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Calculating housing vacancy: The data politics and praxes of state data and official statistics

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Abstract

Vacancy has long been considered a key housing and urban development issue and many states produce datasets and official statistics that detail its extent and form. Yet, there is no internationally agreed definition or means of measuring vacancy. Nor is there a comprehensive understanding of the data politics and praxes that shape how states generate vacancy data. We first provide a typology of six ways in which vacancy has been measured globally (field visits, surveys, administrative systems, proxy measures, crowdsourcing, combination and modelling). Informed by interviews with key actors, we then document vacancy in Ireland post the 2007 global financial crisis, in particular focusing on how vacancy has been measured, and how the Central Statistics Office clarified and extended the vacancy data generated as part of the 2016 census, altered its methodology for the 2022 census, and introduced a new vacancy measure in 2023 using electricity consumption data. Drawing on our analysis, we contend that rather than using data denotatively there is a need for a reflexive approach to housing data that extends beyond a concern for data quality to consider the data politics shaping data production, how this changes over time, and its implications for analysis, interpretation and use.

Key words: housing vacancy, measurement, data politics, census, electricity consumption

Introduction

Residential vacancy has long been considered a key issue in urban and rural development since it is an active factor in the functioning of real estate markets (with too little or much vacancy affecting the balance of supply and demand), vacant units are viewed as a potential solution to housing shortages, and high rates of vacancy are linked to neighbourhood blight, socio-economic decline, poorer levels of health, and increased rates of crime (Immergluck, 2016; Lee et al., 2022). Vacancy is a key aspect of shrinking cities in the former industrial centres of the US and Western Europe (Couch and Cocks, 2013; Molloy, 2016) and in post-Soviet Eastern Europe (Haase et al., 2016), associated with the challenges of service delivery, economic development and spatial planning. Similarly, in China, rural-to-urban migration has produced shrinking towns and villages in rural areas (Li et al., 2019), yet urban speculation and over-development has also created ‘ghost cities’ characterised by high rates of vacancy (Williams et al., 2019; Tan et al., 2020; Shi et al., 2022). In countries like Japan, vacant units, especially those sliding into dereliction, are viewed as a potential hazard during natural disasters (e.g., earthquakes) (Mizutani et al., 2025). In the Nordic countries, vacant units are seen as a drain on natural resources since, despite vacancy, shared heating systems fully heat buildings to prevent ice damage (Huuhka, 2016). Consequently, there is a need for vacancy to be measured effectively in order to provide evidence-based policy solutions (e.g., planning, state investment, taxation schemes) and operational and managerial interventions (e.g., identifying properties for taxation, compulsory purchase, demolition) to target it and related issues.

State organisations are usually the key producers of large-sample (e.g., regional or national), longitudinal vacancy data given their access to necessary resources to generate data at scale and over time. While these vacancy datasets are generally well known, comparatively little is known about the data work involved in generating, processing and sharing vacancy data. This is also the case for housing data in general (Kitchin et al., 2026). That is, there has been little critical reflection on the data politics and the socio-technical nature of state housing data and official statistics: the decision-making and methodological processes by which new datasets are created, validated, and become new official statistics; how and why they are refined over time through alterations to methodologies and data management; and how these data politics matter to how a housing issue is understood and shapes policy and operations. Instead, if attention is paid to data work and housing data, it is typically with

respect to: access to datasets; technical aspects of data quality (e.g., timeliness, coverage, completeness, cleanliness, consistency, granularity, metadata and paradata); gaps and silences in available datasets; data integrity and validity given variances in data generated about the same phenomena using different methodologies; and the preparation of datasets through data cleaning and wrangling to render them suitable for analysis (e.g., Immergluck and Hollis, 2023; Hangen and O'Brien, 2024).

Yet, as Social Studies of Quantification (SSQ) (Porter, 1995; Desrosières, 1998) and, more recently, Critical Data Studies (CDS) (D'Ignazio and Klein, 2020; Kitchin, 2022) contend, data are produced rather than simply collected; that is, data do not pre-exist their generation, but are brought into being through socio-technical processes (Gitelman and Jackson, 2013). From this perspective, facts are never simply objective, impartial and incontrovertible truths (Shepard, 2022). How data are generated, processed, analysed and shared is shaped by numerous decisions and choices framed by political context, institutional politics, personal viewpoints, intended use, knowledge and training, available resourcing and technologies, and regulatory and legal requirements (Kitchin, 2022). In other words, data do not exist independently of their context and modes of production; their making is inherently political and normative, not merely instrumental (Markham, 2017). There is then a data politics to state data and official statistics, wherein 'data politics is concerned with not only political struggles over data production and its deployments, but how data is generative of new forms of power relations and politics at different and interconnected scales' (Bigo et al., 2019: 4). Such data politics are reflective of, and reproduce, data power; that is, the capacity of data to influence and transform a particular set of relations and activities and to further the interests of some actors (Ruppert et al, 2017). Here, it is recognised that data do not simply represent the world, but they also do work in the world, 'being used to generate meaning and engender an outcome' (Kitchin, 2022: 17). From this perspective, housing datasets should not be used denotatively (at face value), but rather a reflexive approach, sensitive to the context of their production and any embedded values and biases, as well as any absences, should be employed (Hatch et al., 2025).

In this paper, we examine the politics and praxes of how housing vacancy data are produced, and in particular how the state measures vacancy, how this evolves over time, and implications for housing research. To do so, we review the means and challenges in producing vacancy data internationally. We then focus attention on vacancy in Ireland post the 2007 global financial crisis, how vacancy has been measured, and the critique of the resulting datasets. This is followed by an examination of how the Central Statistics Office

(CSO) in Ireland responded to critiques of vacancy data generated by the 2016 Irish census, as well as requests for more detailed vacancy data, by refining how vacancy is measured and categorised in the Irish census and producing a new measure of vacancy using electricity consumption. While the data politics of state data in each jurisdiction are fashioned by particular situated circumstances, which in turn shapes how vacancy is measured in practice, there are nonetheless shared circumstances and experiences which means that our Irish case provides insights that apply elsewhere, both with regards to the methods for measuring vacancy and the data politics of housing.

Our analysis is based on research conducted as part of a large, two-phase study of the property and planning data terrain in Ireland, initiated in August 2022 and due to end July 2027. In the first phase, 125 semi-structured interviews (38 state; 36 business; 22 civil society; 29 academic) were conducted with 135 producers and professional users of planning and property data working for 78 organisations (23 state; 29 business; 16 civil society; 10 academic). These interviews focused on the respondents' knowledge, experiences and concerns related to property and planning data. All interviews were coded in MaxQDA using an iterative process of content analysis to identify, segment and categorise themes within the discussions. 30 interviewees explicitly discussed housing vacancy data, and another 4 discussed the issue of vacancy more generally. The second phase has consisted of 12 case studies one of which was conducted with the CSO, and has consisted of interviews with CSO staff members relating their property and planning data work, along with two workshops focused on housing and planning data gaps and silences, held in February and April 2025, which between them were attended by 59 individuals from 40 organisations (from state, business, civil society and academia). All workshop conversations were recorded and coded using the same coding tree from phase 1. All six tables in workshop 1 discussed vacancy data, and 3 of 5 tables in workshop 2. Between phases 1 and 2, eight CSO staff members took part in the study.

Measuring housing vacancy

The data politics of vacancy is evident in how it is defined and measured, which can vary substantially across organisations and jurisdictions. Internationally, there is no recognised definition of housing vacancy. Indeed, as Caramaschi and Chiodelli (2023) detail, vacancy can be defined with respect to a handful of related, weakly delineated concepts that are often conflated across studies. They identify four forms of what they term 'housing emptiness': (1) *uncompletedness* – properties whose construction remains unfinished; (2) *long-term vacancy*

– properties that are available for rent or sale but remain long-term unoccupied; (3) *under- or unoccupancy* – properties that are not available to the market that are used occasionally or not at all; and (4) *abandonment* – properties where there is no engaged owner exercising care or property rights. The latter eventually leads to dereliction and ruination. This taxonomy excludes what Hoekstra and Vakili-zad (2011) term ‘frictional vacancy’; that is, properties that are vacant for a short duration (usually up to 3-6 months), such as those between tenancies or for sale. Frictional vacancy is required for a functional housing market and is considered normal and acceptable. In contrast, ‘structural vacancy’ relates to Caramaschi and Chiodelli’s (2023) points 2 to 4, being long-term in duration due to on-going demand deficiency (supply exceeding demand) or cyclical economic periods of boom and decline (Couch and Cocks, 2013), or personal circumstances or choices. As Flas et al. (2024) note, there are three components defining these levels of emptiness: *duration* (frictional/structural), *frequency of occupation* (under/un-occupancy), and *state* (level of maintenance from liveable to ruin). Affecting these levels of emptiness is the *reason* a property is vacant or under-occupied. While there can be many reasons for vacancy, which might not be mutually exclusive, in general there are a handful of primary explanations (e.g., between rents, for sale, refurbishment, in hospital/nursing home, working overseas, in probate, speculative investment, holiday home, abandoned). For policy makers, understanding the reason a property is vacant is useful for knowing what properties are available to the market (or might be) and understanding the nature of structural vacancy and designing effective policy responses (Stokes and O’Callaghan, 2021).

Adding to the definitional issue are the challenges of measuring vacancy in practice, which is partially a matter of how to operationalise the capture of vacancy data, and partially a matter of scale and the resources required to survey housing stock. Six forms of measurement predominate, three of which are used by the Central Statistics Office in Ireland (field visits, administrative systems, and proxy measures), with crowdsourcing, proxies, and combination and modelling used by other Irish actors (Crowe et al., 2025; Kitchin, 2026; O’Callaghan et al., 2026). Each methodology is quite distinct with differing strengths and weaknesses that delineates what can be known about vacancy.

Field visits. Each property is visited in-person to establish if it is occupied. An enumerator may try to meet the occupier, visiting multiple times and talking to neighbours to confirm if the property is unoccupied, and in some cases, such as the Irish and US census, determine reason for vacancy (Molloy 2016; Stokes and O’Callaghan, 2021). Enumerators may also undertake a visual inspection of the property for signs of life and neglect (e.g., poor

maintenance, overgrown garden, no lights at night) (Lee et al., 2022; Zhao et al., 2025b). Field visits may target every dwelling in a jurisdiction (Molloy 2016), or a sample which may be random or based on another dataset indicating vacancy (such as electricity or water use) (Lee et al., 2022). While field visits are generally viewed as an effective method for single family houses, they are more difficult to apply to multi-occupancy dwellings and apartment units, and are expensive and time-consuming to undertake, being conducted every 5 to 10 years (Mizutani et al., 2025). Moreover, visual inspections can be quite subjective and have questionable veracity (Sayuda et al., 2022).

Surveys. Surveys consist of standardised forms for recording data about housing conditions and occupancy, administered to a sample of properties, and conducted by phone, mail, or in-person. In the United States, the American Housing Survey (AHS) and the Housing Vacancy Survey (HVS) produce data relating to vacancy (Molloy 2016). Both collect data relating to the reason for vacancy (e.g., for sale, for rent, seasonal use). The HVS also includes information about other reasons (e.g., renovation, foreclosure, legal proceedings, used for storage, etc.) and the AHS details the duration of vacancy and the physical characteristics of units (e.g., window boarded up/broken, holes in roof, roof missing tiles) (Molloy, 2016). However, due to its small sample size the AHS has low utility for undertaking spatial analysis. Similar surveys include the English House Condition Survey (Wyatt, 2008) and the Housing and Land Survey of Japan (Mizutani et al., 2025). Given the required resources to undertake surveys, especially on a longitudinal basis, states generally conduct them periodically, usually every five years (Molloy, 2016).

Administrative systems. In a number of European countries, such as Belgium, Denmark and Finland, population registers are the main way of calculating vacancy (Huuhka, 2016; Crowe, 2019; Flas et al., 2024). The benefits of using population registers are that it is usually compulsory for citizens to notify authorities of a change of address to continue to receive state services, they contain other linked demographic data, and the data can potentially be conjoined across administrative systems related to property and planning (Huuhka, 2016). Data quality within registers can vary, with the Nordic countries being noted for having particularly high quality data (Poulain and Herm, 2013). In the United Kingdom, residential property tax returns have been used to produce vacancy data, with local authorities required to compile and submit Council Tax data that includes a record of exemptions for empty units to central government to aid the calculation of the Revenue Support Grant (government funding to local government) (Wyatt, 2008; Crowe 2019). Given there are significant Council Tax reductions or exemptions it is in the owner's interest to declare

unoccupied units; however, if left vacant for more than a year rates increase sharply (Wyatt, 2008).

Proxy measures. A range of signs of life proxy measures for vacancy have been used internationally, including electricity (Li et al., 2019; Flas et al., 2024; Zhao et al., 2025b) and water (Sayuda et al., 2022) consumption, post being received or diverted (Immergluck, 2016; Molloy, 2016; Stokes and O’Callaghan, 2021), lights being visible (Wang et al., 2019; Tan et al., 2020; Shi et al., 2022), and number and density of individual wifi routers (Zhao et al., 2025a). Utilities data are recognised as the strongest of these vacancy proxies since they are vital services and their use indicates occupancy, they have a very high level of coverage and continuous and longitudinal monitoring, and are cost-effective since the data is generated as a de facto element of metering (Li et al., 2019). Their use though requires setting consumption thresholds as some vacant units might have residual usage (such as a light on a timer) and accessing the data can be difficult since they are owned by utility companies. The benefit of using postal workers is their continuous engagement with the locale, though there are concerns about diligence in recording vacancy given it is not a core duty (Wang and Immergluck, 2019; Stokes and O’Callaghan, 2021). Calculating vacancy using night lights involves the use of remote sensing imagery, comparing the light levels of individual buildings or neighbour blocks with areas of known full occupation (Wang et al., 2019; Tan et al., 2020; Shi et al., 2022). Issues with this approach include the low resolution of the data, light from street infrastructure exists regardless of local occupancy levels, the prevalence of light noise, and the need to know the vertical scale and density of residential units (Jin et al., 2017; Shi et al., 2022). Another proxy dataset used, which likewise can only create low resolution vacancy data has been social media data, examining the number of reviews of local services and amenities as an indicator for the number of people living nearby (Williams et al., 2019) or using location-based services data to identify the overnight locations of smartphones (Zhao et al., 2025a).

Crowdsourcing. In cases where vacancy data is absent or untrusted, state bodies and citizens might start initiatives to crowdsource the identification of vacant units (Cardullo et al., 2018). In the Irish case, the Department of Housing, Local Government and Heritage has adopted vacanthomes.ie (first created by Mayo County Council in 2017) for the public to share information about properties they consider vacant (Stokes and O’Callaghan 2021). There have also been a number of citizen-led, crowdsourcing projects related to vacancy and dereliction, including a shared Google Maps-based project (O’Mahony and Rigney, 2016), Reusing Dublin, a collaboration between a social enterprise, Space Engagers, and a housing

trust, Peter McVerry Trust (Stokes and O’Callaghan 2021), and #DerelictIreland, a social media tag for collating derelict and vacant units (Anois, 2021). This method holds some similarities with field visits, in that citizens visually identify vacant homes in their neighbourhood, however they may do so somewhat informally, rather than by following a survey protocol. The principal issues with crowdsourcing vacancy data is creating a large enough volunteer base to ensure sufficient coverage, maintaining the motivation and participation of contributors, and ensuring sufficient data quality (Cardullo et al., 2018).

Combination and modelling. In addition to these forms of measurement, in a number of cases vacancy rates are produced by combining multiple administrative and proxy datasets together and using these to model vacancy. For example, the Vacant Property Indicator Model (VPIM) in Philadelphia uses several administrative (e.g., property tax, code violations), planning, land, buildings, and utilities indicators from city government departments and state-owned utilities to calculate the probability that property tax parcels are vacant (Crowe, 2019; Noterman, 2022). Similarly, Flas et al. (2024) combined visual surveys, electricity and water consumption data, and population register data, and Sayuda et al. (2022) combined population register data with building registration data, water consumption, and field visits. One reason to combine data is because any one form of measurement has weaknesses and none account for all three components (duration, frequency of occupation, and maintenance/state) that distinguish between forms of vacancy. Combining datasets also acts as a means of cross-validating whether a unit is vacant. In addition, data can be modelled to predict which properties are likely to become vacant in the future, as is the case with the VPIM (Crowe, 2019), or to project future vacancy rates (Mizutani et al., 2025).

These various methodologies might record vacancy at an individual property level. Such data can be utilised by public authorities to direct estate management and implement targeted interventions aimed at bringing vacant dwellings back into use. However, the data that are made available for public re-use is generally aggregated to a spatial unit (such as neighbourhood or county). As such, published data has utility for monitoring vacancy patterns and trends and guiding policy, but its utility for targeted operational use is usually limited, unless there is a data sharing agreement between organisations.

Measuring vacancy in Ireland: Census 2011 and 2016

All four forms of Caramaschi and Chiodelli’s (2023) ‘housing emptiness’ have been a core housing concern in Ireland since the 2007-08 global financial crash (GFC). During the Celtic Tiger period of 1993-2006, Ireland experienced a property boom. Between January 1991 and

December 2006, 762,631 housing units were built (69 percent increase) and house prices increased by 429 percent (new) and 551 percent (second-hand) in Dublin and 382 percent (new) and 489 percent (second-hand) for the rest of the country (Kitchin et al., 2016). The GFC hit Ireland hard, compounded by property-led speculation and housing over-production. Household growth between 1991 and 2006 was 440,437 (43 per cent), significantly below housing production, and in 2006 93,419 units were completed, with a great deal of construction underway (Kitchin et al., 2016). The sudden collapse of development finance and the housing market in the wake of the GFC led to 2,846 unfinished housing developments (containing 122,048 units), an estimated 1 in 6 housing units being vacant, over 50 percent decline in house prices, 18 percent of mortgages being in arrears, unemployment rising above 15 percent, all the Irish banks collapsing and being nationalised, and the country being bailed out through a €85 billion loan from the International Monetary Fund (IMF), European Union (EU), and European Central Bank (ECB) (Kitchin et al., 2014, 2016).

In the absence of national or local population registers, the initial principal source of information on vacancy were projection models produced by a variety of actors using the 2006 Irish census and annual housing completions data as core datasets, and including data on new mortgages, obsolescence, household projections, and holiday home demand depending on the model (DKM, 2009; Gleeson and Kitchin, 2010; Hennessey 2010; Williams et al., 2010). These models proved controversial, sparking a media debate as to their veracity (Kitchin, 2026), and were superseded by the 2011 Irish census, which revealed 230,056 vacant units, plus 59,395 holiday homes, together constituting 14.5 percent of housing stock (CSO, 2012). The census made it clear that vacancy was spatially differentiated, with much higher rates in rural areas, and parts of Dublin having relatively low rates (Kitchin et al., 2016). The 2011 census seemed to end the vacancy debate as the figures were accepted as being robust (Kitchin, 2026). Census enumerators followed a strict methodological protocol for recording vacancy; visiting during the day-time, revisiting at evenings and weekends, leaving contact telephone numbers, and talking to neighbours. If after multiple visits there were no signs life then the enumerator looked for signs of vacancy such as ‘post and junk mail building up, no lights on at night time, no cars in driveways, overgrown gardens and no windows open’ to make an assessment (CSO, 2017b). If there were any signs of occupancy or a neighbour indicated a unit was occupied, then a property could not be recorded as vacant. Enumerators only recorded information for properties judged to be fit for habitation. Their

work was scrutinised by field managers and was subject to quality assurance procedures, and they were incentivised financially to determine if a unit was occupied (CSO, 2017b).

By 2016, the housing situation in Ireland had started to change due to very low construction rates since the GFC and continued household growth. In some locations demand was exceeding market supply, purchase and rental prices had started to recover, and homelessness rates had started to increase (Kitchin et al., 2016). Along with new construction, vacant properties were viewed as a potential solution to the emerging housing supply issue in urban areas, and the government started to introduce new vacancy-related policies (e.g., the Vacant Site Register [2015], National Vacant Housing Reuse Strategy 2018–2021 [2017], Vacant Site Levy [2018], Repair and Leasing Scheme [2018], and Buy and Renew Scheme [2018]) (Stokes and O’Callaghan, 2021).

The 2016 census reported that there were 183,312 vacant units, plus 62,148 holiday homes, in the state (CSO, 2017a). This data was met with some scepticism, particularly by property actors such as estate agents and developers, as well as the four Dublin local authorities (LAs), which had been tasked with bringing vacant stock back into use, despite using the same methodological protocols as the 2011 census. The census figures were substantially greater than Geodirectory¹ (96,000 in June 2017), and they did not match the knowledge and experience of professional workers managing housing portfolios (McGee, 2017; Holland, 2018). Geodirectory vacancy data are based on the observations of postal workers for signs of life and patterns in the mail received, with their subscription-access database updated quarterly and a public summary report published biannually (Stokes and O’Callaghan, 2021). The scepticism and difference in figures can be attributed in part to a difference in definition and methodology. The CSO definition included frictional vacancy, however the Geodirectory figures, and likely the lay understanding of professionals, did not.

In 2017, the Dublin LAs undertook their own validation studies, using field visits to ascertain the level of vacancy. Whilst little detail is available on the methodology utilised in these validation studies, they were described in one newspaper article as using ‘a combination of desk-top analysis and “drive-by” visual inspections’ (Holland, 2018). These studies found substantially less vacant stock than the census, and that only about 1 property in every 30 identified by the census were potentially available to the market in the short-term (Holland, 2018), as described by one interviewee:

“And they [Fingal County Council] had actually gone out and done their own enumeration. And as I recall, the number went from something like ... 3,000 and

something down to something more to the tune of 32. Like, it was just like, ‘No, this [the census] is absolutely not correct.’ ... And Fingal were pretty irate about this.’
(IP83, private sector)

In addition, the figure of 183,000 vacant units was being contrasted with the growing homelessness numbers in political rhetoric, despite those quoting the vacancy rate often knowing that the figure did not represent homes available for occupancy. As one interviewee explained:

“The continued repetition of the 186,000 [sic] figure, you know, even though like everybody should know, and CSO have been, like, explicit – they couldn’t be more explicit releasing that data [that vacant does not mean the units are available for occupancy]... I mean, the week of the census data release, the amount of like hot takes and just people being plain wrong ... [by] people who should know better than that.”
(IP58, academia)

They went on to note that the main issue with the 2016 census was two-fold. First, that it was a point-in-time survey “so you don’t have any temporal granularity. ... I have no idea whether it’s vacant for six weeks, three months, a year, 18 months.” Second, that the reason for vacancy was not ascertained.

Refining the 2016 census data and the 2022 census methodology

On release of the preliminary results of the 2016 census, vacancy became a focal point of attention for the CSO, and vacancy data became entangled in data politics expressed within a public data debate (Kitchin, 2026; O’Callaghan et al., 2026). On the one hand, key stakeholders contacted the CSO seeking more detailed information about vacancy:

“We’d had contacts with the Housing Agency and other organisations that were just looking for more and more ... we’d kind of done a consultation around what we were going to produce in terms of dissemination and they kind of came in at that point and said we need more around vacancy.” (IP202)

On the other hand, as noted, the organisation was receiving public critique questioning the integrity of the data. As a CSO statistician (IP202) explained:

“We were a little bit caught on the hop ... There was an awful lot of attention on vacancy data from a CSO perspective. ... And it got caught up in the kind of political discussion around housing.”

Given that the 2011 census vacancy data, which reported much higher figures, had received little critical attention, the organisation had been expecting the response to the 2016 data to be focused on the reduction in vacancy between censuses. As another CSO statistician (IP233) described:

“we could see that there was a fall in the number of vacant dwellings ... So, it wasn’t so much the absolute numbers, it was more the trend that we thought was the interesting piece. ... but then it kind of became more about the volume of vacancy rather than the actual trend.”

Consequently, the organisation felt compelled to respond to the additional requests and critique.

“I think we, as an office, had a lot of explaining to do. That the census vacancy figure was only every five years and it wasn’t a good measure of long-term vacancy, it was a kind of a point in time measure of vacancy. And just by its nature, [it] included an awful lot of probably short term vacant dwellings that were vacant around census night. ... Which wasn’t necessarily what the discourse at the time was looking for, which was ones that could be brought back into use.”

The organisation responded in two ways: by clarifying its methodology and by producing additional data (CSO, 2017b). The CSO also clarified the difference between their figures and those produced by others, such as Geodirectory, noting the variation in methodology and that their approach included all forms of frictional and structural vacancy (though not unfinished or derelict properties) and not just those units which might be made available to the market in the short-term. They re-iterated their confidence that the census vacancy figure was ‘an accurate point in time measure, on Census Night in 2016’ (CSO, 2017b; McGee, 2017).

Moreover, they undertook two additional sets of data processing to produce new statistical products. The first of these was to classify the reason for vacancy using the notes section of the enumerator record books. For the 183,000 vacant units identified, enumerators had written notes relating to 57,000, the majority of which related to why they could not locate the owners/occupants. The organisation asked staff to manually “to go through those populated panels and try to jot down a reason as to why the dwelling was vacant” (IP202). Based on an informal scanning of a sample of notes, a schema of six vacancy classes were devised: household for sale, household for rent, owner deceased, owner in nursing home, house being renovated, and other reason including no data (CSO, 2017c). As IP202 noted:

“it wasn’t a pre-planned structured exercise or anything like that. ... We said, look, we have information here. It’s rough. It’s unstructured. It is what it is. And we decided we’d publish it.”

The second set of additional processing was to extend the analysis to the 2011 census, reporting the reason for vacancy where known, and identifying properties that were vacant in both 2011 and 2016 (65,039 units).

The CSO consequently decided to actively seek to capture the reason for vacancy for the 2021 census (which became the 2022 census due to Covid-19) and to track change over time for individual units (whether a unit was also vacant in 2011 and 2016) (CSO, 2023a). For the 2022 census, enumerators were asked to categorise the indicative reason for vacancy into one of ten categories: rental property, renovation, owner living with relatives, deceased, in nursing home/hospital, for sale, abandoned farmhouse, emigrated, new build not yet occupied, other reason/not stated. Adopting a smartphone application, the CSO also altered how enumerators were managed and how some information was recorded. This app allowed field managers to track visits to properties, to see in real-time which dwellings were being categorised as vacant, and to investigate further any unusual patterns (CSO, 2023a).

Recording the reasons for vacancy, and tracking of long-term vacant units between censuses, were designed to provide clarity on frictional versus structural vacancy. However, despite the changes made, the same issues – namely doubts about rate of vacancy recorded and the mis-representation of the overall figure as potentially available units – arose on publication of the 2022 census. Again, the CSO published a frequently asked question’s page that set out why their measure differed from vacancy figures produced by others, and in particular with the Revenue Commissioners (and their Local Property Tax returns) and with

rental listings (CSO, 2023a). In addition, they had already started to work on a new measure of vacancy using electricity consumption data, aware that “there was an ongoing demand for more regular data and more information” (IP202).

Creating a new measure of vacancy using electricity consumption

Following conversations with the Department of Housing, Local Government and Heritage in 2022, the Statistical Systems Coordination Unit (SSCU) in the CSO started to scope out the possibility of producing a more timely dataset about vacancy with national coverage as part of its new Frontier series. Before the introduction of this series, the CSO was limited to publishing data which met the stringent quality standards of the Irish Statistical Code of Practice (ISSCoP), which certifies official statistics in Ireland. The Frontier series, however, is designed to enable experimentation, testing and refinement of potential new official statistics, while making sure their limitations are well explained. The series enables the organisation to produce and publish statistics that traditionally would not have been created due to being “too risky or ... a bit kind of off the wall” (IP202). As this statistician explains:

“rather than us saying, well, we can’t 100% stand over this, so we’re not going to publish it. We do publish it with caveats and put it out there and then invite feedback from users to see if it’s worth carrying out, going ahead with, or if people think we should revise it.”

The statisticians leading the project wanted to avoid using surveys, which would be costly and only include a limited sample, so decided to use data supplied by ESB Networks, which controls domestic access to the electricity grid and monitors electricity consumption. This dataset would provide universal coverage of all dwellings connected to the electricity grid and enable a quarterly time-series (a significant improvement in temporality compared with the census). The CSO already used ESB data for calculating new dwelling completions and the creation of new businesses, producing electricity consumption statistics, and for refining address matching for building energy ratings data (CSO, n.d.). However, as one CSO statistician stated, “the inspiration would have come from the ABS, the Australian Bureau of Statistics” (IP202). The ABS had been using electricity consumption at a block (not individual dwelling) scale to estimate non-occupancy. Unlike the ABS, the CSO had access to electricity consumption for individual dwellings through its existing memorandum of understanding with ESB Networks (the data includes Meter Point Reference Number,

address, quarterly consumption for 8 different times/rates [e.g., day/night consumption, night off-peak, peak rate]) and permission to use and link the data to other datasets at an individual level subject to privacy conditions being met (CSO, n.d.). In this case, the CSO's Administrative Data Centre anonymises the data by removing personal identifiers, and adding protected identifier keys (pseudonymous IDs) to allow data linking. As a CSO statistician (IP193) details "the data that I would be working with would be anonymized analysis tier data that wouldn't have any personal information on it".

Based on the data available, the statisticians devised a methodology for assessing occupancy. This progressed through their own engagement with the dataset and deciding on parameters to indicate a property was unoccupied, as well as discussing options with other actors, such as ESB Networks staff. As one statistician explained:

"We had a lot of interaction with academics in Trinity [College Dublin]. ... [W]e kind of discussed the methodology with them and they were generally supportive of it. We had a lot of engagement with Department of Housing who are the kind of the key customers here. They're the ones that really wanted this data and they were very engaged and very helpful in the process through it. Department of Taoiseach [prime minister's office] and Revenue Commissioners as well." (IP202)

The methodology defined a dwelling as 'vacant where electricity consumption is below 180kWh for at least four consecutive quarters' (CSO, 2023b). The figure of 180kWh was adopted as it 'equates to an average of approximately 2kWh per day which is the level of usage that Electric Ireland applied when deciding on a low usage standing charge ... 2kWh consumption is enough to keep a medium sized fridge running for a day' (CSO, 2023b). Electric Ireland only expects the low-use standing charge to be paid for vacant units. The choice of four consecutive quarters is because: (1) that timeframe gives an indication of structural vacancy; and (2) quarterly consumption figures are often estimates (for properties where smart meters have not yet been installed), with actual meter readings taken at least once annually, with this used to adjust estimates (CSO, 2023b). In addition, the quarterly data are supplied to the CSO once annually, usually 6-7 months after year-end (so, 2021 data was supplied in August 2022). The new Frontier series, providing vacancy data for Q1 2016 to Q4 2021, was released in January 2023. The published dataset included vacancy rates for electoral divisions, local electoral areas and local authorities, as well as for urban/rural areas,

dwelling types, building energy rating, and year of construction. It also included the length of low electricity consumption (4 through 8 quarters and 9 plus quarters).

The new frontier vacancy data were well received, but due to internal delays, the next iteration of the methodological development was undertaken on the 2023 ESB dataset, with the resulting statistical data published in September 2025 (CSO, 2025). Based on feedback from key stakeholders and members of the Housing Statistical Working Group², a number of alterations were made to the methodology and outputs. In particular, there was a more rigorous process of data validation to ensure that meter data referred to residential addresses and not non-domestic units, to improve address matching that would allow datasets to be conjoined, and to remove data that did not pass data quality checks (e.g., miscodings, mismatches, missing data). One upshot of these changes was that the 2021 and 2023 series were not fully comparable. As one CSO statistician explained:

“So, there was kind of four groups of records that were excluded and that makes the 2023 version of the analysis not comparable with the 2021 version of the analysis, which also then has knock-on effects on the number of quarters that you can show the statistics for, because ... [the data are] not comparable over that time series.” (IP193)

What this meant was that the data concerning vacancy rates with respect to urban/rural areas, dwelling types, building energy rating, and year of construction, only referred to Q4 2023 rather than adding to the 2016-2021 time series produced in the first iteration of the methodology (CSO, 2025). Moreover, data was no longer outputted for electoral divisions (ED) (decreasing the spatial resolution). On the plus side, data quality had been improved and rather than just publishing vacancy rates, the number of vacant units were also made available. In addition, new time-series statistics for dwellings becoming vacant or exiting vacancy each quarter were published for Q2 2016 to Q4 2023. The 2024 release maintained the same methodology, but has re-introduced publication of the data at ED scale (CSO, 2026). A new review of the methodology is on-going at the time of writing, scoping out the possible use of SEAI (Sustainable Energy Authority of Ireland) data on power consumption for different household types and Uisce Eireann (Irish Water) data on water consumption. The aim is ultimately to transfer from a Frontier series to a mainstreamed, official statistical dataset.

Discussion

Measuring housing vacancy seems like it should be a straightforward proposition – one simply needs to count the number of unoccupied, habitable housing units. As the analysis so far has highlighted, however, this is far from straightforward for five reasons, each of which is enmeshed in and produces data politics that are shaped by unfolding circumstances and context, institutional dynamics and decision making, and available resourcing and source data.

First, is the data politics of definition and what precisely is being measured. Internationally, there is no consensus as to what constitutes an unoccupied, habitable housing unit, or how long a unit needs to be empty before it is declared vacant (Caramaschi and Chiodelli, 2023). What is being measured and how it is classified then is usually locally defined, varying across states and studies. Even within jurisdictions, the definition of vacancy is often quite loose, with no strict parameters or standards. In the Irish census, a vacant property is one that is empty on the night of the census and is not usually occupied or is a holiday home, and is habitable without significant repair as judged by the enumerator. In contrast, in the measure using electricity consumption a vacant unit is one that uses less than 180kWh of energy per quarter over four consecutive quarters. These are markedly different in conception and lead to different vacancy rates: the national rate calculated using electricity consumption in Q4 2021 (4.3%) was substantially below the census rate in April 2022 (7.7%). The result of differences in definition are again clearly demonstrated in the difference between the CSO and the four LA validation studies, which each used site visits to measure vacancy but produced markedly different counts (varying by a factor of 30). In large part, this is because the census was seeking to capture all non-occupied units regardless of reason vacant, whereas LAs were not counting frictional vacancy (e.g., units that were for sale or between rents) and were seeking to identify long-term vacant units that could easily be bought back into use without legal action. Where a number of varying rates are published for a single jurisdiction, this can raise questions as to which dataset to trust and use and can spark public data debates (Kitchin, 2026).

Second, is the data politics of measurement. Even if there is a clear, codified definition of vacancy and its forms, identifying a vacant unit in practice is not always easy or clear-cut. In terms of site visits, identifying signs of life is somewhat subjective, there might be nobody to ask, and the approach requires significant resourcing. For many units, the designation of vacant is probable rather than definitive. Other methodologies have similar issues, with the extent of calculating probable vacancy increasing for most of them. Mail and telephone surveys are sampled data and might have low response rates and partial answers.

Population registers require regular updating and are only available in a relatively small number of countries. Other administrative sources, such as tax systems, need to have vacancy-related taxes, incentives to ensure declarations, and low rates of exemptions. Proxy measures all suffer from issues of fidelity relating to the extent to which they actually denote vacancy, which is largely unknown since there is little ground-truthing. Crowdsourcing is difficult to implement at scale, to maintain over time, and to ensure data quality across volunteered data. Combined and modelled data are, by their nature, estimates rather than direct measurements and their values are dependent on source data and the model parameters.

Third, is the data politics of supporting evidence that enables further sense to be made about vacancy. Counting vacant units is of limited utility with regards to policy and interventions without also generating additional information, such as the reason for vacancy. Prior to 2022, the Irish state did not try to systematically measure the reason for vacancy (the 2016 data was a retrospective coding of the 31 percent of vacant units where an enumerator note was available) or to track it over time. The new electricity consumption data allows temporal tracking and to establish the likelihood of structural vacancy, but provides no indication of the reason for vacancy. This limitation arises because the Irish state, like many other jurisdictions, does not have a purpose built process for monitoring vacancy, such as housing occupancy and conditions surveys, but instead repurposes the census and uses proxy data. As such, despite the desire for high quality data about vacancy, it continues to be measured partially, limiting knowledge of the issue. Such limitations are a reflection of political and institutional priorities, available resourcing, and an unwillingness to invest in addressing shortcomings and creating new datasets.

Fourth, is the data politics of context and what drives the focus on vacancy and how it is measured in practice. The housing crash and the oversupply of housing post GFC led to the production of four controversial models that predicted vacancy levels and which fed political debate on the crisis, planning and housing (Kitchin, 2026; O’Callaghan et al., 2026). As the situation in Ireland switched from over- to under-supply in the principal cities and towns, the need to determine how many vacant units might be available to address the housing supply problem directly motivated the revisions to the 2016 outputs and 2022 census methodology, and also to the introduction of the new electricity consumption measure. In other jurisdictions, measures are similarly tailored to try to understand vacancy in the context of (1) prevalent development conditions (e.g., shrinking cities, ghost cities), and (2) what data already exists that might be reconfigured or repurposed.

These four aspects of data politics lead to a fifth: how vacancy is measured over time changes as organisations respond to these issues. This is abundantly clear with respect to the changes in how vacancy is measured in the Irish census and in how the methodology for using electricity consumption was refined between the first, second and third releases. Such alterations might be viewed negatively as stability in measures is a preferable state of affairs, with methodological changes likely to mean that new data cannot be directly compared to previously published data, thus breaking a time-series. It may also undermine the veracity and trust in older datasets as supposedly factual data can no longer be treated as incontrovertible truths. These concerns could lead to a defensive position where data providers, such as national statistical agencies, reassert their epistemic authority and maintain existing data practices. In contrast, the changes can also be viewed positively as recognising shortcomings, engaging with feedback and listening to requests, and embracing innovation that improves the quality and utility of vacancy data. This has been the approach of the CSO, who while defending the integrity of previous and existing work, have been receptive to critique and have undertaken an on-going consultative process in order to enhance how vacancy is measured. In this endeavour, they have sought to maintain an apolitical and open position (itself an expression of data politics), which they view as essential for maintaining public trust in their role and products.

Conclusion

In this paper we have discussed the data politics and praxes of measuring housing vacancy, with a particular focus on the production of state data and official statistics. The discussion and case examples make it clear that measuring vacancy is a complicated business that involves numerous choices that are limited by constraints and take place within and are shaped by particular contexts, and that the methodologies employed change over time. As such, while state data are often treated as factual datasets – as valid, objective and impartial truths – they are socio-technical, mutable productions. Measuring vacancy – and indeed, all aspects of housing – is riddled with data politics and this has profound implications for housing research and the formulation of housing policy in two key respects.

First, recognising the socio-technical nature of housing data raises questions about whether they are ‘good enough’ and fit-for-purpose. This concern is not solely related to data quality, though this is undoubtedly critical with respect to the veracity and validity of analysis. Rather, it is whether despite their data politics and any data quality issues, the data tell us something meaningful and useful that can inform understanding and lead to sound,

evidence-based policy and decision-making. In other words, are the data ‘good enough’ that they are representative of a phenomenon or issue and they enable desired questions to be answered with a sufficient degree of veracity to be confident in the conclusions drawn (Gabrys et al., 2016). Here, good enough is not used pejoratively, but is viewed as laudable given that no dataset can be perfect (Bialski, 2024). Kayanan et al. (2026) posit that there are a number of dimensions to good enough – credibility, integrity, legitimacy, relevance and authority – and that all or some of these need to be strong for data to be accepted as valid and useful. At the same time, one needs to be mindful that a dataset being good enough does not necessarily mean that it is fit-for-purpose for a particular task – a dataset might possess a high degree of credibility, integrity, legitimacy and authority but not enable a question to be answered. This, in part, was the issue with the initial 2016 census data: the data were deemed to have integrity and documented the total number of vacant units at a point-in-time, but they could not reveal the duration or reason for vacancy or be used to identify specific units to be bought back into use. The revisions to the census methodology and the creation and refinement of a new method then are positive endeavours by the CSO to improve the vacancy data and enhance its fit-for-purpose. This process of review, change and innovation is on-going, as are the data politics shaping them.

Second, recognising that housing data are riddled with data politics raises questions as to how to use them with integrity. Our assertion is that treating vacancy data denotatively (at face value) and taking no account of their underlying data politics – and how this influences how vacancy is defined and how data are generated – potentially leads to a weak analysis and ecological fallacies. Instead, we advocate for a reflexive approach to data that is mindful of the context, politics, embedded values, biases, absences and limitations of a dataset, and that assesses each of the dimensions of ‘good enough’ with respect to datasets being utilised (Kayanan et al., 2026). Instructive in this endeavour is the data feminism approach forwarded by D’Ignazio and Klein (2020). They contend that data science, and indeed any use of data, needs to embrace seven principles that are not only mindful of data politics, but seeks to remake them in emancipatory and empowering ways. These principles as applied to data work are to: examine power; challenge power; elevate emotion and embodiment; rethink binaries and hierarchies; embrace pluralism; consider context; and make labour visible. The principles are used to guide the assessment of the data politics and power of datasets being utilised or the derived data being produced, as well as to reflect critically on the analysis being undertaken and the positionality of the analyst (D’Ignazio and Klein, 2020). In other words, feminist approaches in housing research are extended from a concern for

epistemology and methodology to data politics and data power (Hatch et al., 2025). We have applied such a reflexive approach in this paper to chart the data politics at play in the production of housing vacancy data by a national statistics agency, with the approach revealing the contextual, contingent and collaborative unfolding of vacancy measures.

Notes

1. Geodirectory is a commercial database of addresses and properties in Ireland, co-owned by An Post (Ireland's postal service) and Tailte Éireann (responsible for property registrations, valuations and national mapping). It is worth noting Geodirectory's methodology of estimating vacancy has been criticised for a lack of transparency, see Kitchin, 2026: 232-233).
2. An advisory group to the CSO Housing Division

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Research ethics and consent

The research received ethical approval from Maynooth University Research Ethics Committee and the Ethics Review of the European Research Council. Written statements of informed consent were obtained for all interviewees providing permission to transcribe, code, analyse, publish and archive interview transcripts.

Conflict of interest

No potential conflict of interest was reported by the authors.

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