation and rates of turnout change. In the first instance, it is important to consider the differences observed between the two chosen measures of voter turnout that are utilised. In this respect, as explored in Chapter Four, the accuracy of the electoral register is a topic that must be taken into consideration in any discussion on 'true' voter turnout trends.

As suggested by previous works which have examined the accuracy of the electoral register in detail (O'Malley, 2001; Kavanagh, 2016), residential mobility levels in a given area are observed as having a notable association with register accuracy levels. In this sense, areas with a high level of residential mobility are observed as having a great deal of under-registration, while more settled communities are more prone to over-registration. Further to this, there is a notable age-association, with over-registration more prominent in communities with large proportions of the population in the 65+ age cohort. This creates a scenario in which predominately younger communities with high levels of rental accommodation have many individuals registered as living in the area but that are not registered to vote. This may suggest that populations in these areas travel to other parts of the country to vote, but also may suggest a potential lack of registration among these communities. Conversely, more settled communities that have older populations tend to have a much higher level of registration. This may suggest that there is a higher level of initial registration, and also points to issues in which deceased community members or people that have left the area are still

included on the electoral register. (O'Riordan, 2020). The associations between registration levels, residential mobility, and older age cohorts undoubtedly contribute to the significant urban/rural divide in register accuracy. In this respect, urban areas are notably more prone to under-registration, with over-registration more pronounced in rural communities. Given these inaccuracies, urban/rural trends in voter turnout, as subsequently discussed, are notably impacted when the 'true' level of voter turnout is considered. Further to this, inaccuracies have the potential to lead to numerous problems in terms of the identification of political trends which may be considered by policy makers, and also have the potential to lead to instances of electoral fraud, as others have suggested. (Downing, 2016). The level of inaccuracy identified is also a concern in terms of how the public perceives the level of legitimacy in democratic processes within Ireland. Existing work has outlined the impact that public perceptions of fraudulent voting potential may have (Smith, 2017) in the U.S.A., a topic that has seen much discussion in the wake of the 2020 election. This thesis outlines the level of inaccuracy that exists in terms of the Irish electoral register and suggests that failing to address this issue may serve to cause similar issues in future within Ireland, a topic that is of relevance to the planned Electoral Commission.

When the accuracy of the electoral register is considered, the range in electoral participation levels observed in various electoral contests at various scales has a number of distinctly geographical traits. The spatial nature of the analysis conducted highlights the deep embeddedness of political and electoral traits within places (Agnew, 2002) and the communities that live there. The detailed examination of General Election 2016 at the Electoral Division scale points to many communities, often in urban areas, that have much lower-than-average rates of participation, with higher average levels observed in more rural areas. The aforementioned issue of register accuracy and the existence of an urban/rural divide in accuracy levels leads to an instance in which the previously observed urban/rural divide in voter turnout levels (Kavanagh, 2002) may be considered to be more pronounced than registered turnout figures suggest. This supports the findings of numerous international authors that examine urban/rural turnout variations in a range of contexts, such as Tarrow (1971) who notes high rural turnout in France despite a perceived lack of political interest, Clem and Craumer (1997) who note the urban/rural divide in the case of Russia, and Sridharan (2014) who notes higher rural turnout in India across a range of class divides.

While this investigation confirms that the traditionally observed urban/rural divide (Kavanagh, 2004) in voter engagement levels still exists in the contemporary Irish context, the temporal data also suggests that this divide is narrowing. Trends from General Election 2007 to General Election 2016 point to both an increase in turnout in traditionally low-turnout urban environments and a turnout decrease in traditionally high-turnout rural areas. While this might highlight a positive trend of increased voter engagement in traditionally low-turnout environments, it also highlights a worrying trend of decreasing participation in more rural communities; communities that are arguably more reliant on effective political representation to ensure effective service provision. Existing work highlights in the case of the United States of American (Mason, 2018) and the United Kingdom (Hobolt, 2016) the potential political impacts when select communities experience a sense of exclusion and disenfranchisement from the political system, an issue that this thesis suggests as a potential concern in areas of lower voter participation in the Republic of Ireland.

While the analysis of participation in General Election 2016 at the Electoral Division level highlights a number of potential causes for concern, the additional consideration of the Small Area analysis in select case study areas is equally as informative. In this context, while the Electoral Division level may suggest a relatively average level of participation within a given area, the Small Area analysis highlights that there are more select spaces at the smallest of scales that reflect worryingly low levels of engagement; a trend which may be hidden at larger scales of analysis. The consideration of data at multiple scales adds to the robustness of findings in the context of common challenges with aggregated spatial data, such as the Modifiable Areal Unit Problem (Openshaw & Taylor, 1979). In this respect, the confirmation of socio-economic and demographic trends at multiple scales serves to increase the reliability of observations. Further to this, the consideration of the micro-geographies of voter turnout demonstrates that significant variation occurs at even the smallest levels in the Irish context. This degree of variation observed, as well as the tendency for population in small units to have similar voting propensity potentially contributes to literature which examine the ‘neighbourhood effect’ (Pattie & Johnston, 1999) and the tendency for local populations to influence one another through daily interactions in their day-to-day lives (Agnew, 2002; Orford & Schuman, 2002), although this aspect may be best expanded upon through the use of individual level data in future analyses.

The in-depth analysis of voter participation and rates of turnout change in the context of General Election 2016 points to a distinct geography of voter turnout within the case study area examined. Further to this, the select case study areas chosen for both Local Election 2019 and By-Election 2019 serve to provide further insight into voter turnout trends. In the first instance, the analysis highlights the notably lower level of voter turnout in 'second-order' elections. This supports other works that note the tendency for lower participation in 'second-order' elections in a range of international contexts. (Kavanagh, 2002: 133; Elguie & Fauvelle-Aymar, 2012; Leininger et al., 2018). While the overall lower level of turnout is reflected in the chosen case study areas, the differences in participation again have a number of geographical traits. In this respect, the Local Election 2019 case study area highlights not just the notably lower level of participation, but the tendency for decline relative to the preceding general election to be more pronounced in traditionally low-turnout environments. This supports the findings of Cutler's (2008) analysis of Canadian second-order elections in that contextual effects are demonstrated as having a significant influence on the geography of participation in the same manner as first-order elections, despite the lower level of engagement overall. In this specific example, Local Election 2019 highlights the potential for 'second-order' elections to reflect traditional turnout divides along socio-economic and demographic lines in a more pronounced manner. The analysis of By-Election 2019 provides an example of some of the lowest turnouts recorded in the history of the State. The example of By-Election 2019 supports the findings of other academics that suggest that elections that are deemed by the electorate to be less salient tend to have much lower levels of participation. (Dahl, 1966; Rae, 1971; Strom, 1990; Jackman & Miller, 1995). The findings also potentially relate to the turnout difference associated with various electoral systems (Gosnell, 1930; Powell, 1986; Jackman, 1987), with by-elections in Ireland effectively more similar to a first-past-the post system (or the Alternate Vote system used to elect the President of Ireland), as only one seat is available. Contrary to the Local Election contest in 2019, the By-Election highlights significant shifts in traditional geographies of participation, with a much higher relative turnout in traditionally low-turnout communities. As with previous examples, the select traits that are seen to influence turnout levels and rates of change are subsequently discussed in more detail.

Overall, this thesis outlines the distinct geographical traits of voter participation in recent Irish elections. While the characteristics of places and the populations that reside there are subsequently discussed in more detail, the distinct geographies of participation that are outlined are an important

consideration in their own right. In this respect, the complex geography of participation that is demonstrated to exist on a range of scales and in various electoral contexts serves to outline the important place that electoral geography holds in assessing political behaviours. This approach outlines the potential of conducting research in this discipline with a methodology that embraces the ethos of critical realism to provide a detailed analysis that accounts for statistical trends while appreciating the innately human aspect of political behaviour and situates this behaviour in its contextual setting. (Agnew, 2002). By situating political behaviour in its spatial context, electoral geography offers a lens to provide a deeper understanding of political behaviour and associated issues. In this sense, an approach that is void of spatial context may often be considered to be void of a truly comprehensive insight that can identify causes for concern and suggest meaningful approaches to address issues. By situating electoral research in this comprehensive approach, a much deeper understanding of the various factors that shape levels of political engagement is provided; insight that has numerous implications for the equality of political representation and the effective function of our democratic system in the Republic of Ireland.

9.2: Socio-Economic and Demographic Influences

In the electoral contests that are examined there are a number of clear associations identified between voter turnout trends and socio-economic and demographic factors. In the case of turnout levels in General Election 2016, some of the most pronounced associations are observed with the age cohort variables. In this respect, younger populations are notably more likely to have a lower level of electoral engagement, while older populations tend to have a notably higher level of turnout. One notable trend with regards to the proportion of the population in a given age cohort is the tendency for turnout propensity to increase from the 18-29 cohort up to the 50-64 age cohort, with a less pronounced positive association observed after the age of 65. While an individual-level analysis would be a more appropriate means than an aggregate data study to assess this apparent trend with increased reliability, there is a notable affinity with the findings of Crittenden (1963), who suggests the existence of a curvilinear relationship of this nature; a relationship that suggest important life-cycle transitions as a key influence on voting behaviours.

As may be expected, due to their natural association with age, life-cycle transition measures such as homeownership and marriage are also observed as having a notable relationship with voter turnout levels. With regards to homeownership and residency tenure, some of the strongest associations are again observed. There is a much lower level of participation in areas with a lot of renters, and much higher levels in areas that have high levels of homeownership. Areas with pronounced levels of Local Authority rented accommodation specifically are noted as having a lower level of participation in many instances, but not in all cases. One trait that stands out in many examinations as having a sizable positive influence is the proportion of the population at the same address for over one year. In this respect, the majority of investigations point to higher levels of turnout in more residentially stable communities, with the potential for a more nuanced and varied measurement of residency duration perhaps being a very informative aspect to consider in future academic works.

Additional traits examined included those associated with employment levels, with analyses also considering an employment-based classification of 'social class'. In terms of relationships observed, there is a notable negative association between unemployment and turnout levels. In terms of employment type, there is a noted positive association between areas with large proportions of the population in 'category-one' employment, consisting of those in 'professional' employment, and there is also a negative association observed with those in 'category-two' employment, which consists of 'unskilled' and 'semi-skilled' roles. While employment traits are seen to be influential in a range of contexts, associations are notably more pronounced at the Small Area scale. This highlights two important factors that impact observed associations. Firstly, the Small Area case studies are predominantly more urban in nature. In this sense, it is important to consider the differences in employment type between rural and urban contexts. In many rural areas, those that fall into the 'category-two' employment class may tend to be agricultural workers. Among these communities, while some noted associations may suggest a low voter turnout, a high-turnout environment is commonplace. However, in the urban context, 'category-two' workers are expectedly more likely to be employment in the service industry and have waged roles, for example. Given this, while both sets of individuals fall into the same employment class utilised here, the nature of employment is notably different. Secondly, there is a notable average age difference between rural and urban communities, with a significantly older average age in more rural areas. This has a number of relevant impacts on trends observed. While employment type

may suggest a lower expected level of engagement, there are many other factors in a rural area that support a high-turnout environment. This is also reflected in homeownership levels, with the majority of rental accommodation in urban contexts. The application of the Small Area analysis highlights these trends in the urban context and outlines the impact that employment traits may have on participation rates, a trend which may be somewhat hidden on larger scales and may be predominantly confined to urban environments.

One expected relationship that is not demonstrated on any scale is the traditional association between education levels and voter turnout that is widely observed in academic literature. (Putnam, 1995; Hillygus, 2005). There is even some suggestion of a trend in the opposite-than-expected direction. One important consideration in this respect, as raised by Sondheimer and Green (2010), is that of potential issues of collinearity. In this respect, the traditional urban/rural turnout divide must again be considered, with a tendency for higher average education levels in more urban communities. This is expected to be shaped by both the types of employment broadly available in the differing contexts, and also the average age in a given context. In this sense, a much higher level of education may be expected in younger populations, given that the age grouping has had a reasonable level of time to complete their period of study.

While Mayer (2011: 643) outlines the potential for education to address instances of representational inequality, it is important to note that this civic education and awareness is not necessarily tied to formal education. The work of Pelkonen (2012) outlines that there is little evidence to suggest that an increase in civic education and political awareness has a positive economic return. I would argue however that increased awareness and participation in the democratic process should not be conceded as a means to an end, but rather a worthwhile pursuit in itself. Given the potential importance of various forms of education in shaping and potentially addressing issues of electoral engagement, and the multiple instances of collinearity with other influential characteristics among the electorate, this trait may best be further examined in the context of an individual-level analysis which may provide more nuanced insight.

Further to the observed association between socio-economic and demographic traits and turnout levels, rates of voter turnout change are also considered. In this respect, the rates of change from General Election 2007 to General Election 2016 appear to have some notable associations with select population characteristics. Among the most pronounced trends are the observed increases in

areas that have younger populations, and populations that have high levels of Local Authority rented accommodation. Although socio-economic and demographic characteristics are not observed as being as influential when rates of turnout change are considered, with notably lower levels of variability accounted for in this case than in the case of the static turnout models, the observed trends are arguably just as significant. The changing trends outline a narrowing of the voter turnout divide along traditional socio-economic and demographic divides, and as previously mentioned, also signify a narrowing of the traditional geographical divide, in-part as a result.

The examination of Local Election 2019 suggests that traditional turnout divides along socio-economic and demographic lines tend to be more pronounced in second-order elections. In this case study, traditional associations with age, housing, and employment are all noted as having a significant association with turnout levels. The pronounced divide also points to a more notable association with education levels in the traditionally expected sense. It is worth noting in this regard that the predominately urban nature of the select case study areas perhaps helps to demonstrate this association. It is also notable that this divide appears to be widening in comparison to the previous 2014 contest. The Local Election 2019 case study also provides insight into the role that ethnicity may play in shaping turnout trends, due to the more inclusive nature of local elections in terms of voter eligibility. While ethnicity is another factor that may be better examined with individual-level data, it does demonstrate some apparent associations with voter turnout in this aggregate study. In this respect, across all case studies examined to various extents, areas with large foreign-born communities and areas with significant Irish Traveller populations are frequently seen to have very low levels of voter engagement. This thesis also suggests that participation rates among foreign-born communities has no apparent association to the ethnicity of a given candidate. In this respect, while previous studies (McElroy & Marsh, 2009) have suggested that voting along the lines of descriptive representation does not appear to occur in the context of a candidate's gender, the same appears to be true when ethnicity is considered. The identification of low participation among foreign-born populations and the Irish Traveller community is a potential cause for concern, especially when considering the unique representational needs that members of these communities may have.

The examination of By-Election 2019 demonstrates a different example of a significantly low-turnout second-order election. While Local Election 2019 demonstrates a case in which traditional

divides along socio-economic and demographic lines is notably pronounced, By-Election 2019 provides an example of a contest in which these divides appear to be narrower than ever before. In this case, significant increases in relative participation are observed in traditionally low-turnout areas. This specific case suggests an apparent mobilisation of select communities along socio-economic and demographic lines. While this may be viewed in a positive manner in terms of addressing areas and communities with low levels of engagement, it also outlines the potential for decline in other communities that traditionally participate to a greater extent.

Overall, this thesis outlines a number of pronounced associations between socio-economic and demographic factors and voter turnout trends across a range of election contests at a range of scales. The identification of these trends is significant in that it outlines a number of select groups within society that may have specific political and representation needs, but who are disengaged from the political system which is intended to meet their needs. Further to this, the results demonstrate changing trends across elections and among select groups within society. While this demonstrates the potential to raise voter turnout among traditionally low-turnout groups in a positive and progressive manner, it also signifies a potential trend of growing disengagement among other traditionally high-turnout communities; a trend which is a cause for concern in itself. While many trends in voter engagement may be examined along socio-economic and demographic lines, this research outlines that any comprehensive analysis of voter engagement cannot consider these factors in isolation, with many additional spatial influences also viewed as playing an important role.

9.3: Geographical Influences

While the aforementioned socio-economic and demographic factors are observed as shaping participation trends, the consideration of additional geographic factors significantly improves model ability to determine levels of engagement across the board. Perhaps the most pronounced geographical trend is that of the urban/rural divide. In the first instance, the more nuanced consideration of urbanness and ruralness included in this thesis, via the application of the updated 2011 Teljeur classification system (Teljeur & Kelly, 2008), allows this divide to be outlined in a

clear and accurate manner. Further to this, perhaps the most significant finding is that while socio-economic and demographic drivers help to shape participation divisions along urban/rural lines, this divide exists independently of these factors also. In this respect, it is important to note that the impact of urban/rural variation on turnout levels cannot be solely explained by the other socio-economic drivers considered in this thesis, with additional factors unique to urban and rural areas appearing to have a significant influence on voter turnout. In terms of what shapes these factors, future research may again consider this aspect of political behaviour in the context of an individual-level study that aims to identify the specific characteristics of lived experience (Agnew, 2002) within communities that contributes to this trend, with many interview participants highlighting a potentially stronger sense of community engagement and political traditional in more rural areas The urban/rural characteristics of engagement levels is demonstrated across a range of elections, and this thesis suggests that this divide is even reflected at the smallest of scales, with this aspect again best expanded upon by a more comprehensive future study.

While the urban/rural divide is demonstrated in turnout levels in many instances, it is also reflected in rates of turnout change. In this respect, this thesis suggests that there is a significant decline in voter participation in more rural areas in recent elections, a trend which is a specific cause for concern when small rural communities are potentially considered as some of the most vulnerable areas in terms of possible representational neglect. The structural factors that contribute to this observed rural decline are subsequently examined in more detail. Alongside a concerning rural decline, there is also evidence which outlines a more positive increase in urban-based communities that traditionally have had a much lower level of engagement. While an increase in participation may be considered as a positive trend overall, the subsequently discussed factors that have contributed to rates of increase may be seen to be less beneficial for the overall level of equality in political engagement trends.

An additional geographical factor that is seen to significantly impact on participation levels is the factor of candidate location. This factor is demonstrated to play an influential role across all election types that are examined, with varying levels of impact observed. While the highly localised nature of the Irish political system (O'Carroll, 1987) is widely noted as encouraging candidate support along the lines of 'friends and neighbours voting' (Pattie & Johnston, 2009: 412), the impact of this trend on voter turnout specifically within Ireland is notably less examined.

This thesis outlines that when a detailed consideration of geographical location is applied, there is a clearly demonstrated positive association between candidate location and voter turnout levels. This is also reflected in the rates of turnout change, with turnout decline more common in areas that are geographically removed from an election candidate. This noted association raises a number of questions about aspects of constituency structure, especially when rural areas may be considered as less likely to provide a realistic base for an election candidate. The noted mobilisation of select areas that are located within a candidate's bailiwick is perhaps best demonstrated in the case of North Clondalkin in By-Election 2019. While this may be seen as a positive increase in political engagement among a traditionally low-turnout community, this trend does raise questions about the potential for partisan mobilisation of select groups and areas when there is no independent body present to address areas of low and declining turnout; a topic which is subsequently discussed in more detail.

The final geographical factor that is considered to have a notable association with voter turnout levels is the boundary revision process. In this respect, a number of areas within the General Election 2016 case study area are examined in order to determine the potential impact of a changing boundary. Within the cases examined, there is evidence to suggest both an increase in political participation and an associated decrease in participation, depending on the context of the revisions in a specific area. While representatives outline the potential for mobilisation in response to a revision, and also the potential for disengagement as a result of a changing boundary, one common trait is clear. This is to say that whatever the resultant impact on participation, communities that are affected by a boundary change often respond based on a level of anger due to the revisions. This anger is notably more pronounced when significant changes are seen to breach a county boundary, an issue that has numerous potential impacts in terms of community response and also in terms of the effective administrative function of the political representatives in the area. In the General Election 2016 case study examined, an increase in participation is observed in the large section of North Tipperary that is included in the Offaly Constituency. In this case, the anger associated with changing boundaries among the electorate may be seen to be effectively mobilised by election candidates in this area to generate an electoral response from the affected community. While there is no direct negative impact on participation rates observed as a response, there is arguably just as significant an impact on representational inequality, as this area subsequently failed to elect a successful candidate.

The direct negative influence of a changing electoral boundary is better reflected in the turnout levels in parts of the Monasterevin area which moved from Kildare South to the Laois constituency. In this case, turnout levels are notably lower than expected and rates of decline more pronounced than expected in five of the six Electoral Divisions which moved. The defining characteristic between the areas that exhibited a negative association appears to be the more rural nature of the areas concerned. In this respect, while the urban core of Monasterevin town may have been more accessible for 'new' candidates to mobilise, the more rural areas which were less accessible to 'new' mobilisation appear to demonstrate a much higher level of disengagement. In this respect, more rural areas may be considered more susceptible to the negative consequences of a changing boundary. Importantly, rural areas are frequently seen as the most likely to move in acts of 'book-balancing' due to the smaller populations that reside there. The area of Kildare North which demonstrates much lower levels of engagement than expected in a rural environment is also highlighted as a cause for concern by interview participants as an area where continued revision of a long period of time has potentially had a significant impact on engagement within the area.

The examination of Local Election 2019 again shines a light on the potential influence of electoral boundaries on participation rates in a different electoral context. In the case studies examined in this thesis, a number of potential negative associations of the boundary revisions process are identified. Perhaps the best example is the area of North Clondalkin. This example demonstrates a relatively cohesive community structure that is split among four Local Electoral Areas, with both voter turnout trends and political representatives in the area highlighting the negative influence of this on the local community. Conversely, the Dublin Mid-West area also demonstrates the potential for a strong level of community engagement with the local political process in communities such as Lucan. In this respect, the Lucan area is viewed as a cohesive community unit that exists almost completely within the bounds of a cohesive Local Electoral Area. In the context of Local Electoral Area construction, the appreciation of cohesive community units that have a distinct identity which can be effectively represented on the political stage is seen to have a notable association with increased levels of political engagement among the electorate.

Overall, when geographical influences are considered alongside socio-economic and demographic influences it is clear that any truly comprehensive analysis of political trends must take a geographical approach to increase accuracy and gain a meaningful insight into political behaviour.

When all of these factors are considered, there is a sizable amount of variability in voter turnout levels accounted for across the board. However, as is the case with any analysis of human behaviour, there are still many aspects of trends that remain unaccounted for. These are additional aspects which may be considered in future studies that better account for individual perspectives among the electorate.

9.4: Policy Relevant Suggestions

The findings of this thesis support a number of conclusions which are of direct relevance to progressive policy generation. While a range of potential issues are identified which may be better addressed by current policy, the majority of issues fall under the remit of the currently proposed Electoral Commission. At time of writing, the Electoral Reform Bill 2020 is progressing through the houses of parliament, a proposed Bill which outlines the establishment of an Electoral Commission and reform of the current electoral register. While this proposed legislation aims to take progressive steps to improve the functionality and fairness of electoral processes within the country, the specific steps that are proposed to be taken are yet to be outlined in many instances.

The proposed reform of the electoral register needs to take account of a number of issues addressed in this thesis. In the first instance, as many have suggested, the reformation process should avail of an opportunity to include unique voter identification numbers, which may be based on individuals' PPS numbers. The inclusion of unique voter identification numbers has the potential to correct any instances of voter duplication, and also has the potential to facilitate the easy relocation or removal of voters that no longer reside at a given address. This would also allow instant updating of electoral status, should an individual of a European country gain Irish Citizenship, for example. Secondly, I would strongly recommend that a reformed electoral register includes the mandatory listing of an associated Eircode with each voter. The inclusion of a mandatory Eircode would facilitate accurate location of each voter in a given electoral unit and also allow instant reallocation of voters upon a boundary revision. Thirdly, an updated register should be complimented an online system which allows simple registration by each voter, and a simple change of address process. Increased accessibility in this sense has the potential to facilitate

a much more engaged electorate in the first instance. Finally, reform of the register should also consider updating the format in which the marked electoral register is made available following an electoral event. In this respect, while academic assessment of trends may not be a primary focus of a reformation process, increased academic assessment of electoral trends has the potential to identify and explore important issues with electoral engagement. In its current form, the marked electoral register may not be considered to be a particularly inviting resource to examine, and as such, the replacement of this format with a machine-readable output or electronic record would do much to stimulate investigation of trends.

In addition to the reformation of the electoral register, the planned Electoral Commission has an ideal opportunity to address issues of electoral disengagement; an issue which should be considered as a serious cause for concern. This thesis has identified select groups within society and select spaces that demonstrate pronounced and/or growing levels of electoral disengagement in many instances. In this respect, a newly established Commission has an opportunity to examine areas in which affirmative action may be taken through encouraging and informing targeted cohorts and communities within our society. In this respect, many barriers face select groups in terms of electoral knowledge and the voter registration process. Some potential groups which face specific barriers are foreign-born members of the community who may be unaware of voter rights and also members of the Irish Traveller community who appear to have notably low levels of engagement. This is an important consideration, as both examples demonstrate select cohorts who may have unique legislative needs. A newly formed Commission may consider the demonstrated instances of pronounced increase in electoral engagement in traditionally low-turnout environments explored in this thesis; examples which demonstrate that affirmative targeted action can have a significant impact. While this demonstrates the possibility of raising engagement in areas of concern, it also raises potential concerns when this process is left to party-political organisations as opposed to an independent body.

There are many aspects of the constituency structuring and boundary revision process that are also demonstrated as having a potential negative influence on the electorate, and as such, on representational equality. One aspect which is perhaps less obvious is the relationships between constituency structure, candidate location, and voter engagement. While this thesis demonstrates the positive influence of candidate location on voter engagement, it also raises questions about the

types of areas that are less likely to be impacted in this positive manner. This thesis demonstrates that due to candidates being predominantly located in urban cores, for many aforementioned reasons, rural communities are often void of this positive influence on local engagement levels. This may be a potential cause for concern in constituencies which have a strong urban/rural divide and consist of small rural communities which are geographically removed from these urban cores; communities which are unrealistically able to support a viable election candidate.

The more tangible and direct negative impact of boundary revisions is demonstrated across multiple contexts in multiple election types. In this respect, a forthcoming Electoral Commission may not need to re-examine the provisions for the revision process set out in the Constitution (Government of Ireland, 1937) or the Electoral Act 1997 (Government of Ireland, 1997), but they do need to reconsider the apparent weighting associated with each point of reference in the boundary revision process. In the current process, revisions are too frequent, divisions are too crude, and the sanctity of the country boundary appears not to hold much weight in relevant deliberations. While the boundary revision process aims to improve equality of democracy by ensuring equality in the ratio of representation, the effect of adhering to a strict five percent threshold, a self-imposed restraint, appears to take priority over all other conditions; conditions which are not self-imposed but specifically identified in the legislation at hand. The most frequent victim in this respect appears to be the aim of ensuring continuity in electoral boundaries. In this respect, continuity and stability breeds healthy political engagement, while uncertainty breeds concerning disengagement. At the core of this issue may lie the national representation level. While the average ratio of representatives per member of the population has remained within the constitutional limit of 1:20,000 – 1:30,000, recent years have seen reductions in representatives and a growing population that moves this ratio much closer to the upper limit than ever before. As a result, additional Dáil seats are added to meet the minimum requirement, and once added, begin a string of boundary revisions that ripple through multiple constituencies. In short, a newly formed Electoral Commission may consider the negative impacts of boundary revision processes and address issues by: increasing the number of national representatives to facilitate longevity in constituency design; creating constituencies that take potential urban/rural divisions into account; creating boundaries that adhere to natural divisions along county lines (or community lines in the context of LEAs); creating levels of representation that facilitate projected growth or decline without the need for revisions; and finally, resisting the urge for micromanagement of strict ratios

until such a time that the removal or addition of a seat can address concerns. The consideration of these aspects of the boundary revision process would help to stimulate political engagement throughout communities that are most likely impacted, and over time, create a strong sense of identity within communities that can be represented on the political stage.

While this thesis has identified a number of potential causes for concern with existing policies and processes, it also recognises the potential to address these concerns. At this moment in time, the appetite for electoral reform and planned establishment of an Electoral Commission is a somewhat unique opportunity to improve the level of representational equality and democratic efficiency within our country; an opportunity that is hopefully capitalised upon.

9.5: Suggestions for Future Research

This thesis aimed to identify spaces of representational inequality in recent Irish elections, and by providing as comprehensive an analysis as possible of the factors that shape electoral participation, put forward policy relevant suggestions to address concerns. While the resultant analysis provides in-depth insight into a range of relevant aspects in this respect, there are also a number of factors identified that may be better addressed by future research. In the first instance, the time-consuming nature of voter turnout data generation at the chosen scales placed a notable restriction on the feasible size of the case study areas examined. While the case study area for each election was suitable to provide a detailed analysis of trends, future studies, potentially aided by the availability of improved data formats, would benefit from examining trends on a truly comprehensive national level. This thesis included a temporal perspective in order to not just examine trends in a given electoral context, but also to examine changes in electoral behaviour over a decade which has seen much political debate and social change. Future studies may avail of the availability of this research in order to continue examining changes at detailed scales of analysis in a manner that serves to create a long-term temporal perspective, while also considering the temporal perspective of census data.

On a methodological note, throughout this thesis many issues are raised that are undoubtedly better examined through the inclusion of individual-level data. While the aggregate format of data

facilitates the identification of geographical trends, many aspects of human behaviour that are associated to political actions can only truly be examined by gaining direct individual insight into the factors that shape individual decision-making, and as a result, collective political choice.

Further to this, while this thesis demonstrated the notable need to investigate geographical factors that impact on voter turnout levels, the classification of variables associated to candidate location and revised boundaries may be considered to be quite basic in some respects. In this sense, future studies may consider more nuanced approaches which take into account the relative success of candidates, the changing nature of established political bailiwicks, and the differing considerations of what may considered to be 'local'. Likewise, a more nuanced approach to boundary examination may provide more in-depth analysis on a wider scale to determine specific quantifiable impacts. Throughout this thesis, there are a range of factors related to candidate support and political party support levels that are discussed. In this respect, future studies may also examine the potential impact of changing party support trends on levels of electoral engagement in order to provide a more totalising picture of the various factors that may shape engagement levels.

While there are many aspects of this work that may be improved upon by future research, the analyses enclosed here provides useful insight into the factors that shape electoral engagement in the Republic of Ireland. Hopefully, future research will draw insight from existing electoral geography works based in the Republic of Ireland to expand the small but important body of research that aims to identify issues of representation inequality in our democratic system and provide solutions. Perhaps the most important suggestion for future research may be the need to include a strong geographical focus that facilitates a detailed examination of the various traits of citizens' lived experience while still respecting that voting and political choice is a human behaviour, and as such, is a behaviour that cannot be totally quantifiable.

9.6: Concluding Remarks

In conclusion, the examination of voter turnout provides an important opportunity to consider the level of equality in political representation within our country. In this respect, it is important to consider who votes, who chooses the representatives that make important policy decisions on our behalf, and if all voices have an equal say in that process; an ideal that lies at the heart of a

functioning healthy democratic system. Unfortunately, not everybody can see the value of their vote, and the difference that it can make.

> ‘I think the more people that vote the better. And I think the idea that somebody thinks their vote won’t make a difference... if everybody thought that, then nobody would be voting. So, obviously one vote can make the difference’. (McEntee, 2019).

The level of voter engagement in recent Irish elections is not spread equally across society. While all citizens of the State have the right to vote and take part in the decision-making process, not all do. In this respect, inequality in decision-making has the potential to produce a body of lawmakers that does not reflect all cohorts within society equally.

> ‘The more people express how they want to vote and who they want to vote for, the more reflective parliament is’. (O Loughlin, 2019).

> ‘I think the higher the turnout and the higher the engagement, the better the politics, because it’s truly more representative’. (Newman, 2019).

If parliament is not representative of all voices within society, there is severe risk of a democratic deficit in which voices that are not heard are not considered in the important decisions that can have major impacts on individuals’ day-to-day lives and on wider society as a whole. Often, it is the very communities that are arguably most in need of effective representation that are excluded from this process, excluded either by choice, or by wider forces that restrict equal capacity to participate.

> ‘If you don’t vote, the other guys win, and your voice is not heard at the cabinet table’. (McGrath, 2019).

> ‘A high level of engagement and a high level of voter turnout is so important because it’s only when it gets above a certain level do you start to see participation from working class and marginalised communities’. (O’Reilly, 2019).

Further to this, disengagement from electoral and political systems can be considered a symptom of wider disengagement from society as a whole. With such a strong geography to engagement levels, often spaces of disengagement can create spaces lacking in identity; a sense of identity that is necessary for a broader sense of civic well-being.

> 'I think that the more people engage, the more they feel a sense of ownership of their own sense of place, and that's really important'. (Heydon, 2019).

While this thesis has identified a number of cohorts, communities, and spaces of representational neglect within our current political system, it has also outlined that these causes for concern can be addressed by affirmative policy decisions that aim to improve representational equality and the quality of democracy in the Republic of Ireland. It is only through continued investigation and continued action to address issues that a fairer and more effective political system can begin to take shape.

Appendix A: Interview Information Sheet

The aim of this project is to investigate the social issues which impact on voter behaviour, such as voter turnout in a given area.

Interviews: Should you choose to agree to the appended interview request this information will be used in conjunction with the research aim as outlined above. Interview participants will be named in the final research document which I will intend to have published. Participants may refuse/ withdraw from this study at any time prior to publication.

An audio recording device will be used in order to conduct this interview. All recorded data will be stored on a secure device. No personal devices will be used. The electronic data will be stored on a secure server which is password protected and encrypted. Hard-copy notes which may relate to the audio recording will be stored in a secure locked filing cabinet at all times.

Data will be retained for a period of ten years following publication, in line with university policy, to allow for future reassessment or verification of the data from primary sources, if necessary. Following the completion of this project all relevant information will be disposed of in a secure process. Hard-copies will be shredded while digital data will be deleted and overwritten.

Participants may withdraw from this study at any time prior to publication.

Subject to the requirements of legislation, including the Data Protection Act and the Freedom of Information Act, researchers should protect the confidentiality of research participants. Researchers have a responsibility to ensure that participants understand the extent of anonymity and confidentiality offered at all stages of the research from data gathering to dissemination. Participants should be apprised of the limits of confidentiality.

It must be recognised that, in some circumstances, confidentiality of research data and records may be overridden by courts in the event of litigation or in the course of investigation by lawful authority. In such circumstances the University will take all reasonable steps within law to ensure that confidentiality is maintained to the greatest possible extent. In so doing, research data and records may be accessed and held by the University (through the President or Vice President for Research) and its legal advisers, to determine their relevance to any proceedings.

The completion of an attached consent form is required in order to confirm that you have read, understood, and agreed to participate based on the information on this sheet.

Thank you for your participation.

Signed:  Date: _____

Appendix B: Interview Consent Sheet

Researcher: William Durkan (Maynooth University)

I declare that prior to this interview I, ____INTERVIEW PARTICIPANT___ have been made aware of and agree to the limits to confidentially and Stated measures taken in order to protect my information as outlined in the attached Interview Information Sheet.

Please acknowledge the following Statements:

I understand that an audio recording device will be used in this interview and that recorded data will be kept for a period of time as outlined below. _____

I understand that data may be kept for a period of ten years following publication in order to allow for verification and reassessment of primary data sources. _____

I consent to being a named interview participant in the publication of this research. _____

I am aware that participants may withdraw from this research study at any point prior to publication. _____

I understand that research data provided to me for this interview is solely for my reference and not for further distribution. _____

Signed: ___INTERVIEW PARTICIPANT_ **Date:** _____

If during your participation in this study you feel the information and guidelines that you were given have been neglected or disregarded in any way, or if you are unhappy about the process, please contact the Secretary of the Maynooth University Ethics Committee at research.ethics@nuim.ie or +353 (0)1 708 6019. Please be assured that your concerns will be dealt with in a sensitive manner.

Interviewer Information

William Durkan, Maynooth University.

Email: william.durkan@mu.ie **PH:** XXX-XXXXXXX

Signed: _____ **Date:** _____

Appendix C: Interview Question Template

The below interview question template outlines the broad range of topics that were covered in each research interview. Please note that each participant was provided with a short description of turnout trends within their constituency/area and relevant maps of voter turnout levels/rates of change. Some questions were included that were area/participant specific in all instances.

Q1: Why do you believe that the above outlined trends emerge? [In relation to constituency-specific voter turnout levels]

Q2: Socially, what issues are prevalent in [your constituency]? Has this changed over time?

Q3: Do you think that social issues have an impact on voter mobilisation in the area?

Q4: Do you think that the level of public access to elected representatives in Ireland plays a role in determining the level of voter engagement?

Q5: What role do you think that socio-economic and demographic factors play in voter participation levels?

Q6: Are there any community organisations operating within your constituency that aim to increase voter participation? If so; How effective do you think this is?

Q7: Do you think that boundary revisions can have an impact on voter turnout in the areas affected?

Q8: In your opinion; did the constituency revision process have an impact on the electorate in [your constituency]?

Q9: How important do you believe a local candidate to be in motivating citizens to vote?

Q10: Do you think that the impact of a local candidate on voter turnout differs between urban and rural areas/constituencies?

Q11: How important to the quality of democracy in Ireland do you believe a high voter turnout to be?

Q12: Do you think there is a high level of engagement from 'New-Irish' or 'Foreign Born' Citizens?

Q13: Do you think there is a high level of engagement from members of the Traveller Community?

Q14: Do you think groups that tend not to vote receive adequate representation of issues important to them?

Q15: Are there any additional insights on the topic that you wish to offer?

Appendix D: Interview Participants

The following comprises a list of interview participants, their political party affiliation at time of interview, and the date that each interview was held for this research project. I would again like to thank all of the political representatives, experienced members of the political community, and political staff members that took the time to contribute to this research project. All insight was greatly beneficial and greatly appreciated.

Interview Participant	Political Party Affiliation	Date of Interview
Louise O'Reilly	Sinn Féin	25/09/2019
Alan Farrell	Fine Gael	26/09/2019
Maureen O'Sullivan	Independent	27/09/2019
Seán Fleming	Fianna Fáil	02/10/2019
Robert Troy	Fianna Fáil	03/10/2019
Richard Bruton	Fine Gael	03/10/2019
Marcella Corcoran-Kennedy	Fine Gael	07/10/2019
Helen McEntee	Fine Gael	09/10/2019
Seán Barrett	Fine Gael	16/10/2019
Colm Brophy	Fine Gael	17/10/2019
Darragh O'Brien	Fianna Fáil	23/10/2019
Eamon Ryan	Green Party	25/10/2019
Catherine Martin	Green Party	06/11/2019
Donal Swan	Green Party	06/11/2019
Theresa Newman	Fine Gael	14/11/2019
Etain Hobson	Fine Gael	14/11/2019
Emmet Stagg	Labour	15/11/2019
Seán Ó Fearghaíl	Fianna Fáil	20/11/2019
Roy Dooney	Fine Gael	22/11/2019
Fiona O'Loughlin	Fianna Fáil	04/12/2019

Interview Participant	Political Party Affiliation	Date of Interview
Finian McGrath	Independent	04/12/2019
Martin Heydon	Fine Gael	05/12/2019
Eamon Gilmore	Labour	02/01/2020
Frank O'Rourke	Fianna Fáil	13/01/2020
Mark Ward	Sinn Féin	23/09/2020
Duncan Smith	Labour	05/10/2020
Guss O'Connell	Independent	28/10/2020
Joanna Tuffy	Labour	30/10/2020
Shane Moynihan	Fianna Fáil	03/11/2020
Lorraine Clifford-Lee	Fianna Fáil	05/11/2020
Bernard Durkan	Fine Gael	13/12/2020

Appendix E: Structure of Census Variables & Selection

The following section outlines the various census variables that are chosen to be examined throughout this thesis and outlines in detail the individual census variables that are included in each measure applied in the analytical process. As the construction of variables may have a sizable impact on relationships observed in all analyses, this section is intended to better inform future research which considers the approaches utilised in this thesis.

Age

Age has been identified in a number of existing studies as having a notable relationship to voter behaviour, as expanded upon in Chapter Two. A range of age-related variables are included in this study, based on census information available. The complete census list of age categories determines the age groupings that may be examined as part of this study, as individual age groups are only reported by one-year groupings up to the age of nineteen. The sex dimension in the data is also excluded as it is of no benefit to include in further analysis. This is deemed to be the case as initial investigation failed to identify any spatial units that have a reasonable devastation in proportion of 'males' to 'females' and individual voters may not be identified by sex to facilitate comparison. Further research on this topic may consider the application of individual level data as a means of assessing voter trends in relation to sex/gender.

The individual age groupings from age 0 to age 17 are also excluded from the examination as these individuals would be ineligible to take part in an electoral contest, and as such, are not of relevance to the research topic at hand. The full list of variables and age groupings used in this study may be viewed in Table E.1. These age categories were chosen for the study in order to allow a broad comparison of the impact of age, aiming to include a broad 'younger' category from age 18-29 and an 'older' category from 65 and over. The intermediate age groupings serve to identify large sections of the population for consideration with regards to voter turnout, while aiming to keep the number of variables to an overall minimum and still allowing for significant variation to aid in analysis and comparison of results.

Census Categories (Age)	Study Variables (Age)
Individual Age categories from 'age 0' to 'age 17' inclusive	Under 18's (excluded)
Age 18	Age 18-29
Age 19	
Age 20-24	
Age 25-29	
Age 30-34	Age 30-49
Age 35-39	
Age 40-44	
Age 45-49	
Age 50-54	Age 50-64
Age 55-59	
Age 60-64	
Age 65-69	Age Over 65
Age 70-74	
Age 75-79	
Age 80-84	
Age 85 and over	
Total	Total excluding under 18's

Table E.1: Age Categories Included in Study

Source: Central Statistics Office, 2016.

Marital Status

The potential impact of marital status on electoral behaviour, as discussed in Chapter Two, and its perceived potential as a broad indication of transition through the 'life-cycle' suggests inclusion of this factor in the study. The census records a number of factors in relation to marital status, with

the full range of variables and variables that will be included in this analysis listed in Table E.2. Figures are represented excluding the sex dimension, as previously outlined. As Table E.2 indicates, this study examines the variables of 'Single' and 'Married' in order to provide a broad comparison of the impact of marital status, representing the figures as a percentage of all individuals that completed the census category. The deduction of under 18s from the 'single' variable aims to exclude all children, with the vast majority presumably classed as 'single' in order to examine the proportion of 'single adults'. Similarly, it is presumed that the vast majority of under-18s are not included in the 'married' variable.

Census Variables (Marital Status)	**Study Variables (Marital Status)**
Single	Included - minus under 18's
Married**	Included
Separated	Excluded
Divorced	Excluded
Widowed	Excluded
Total	Total minus under 18's

**Note that the 'married' variable changed from census 2011-2016 to also include same-sex marriages and same-sex civil partnerships. This will limit the temporal comparison of marriage rates in subsequent analyses.

Table E.2: Marital Status Categories Included in Study

Source: Central Statistics Office, 2016.

Housing Tenure & Homeownership

The investigation of housing tenure has played a significant role in previous studies in the Irish context (Kavanagh, 2002), as previously outlined. As such, the census theme of housing allows investigation of this variable using the figures for the 'number of persons' in each category, as this

is the measure most relevant for comparison to individual voters. Table E.3 outlines the full extent of variables available from the census in respect of this category, including the information in relation to which groups of variables are included in this study for analysis, and outlines the structure of composite variables included. Table E.3 also demonstrates that the 'rented from local authority' variable is explored both as part of a composite measure, and individually. This not only allows inferences to be made about the impact of 'rented' accommodation on electoral behaviour, but also determine if trends are more or less pronounced based on the type of 'rented' accommodation.

Census Variables (Housing)	**Study Variables (Housing)**
Owned with mortgage or loan	Owner Occupied
Owned outright	
Rented from private landlord	Rented
Rented from Local Authority (also included as a separate variable)	
Rented from voluntary/co-operative housing body	
Occupied free of rent	Excluded
Not Stated	Excluded
Same Address for Over One Year	Included
Total	Total

Table E.3: Housing Variables Included in Study

Source: Central Statistics Office, 2016.

Education

The census data provides a range of measures in terms of education. These categories allow the construction of more precise variables to use in investigation trough the combination of a number of individual variables. This study seeks to investigate the impact of lower and higher education on electoral trends. In order to facilitate investigation, two variables, 'lower education' and 'higher education' are constructed from the available census variables, under the heading of 'Population aged 15 years and over by sex and highest level of education completed' (CSO, 2016). These variables have been categorised into two classes for investigation, and represented excluding the gender variable, as viewed in Table E.4.

Census Variables (Education)	Study Variables (Education)
No formal education - Total	Lower Education
Primary education - Total	
Lower secondary - Total	
Upper secondary - Total	
Technical or vocational qualification - Total	
Advanced certificate/Completed apprenticeship - Total	Not Examined
Higher certificate - Total	
Ordinary bachelor's degree or national diploma - Total	Higher Education
Honours bachelor's degree, professional qualification, or both - Total	
Postgraduate Diploma or Degree - Total	
Doctorate (Ph.D.) or higher - Total	
Not Stated - Total	Excluded
Total	Total

Table E.4: Education Variables Included in Study

Source: Central Statistics Office, 2016.

Employment and Social Class

Employment and social class have been previously examined in terms of their potential impact on electoral behaviours, as outlined in Chapter Two. Social class, as previously discussed in the context of existing research, may be broadly measured through the examination of employment type. (Lahtinen et al., 2017). In this sense, census data offers an opportunity to examine the number of individuals in a given spatial context by various types of employment. Census data also affords the opportunity to provide a measure or the proportion of individuals that are unemployed compared to the total number that are currently working. In this study, a board measure of employment will be examined through the use of employment variables as outlined in Table E.5. In this instance, both the number of individuals classed as 'at work' and those classed as 'unemployed, having lost or given up previous job' are included in order to examine the impact of employment on observed trends. These variables are then presented as a percentage of the 'total' number of respondents in this category in order to represent the broad level of employment/unemployment within a given area. Other variables are excluded, as indicated, as they are deemed to be less relevant to the topic at hand, such as individuals that cannot work due to illness. The 'retired' category is also included, although previous analysis under the 'age' category examining the impact of areas with high levels of individuals over the age of 65 may provide a more comprehensive representation of the impact of an older population, as opposed to those classes solely as 'retired'.

Census Variables (Employment)	Study Variables (Employment)
At work	Included
Looking for first regular job	Excluded
Unemployed having lost or given up previous job	Included
Student	Included
Looking after home/family	Excluded
Retired	Included
Unable to work due to permanent sickness or disability	Excluded
Other	Excluded
Total	Total

Table E.5: Employment Variables Included in Study

Source: Central Statistics Office, 2016.

Besides the impact of employment, census data also uses employment type as a measure in order to determine what may be considered as a broad measure of 'social class'. These categories may be grouped for the purpose of this study to provide a measure of comparison in terms of the potential impact that 'social class', as measured by employment type, may have on observed trends. In this sense, 'category-one' and 'category-two' are composite measures of the available census variables, as may be observed in Table E.6. In this instance, the study categories are constructed to include what may be considered a measure of the range of classes, while excluding interim variables in order to create a degree of variance between the two study categories, and also aiming to exclude variables which may arguable be included in either category. This aims to provide a broad measure of the impact of social class, as measured by employment type, by comparing areas in which each category is dominant in order to examine the potential impact of social class on electoral behaviour.

Census Variables (Social Class)	Study Variables (Social Class)
Professional Workers	Category-One
Managerial and Technical	
Non-Manual	Excluded
Skilled Manual	Excluded
Semi-Skilled	Category-Two
Unskilled	
All others gainfully occupied and unknown	Excluded
Total	Total

Table E.6: Social Class Variables Included in Study

Source: Central Statistics Office, 2016.

Ethnicity

As previously expanded upon in Chapter Two, ethnicity is a factor that has been viewed in the international context as shaping electoral engagement in a number of instances, with the specific relationships between ethnicity and electoral engagement largely dependent on the context in which it is examined. In order to examine this factor in terms of electoral engagement within the select case studies, two study variables are constructed, based on available census data. The range of census variables that examine topics of birthplace, nationality, and ethnicity alongside the two chosen variables included in this study may be viewed in Table E.7. In terms of the construction of the 'foreign-born' variable, this is based on the birthplace of individuals as opposed to the nationality measure that is also available in census data. This means of investigation is chosen as it facilitates investigation into participation levels among communities that may be naturalised citizens, and as such, eligible to participate in a General Election contest. This chosen measure provides insight into the level of political engagement among a select group within society that may have somewhat unique experiences and concerns that need to be addressed by political structures and may not have equality of representation in terms of meeting their specific needs.

This measure is somewhat problematic in the sense that it includes different groups that have different eligibility for electoral contests, and also includes a number of select groups which may engage to different extents, such as those from the UK, those from Europe, and those from areas outside of this. While the chosen measure fails to account for the variability in terms of specific birthplace, and also fails to account for difference in eligibility, it still has the potential to offer a broad insight into this topic, a topic which may be studied in more detail by subsequent works. In terms of the limitations due to inaccurate electoral eligibility measurement, the Local Election case study perhaps provides the best case to examine this topic, due to the more inclusive eligibility requirements. While this measure has a number of limitations, these limitations are considered in the interpretation of findings throughout this study. Further to the inclusion of the 'foreign-born' variable in subsequent analyses, a variable that examines the proportion of the population classed as 'White Irish Travellers' will also be considered. This variable is constructed in a much more straightforward process, as the census specifically includes a measure for this aspect of ethnicity, as viewed in Table E.7.

Census Variables (Birthplace)	**Study Variables (Birthplace)**
Ireland	Excluded
UK	Foreign Born
Poland	
Lithuania	
Other EU28	
Rest of World	
Total	Total
Census Variables (Ethnicity)	**Study Variables (Ethnicity)**
White Irish	Excluded
White Irish Traveller	Included
Black or Black Irish	Excluded
Asian or Asian Irish	Excluded
Other	Excluded
Not Stated	Excluded
Total	Total

Table E.7: Birthplace and Ethnicity Variables Included in Study

Source: Central Statistics Office, 2016.

Social Deprivation

The Pobal HP deprivation Index (Haase & Pratschke, 2017) provides a composite index that is constructed in order to reflect the relative 'deprivation' or 'affluence' of a given area. The index is constructed based on three factors that are used to construct an index score in order to reflect their degree of 'depravation' or 'affluence'. The individual factors that are used to construct the index may be viewed in Figure E.1. For each area, from the 2006 Census onwards, the index presents both an 'absolute' and 'relative' ranking for a given spatial scale. In this regard, the 'relative' value presents an index score that provides a comparison of areas within a given census

tract. This provides information based on the relative affluence or deprivation of an area in comparison to other areas at that point in time. The 'absolute' value provides a measurement that relates to the rate of change from previous census tract values, and as such, may be used to examine how the index value has changed over time, and reflects national economic trends over the select time period.

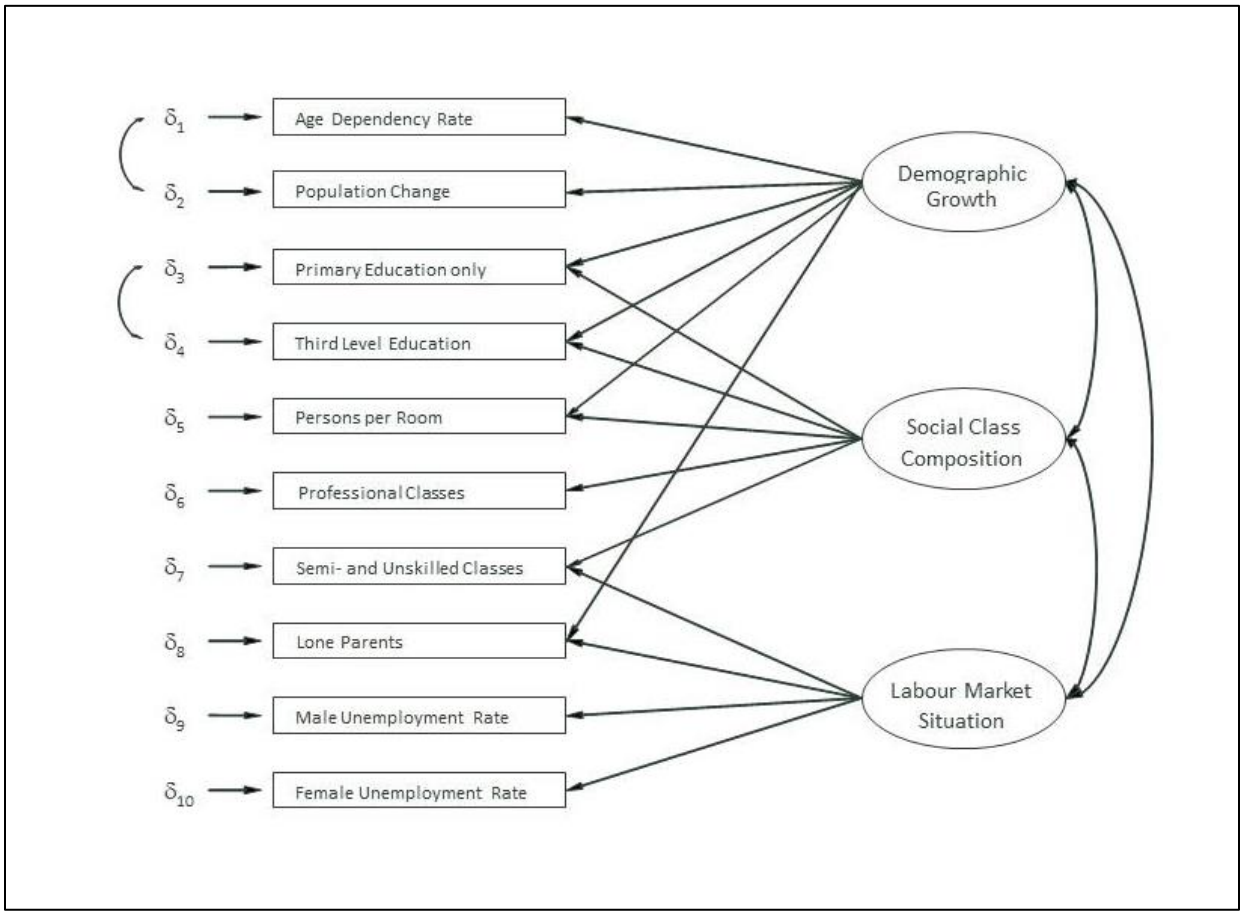


Figure E.1: Pobal Deprivation Index Construction Process

Source: Haase and Pratschke, 2017b: 4.

In terms of assessing voter turnout trends and the inclusion of the Pobal Index in statistical methods applied, there are a number of important considerations. Firstly, this variable is chosen for inclusion as it potentially provides a more nuanced measure of the relative level of affluence of

social well-being in any particular area and is arguably more capable of assessing this than any other single variable included. Secondly, it is important to note that as the Index is a composite measure and includes a number of variables that either directly or indirectly relate to other census variables chosen for inclusion, the potential for collinearity in measure must be accounted for. This is to say, that because factors such as the unemployment rate, education level and an employment-based measure of 'social class' are included in the Index construction, the Index cannot be viably included in any model alongside the census variable for these measures. This is taken account of throughout the analytical process, in order to provide reliable statistical tests and valid interpretations based on results throughout the thesis.

Bibliography

Agnew, J. (1987) *Place and Politics: The Geographical Mediation of State and Society*. London: Routledge.

Agnew, J. (1996a) Mapping politics: how context counts in electoral geography. *Political Geography,* 15(2), 129-146.

Agnew, J. (1996b) Maps and models in political Studies: a reply to comments. *Political Geography*, 15(2), 165-167.

Agnew, J. (2002) *Place and Politics in Modern Italy*. Chicago: University of Chicago Press.

Agnew, J., Shelley, F. and Pringle, D. (2003) Agnew, J.A. 1987: Place and Politics: the geographical mediation of State and society. Progress in Human Geography, 27(1), 605-614.

Akaike, H. (1973) Information Theory and an Extension of the Maximum Likelihood Principle In: Petrov, B. N. and Csaki, F. eds. (1973) *Proceedings of the 2nd International Symposium on Information Theory.* Budapest: Akademiai Kiado. 267-281.

Akaike, H. (1974) A New Look at the Statistical Model Identification. *IEEE Transactions on Automatic Control,* 19(6), 716.

Akaike, H. (1992) Information Theory and an Extension of the Maximum Likelihood Principle In: Kotz, S. and Johnson, N. L., eds. (1992) *Breakthroughs in Statistics Volume 1. Foundations and Basic Theory. Springer Series in Statistics, Perspectives in Statistics.* New York: Springer-Verlag. 610-624.

Andersen, R. and Heath, A. (2002) Class Matters: The Persisting Effects of Contextual Social Class on Individual Voting in Britain, 1964-97. *European Sociological Review*, 18(2), 125-138.

Anderson, C. (2010) Presenting and Evaluating Qualitative Research. *American Journal of Pharmaceutical Education,* 74(8), 141.

André, S., Dewilde, C. and Luijkx, R. (2017) The tenure gap in electoral participation: instrumental motivation or selection bias? Comparing homeowners and tenants across four housing regimes. *International Journal of Comparative Sociology*, 58(3), 241-265.

Anselin, L. (1995) Local Indicators of Spatial Association — LISA. *Geographical Analysis,* 27(1), 93–115.

Arceneaux, K. (2003) The Conditional Impact of Blame Attribution on the Relationship Between Economic Adversity and Turnout. *Political Research Quarterly*, 56(1), 67–75.

Arneson, B. and Eells, W. (1950) Voting Behaviour in 1948 as compared with 1924 in a typical Ohio Community. *American Political Science Review,* 44(2), 432-34.

Barnes, T. J. (2009) Not Only… But Also: Quantitative and Critical Geography. *The Professional Geographer,* 61(3), 292-300.

Barrett, S. (2019) Interview with William Durkan, 16 October 2019 [audio recording].

Beeghley, L. (1986) Social class and political participation: A review and an explanation. *Sociological Forum*, 1(1), 496-513.

Berry, C. (2014) Young People and the Ageing Electorate: Breaking the Unwritten Rule of Representative Democracy. *Parliamentary Affairs*, 67(3), 708–725.

Bhaskar, R. A. (1975) *A Realist Theory of Science*. London: Verso.

Bivand, R. (2018) *R Documentation: spdep*. Available at: https://www.rdocumentation.org/packages/spdep (accessed 15 Feb 2021).

Bivand, R. S. and Wong, D.W.S. (2018) Comparing implementations of global and local indicators of spatial association, *TEST*, 27(1), 716–748.

Blais, A., Daoust, J. F., Dassonneville, R. and Peloquin-Skulski, G. (2019) What is the cost of voting? *Electoral Studies*, 59(1), 145-157.

Blais, A., Galais, C. and Reidy, T. (2017) In the line of duty In: Marsh, M., Farrell, D. and McElroy, G., eds. (2017) *A conservative revolution? Change in twenty-first-century Ireland*. Oxford: Oxford University Press. Ch. 10.

Bowler, S., Brockington, D. and Donovan, T. (2001). Election Systems and Voter Turnout: Experiments in the United States. *The Journal of Politics*, 63(3), 902-915.

Brannen, J. (2017) Combining qualitative and quantitative approaches: an overview In: Brannen, J., ed. (2017) *Mixing Methods: Qualitative and Quantitative Research.* London: Routledge. Ch.1.

Brophy, C. (2019) Interview with William Durkan, 17 October 2019 [audio recording].

Brown, D. L. and Cromartie, J. B. (2004) The nature of rurality in postindustrial society In: Champion, T. and Hugo, G., eds. (2004) *New forms of urbanization: beyond the urban-rural dichotomy.* Aldershot: Ashgate. Ch. 14.

Brunsdon, C. (2016) Quantitative methods I: Reproducible research and quantitative geography. *Progress in Human Geography*, 40(5), 687–696.

Brunsdon, C. (2018). Quantitative methods III: Scales of measurement in quantitative human geography. *Progress in Human Geography*, 42(4), 610–621.

Brunsdon, C. and Comber, L. (2019) *An Introduction to R for Spatial Analysis and Mapping*. Los Angeles: SAGE

Brunsdon, C. and Singleton, A. (2015). *Geocomputation: A Practical Primer*. Los Angeles: SAGE.

Bruton, R. (2019) Interview with William Durkan, 03 October 2019 [written response].

Buckley, F., Galligan, Y. and McGing, C. (2016). Women and the Election: Assessing the Impact of Gender Quotas In: Gallagher, M. and Marsh, M., eds. (2016) *How Ireland Voted 2016: The Election that Nobody Won*. London: Palgrave Macmillan. 185-205.

Burnham, K. P. and Anderson, D. R. (2004) Multimodel Inference: Understanding AIC and BIC in Model Selection. *Sociological Methods & Research,* 33(2), 261–304.

Buttner, G., Feranec, J. and Jaffrain, G. (2002) *Corine land cover 2000*. Copenhagen: European Environment Agency.

Callanan, M. (2007) Continuity and adaptation in local government In: Hayward, K. and MacCarthaigh, M., eds. (2007) *Recycling the State: The politics of adaptation in Ireland*. Dublin: Irish Academic Press. 133–153.

Callanan, M. (2018) The sanctity of the county in Irish public life: here to stay or passed its 'sell-by' date? *Irish Political Studies*, 33(4), 589-607.

Campbell, R. and Heath, O. (2017) Do Women Vote for Women Candidates? Attitudes toward Descriptive Representation and Voting Behaviour in the 2010 British Election. *Politics & Gender*, 13(2), 209-231.

Carreras, M. and Castañeda-Angarita, N. (2019) Economic adversity and electoral participation of vulnerable socioeconomic groups. *Electoral Studies*, 57(1), 110-120.

Carswell, S. (2020) The shape of the 33rd Dáil - gender and age. *Irish Times* [online] 14 February 2020. Available at: https://www.irishtimes.com/news/politics/the-shape-of-the-33rd-d%C3%A1il-gender-and-age-1.4172965 (accessed 15 Feb 2021).

Caruana, E. J., Roman, M., Hernández-Sánchez, J. and Solli, P. (2015). Longitudinal studies. *Journal of thoracic disease*, 7(11), 537–540.

Central Statistics Office (2011) Census 2011 Results. Available at: https://www.cso.ie/en/census/ (accessed 18 May 2021).

Central Statistics Office (2016) Census 2016 Results. Available at: https://www.cso.ie/en/census/ (accessed 18 May 2021).

Christley, R. (2010). Power and Error: Increased Risk of False Positive Results in Underpowered Studies. *The Open Epidemiology Journal*, 3(1), 16-19.

Claerbout, J. and Karrenbach, M. (1992) Electronic documents give reproducible research a mew meaning. *Society of Exploration Geophysics Technical Programme Expanded Abstracts*, 601–604.

Clem, R. S. and & Craumer, P. R. (1997) Urban-Rural Voting Differences in Russian Elections, 1995-1996: A Rayon-Level Analysis. *Post-Soviet Geography and Economics*, 38(7), 379-395.

Cliff, A. D. and Ord, J.K. (1973). *Spatial Autocorrelation.* London: Pion

Clifford-Lee, L. (2020) Interview with William Durkan, 05 November 2020 [audio recording].

Coakley, J. (2015) Fixed-Boundary Constituencies and the Principle of Equal Representation in Ireland. *Irish Political Studies*, 30(1), 531-554.

Cole, J. P. and King, C. A. M. (1968) *Quantitative Geography: Techniques and Theories in Geography.* New York: Wiley.

Colquhoun, D. (2017) The reproducibility of research and the misinterpretation of p-values. *Royal Society Open Science*, 4(12), 171085.

Constituency Commission (2007) *Report on Dáil and European Parliament Constituencies 2007*. Dublin: The Stationery Office.

Constituency Commission (2012*) Report on Dáil and European Parliament Constituencies 2012*. Dublin: The Stationery Office.

Cook, R. D. (1977) Detection of Influential Observation in Linear Regression. *Technometrics*, 19(1), 15-18.

Coombes, M. (2004) Multiple dimensions of settlement systems: coping with complexity In: Champion, T. and Hugo, G., eds. (2004) *New forms of urbanization: beyond the urban-rural dichotomy.* Aldershot: Ashgate. Ch. 16.

Coppock, A. and Green, D. (2016). Is Voting Habit Forming? New Evidence from Experiments and Regression Discontinuities. *American Journal of Political Science*, 60(4), 1044-1062.

Corcoran-Kennedy, M. (2019) Interview with William Durkan, 07 October 2019 [audio recording].

Cox, K. R. (1969) The voting decision in a spatial context. *Progress in Geography*, 1(1), 81–117.

Cox, K. R. (2013) Notes on a brief encounter: Critical realism, historical materialism, and human geography. *Dialogues in Human Geography*, 3(1), 3-21.

Coyle, D. and Ford, R. (2017) Brussels bureaucrats and Whitehall mandarins: taking regional identity seriously In: Beck, T. and Underhill, G., eds. (2017) *Quo Vadis? Identity, Policy and the Future of the European Union*. London: CEPR Press. 65-72.

Crittenden, J. (1963) Aging and Political Participation. *The Western Political Quarterly*, 16(2), 323-331.

Croke, K., Grossman, G., Larreguy, H., and Marshall, J. (2016). Deliberate Disengagement: How Education Can Decrease Political Participation in Electoral Authoritarian Regimes. *American Political Science Review*, 110(3), 579-600.

Cutler, F. (2008) One voter, two first-order elections? *Electoral Studies*, 27(3), 492-504.

Dahl, R. A. (1966) Patterns of opposition In: Dahl, R. A., ed. (1966) *Political opposition in Western democracies*. New Haven: Yale University Press. 332-347.

Dahl, R. A. (1971) *Polyarchy: Participation and Opposition*. New Haven: Yale University Press.

Dahrendorf, R. (1959) *Class and class conflict in industrial society.* Palo-Alto: Stanford University Press.

Daly, M. (2017) Ireland grants ethnic minority recognition for Irish Travellers. *European Social Policy Network* [online]. Available at: https://ec.europa.eu/social/ (accessed 14 Feb 2021).

Dark, S.J. and Bram, D. (2007) The modifiable areal unit problem (MAUP) in physical geography. *Progress in Physical Geography*, 31(5), 471-479.

Dee, T. S. (2004) Are there Civic Returns to Education? *Journal of Public Economics*, 88(1), 1697–1720.

Delaney, L. and McKenzie, K. (2007) Persistent and occasional non-voting in Ireland: evidence from the first Irish National Election Study. University College Dublin, Open access publications from University College Dublin.

DeLeeuw, J. (1992) Introduction to Akaike (1973) Information Theory and an Extension of the Maximum Likelihood Principle In: Kotz, S. and Johnson, N. L., eds. (1992) *Breakthroughs in Statistics Volume 1. Foundations and Basic Theory. Springer Series in Statistics, Perspectives in Statistics*. New York: Springer-Verlag. 599-609.

Denny, K., Harmon, C., McMahon, D. and Redmond, S. (1999). Literacy and Education in Ireland. *The Economic and Social Review*, 30(3), 215-226.

Department of the Taoiseach (2020) *Programme for Government: Our Shared Future.* [online] Available at: https://www.gov.ie/en/publication/7e05d-programme-for-government-our-shared-future/ (accessed 13 May 2021).

Dettrey, B. J. and Schwindt-Bayer, L. A. (2009). Voter Turnout in Presidential Democracies. *Comparative Political Studies*, 42(10), 1317–1338.

DiPasquale, D. and Glaeser, E. (1999) Incentives and Social Capital: Are Homeowners Better Citizens? *Journal of Urban Economics*, 45(2), 354-384.

Dooney, R. (2019) Interview with William Durkan, 22 November 2019 [audio recording].

Dorling, D. and Pritchard, J. (2010) The geography of poverty, inequality and wealth in the UK and abroad: because enough is never enough. *Applied Spatial Analysis and Policy*, 3(2–3), 81-106.

Downing, J. (2016) Bloated register raises the risk of electoral fraud. *Irish Independent* [online] 15 January 2016. Available at: https://www.independent.ie/irish-news/election-2016/bloated-voter-register-raises-the-risks-of-electoral-fraud-34366376.html (accessed 13 Feb 2021).

Downs, A. (1957). *An Economic Theory of Democracy*. New York: Harper & Row.

Duncan, P., Griffin, D., Hayes, K. and MacConnell, E. (2014) Tens of thousands protest against water charges. *Irish Times* [online] 1 November 2014. Available at: https://www.irishtimes.com/news/ireland/irish-news/tens-of-thousands-protest-against-water-charges-1.1985010 (accessed 20 Feb 2021).

Duque, J.C., Laniado, H. and Polo, A. (2018) S-maup: Statistical test to measure the sensitivity to the modifiable areal unit problem. *PLoS ONE*, 13(11), e0207377.

Durkan, B. (2020) Interview with William Durkan, 13 December 2020 [audio recording].

Durkan, W., Kavanagh, A. and D'Arcy, C. (2020) Electoral Cartography In: Kobayashi, A., ed. (2020) *International Encyclopaedia of Human Geography*. Amsterdam: Elsevier. 89–94.

Eagles, M., Katz, R.S. and Mark, D. (2000) Controversies in political redistricting: GIS, geography, and society. *Political Geography*, 19(2), 135-139.

Elguie, R. and Fauvelle-Aymar, C. (2012). Turnout Under Semi-presidentialism: First- and Second-Order Elections to National-Level Institutions. *Comparative Political Studies*, 45(12), 1598–1623.

Engstrom, E. (2013). Gerrymandering and the Future of American Politics In: Engstrom, E., ed. (2013) *Partisan Gerrymandering and the Construction of American Democracy*. Ann Arbor: University of Michigan Press. 191-206.

Epigeum (2018) *Research Integrity – Social and Behavioural Sciences.* Available at: https://courses.epigeum.com/programme/?id=13 (accessed 11 Dec 2020).

Escobar, A. (2001) Culture sits in places: reflections on globalism and subaltern strategies of localization. *Political Geography*, 20(2), 139-174.

Evans, J. and Tonge, J. (2009) Social Class and Party Choice in Northern Ireland's Ethnic Blocs. *West European Politics*, 32(1), 1012-1030.

Fan, C., Li, W., Wolf, L. J. and Myint, S. W. (2015). A spatiotemporal compactness pattern analysis of congressional districts to assess partisan gerrymandering: A case study with

California and North Carolina. *Annals of the Association of American Geographers*, 105(4), 736-753.

Farrell, A. (2019) Interview with William Durkan, 26 September 2019 [audio recording].

Feldman, S. (1982). Economic Self-interest and Political Behavior. *American Journal of Political Science*, 26(1), 446–466.

Fieldhouse, E. and Cutts, D. (2008) Diversity, density, and turnout: The effect of neighbourhood ethno-religious composition on voter turnout in Britain. *Political Geography*, 27(5), 530-548.

Fischel, W. (2001) *The Homevoter Hypothesis.* Cambridge: Harvard University Press.

Fleming, S. (2019) Interview with William Durkan, 02 October 2019 [audio recording].

Flint, C. (2000) Electoral geography and the social construction of space: The example of the Nazi party in Baden, 1924-1932. *GeoJournal*, 51(3), 145-156.

Forde, M. and Leonard, D. (2013) Political participation In Forde, M. and Leonard, D., eds. (2013) *Constitutional Law of Ireland*. Haywards Heath: Bloomsbury Professional. 625.

Fotheringham, A. S. (1997) Trends in quantitative methods I: stressing the local. *Progress in Human Geography*, 21(1), 88-96.

Fotheringham, A. S. and Wong, D. W. S. (1991) The Modifiable Areal Unit Problem in Multivariate Statistical Analysis. *Environment and Planning A: Economy and Space*, 23(7), 1025-1044.

Fotheringham, A. S., Brunsdon, C. and Charlton, M. (2000) *Quantitative Geography: Perspectives on Spatial Data Analysis*. London: SAGE.

Fotheringham, A. S., Charlton, M. and Brunsdon, C. (2002) *Geographically Weighted Regression: The Analysis of Spatially Varying Relationships*. London: Wiley.

Franklin, M., Eijk, C., Evans, D., Fotos, M., Hirczy, W., Marsh, M., & Wessels, B. (2004). *Voter Turnout and the Dynamics of Electoral Competition in Established Democracies since 1945*. Cambridge: Cambridge University Press.

Franko, W. (2012) *The policy consequences of unequal participation*. Unpublished Ph.D. thesis, University of Iowa.

Franko, W., Kelly, N. and Witko, C. (2016) Class Bias in Voter Turnout, Representation, and Income Inequality. *Perspectives on Politics*, 14(2), 351-368.

Gallagher, M. (2005) The Republic of Ireland: The Single Transferable Vote in Action In: Reynolds, A., Reilly, B. and Ellis, A., eds. (2005) *Electoral System Design: The New International IDEA Handbook*. Stockholm: International Institute for Democracy and Electoral Assistance. 72-77.

Gallagher, M. and Komito, L. (2010) The Constituency Role of Dáil Deputies In: Coakley, J. and Gallagher, M., eds. (2010) *Politics in The Republic of Ireland.* New York: Routledge. Ch 8.

Gallagher, M. and Marsh, M. (2016) *How Ireland Voted 2016: The Election that Nobody Won*. London: Palgrave Macmillan.

Garn, S. M. (1979) Letters: Social Science Research Ethics. *Science, New Series*, 206(4422), 1022.

Garnett, R. and Kanaroglou, P. (2016) Qualitative GIS: an open framework using SpatialLite and open source GIS. *Transactions in GIS*, 20(1), 144–159.

Gay, C. (2002) Spirals of Trust? The Effect of Descriptive Representation on the Relationship between Citizens and Their Government. *American Journal of Political Science*, 46(4), 717-732.

Gehlke, C. E. and Biehl, K. (1934) Certain Effects of Grouping Upon the Size of the Correlation Coefficient in Census Tract Material. *Journal of the American Statistical Association*, Supplement 29, 169–170.

Giddens, A. (1984). *The constitution of society*. Cambridge: Polity press.

Gilmore, E. (2020) Interview with William Durkan, 04 January 2020 [audio recording].

Goodall, C. R., Kafadar, K. and Tukey, J. W. (1998) Computing and using rural versus urban measures in statistical applications. *American Statistician*, 52(1), 101-111.

Gosnell, H. F. (1930) *Why Europe Votes*. Chicago: University of Chicago Press.

Government of Ireland (1937) *Constitution of Ireland.* 1 July 1937. Available at: https://www.refworld.org/docid/47a70815d.html (accessed 20 Feb 2021).

Government of Ireland (1997) *Electoral Act 1997*. Dublin: Dublin Stationery Office.

Government of Ireland (2013) *Local Electoral Area Boundary Committee Report 2013.* Available at: http://www.boundarycommittee.ie/reports/2013-report.pdf (accessed 13 Feb 2021).

Government of Ireland (2018) Local Electoral Area Boundary Committee No. 2 Report 2018. Available at: http://www.boundarycommittee.ie/reports (accessed 13 Feb 2021).

Gray, M. and Caul, M. (2000) Declining Voter Turnout in Advanced Industrial Democracies, 1950 to 1997: The Effects of Declining Group Mobilization. *Comparative Political Studies*, 33(9), 1091-1122.

Gudgin, G. and Taylor, P. J. (2012) *Seats, Votes, and the Spatial Organisation of Elections*. Colchester: ECPR Press.

Haase, T. and Pratschke, J. (2017) The 2016 Pobal HP Deprivation Index. Available at: www.trutzhaase.eu (accessed 13 Feb 2021).

Haase, T. and Pratschke, J. (2017b) The 2016 Pobal HP Deprivation Index for Small Areas (SA): Introduction and Reference Tables Available at: www.trutzhaase.eu (accessed 13 Feb 2021).

Hajnal, Z. and Trounstine, J. (2005) Where Turnout Matters: The Consequences of Uneven Turnout in City Politics. *The Journal of Politics*, 67(2), 515-535.

Harkin, F. (2018) "Where would we be without the GAA?": Gaelic games and Irishness in London. *Irish Studies Review*, 26(1), 55-66.

Havlicek, L. and Peterson, N. (1976) Robustness of the Pearson Correlation against Violations of Assumptions. *Perceptual and Motor Skills*, 43(3), 1319–1334.

Hayes, D. and Mckee, S. (2009). The Participatory Effects of Redistricting. *American Journal of Political Science*, 53(1), 1006 - 1023.

Heath, O., Verniers, G. and Kumar, S. (2015) Do Muslim voters prefer Muslim candidates? Co-religiosity and voting behaviour in India. *Electoral Studies*, 38(1), 10-18.

Heppenstall, A., Crooks, A., See, L. and Batty, M. (2012) *Agent-Based Models of Geographical Systems.* New York: Springer.

Hershey, M. (2009). What We Know about Voter-ID Laws, Registration, and Turnout. *Political Science and Politics*, 42(1), 87-91.

Hey, T., Tansley, S. and Tolle, H. (2009) Jim Gray on eScience: A transformed scientific method In: Hey, T., Tansley, S. and Tolle, K., eds. (2009) *The Fourth Paradigm: Data-Intensive Scientific Discovery*. Redmond: Microsoft Research. xvii.

Heydon, M. (2019) Interview with William Durkan, 05 December 2019 [audio recording].

Hillygus, D. (2005) The Missing Link: Exploring the Relationship Between Higher Education and Political Engagement. *Political Behavior*, 27(1), 25–47.

Hirczy, W. (1995) Explaining near-universal turnout: The case of Malta. *European Journal of Political Research*, 27(2), 255-272.

Hobolt, S. (2016) The Brexit vote: a divided nation, a divided continent. *Journal of European Public Policy*, 23(9),1259-1277.

Hobson, E. (2019) Interview with William Durkan, 14 November 2019 [audio recording].

Hodge D. C. (1995) Should women count? The role of quantitative methodology in feminist geographic research. *The Professional Geographer*, 47(4), 426.

Holden, C. (1979) Ethics in Social Science Research. *Science, New Series,* 206(4418), 537-540.

Holian, M. (2011) Homeownership, dissatisfaction and voting. *Journal of Housing Economics,* 20(4), 267-275.

Horowitz, I. L. (1979) Letters: Social Science Research Ethics. *Science, New Series*, 206(4422), 1022.

HSE (2006) *Inspection of Craddock House Nursing Home, Craddockstown, Naas, Co. Kildare.* Available at: https://www.hse.ie/eng/services/publications/olderpeople/nursing-home-reports/kildare/craddock-house,-craddockstown,-naas,-co-kildare-/craddock-house-010806.pdf (accessed 26 Jan 2021).

Huckfeldt, R. and Sprague, J. (1995). *Citizens, Politics and Social Communications: Information and Influence in an Election Campaign.* Cambridge: Cambridge University Press.

Hunt, C. R. (2018) When does redistricting matter? Changing conditions and their effects on voter turnout. *Electoral Studies,* 54(1), 128-138.

Irish Government News Service (2019) *Government approves ground-breaking reforms to modernise electoral registration*. [online]. 27 December 2019. Available at: https://merrionstreet.ie/en/News-Room/Releases/Government_approves_ground_breaking_reforms_to_modernise_electoral_registration.html (accessed 08 July 2020).

Irish Independent (2016) In Focus: Dublin Bay North. *Irish Independent* [online] 18 January 2016. Available at: https://www.independent.ie/irish-news/election-2016/dublin-bay-north-34373969.html (accessed 13 Feb 2021)

Jackman, R. W. (1987) Political institutions and voter turnout in the industrial democracies. *American Political Science Review*, 81(1), 405-423.

Jackman, R. W. and Miller, R. A. (1995) Voter Turnout in the Industrial Democracies During the 1980s. *Comparative Political Studies*, 27(4), 467-492.

Jelinski, D.E and Wu, J. (1996) The modifiable areal unit problem and implications for landscape ecology. *Landscape Ecology,* 11(3), 129-140.

Jennings, W. and Stoker, G. (2016) The Bifurcation of Politics: Two Englands. *The Political Quarterly*, 87(3), 372-382.

Jennings, W., Stoker, G. and Twyman, J. (2016) The dimensions and impact of political discontent in Britain. *Parliamentary Affairs*, 69(4), 876-900.

Jiang, B. (2018) Homeownership and voter turnout in U.S. local elections. *Journal of Housing Economics*, 41(1), 168-183.

Johnston, R. and Pattie, C. (2006) *Putting Voters in their Place: Geography and Elections in Great Britain*. Oxford: Oxford University Press.

Kavanagh, A. (2002) *Social Deprivation, Political Alienation and Community Empowerment. The geography of voter turnout in Ireland,1997-2002, and its Association with Social Deprivation*. PhD thesis, National University of Ireland Maynooth.

Kavanagh, A. (2003) The Constituency Commission, *Irish Political Studies*, 18(2), 89-99.

Kavanagh, A. (2004) Turnout or turned off? Electoral participation in Dublin in the 21st century. *Journal of Irish Urban Studies*, 3(2), 1-22.

Kavanagh, A. (2010) Voter turnout in the 2007 General Election: A Geographical Perspective. *Adrian Kavanagh's Blog* [online]. 30 September 2010. Available at: https://adriankavanagh.com/2010/09/30/voter-turnout-in-the-2007-general-election-a-geographical-perspective/ (accessed 08 July 2020).

Kavanagh, A. (2014) All Changed, Changed Utterly? Irish General Election Boundary Amendments and the 2012 Constituency Commission Report. *Irish Political Studies*, 29(2), 215-235.

Kavanagh, A. (2016) Voter Turnout at the 2011 General Election: A Geographical Overview. Irish Elections: Geography, Facts and Analyses [online]. 26 February 2016. Available at: https://adriankavanaghelections.org/2016/02/26/voter-turnout-at-the-2011-general-election-a-geographical-overview/ (accessed 08 July 2020).

Kavanagh, A. (2019) Adrian Kavanagh on the candidates who made a big impression. *Irish Independent.* 27 May 2019, 2.

Kavanagh, A. and Durkan, W. (2018) Getting out the vote: what influences voter turnout? *RTÉ Brainstorm* [online]. Available at: https://www.rte.ie/brainstorm/2018/1019/1005247-voter-turnout-elections-ireland/ (accessed 21 May 2021).

Kavanagh, A., Mills, G. and Sinnott, R. (2004) The Geography of Irish Voter Turnout: A Case Study of the 2002 General Election. *Irish Geography*, 37(2), 177-186.

Kavanagh, A., Sinnott, R., Fotheringham, S. and Carlton, M. (2006) 'A Geographically Weighted Regression Analysis of General Election Turnout in the Republic of Ireland'. *Political Studies Association of Ireland Conference*, University College Cork (20 October 2006).

Kelling, S., Hochachka, W. M., Fink, D., Riedewald, M., Caruana, R., Ballard, G. and Hooker, G. (2009) Data-intensive Science: A New Paradigm for Biodiversity Studies. *BioScience*, 59(7), 613–620.

Key, V. O. (1949) *Southern Politics in State and Nation.* New York: Alfred Knopf.

Key, V. O. (1966) *The Responsible Electorate*. Cambridge: Harvard University Press.

Kirk, J. and Miller, M. L. (1986) Objectivity in Qualitative Research In: Kirk, J. and Miller, M. L., eds. (1986) *Reliability and Validity in Qualitative Research*. Newbury Park: SAGE. 8-13.

Kitchin, R. (2014) *The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences.* London: SAGE.

Kitchin, R. and Tate, N. J. (1999) *Conducting research in human geography: theory, methodology and practice.* London: Routledge.

Knuth, D. E. (1984) Literate Programming. *The Computer Journal*, 27(2), 97-111.

Koestler, A. (1967) *The Ghost in the Machine*. London: Hutchinson & Co.

Kwan, M. P. and Schwanen, T. (2009) Critical Quantitative Geographies. *Environment and Planning A: Economy and Space*, 41(2), 261–264.

Lahtinen, H., Mattila, M., Wass, H. and Martikainen, P. (2017) Explaining Social Class Inequality in Voter Turnout: The Contribution of Income and Health. *Scandinavian Political Studies*, 40(4), 388-410.

LaMorte, W. (2018) *The Power of Multiple Regression Models: Dummy Variable in R.* Available at: https://sphweb.bumc.bu.edu/otlt/MPH-Modules/PH717-QuantCore/PH717_MultipleVariableRegression/PH717_MultipleVariableRegression4.html (accessed 14 Dec 2020).

Laois Nationalist. (2016) A massive number of people are on Ireland's electoral register who shouldn't be. *Laois Nationalist*, 25 Jan 2016.

Laver, M. L. (1986) Ireland: Politics with Some Social Bases: An Interpretation Based on Survey Data. *The Economic and Social Review*, 17(3), 193-213.

Leininger, A., Rudolph, L. and Zittlau, S. (2018) How to increase turnout in low-salience elections: Quasi-experimental evidence on the effect of concurrent second-order elections on political participation. *Political Science Research and Methods*, 6(3), 509-526.

Lijphart, A. (1997) Unequal Participation: Democracy's Unresolved Dilemma. *The American Political Science Review*, 91(1), 1-14

Lijphart, A. (2008). *Thinking About Democracy : Power Sharing and Majority Rule in Theory and Practice*. London: Routledge.

Lipset, S. M. (1959) Some Social Requisites of Democracy: Economic Development and Political Legitimacy. *American Political Science Review*, 53(1), 69-105.

Longstaff, C. and Colquhoun, D. (2021) False Positive Risk Web Calculator. Available at: http://fpr-calc.ucl.ac.uk/ (accessed 13 Feb. 2021).

Lord Campbell-Savours (2012) Hansard – House of Lords Debates, col. 1258, 12 July 2012.

Lyons, W., Lowery, D. and DeHoog, R.H. (1992) *The Politics of Dissatisfaction*. Armonk: Sharpe.

MacClancy, J. (1996) Sport, Identity and Ethnicity: An Introduction In: MacClancy, J., ed. (1996) *Sport, Identity and Ethnicity*. Oxford: Berg. Ch. 1.

Maeda, K. (2016) Voter turnout and district-level competitiveness in mixed-member electoral systems. *Journal of Elections, Public Opinion and Parties*, 26(4), 452-469.

Mandelbrot, B. (1967) How Long is the Coast of Britain? Statistical Self-Similarity and Fractional Dimension. *Science, New Series,* 156(3775), 636-638.

Marsden, P. V. (1987) Core Discussion Networks of Americans. *American Sociological Review,* 52(1), 122-31.

Martikainen, P., Martikainen, T. and Wass, H. (2005) The effect of socioeconomic factors on voter turnout in Finland: A register-based study of 2.9 million voters. *European Journal of Political Research,* 44(5), 645-669.

Martin, C. (2019) Interview with William Durkan, 06 November 2019 [audio recording].

Mason, L. (2018) Ideologues without Issues: The Polarizing Consequences of Ideological Identities. *Public Opinion Quarterly,* 82(1), 866–887.

Massey, D. (1999) Spaces of politics In: Massey, D., Allen, J. and Sarre, P., eds. (1999) *Human geography today*. Oxford: Polity Press. 279-294.

Mastronardi, L. and Cavallo, A. (2020) The Spatial Dimension of Income Inequality: An Analysis at Municipal Level. *Sustainability,* 12(1), 1622.

Mayer, A. K. (2011) Does Education Increase Political Participation? *The Journal of Politics,* 73(3), 633-645.

Maynooth University (2020) *Research Ethics*. Available at: https://www.maynoothuniversity.ie/research/research-development-office/research-ethics (accessed 11 Dec 2020).

McAllister, I. and Kelly, J. (1982) Class, ethnicity, and voting behaviour in Australia. *Politics,* 17(2), 96-107.

McElroy, G. and Marsh, M. (2009) Candidate Gender and Voter Choice: Analysis from a Multimember Preferential Voting System. *Political Research Quarterly,* 63(4), 822-833.

McEntee, H. (2019) Interview with William Durkan, 09 October 2019 [audio recording].

McGrath, F. (2019) Interview with William Durkan, 04 December 2019 [audio recording].

McKay, L. (2019) 'Left behind' people or places? The role of local economies in perceived community representation. *Electoral Studies,* 60(1), 102046.

Merriam, C. E. and Gosnell, H. F. (1924) *Nonvoting, Causes and Methods of Control*. Chicago : University of Chicago Press.

Milbrath, L. (1965) *Political Participation: How and Why do People Get Involved in Politics*. Chicago: Rand McNally & Company.

Miller, H, J. (2004) Tobler's First Law and Spatial Analysis. *Annals of the Association of American Geographers,* 94(2), 284-289.

Milligan, K., Moretti, E. and Oreopoulos, P. (2004). Does education improve citizenship? Evidence from the U.S. and the U.K. Journal of Public Economics, 88(9-10), 1667-1695.

Monroe, A. (1977) Urbanism and Voter Turnout: A Note on Some Unexpected Findings. *American Journal of Political Science*, 21(1), 71-78.

Moore, B. (1966) *Social Origins od Democracy and Dictatorship.* Boston: Beacon.

Moran, P. A. P. (1948) The Interpretation of Statistical Maps. *Journal of the Royal Statistical Society, B(10), 243–51*.

Moran, P. A. P. (1950) Notes on Continuous Stochastic Phenomena. *Biometrika*, 37(1), 17–23.

Moynihan, S. (2020) Interview with William Durkan, 03 November 2020 [audio recording].

Murray, A. T. (2010) Quantitative Geography. *Journal of Regional Science*, 50(1), 143-163.

Neter, J., Wasserman, W. and Kutner, M. H. (1983) *Applied linear regression models.* Homewood Illinois: Richard D. Irwin, Inc.

Newman, T. (2019) Interview with William Durkan, 14 November 2019 [audio recording].

Nie, N., Verba, S., and Kim, J. (1974). Political Participation and the Life Cycle. *Comparative Politics*, 6(3), 319-340.

Norris, P. (1997) Choosing Electoral Systems: Proportional, Majoritarian and Mixed Systems. *International Political Science Review*, 18(3), 297-312.

Norval, G. and Grimes, M. (1968) Ageing, Voting, and Political Interest. American Sociological Review, 33(4), 563-575.

Ó Fearghaíl, S. (2019) Interview with William Durkan, 20 November 2019 [audio recording].

O'Brien, D. (2019) Interview with William Durkan, 23 October 2019 [audio recording].

O'Connell, G. (2020) Interview with William Durkan, 28 October 2020 [audio recording].

O'Connell, R. (2006) The Right to Participation of Minorities and Irish Travellers. *Studies in ethnicity and nationalism*, 6(3), 2-29.

O’Halloran, M. (2019) Election turnout figures ‘work of fiction’, academic claims. *Irish Times*, 04 June 2019.

O’Halloran, M. (2019b) Taoiseach intends to call four byelections for November 29th. *Irish Times* [online] 22 October 2019. Available at: https://www.irishtimes.com/news/politics/taoiseach-intends-to-call-four-byelections-for-november-29th-1.4059430 (accessed 13 Feb 2021).

O’Reilly, L. (2019) Interview with William Durkan, 25 September 2019 [audio recording].

O’Riordan, S. (2020) People who dies a decade ago still on electoral register in Co. Cork. *Irish Examiner,* 09 March 2020.

O’Rourke, F. (2020) Interview with William Durkan, 13 January 2020 [audio recording].

O’Sullivan, M. (2019) Interview with William Durkan, 27 September 2019 [audio recording].

O'Carroll, J. P. (1987) Strokes, cute hoors and sneaking regarders: The influence of local culture on Irish political style. *Irish Political Studies*, 2(1), 77-92.

Oireachtas Library and Research Service (2016) *Election Turnout in Ireland: measurement, trends, and policy implications.* [online]. 28 Jan 2016. Available at: https://data.oireachtas.ie/ie/oireachtas/libraryResearch/2016/2016-01-28_l-rs-note-election-turnout-in-ireland-measurement-trends-and-policy-implications_en.pdf (accessed 08 July 2020).

O'Loughlin, F. (2019) Interview with William Durkan, 04 December 2019 [audio recording].

O'Malley, E. (2001) Apathy or error? Questioning the Irish register of electors. *Irish Political Studies,* 16(1), 215-224.

Openshaw, S. (1977) Optimal Zoning Systems for Spatial Interaction Models. *Environment and Planning A*, 9(2), 169-184.

Openshaw, S. and Taylor, P. J. (1979) A million or so correlation coefficients: Three experiments on the modifiable areal unit problem In: Wrigley, N., ed. (1979) *Statistical Applications in the Spatial Sciences*. London: Pion. 127–144.

Orford, S. and Schuman, A. (2002) Micro-geography and socialization: New ways of investigating the turnout problem. *British Elections and Parties Review*, 12(1), 190-205.

Pantoja, A. and Segura, G. (2003) Does Ethnicity Matter? Descriptive Representation in Legislatures and Political Alienation Among Latinos. *Social Science Quarterly*, 84(2), 441-460.

Paoletti, I., Tomás, M. I. and Menendez, F. (2013) Introduction: Problematizing a Normative Approach to Ethics In: Paoletti, I., Tomás, M. I. and Menendez, F., eds. (2013) *Practice of Ethics: An Empirical Approach to Ethics in Social Sciences Research*. Newcastle upon Tyne: Cambridge Scholars Publishing. Ch.1.

Parker, A. J. (1982) The “Friends and Neighbours” Effect in the Galway West Constituency. *Political Geography Quarterly*, 1(3), 243-262.

Pattie, C. J., and Johnston, R. J. (1998) Voter Turnout and Constituency Marginality: Geography and Rational Choice. *Area*, 30(1), 38–48.

Pattie, C. J., and Johnston, R. J. (1999) Context, conversation and conviction: Social networks and voting at the 1992 British General Election. *Political Studies*, 47(1), 977-889.

Pattie, C. J., and Johnston, R. J. (2009) Electoral Geography In: Kitchin, R. and Thrift, N., eds. (2009*) International Encyclopedia of Human Geography*. Amsterdam: Elsevier 405-422.

Pelkonen, P. (2012) Length of Compulsory Education and Voter Turnout – Evidence from a Staged Reform. *Public Choice*, 150(1), 51-75.

Phelan, K. (2020) Paul sounds a hopeful note: Race and racism in Fingal. *Fingal Independent* [online] 20 June 2020. Available at: https://www.independent.ie/regionals/fingalindependent/news/paul-sounds-a-hopeful-note-39286858.html (accessed 20 Feb 2021).

Philip, L. J. (1998) Combining quantitative and qualitative approaches to social research in human geography—an impossible mixture? *Environment and Planning A*, 30(2), 261-276.

Pike, A. and Tomaney, J. (2009) The State and uneven development: the governance of economic development in England in the post-devolution UK. *Cambridge Journal of Regions, Economy and Society*, 2(1), 13-34.

Powell, G. B. (1986) American voter turnout in comparative perspective. *American Political Science Review*, 80(1), 17-43.

Pratt, A. C. (1995) Putting critical realism to work: the practical implications for geographical research. *Progress in Human Geography*, 19(1), 61-74.

Pred, A. (1990) Context and bodies in flux: Some comments on space and time in the writings of Anthony Giddens In: Clark, J., Modgil, C., and Modgil, S., eds. (1990) *Anthony Giddens: Consensus and Controversy*. London: The Falmer Press. 117- 129.

Preuss, G. (1981). The Effects of Density and Urban Residence on Voter Turnout. *Population and Environment*, 4(4), 246-265.

Putnam, R. D. (1995) Bowling Alone: America’s Declining Social Capital. *Journal of Democracy*, 6(1), 65–78.

Quinlan, S. (2015) Facilitating the Electorate: A Multilevel Analysis of Election Timing, Registration Procedures, and Turnout. *Irish Political Studies*, 30(4), 482-509.

Radil, S. M. (2011). *Spatializing social networks: making space for theory in spatial analysis*. University of Illinois at Urbana-Champaign.

Rae, D. W. (1971) An estimate for the decisiveness of election outcomes In: Lieberman, B., ed. (1971) *Social Choice.* New York: Gordon & Breach. 379-392.

Ragsdale, L. and Rusk, J.G. (2017) *The American Nonvoter*. New York: Oxford University Press.

Robinson, A. H. (1950) Ecological correlation and the behaviour of individuals. *American Sociological Review*, 15(1), 351–357.

Rosenstone, S. (1982) Economic Adversity and Voter Turnout. *American Journal of Political Science*, 26(1), 25-46.

Ryan, E. (2019) Interview with William Durkan, 25 October 2019 [audio recording].

Sauer, C. (1918). Geography and the Gerrymander. *American Political Science Review*, 12(3), 403-426.

Scudder, M. F. (2020) The Ideal of Uptake in Democratic Deliberation. *Political Studies*, 68(2), 504-522.

Scully, M. (2013) BIFFOs, Jackeens and Dagenham Yanks: county identity, "authenticity" and the Irish diaspora. *Irish Studies Review*, 21(2), 143-163.

Sedgwick, P. (2014). Cross sectional studies: advantages and disadvantages. *British Medical Journal*, 348(26), 2276.

Shah, P. and Wichowsky, A. (2019) Foreclosure's Fallout: Economic Adversity and Voter Turnout. *Political Behavior*, 41(4), 1099–1115.

Sheppard, E. (2001) Quantitative Geography: Representations, Practices, and Possibilities. *Environment and Planning D: Society and Space*, 19(5), 535-554.

Siedler, T. (2010) Schooling and Citizenship in a Young Democracy: Evidence from Postwar Germany. *The Scandinavian Journal of Economics*, 112(2), 315-338.

Siegfried, A. (1913). *Tableau politique de la France de l'ouest.* Paris: A. Colin.

Skipworth, S. A. (2009) *An examination of the relationship between age and voter turnout.* Mississippi: The University of Mississippi, ProQuest Dissertations Publishing.

Sleeboom-Faulkner, M., Simpson, B., Burgos-Martinez, E. and McMurray, J. (2017) The formalization of social-science research ethics: How did we get there? *Journal of Ethnographic Theory*, 7(1), 71-79.

Smith, D. (2020) Interview with William Durkan, 05 October 2020 [audio recording].

Smith, J., and Mclean, I. (1994) The poll tax and the electoral register In Heath, A., Jowell, R., Curtice, J. and Taylor, B., eds. (1994) *Labours last chance? The 1992 election and beyond.* Dartmouth: Aldershot. 229-253.

Smith, R. C. (2017). "Don't Let the Illegals Vote!": The Myths of Illegal Latino Voters and Voter Fraud in Contested Local Immigrant Integration. The Russell Sage Foundation Journal of the Social Sciences, 3(4), 148-175.

Snyder, R. E. (2011) *The impact of age, education, political knowledge, and political context on voter turnout.* Las Vegas: University of Nevada.

Sondheimer, R., and Green, D. (2010). Using Experiments to Estimate the Effects of Education on Voter Turnout. *American Journal of Political Science*, 54(1), 174-189.

Sperandei, S. (2014). Understanding logistic regression analysis. *Biochemia medica*, 24(1), 12-18.

Sridharan, E. (2014). Class voting in the 2014 Lok Sabha elections: The growing size and importance of the middle classes. *Economic and Political Weekly*, 49(1), 72-76.

Stagg, E. (2019) Interview with William Durkan, 15 November 2019 [audio recording].

Stephan, F. F. (1934) Sampling errors and the interpretation of social data ordered in time and space. *Journal of the American Statistical Association*, 29(1), 165-166.

Stevens, S. S. (1946) On the theory of scales of measurement. *Science*, 103(1), 677–680.

Stoker, L. and Jennings, M. K. (1995) Life-cycle Transitions and Political Participation: The Case of Marriage. *The American Political Science Review*, 89(2), 421-433.

Straits, B. C. (1990) The social context of voter turnout. *Public Opinion*, 54(1), 64-73.

Strom, K. (1990) *Minority government and majority rule*. New York: Cambridge University Press.

Swan, D. (2019) Interview with William Durkan, 06 November 2019 [audio recording].

Swift, A., Liu, L. and Uber, J. (2014) MAUP sensitivity analysis of ecological bias in health studies. *GeoJournal*, 79(2), 137-153.

Tarrow, S. (1971). The Urban-Rural Cleavage in Political Involvement: The Case of France. *American Political Science Review*, 65(2), 341-357.

Teixeira, R. (1987) *Why Americans Don't Vote: Turnout Decline in the United States*. Connecticut: Greenwood Press.

Teixeira, R. (1992) *The Disappearing American Voter.* Washington DC: Brookings Institution

Teljeur, C. and Kelly, A. (2008) An urban–rural classification for health services research in Ireland. *Irish Geography*, 41(3), 295-311.

The Equality Authority (2006) Traveller Ethnicity. *The Equality Authority* [online]. Available at: https://www.ihrec.ie/documents/traveller-ethnicity/ (accessed 14 Feb 2021).

Thompson, C. G., Kim, R. S., Aloe, A. M. and Becker, B. J. (2017) Extracting the Variance Inflation Factor and Other Multicollinearity Diagnostics from Typical Regression Results. *Basic and Applied Social Psychology*, 39(2), 81-90.

Thrift, N. (1983) On the determination of social action in time and space. *Environment and Planning D: Society and Space*, 1(1), 23-57.

Thrift, N. J. and Johnston, R. J. (1993) The futures of Environment and Planning A. *Environment and Planning A: Anniversary Issue*, 25(1), 83 - l02.

Tingsten, H. (1937) *Political Behaviour.* London: P.S. King & Son.

Tobler, W. R. (1970) A Computer Movie Simulating Urban Growth in the Detroit Region. *Economic Geography*, 46(2), 234-240.

Troy, R. (2019) Interview with William Durkan, 03 October 2019 [audio recording].

Trumm, S., Sudulich, L. and Townsley, J. (2017) Information effect on voter turnout: How campaign spending mobilises voters. *Acta Politica*, 52(4), 461-478.

Tuffy, J. (2020) Interview with William Durkan, 30 October 2020 [audio recording].

Van Hout, M. C. (2010) The Irish Traveller Community: Social Capital and Drug Use. *Journal of Ethnicity in Substance Abuse*, 9(3), 186-205.

Verba, S. (2006) Fairness, Equality, and Democracy: Three Big Words. *Social Research*, 73(2), 499-541.

Voss, P. R., Curtis-White, K. J. and Hammer, R. B. (2006) Explorations in Spatial Demography In: Kandel, W. A. and Brown, D. L., eds. (2006) *Population Change and Rural Society.* Dordrecht: Springer. Ch 19.

Wang, Z., and Sun, L. (2017) Social class and voter turnout in china. *Political Research Quarterly*, 70(2), 243-256.

Ward, M. (2020) Interview with William Durkan, 23 September 2020 [audio recording].

Watson, D., Kenny, O. and McGinnity, F. (2017) *A Social Portrait of Travellers in Ireland: ESRI Research Series Number 56*. Dublin: The Economic and Social Research Institute.

Weber, M. (1922) *Economy and Society*. California: University of California Press.

White, A. C. (2015) How ethnicity matters in Russian elections: ethnic minorities and support for the United Russia party. *Eurasian Geography and Economics*, 56(5), 524-546.

Winchester, P. M. H. (1996) Ethical issues in interviewing as a research method in human geography. *Australian Geographer*, 27(1), 117-131.

Winders, B. (1999) The roller coaster of class conflict: Class segments, mass mobilization, and voter turnout in the U.S., 1840-1996. *Social Forces*, 77(3), 833-862.

Wolfgang, P., de Miño, H. and Lane, J. C. (1996) STV in Malta: Some surprises. *Representation*, 34(1), 21-28.

Wong D. W. S. (2004) The Modifiable Areal Unit Problem (MAUP) In: Janelle D.G., Warf B. and Hansen, K., eds. (2004) *WorldMinds: Geographical Perspectives on 100 Problems*. Dordrecht: Springer. 571-575.

Wong, C., Bowers, J., Rubenson, D., Fredrickson, M. and Rundlett, A. (2018) Maps in People's Heads: Assessing A New Measure of Context. *Political Science Research and Methods*, 8(1), 160-168.

Wright, E. O. (1979) *Class Structure and Income Determination.* New York: Academic Press.

Yano, K. (2000) GIS and quantitative geography. *GeoJournal*, 52(1), 173–180.

Yeung, W. C. H. (1997) Critical realism and realist research in human geography: a method or a philosophy in search of a method? *Progress in Human Geography*, 21(1), 51-74.

Young et al. (2018) A methodological guide to using and reporting on interviews in conservation science research. Methods in Ecology and Evolution, 19(1), 10-19.

Yule, G. U. and Kendall, M. G. (1950*) An introduction to the theory of statistics.* London: Griffin.

Zamfira, A. (2015). Methodological limitations in studying the effect of (inter)ethnicity on voting behaviour, with examples from Bulgaria, Romania, and Slovakia. *Erdkunde*, 69(2), 161-173.

Zolnik, E. J. (2009) Context in Human Geography: A Multilevel Approach to Study Human–Environment Interactions. *The Professional Geographer*, 61(3), 336-349.