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RESEARCH ARTICLE

The Relationship Between Personality and Employment: Evidence From the Irish Marriage Bar

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ABSTRACT

This article examines empirically the relationship between personality and employment using individual-level survey data collected in *The Irish Longitudinal Study on Ageing* (TILDA). The analysis is based on a subsample of Irish women who left their jobs because of the so-called marriage bar, which was a legal requirement at the time that women must leave employment when they marry. Two groups of women are compared: Those who did, and those who did not, return to work after having to leave because of the marriage bar. The main finding is that personality does impact employment, with less agreeable and more extroverted women being more likely to return to work after a spell of non-employment. More generally, the analysis highlights the role of non-cognitive abilities in labor market success.

JEL Classification: J2, J4, J7

1 | Introduction

There is a growing literature in economics concerned with the contribution of cognitive and non-cognitive abilities to labor market success. Cognitive abilities are attributes, such as intelligence, reasoning, and numeracy. Non-cognitive abilities are attributes, such as personality, motivation, and social skills. Although researchers agree that the labor market returns to cognitive abilities are large and significant, no consensus exists on the importance of non-cognitive abilities, in both an absolute and relative sense.

The main aim of this article is to contribute to the understanding of the economic consequences of non-cognitive abilities by examining empirically the relationship between personality and employment. We recognize that personality is complex and multidimensional but believe it can be broadly defined as "patterns of behaving, thinking and feeling" (Borghans et al. 2008). As a consequence, a five-factor model of personality, routinely referred to as the "Big-5" personality traits, is used. The specific personality traits are as follows: "*extraversion*," "*neuroticism*," "*conscientiousness*," "*agreeableness*," and "*openness to experience*." The empirical analysis is based on Ireland and uses individual-level survey data collected in *The Irish Longitudinal Study on Ageing* (TILDA).

The empirical focus is on women who had to leave their job, because of the so-called marriage bar, which in Ireland was in place until the mid-1970s. A marriage bar is a legal requirement that a woman must leave her job when she marries. Marriage bars were not unusual internationally in the 20th century (Mosca and Wright 2022). However, the Irish marriage bar is unique for several reasons. The first is that it impacted women in jobs not strictly mandated by it. It is believed that this mimicking by employers was widespread (Mosca and Wright 2020). The second is that it was abolished in a series of steps beginning

in 1973. This was quite late—in most other countries, marriage bars were abolished in the 1950s (at the latest). One of the consequences of the late abolition of the Irish marriage bar is that some of the women affected by it are still alive and are among the respondents in the TILDA survey. The third is we believe that by focusing on women who left their jobs because of the marriage bar and who subsequently either returned or did not return to employment, provides information relevant to the direction of causation between personality and employment, if a set of specific assumptions hold. Because both causal directions are sensical and plausible, it is important to establish the direction of causation if, for example, policies aimed at increasing employment rates are likely to be effective. To date, there have been few studies that address this issue (as is discussed below).

The remainder of the article is organized as follows. Section 2 is a review of studies that are concerned with the (two-way) relationship between personality and a range of socio-economic outcomes, also including labor market outcomes. Section 3 is a discussion of the historical and socio-economic context of the Irish marriage bar. Section 4 describes the empirical approach aimed at examining the relationship between personality and employment. The results are presented in Section 5. Conclusions follow in Section 6. If one can assume that personality traits are stable over the life cycle, conditional on a number of key control variables, including major life events, then our results provide evidence that personality does impact employment, with less agreeable and more extroverted women being more likely to return to work after a spell of non-employment.

2 | Previous Research

2.1 | Impact of Personality on Socio-Economic Outcomes

Early studies on personality mainly focused on how well personality could help predict a variety of individual-level socio-economic outcomes. Examples of outcomes include childbearing (Dijkstra and Barelds 2009; Eaves et al. 1990; Miller 1992; Jokela et al. 2011), marriage (Kelly and Conley 1987; Russell and Wells 1994; Watson et al. 2000; Dijkstra and Barelds 2009), separation/divorce (McCranie and Kahan 1986; Kelly and Conley 1987; Karney and Bradbury 1995), wages (Nyhus and Pons 2005; Mueller and Plug 2006; Heineck and Anger 2010), occupational attainment (Judge et al. 1999; Barrick and Mount 1991; Zhao and Seibert 2006), employment (Hogan et al. 1996; Dijkstra and Barelds 2009), and unemployment (Uysal and Pohlmeier 2011; Granjard et al. 2019).

In most of these studies, two related assumptions were made to underpin the empirical analysis. The first assumption is that personality is stable after adulthood has been reached. The second assumption, which is a direct consequence of the first assumption, is that the impact of personality on a range of socio-economic outcomes can be analyzed if personality is measured at least once in adulthood. Most of these early studies concluded that personality is an important predictor of the outcome under study.

2.2 | Impact of Socio-Economic Outcomes on Personality

The empirical validity of the "stability in adulthood" assumption has been questioned with the increasing availability of longitudinal data, where it is possible to measure and track personality for the same individuals over time. Research began to focus on whether personality does change in a significant way across the life-span. More specifically, researchers have become interested in understanding whether socio-economic outcomes affect personality and whether "major" life events have a permanent, or at least a longer term, effect on personality. Examples of such events include marriage (Denissen et al. 2019; Asselmann and Specht 2020; Bühler et al. 2022), birth of a child (Specht et al. 2011; Galdiolo and Roskam 2019), separation/divorce (Specht et al. 2011; Asselmann and Specht 2020), widowhood (Denissen et al. 2019; Bühler et al. 2022), employment (Specht et al. 2011), and unemployment (Specht et al. 2011; Boyce et al. 2015; Gnambs and Stiglbauer 2019). In these studies, the assumed direction of causation under investigation is "impact of life event on personality." This is the opposite to early studies where the assumed direction of causation under investigation was "impact of personality on life event," or impact of personality on socio-economic outcomes more broadly. Clearly, which causal direction "dominates" can only be established empirically as most often both causal directions are sensical.

There is now a large number of empirical studies, using longitudinal data and methods that test a variety of hypotheses relating to the impact of life events on personality. The findings of these studies are mixed, with little consistency relating to the extent to which such events change personality. For example, Cobb-Clark and Schurer (2012), using data from the 2005 and 2009 waves of the *Household, Income and Labour Dynamics in Australia* (HILDA) survey, investigate whether changes in personality traits depend on age and whether life events do affect personality. They conclude that—although not literally fixed—personality traits do appear to be stable among working-age adults. Heckman et al. (2024) review the effects of a number of intervention programs targeted to prenatal infants to young adults on personality changes. There is variation in the scope of the programs with some programs focusing on interventions on personality traits and others being more general intervention programs. The authors conclude that most of the programs reviewed show strong and persistent effects on the personality of the treated groups. A recent meta-analysis by Bühler et al. (2024) summarize the key findings of longitudinal studies that have analyzed the impact of life events, such as marriage, childbearing, and graduation, on personality change. Their main finding is that these studies as a group suggest that life events can impact on personality, but the magnitudes of these impacts are small.

2.3 | Impact of Return to Employment on Personality

It is important at this stage to remind the reader that the labor market outcome that this article is concerned with is the return to employment after a spell of non-employment. Our specific focus is to investigate whether five personality traits (extraversion, neuroticism, consciousness, agreeableness, and openness to

experience) are significant predictors of return to employment. Therefore, in keeping with most studies in this area of research, we assume the specific causal direction of personality impacting on return to employment. However, we recognize unequivocally that the alternative causal direction of returning to employment impacting on personality is equally plausible. To our knowledge, there are only three studies that have investigated this alternative causal direction. These are the studies by Boyce et al. (2015), Gnambs and Stiglbauer (2019), and Anger et al. (2017). As a consequence, it is important to discuss these studies in some detail.

Boyce et al. (2015) use data from a sample of 6769 adults participating in the *German Socio-Economic Panel Study* (SOEP) and answering questions on personality traits in 2005 and 2009. All participants are in employment in 2005. Between 2005 and 2009, participants either remain in employment, become and remain unemployed, or experience unemployment and subsequently return to work. Using latent change analyses and controlling for age, years of education, and any changes in participants' marital, disability, and parental statuses, Boyce et al. (2015) find that, compared to those who remain in employment, individuals who return to work after experiencing unemployment do not experience changes in personality traits. Different results are found for those who remain unemployed. Compared to those who have remained in employment, unemployed men and women experience significant patterns of change in their mean levels of agreeableness, conscientiousness, and openness.

Gnambs and Stiglbauer (2019) replicate the study by Boyce et al. (2015) using a different longitudinal study from Germany, called the National Educational Panel Study (NEPS). Mirroring the sampling criteria and analytical approach from Boyce et al. (2015), Gnambs and Stiglbauer (2019) assess the robustness of the findings by Boyce et al. (2015) on the effects of unemployment and return to employment on changes in personality. Using data from 5005 adults participating in NEPS and employing latent change analyses, Gnambs and Stiglbauer (2019) find that, contrary to their expectations, a stronger decline in agreeableness is observed for individuals who return to work after experiencing unemployment as compared to those who remain in employment. This effect is stronger for men than for women. In contrast to Boyce et al. (2015), Gnambs and Stiglbauer (2019) also find that unemployment has no effect on any of the Big-5 personality traits.

Anger et al. (2017) use data from three waves of the German Socio-Economic Panel Study (2005, 2009, and 2013) to analyze whether personality traits change for a sample of working individuals who either remain in employment or experience involuntary job loss. In contrast to the two previous studies, Anger et al. (2017) focus solely on plant closures as a reason for job termination. The reason they provide is that job loss due to plant closure is an exogenous event that enables the identification causal effects on personality change. The study by Anger et al. (2017) also exploits a relatively long time span of 8 years and three measurements of personality traits. Anger et al. (2017) find that openness to experience increases for the average displaced worker. However, this increase is fully driven by individuals with high educational attainment and by those who find a new job immediately after dismissal.

The empirical analyses carried out by Boyce et al. (2015), Gnambs and Stiglbauer (2019), and Anger et al. (2017) support the conclusion that return to employment does not lead to substantial changes in personality. If this is the case, one can argue that although both directions of causation need to be acknowledged, the investigation of a simple cross-sectional relationship between personality and return to employment is more likely to capture the extent to which personality affects return to employment as compared to the extent to which return to employment has affected personality.

2.4 | Current Study

Given the previous research to date, the analysis presented in this article is based on an alternative approach aimed at furthering the understanding of the relationship between personality and employment. More specifically (and as explained fully below), our analysis exploits a historical oddity created by the Irish "marriage bar," which is the requirement that women must leave their job when they marry. The Government of Ireland introduced a marriage bar in the civil service in 1924 and abolished it in 1973. Many state-sponsored and private sector employers institutionalized the same requirement until 1977 (Connolly 2003; The Irish Times 1975). Some of the women affected are still alive and are among the respondents in the TILDA. We use data from TILDA to effectively compare two groups of women: The first group is women who did return to work after being affected by the marriage bar. The second group is women who did not return to work after being affected by the marriage bar. We investigate whether the probability of returning to work was higher or lower for women with certain personality traits.

3 | Institutional Background

The Government of Ireland introduced a marriage bar in the 1920s, first in the civil service. More specifically, the *1924 Civil Service Regulation Act* stated that: "…female civil servants holding established posts *will* be required on marriage to resign from the civil service." In 1932, coverage was expanded to include primary school teachers. The marriage bar in the civil service was bolstered by the *1956 Civil Service Regulation Act*. The requirement became: "…women employed in positions in the civil service, other than those employed in certain excluded (non-pensionable) posts, *are* required to retire on marriage."

The marriage bar was not legally binding in the sense that private sector and state-sponsored employers were not required to apply it. However, it appears that the practice of ending the employment of women when they married was also practiced by local authorities, health boards, state-sponsored bodies, and banks and financial institutions (Connolly 2003; The Irish Times 1975). Evidence shows that a number of private sector employers, including *Jacobs Biscuits* and *Guinness Brewers*, also required female employees to resign at marriage (Connolly 2003; Muldowney 2007). About one in two of the women who had to leave their job because of the marriage bar between the 1950s and 1970s were employed in offices as clerks, typists, secretaries, telephonists, or receptionists (Mosca and Wright 2020). The

remaining half were working across a number of occupations, including dressmakers and factory workers.

There are at least two reasons behind the introduction of the marriage bar in Ireland. The first reason was the "belief" that a "woman's place is in the home." This was reflected in the *Second Constitution of Ireland*, which came into effect in 1937. Article 41.2 states that "mothers shall not be obliged by economic necessity to engage in labour to the neglect of their duties in the home." The second reason was to reduce male unemployment, which was high in Ireland at the time, by limiting households to one income earner: "one man, one job" (Redmond and Harford 2010).

Harford and Redmond (2019) interviewed 14 Irish primary school teachers who had to leave their jobs due to marriage between the 1930s and the 1950s. One key finding from this study is that all the women interviewed commented on the lack of information they received on the marriage bar and its implications for their future careers. None of the women interviewed could recall the exact point in time in which they first heard about the marriage bar. However, they did recall that, by the time they were in training to become teachers, the marriage bar was established and seldom questioned. In the authors' words, "acceptance of the Marriage Bar was the norm" (Harford and Redmond, 2019, 11). Harford and Redmond (2019, 6) also highlight that the decisions on education and employment (regardless of social class) were typically not made by the women themselves. Instead, they were made by the parents or the whole family.

Occupational sex segregation was high in Ireland when the marriage bar was in place. Occupational sex segregation reflects the extent to which women are employed in typically female occupations and men are employed in typically male occupations (Russell et al. 2017). In 1966, over a quarter of women were employed in occupations that were at least 90% female (Walsh, 1971; Russell et al. 2017). Evidence shows that occupational sex segregation has decreased to some extent over time. To illustrate, of all those gainfully occupied (at work or unemployed) in personal service occupations in 1946, 83% were females (CSO (Central Statistics Office) 2000). This compares to 68% in 1971 and to 63% in 1986. Personal service occupations include private domestic service and service in hotels, restaurants and cafes, lodging and boarding houses, laundries, hairdressing, and welfare and charitable organizations.

One can argue that perhaps young women could avoid "early retirement" through marrying later. Cohn (1985) argues that to counter this, employers paid a so-called marriage gratuity. This was money given to women at marriage. Marriage gratuities were widespread in Ireland and the United Kingdom. In Ireland, marriage gratuities were offered to teachers and civil servants who had been employed for a minimum of 7 years (O'Leary 1987). For teachers, the marriage gratuity corresponded to 1 month's salary per year of service, or a year's salary, whichever was the lesser (O'Leary 1987; Kiely and Leane 2012). In the United Kingdom, Great Western Railway and the General Post Office offered marriage gratuities after 6 years of service. The monetary amount of the gratuity varied, but it was often equivalent to a month and a half's salary (Cohn 1985).

The marriage bar for primary school teachers was abolished in June 1958. In 1970, a commission was established by the Irish government: "to examine and report on the status of women in Irish society and to make recommendations on the steps necessary to ensure the participation of women on equal terms and conditions with men" (CSW (Commission on the Status of Women) 1972). The marriage bar was abolished in 1973 in the civil service (Russell et al. 2017; Foley, 2022). Beginning in 1974, it was abandoned by local authorities and health boards. In 1977, discrimination in employment on the grounds of sex or marital status was made illegal by the *Employment Equality Act*. It declared that it was unlawful to discriminate on the grounds of sex or marital status in recruitment for employment, conditions of employment, in training, in work experience, and in opportunities for promotion.

4 | Methodology

4.1 | Data

The Irish Longitudinal Study on Ageing, or TILDA for short, is a nationally representative sample of community-dwelling individuals aged 50+ resident in Ireland. The survey collects information on the economic, health, and social aspects of the respondents' lives. It is modeled closely on the US *Health and Retirement Study*, the *English Longitudinal Study on Ageing* and the *Survey of Health, Ageing and Retirement in Europe*. To date, six waves of data have been collected. At each wave, respondents first complete a computer-assisted personal interview (CAPI) in their own home. The first wave of data was collected in 2009/2011, and a total of 8504 individuals completed the CAPI interview. The remaining five waves were completed in 2012/2013 (Wave 2), 2014/2015 (Wave 3), 2016 (Wave 4), 2018 (Wave 5), and 2021 (Wave 6). The number of self-respondents completing the CAPI interview in Waves 2–6 was 7375 (Wave 2), 6566 (Wave 3), 5856 (Wave 4), 5103 (Wave 5), and 4228 (Wave 6).

At the end of the CAPI interview, each respondent is asked to fill in a self-completion questionnaire (SCQ) and return it by post (in a prepaid envelope) to the TILDA study. This questionnaire asks a range of potentially sensitive questions, including questions on quality of life, emotional well-being, and health behaviors. At Waves 1, 3, and 6 of data collection, respondents are also invited to travel to a dedicated health center for a comprehensive health assessment. If unable or unwilling to travel to the health center, respondents are offered a modified assessment in their own home. All assessments are carried out by qualified and trained research nurses. More detail about TILDA can be found in Donoghue et al. (2018).

At Wave 3 of data collection (2014/15), TILDA female respondents who were ever married and ever engaged in paid work were asked—for the first time in a nationally representative survey—whether they ever had to leave a job because of the marriage bar. Interviewers were instructed to explain what the marriage bar was in case the respondent was unsure. The specific question asked is, "*Did you ever have to leave a job because of the Marriage Bar?*". Women affected by the marriage bar are the women who answered "*Yes*." Women not affected by the marriage bar are the

women who answered "*No*." If women reported they had been affected by the marriage bar, they were asked to report which job it was that they had to leave and whether they ever returned to full-time employment. The TILDA data are unique as they combine information about the marriage bar along with information on past circumstances and current aspects of the respondents' lives and on the *Big-5* personality traits. Personality was measured at Wave 2 SCQ interview (2012).

The analysis of this article is restricted to women who fulfill three criteria. First, they report having been affected by the marriage bar at Wave 3 CAPI interview. Second, they answer the personality questions at Wave 2 SCQ interview. Third, they have valid observations for all the control variables employed in the empirical model. As explained in detail below, one of the control variables is measured at Wave 3 health assessment. Therefore, only women who report to have been affected by the marriage bar at Wave 3 CAPI interview answer the personality questions at Wave 2 SCQ interview and undertake the health assessment at Wave 3, either in the dedicated health assessment center or in their own home, and are included in the analysis.

The final sample includes 276 women. Although this is not a large sample, we believe it is large enough to reliably support the simple regression analysis carried out below. It is also important to stress that it is likely the *only* currently available sample for any country of women interviewed in a large-scale survey who were affected by the marriage bar. It is the historical oddity of the late abolition of the marriage bar in Ireland that has made it possible to collect information directly from women affected by it. It must be remembered that most of these women were quite old at the time of the survey. Mortality is high in this age group, so there are significantly fewer and fewer women to be interviewed, an issue that we discuss further below. Therefore, it is our view that this sample of 276 women is also the *last* sample available for analysis of the type carried out in this article.

4.2 | Statistical Model

Women were asked a set of questions relating to their experience of the marriage bar. Our analysis uses information from two of these questions: The first question is, *"Did you have to leave a job because of the Marriage Bar?"*. Our sample is based on women who answered "*Yes*" to this question. The second question, asked to those women who answered "*Yes*," is "*Did you ever return to full-time employment after leaving this job?"*. From this question, it is straightforward to construct a "return to work" variable, "*ReturnWork*," which is coded "0" if the women did not return to work and coded "1" if they did return to work, after having to leave employment because of the marriage bar. Because the return to work is the outcome variable of interest in the empirical analysis, and because it is binary, the analysis employs probit regression. In this analysis, *ReturnWork* is regressed onto five personality trait variables and a set of control variables (described below). Such an approach is simple statistically and easy to interpret. The main interest is whether personality affects the probability of returning to work after holding constant other factors that likely affect this probability.

4.3 | Variables

Personality Traits: The *Big-5* personality traits are "*extraversion*," "*neuroticism*," "*conscientiousness*," "*agreeableness*," and "*openness*." Briefly, *extraversion* indexes a number of traits that are associated with positive emotionality, including warmth, sociability, activity, and optimism; *neuroticism* reflects traits, including anxiety, hostility, and heightened sensitivity to stress; *conscientiousness* reflects traits, including self-discipline, orderliness, competence, and planning; *agreeableness* reflects traits, including trust, altruism, and compliance; and *openness* reflects traits, including intellectual curiosity, imagination, and enjoyment of novelty.

In TILDA, personality traits are measured using the NEO Five-Factor Inventory-3 (Costa and McCrae 2004). It is a 60-item self-report instrument that yields scores for each of the *Big-5* personality traits. Each scale comprises 12 items, and respondents are required to indicate the extent to which they agree with each statement on a 5-point Likert scale ranging from strongly agree through neutral to strongly disagree. Examples of statements included in the measures are "*I like to be where the action is*," "*I often feel tense and jittery*," "*When I make a commitment, I can always be counted on to follow through*," "*I generally try to be thoughtful and considerate*," and "*I often enjoy playing with theories or abstract ideas*." Responses to each item are scored 0–4 so that the total score for each scale ranges from 0 to 48, with higher scores indicating higher levels of the trait. Scale scores are pro-rated if the respondent is missing three or fewer items on each dimension of the questionnaire. The complete list of items included in the five traits is included in Appendix A.

This personality information was collected in the 2012 SCQ. The majority of women in our sample at that time were aged 65–85, with only a small number being employed. As a point of reference, these women would be aged 25–45 when the first step to abolish the marriage bar was put in place in 1973. Put crudely, in 1973, most of these women would be of working age, be of reproductive age, and would have dependent children. In 2012, most of these women would be of retirement age, would not be employed, and would not likely have dependent children living with them. For our analysis, we would like personality measured earlier in life rather than later in life (which is what we have). In an ideal world, we would like personality measured at the time the respondent left their job because they married.

This life cycle "miss-match" is potentially problematic if personality does change over time. Some researchers believe that personality can change in old age as a consequence of the aging process itself (Graham et al. 2020). One reason is cognitive decline in old age might impinge on personality in old age (Pocnet et al. 2011; Terracciano et al. 2023). What appears to be personality change may in fact be a product of cognitive decline. If the above concerns were valid, it would not be appropriate (if not incorrect) to use personality at the time of the survey in our analysis.

We do not have personality measured early in the life cycle. Ideally this would be when the respondents were considerably younger, preferably when they were in their 20s. In the absence

of such information, the only way our analysis can move forward with TILDA data is to statistically "remove" the effect of age on personality. The approach that we follow, that is, becoming widely used, is based on "age standardized residuals" (see, e.g., Brown and Taylor 2014; Heineck and Anger 2010; Heineck 2011; Nyuhs and Pons 2005; Osborne Groves 2005). There are three steps to this approach. In the first step, personality trait P_j is regressed on an age quadratic: $P_j = a + b_1 Age + b_2 Age^2$. In the second step, the regression estimates are used to calculate the residual: $Resid_j = P_j - P_j hat$ (i.e., actual value minus predicted value). In the third step, these residuals are "standardized" by subtracting the mean and dividing by the standard deviation. This results in the residuals now having a mean of 0 and a standard deviation of 1. This third step is not essential. One benefit is that it allows for the easy comparison of the relative importance of each personality trait in a manner similar to standardized regression coefficients, which are routinely used in other social science disciplines.

The age-standardized personality residuals were calculated using the regression sample. This consists of 276 women aged 56–90. They were not calculated using the larger sample of women in the same age range in the TILDA dataset (around 2400 women). The larger sample also consists of women who did not report being affected by the marriage bar. We understand that there are arguments for using a sample of all women and using the sample used in the regression analysis. We report the estimates based on the regression sample because our understanding of previous research is that this is the dominant approach adopted by researchers.

Controls: The control variables are added in blocks. The first set of variables includes age, educational attainment, and variables aimed at capturing childhood characteristics as well as a measure of crystallized intelligence. Educational attainment is measured by the number of years of schooling completed. Childhood circumstances are measured by a set of dummy variables based on the woman's self-reporting of childhood conditions before the age of 14. These capture whether the respondent recalls her family being "poor" during her own childhood; whether she recalls there not being "at least ten books" in her childhood home; whether she grew up in a "rural area"; and whether she recalls not being any "amenity" in her childhood home. The amenities listed to the respondent are as follows: fixed bath; cold running (piped) water supply; hot running (piped) water supply; inside toilet; central heating; and electricity.

Crystallized intelligence is the ability to use knowledge and facts, or more generally, cumulated experience, in decision-making. In this article, crystallized intelligence is measured through the "Nart test," which is rarely included in large-scale, nationally representative studies on aging. *Nart* is the *National Adult Reading Test*, which is a 50-item single-word test of graded difficulty (Nelson 1982; Nelson and Willison 1991). All the 50 words are irregular, that is, they violate grapheme–phoneme correspondence rules (e.g., ache, thyme, and topiary). In TILDA, the words are presented to all respondents who are not illiterate or blind by a nurse during Wave 3 health assessment. The words are written on cards, and one point is given for each correctly pronounced word. The supposition is that the test makes minimal demands on current cognitive ability and depends instead on prior ability. It makes minimal demands on current cognitive ability because the words the respondent is asked to read orally are short and single, although of graded difficulty. It depends on prior cognitive ability because the respondent must have prior knowledge of a word's pronunciation in order to read it correctly. Therefore, although the test is carried out during Wave 3 health assessment, it is a test of prior cognitive ability.

The hypothesis that the Nart is a test of prior intellectual functioning has been validated in the literature in a number of studies that employ longitudinal data spanning from childhood to old age. For example, Crawford et al. (2001) have shown using longitudinal data from The Scottish Mental Survey 1932 that the Nart performance at age 77 is highly correlated with IQ age 11 ($r = 0.73$; p value < 0.001) and that the effects of age and life experience on NART estimates are minimal (Barker-Collo et al. 2008). Using longitudinal data from the Lothian Birth Cohort 1936 and measures of cognitive ability collected at ages 11, 70, and 73, Dykiert and Deary (2013) find that the Nart in old age is highly stable and highly correlated with IQ at age 11. Dykiert and Deary (2013) conclude that their analysis confirms—using a much larger sample—the findings of Crawford et al. (2001) that the Nart "meets the criterion for measures of prior cognitive ability" (Dykiert and Deary 2013, 1364).

The second set of variables includes measures of work experience before labor market exit at marriage. These are age at labor market entry and occupational status of the first job. Women's occupations are recoded into the International Socio-Economic Index (ISEI), which is a continuous and internationally comparable measure of occupational status developed on the basis of information on income, education, and occupation (Ganzeboom et al. 1992). The latest version of the scale is used. This is the so-called ISEI-08. This scale was constructed by Ganzeboom and Treiman (2011) using a large cross-national database of men and women. The ISEI-08 score ranges between 10 and 89, with higher scores indicating higher occupational status. To illustrate, medical doctors get the highest score, and kitchen helpers get the lowest score. Primary school teachers get a score of 61, clerical support workers get a score of 41, receptionists get a score of 37, shop assistants get a score of 31, and factory workers get a score of 21. The ISEI scale has been widely used in empirical research to measure occupational status. For example, see Kanas et al. (2012), De Vroome et al. (2011), Smith (2012), van Hoorn and Maseland (2010), Vandenberghe and Robin (2004), and Kassenboehmer and Schatz (2017).

A variable capturing the number of children is then included, as it could be that women who had more children were less likely to return to work. The last sets of variables that are added as a block to the model include a number of negative life events that TILDA respondents might have experienced. As discussed in Section 2, there is some evidence that life events might impact personality, although effects seem to be relatively small (Bühler et al. 2024). If it is true that life events affect personality and possibly also determine labor market outcomes, then this is a concern. In our empirical analysis, we address this concern by controlling for a number of negative life events that respondents might have experienced. These are widowhood, separation or divorce, death of a child, life-threatening illness or accident, a spouse or child experiencing a life-threatening illness or accident, and a spouse or child experiencing drugs or alcohol addiction.

It is clear that some of the control variables included in our model, such as childhood circumstances, are exogenous. With such variables, the reverse causal direction is not possible or extremely unlikely. However, this is less likely to be true for some of the other variables, such as the number of children and having experienced separation or divorce. We have not explored the potential endogeneity of these variables in detail. This could be done with an instrumental variable approach, but the data requirements of such an approach make it not feasible with TILDA data. Given that our main interest is the effect of personality, we add the control variables as "blocks" of variables and examine if the effects of personality change dramatically. We believe that this is an appropriate form of robustness checking given that our model is really a reduced form where all the right-hand-side variables are assumed to be exogenous.

5 | Results

5.1 | Main Analysis

Definitions of all variables, along with summary statistics, are shown in Table 1. The probit regression estimates for return to work are summarized in Table 2. The estimates are marginal effects with the ratio of the estimate to its standard error in parentheses. In the specification shown in Column (1), only the *Big-5* personality traits are included as explanatory variables and are expressed as standardized residuals. Controls for age, educational attainment, early-life conditions, and crystallized intelligence are added in the specification of Column (2). Controls for work experience are included in the specification of Column (3) and a measure of the woman's fertility over the life-course is added in the specification of Column (4). Controls for negative life events are added in the specification of Column (5).

Five key results emerge from Table 2. First, all regressions show that women scoring higher on agreeableness were less likely to return to work. To illustrate, the regression of Column (5) indicate that a one standard deviation increase in agreeableness is associated with a 6.9 percentage point lower probability of returning to work ($p < 10\%$). Second, women scoring higher on extraversion were more likely to return to work. However, the average marginal effect of extraversion is statistically significant at the 10% level only in the regressions of Columns (4) and (5), which are the regressions including the most controls. Third, women who were older at the time of the interview and who were older when they entered the labor market were less likely to return to work. Fourth, an additional child is associated with a 6.7–7.9 percentage point lower probability of returning to work. Fifth, women who experienced the death of a child were less likely to return to work, whereas women who had a child or a spouse experiencing drugs or alcohol addiction were more likely to return to work.

Three final notes of caution are needed. The first is that ideally an indicator of a woman's family socio-economic status should be added to the list of explanatory variables in the regression analysis, as this is likely an important determinant of a woman's decision to return to work. For example, the life-time income of her husband is likely to be a good proxy of family socio-economic status. Unfortunately, information on the husband's life-time income is not collected in the TILDA data. However, the TILDA survey collects information on the number of years the husband spent in education for a subsample of women. This subsample includes women whose husbands are also participating in the TILDA survey and women who are currently married. Information on (former/late) husband's educational attainment is not collected for women who are widowed, separated, or divorced at the time of the interview. Probit regression is estimated for the subsample of women for whom this information is available ($N = 174$). In these regressions, a control for husband's educational attainment is added. Results are presented in Table 3, Columns (1) and (2). The results of Table 3 are in line with the results of the baseline models of Table 2. However, it is important to note these results have to be interpreted with caution because one third of observations are excluded from these regressions.

The second note of caution is that one cannot exclude that there are differences in personality between women affected and not affected by the marriage bar. TILDA data can be used to assess this potential source of endogeneity. A probit regression is estimated where the outcome variable is equal to 1 if the woman was affected by the marriage bar and 0 if she was not. This regression includes controls for the *Big-5* personality traits and age at the time of the survey. Results are presented in Table 3, Column (2). The results of Column (2) show that regression estimates on each of the *Big-5* personality traits are not statistically significant, even at the 10% level. Regressions not reported in the article show that the results of Column (2) are robust to the inclusion of the full list of controls. This suggests that there is no evidence that women affected and not affected by the marriage bar differ in their *Big-5* personality traits.

The third note of caution is that one cannot exclude that having to leave a job because of the marriage bar might have had psychological impacts. This would likely be the case if it were perceived as a major negative life event. Therefore, one could argue that leaving a job because of marriage bar might have impacted personality. However, we believe that this is not likely to be the case given the historical and socio-economic context of the period when the marriage bar was in place. Previous research has highlighted that the norms and societal expectations in terms of the roles of men and women in Ireland at the time are very different from today's norms and expectations. The marriage bar in Ireland was widely accepted in society, and leaving work at marriage was "the norm" at the time, both for women in and not in jobs affected by the marriage bar (O'Leary 1987; Harford and Redmond 2019). In O'Leary's (1987, 51) words, "the history of the [Irish] Marriage Bar cannot be understood in isolation from the society that produced it."

The above analysis is heavily dependent on the assumption that personality remains stable across the life cycle. Specifically, personality does not change, or does not change much, with labor market entry. The analysis itself does lend some support for this assumption. Table 4 shows the mean values for each of the five personality traits broken down by whether the women returned to work or not. For each of these traits, there is a difference between the two groups. However, *t*-tests suggest that only one of these differences is statistically significant, at the 5% level: agreeableness. This "negative gap" is consistent with the negative marginal effect of −0.069 estimated by regression [see Column

TABLE 1 | Mnemonics, definitions, and descriptive statistics of regression variables.

Mnemonics	Definition/Measurement	Mean	St Dev
Dependent variables			
ReturnWork	Dummy: 1 for re-entered full-time employment after compulsory labor market exit at marriage; 0 otherwise	39.9%	—
Explanatory variables			
Personality traits			
Extraversion	Reflects traits, including warmth, sociability, activity, and optimism Score range: 0–48, based on 12 items	28.1	5.8
Neuroticism	Reflects traits, including anxiety, hostility, and heightened sensitivity to stress. It is also known as emotional instability Score range: 0–48, based on 12 items	18.4	7.1
Conscientiousness	Reflects traits, including self-discipline, orderliness, competence, and planning Score range: 0–48, based on 12 items	33.6	5.1
Agreeableness	Reflects traits, including trust, altruism, and compliance Score range: 0–48, based on 12 items	35.4	4.2
Openness	Reflects traits, including intellectual curiosity, imagination, and enjoyment of novelty. It is the trait most correlated with intelligence Score range: 0–48, based on 12 items	28.2	5.8
Age	Years	71.6	7.2
Early-life conditions and crystallized intelligence			
PoorFam	Dummy: 1 for self-reported poor socio-economic position in childhood; 0 for average/well-off	11.2%	—
NoBooks	Dummy: 1 for 0–10 books in the accommodation respondent lived in childhood; 0 for 11+ books	33.7%	—
NoAmenities	Dummy: 1 for no amenities in the accommodation respondent lived in childhood; 0 for 1+ amenities (e.g., inside toilet, central heating, electricity)	13.4%	—
Rural	Dummy: 1 for rural household; 0 for urban household	56.2%	—
Nart	National Adult Reading Test is a measure of crystallized intelligence Score range: 0–50	28.6	11.0
Educational attainment			
School	Years completed	12.3	2.3
Work experience			
AgeEntry	Age at labor market entry in years	17.7	2.0
OccStatEntry	ISEI-08 of first job	41.4	11.4
Fertility			
NumChild	Number of children	3.9	1.9
Life events			
Widowed	Dummy: 1 for widowed; 0 otherwise	26.1%	—
SepDiv	Dummy: 1 for separated or divorced; 0 otherwise	7.2%	—
DeathChild	Dummy: 1 if respondent has experienced death of a child; 0 otherwise	12.3%	—
OwnIllAcc	Dummy: 1 if respondent has experienced a life-threatening illness or accident; 0 otherwise	18.1%	—
RelIllAcc	Dummy: 1 if respondent's spouse (partner) or child has experienced a life-threatening illness or accident; 0 otherwise	34.4%	—
RelAdd	Dummy: 1 if respondent's spouse (partner) or child has experienced drugs, or alcohol addiction; 0 otherwise	10.1%	—

Abbreviations: ISEI, International Socio-Economic Index.

Source: The Irish Longitudinal Study of Ageing (TILDA), Wave 3, 2014/2015.

TABLE 2 | Probit regression results, return to full-time employment.

Specification:	(1) Big-5 personality traits	(2) +Age + education + early-life conditions + crystallized intelligence	(3) +Work experience	(4) +Number of children	(5) +Life events
Extraversion	0.036	0.061	0.056	0.073*	0.076*
	(1.0)	(1.6)	(1.4)	(1.9)	(1.9)
Neuroticism	0.002	0.006	0.006	0.017	0.009
	(0.1)	(0.2)	(0.2)	(0.5)	(0.2)
Conscientiousness	0.042	0.039	0.041	0.034	0.022
	(1.2)	(1.1)	(1.1)	(0.9)	(0.6)
Agreeableness	−0.076**	−0.091***	−0.087**	−0.081**	−0.069*
	(2.3)	(2.7)	(2.5)	(2.2)	(−1.9)
Openness	−0.013	−0.032	−0.031	−0.028	−0.038
	(0.4)	(0.9)	(0.9)	(0.8)	(−1.0)
Age	—	−0.019***	−0.019***	−0.018***	−0.016***
		(4.0)	(4.0)	(3.8)	(−2.7)
School	—	−0.015	0.008	0.005	0.008
		(1.0)	(0.4)	(0.2)	(0.4)
PoorFam	—	−0.043	−0.070	−0.024	0.014
		(0.4)	(0.7)	(0.2)	(0.1)
NoBooks	—	0.068	0.085	0.086	0.085
		(0.9)	(1.1)	(1.1)	(1.1)
NoAmenity	—	0.162	0.165	0.195*	0.220**
		(1.6)	(1.6)	(1.9)	(2.0)
Rural	—	−0.116*	−0.109	−0.067	−0.068
		(1.7)	(1.6)	(1.0)	(−0.9)
Nart	—	0.007**	0.007**	0.007**	0.006
		(2.2)	(2.0)	(2.1)	(1.6)
AgeEntry	—	—	−0.046*	−0.041*	−0.045*
			(1.9)	(1.6)	(−1.8)
OccStatEntry	—	—	0.002	0.002	0.003
			(0.6)	(0.6)	(0.7)
NumChild	—	—	—	−0.067***	−0.079***
				(3.6)	(−3.9)
Widowed	—	—	—	—	−0.013
					(−0.1)
SepDiv	—	—	—	—	0.098
					(0.7)
DeathChild	—	—	—	—	−0.210**
					(−2.4)
OwnIllAcc	—	—	—	—	−0.032
					(−0.4)
RelIllAcc	—	—	—	—	0.012
					(0.2)

(Continues)

TABLE 2 | (Continued)

Specification:	(1) Big-5 personality traits	(2) +Age + education + early-life conditions + crystallized intelligence	(3) +Work experience	(4) +Number of children	(5) +Life events
RelAdd	—	—	—	—	0.383***
					(3.8)
Log likelihood	−182.1	−170.4	−167.3	−160.6	−151.9
Likelihood ratio (LR) χ^2	6.9	30.3	32.7	46.3	63.5
p value LR test	0.23	<0.01	<0.01	<0.01	<0.01
McFadden's pseudo R^2 (%)	1.9	8.2	8.9	12.6	17.3
N	276	276	276	276	276

Note: Regression results are average marginal effects. The ratios of the marginal effect to its standard error are reported in parentheses. The Big-5 personality traits are expressed as standardized residuals (see text for explanation).
*$p < 0.10$ **$p < 0.05$ ***$p < 0.01$.
Source: The Irish Longitudinal Study of Ageing (TILDA), Wave 3, 2014/2015.

TABLE 3 | Probit regression results, return to work and marriage bar.

Estimation	(1) Probit	(2) Probit
Dependent variable	**Return to work**	**Marriage bar**
Extraversion	0.130**	−0.001
	(2.2)	(0.5)
Neuroticism	0.029	0.002
	(0.6)	(0.9)
Conscientiousness	−0.001	0.002
	(0.01)	(0.7)
Agreeableness	−0.083	0.002
	(1.6)	(0.9)
Openness	−0.062	0.000
	(1.2)	(−0.1)
Age	−0.012*	0.011***
	(1.7)	(6.9)
HusbandSchool	−0.024	—
	(1.6)	—
Log likelihood	−96.60	−663.1
Likelihood ratio (LR) χ^2	41.1	50.9
p value LR test	<0.01	<0.01
McFadden's pseudo R^2 (%)	17.5	3.7
N	174	1371

Note: Regression results are marginal effects. The ratios of the marginal effect to its standard error are reported in parentheses. The Big-5 personality traits are expressed as standardized residuals (see text for explanation).
*$p < 0.10$ **$p < 0.05$ ***$p < 0.01$
Source: The Irish Longitudinal Study of Ageing (TILDA), Wave 3, 2014/2015.

(5) of Table 2]. The *t*-tests suggest that there is no difference in *neuroticism*, *conscientiousness*, and *openness* at the time of the survey at the 10% threshold level. The marginal effects for these three personality traits are also not statistically significant at the 10% level. In other words, the finding that there is "no gap" for each of these three personality traits is consistent with the finding of a zero marginal effect for each. However, interpretation along these lines is not as clear-cut for *extraversion*. A *t*-test suggests that there is no difference between those women who returned to work and those who did not. On the other hand, the regression analysis suggests that there is a positive relationship between *extraversion* and the return to work with a marginal effect of +0.076.

5.2 | Ancillary Analysis[1]

The estimates reported in Table 2 are based on cross-sectional data and a specific functional form relating to the shape of the relationship between age and personality. However, one needs longitudinal data, with repeated measures of personality, to confidently test for the degree of stability of personality. Such data are simply not available for Ireland. However, it is possible to carry out this type of analysis with data from the HILDA survey. We have no reason to believe that Irish women and Australian women are in some way fundamentally different in this respect. Such an analysis examines actual changes in personality and actual changes in employment status and hence does not assume that cross-sectional variation is in some way an accurate representation of longitudinal variation. The aim of this ancillary analysis is to assess the degree to which personality traits of women change over the time period that spans from when they are young into later adulthood. We believe that this analysis lends considerable credibility to the Irish analysis, even though it is not specific to Ireland.

TABLE 4 | Differences in the means of the Big-5 personality traits between those who returned to work and those who did not.

	(1)	(2)	(3)	(4)	(5)
		Returned to work?		Difference	Effect
Personality trait *j*:	All	No	Yes	(3)-(2)	
Extraversion	28.7	28.5	28.9	+0.4	+0.076*
Neuroticism	18.4	18.3	18.5	+0.2	+0009
Conscientiousness	33.6	33.4	33.9	+0.5	+0.022
Agreeableness	35.4	35.9	34.7	−1.2**	−0.069*
Openness	28.2	27.8	28.6	+0.8	−0.038

Note: The "Effect" of personality trait *j* is the average marginal effect reported in Column 5 of Table 2.
Statistical significance levels: *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.
Source: The Irish Longitudinal Study on Ageing (TILDA), Wave 2, 2012/2013.

Individual-level data are collected in the HILDA survey (see Summerfield et al. 2021). HILDA is an annual, large-scale, nationally representative household longitudinal social survey, beginning in 2001. The Big-5 personality traits were included for the first time in Wave 5 and for the last time 16 years later in Wave 21. A 36-item inventory is used in HILDA to measure personality traits, and 5 scales are derived to summarize the 5 personality factors: *extraversion*, *agreeableness*, *conscientiousness*, *emotional stability*, and *openness to experience*. For each trait, the higher the score, the better that personality character trait describes the respondent. The minimum score for each trait is 1 and the maximum score is 7. In addition, HILDA contains detailed employment, demographic, and socio-economic information about respondents and their households. Questions on employment and socio-demographic status are collected at each wave.

The sample that we use consists of women who are aged 25–44 at Wave 5 and 41–60 at Wave 21. They are employed at Waves 5 and 16. They are interviewed at all waves (i.e., the dataset is a 16-year "balanced" panel). Finally, they answer the personality questions in full at Waves 5 and 16. This results in a sample of 772 women. Of this total, 483 (62.6%) report being in employment at each interview wave and therefore can be classified as continuously employed. The remaining 289 women are in employment at Waves 5 and 21 but report to be in unemployment or out of the labor force at one or more interview waves between Waves 6 and 20. Therefore, these are women who return to employment after a period of non-employment.

For each personality trait, we define the change in the personality trait as the difference between the personality score at Wave 21 and the personality score at Wave 5 (ΔP_j). The main variable of interest is whether the woman has returned to work after a period of non-employment (*ReturnWork* = 1) or has remained continuously employed (*ReturnWork* = 0) over the 16-year period in focus. If there is no effect of this variable—its coefficient is not statistically significant at least at the 10% level—then returning to work does not have a substantially important impact on personality. Personality at Wave 5 is included to control for personality at the start of the period (initial condition). The remaining control variables include the respondent's highest level of education completed, marital status, childbearing status, state/territory of residence, and place of birth, all measured at baseline. Changes in marital status, changes in childbearing, and changes in state/territory of residence are also included. The mnemonics, definitions, and descriptive statistics for all the regression variables are shown in Table 5.

The results of this analysis are presented in Table 6. Each column refers to a specific personality trait. For four of the five personality traits—*extraversion*, *agreeableness*, *conscientiousness*, and *emotional stability*—the *ReturnWork* variable is not statistically significant. This suggests that returning to employment has no impact on these personality traits. The exception is *openness* (Column 5). For this trait, the sign of the *ReturnWork* variable is positive, suggesting returning to employment has a positive impact on *openness* and hence on personality. The coefficient value of +0.13 is sizeable. However, it is only statistically significant at the 10% level, suggesting a large range in the likely true value. Clearly the estimates for *openness* is evidence supportive of the hypothesis that returning to employment does impact personality. However, the estimates for the other personality traits suggest that this is not the case for the four other dimensions of personality.

In summary, it is worth noting that the Irish analysis suggests that agreeableness and extraversion impact the return to employment. The Australian analysis suggests that returning to employment has no impact on agreeableness and extraversion. Taken together, this points to the likely causal direction being from personality to employment. In summary, we believe the Australian analysis supports the Irish analysis because the Australian analysis only generates limited evidence (i.e., based on one personality trait out of five) for the likely causal direction being from employment to personality.

6 | Conclusion

Our main findings are directly relevant to a current debate in economics concerned with the role of cognitive abilities (e.g., intelligence, reasoning, and numeracy) and non-cognitive abilities (e.g., personality traits, motivation, and social skills) in explaining labor market success. There is considerable agreement that cognitive abilities are important in the understanding of labor market outcomes such as wages and employment. However, there is less agreement on the importance of non-cognitive abilities. Because personality is an important non-cognitive ability, we

TABLE 5 | Mnemonics, definitions, and descriptive statistics of regression variables, women aged 25–44, Wave 5, 2005 Australia.

Mnemonic	Definition/Measurement	(1) All	(2) ReturnEmp = 1	(3) ReturnEmp = 0
Dependent variables:				
ΔExtraversion	Change in extraversion. Determined as extraversion score in wave 21 minus extraversion score in Wave 5. Positive change indicates higher extraversion score in Wave 21 as compared to Wave 5. Negative change indicates lower extraversion score in Wave 21 as compared to Wave 5	−0.11 (0.86)	−0.14 (0.86)	−0.09 (0.86)
ΔEmotStability	Change in emotional stability. Determined as emotional stability score in Wave 21 minus emotional stability score in Wave 5. Positive change indicates higher emotional stability score in Wave 21 as compared to Wave 5. Negative change indicates lower emotional stability in Wave 21 as compared to Wave 5	0.36 (0.98)	0.36 (0.99)	0.36 (0.97)
ΔConscientiousness	Change in conscientiousness. Determined as conscientiousness score in Wave 21 minus conscientiousness score in Wave 5. Positive change indicates higher conscientiousness score in Wave 21 as compared to Wave 5. Negative change indicates lower conscientiousness score in Wave 21 as compared to Wave 5	0.08 (0.82)	0.06 (0.81)	0.09 (0.83)
ΔAgreeableness	Change in agreeableness. Determined as agreeableness score in Wave 21 minus agreeableness score in Wave 5. Positive change indicates higher agreeableness score in Wave 21 as compared to Wave 5. Negative change indicates lower agreeableness score in Wave 21 as compared to Wave 5	0.04 (0.78)	0.05 (0.8)	0.03 (0.76)
ΔOpenness	Change in openness to experience. Determined as openness score in Wave 21 minus openness score in Wave 5. Positive change indicates higher openness score in Wave 21 as compared to Wave 5. Negative change indicates lower openness score in Wave 21 as compared to Wave 5	−0.16 (0.86)	−0.13 (0.94)	−0.18 (0.81)
Independent variables:				
ReturnEmp	= 1 if in employment in Waves 5 and 21 and in unemployment or out of the labor force at one or more interview waves between Waves 6 and 20; = 0 if employed at each interview wave between Waves 5 and 21	37.4%	—	—
Baseline characteristics (measured at Wave 5):				
Extraversion	Extraversion score	4.62 (1.14)	4.64 (1.12)	4.61 (1.15)
EmotStability	Emotional stability score	5.11 (1.02)	4.95 (1.00)	5.21 (1.02)
Conscientiousness	Conscientiousness score	5.34 (0.98)	5.26 (1.01)	5.39 (0.37)
Agreeableness	Agreeableness score	5.62 (0.76)	5.56 (0.74)	5.65 (0.77)
Openness	Openness score	4.19 (1.00)	4.25 (1.05)	4.16 (0.97)
Age	Age (years)	35.4 (5.7)	33.4 (5.8)	36.7 (5.3)
Education:				
Year11	= 1 if highest qualification is Year 11 (excluded category)	18.1%	17.0%	18.8%
Year12	= 1 if highest qualification is Year 12	16.2%	18.7%	14.7%

(Continues)

TABLE 5 | (Continued)

Mnemonic	Definition/Measurement	(1) All	(2) ReturnEmp = 1	(3) ReturnEmp = 0
Cert	= 1 if highest qualification is Cert III or IV	12.4%	9.0%	14.5%
Diploma	= 1 if highest qualification is diploma or advanced diploma	11.9%	12.5%	11.6%
Degree	= 1 if highest qualification is a bachelor or honors degree	25.1%	26.3%	24.4%
Postgrad	= 1 if highest qualification is a postgraduate degree	16.2%	16.6%	15.9%
Marital status:				
Single	= 1 if never married (excluded category)	14.1%	15.6%	13.3%
Married	= 1 if married or cohabiting	77.5%	77.9%	77.2%
SepDivWid	= 1 if separated, divorced, or widowed	8.4%	6.6%	9.5%
Kid	= 1 if has children	66.3%	54.3%	73.5%
State/Territory:				
NSW	= 1 if resides in New South Wales (excluded category)	27.7%	24.9%	29.4%
VIC	= 1 if resides in Victoria	26.3%	31.5%	23.2%
QLD	= 1 if resides in Queensland	20.9%	19.0%	21.9%
SA	= 1 if resides in South Australia	8.5%	6.2%	9.9%
WA	= 1 if resides in WA	9.3%	11.4%	8.1%
TAS	= 1 if resides in Tasmania	3.9%	3.5%	4.1%
NT	= 1 if resides in Northern Territory	1.4%	2.1%	1.0%
ACT	= 1 if resides in Australian Capital Territory	1.9%	1.4%	2.3%
Place of birth:				
ForBorn	= 1 if born outside Australia	18.4%	19.0%	18.0%
Marital status changes:				
NoΔ	= 1 if there is no change in marital status (excluded category)	67.1%	65.7%	67.9%
ΔMarried	= 1 if marries after wave 5 and remains married	9.6%	10.7%	8.9%
ΔSepDivWid	= 1 if experiences separation, divorce, or widowhood after Wave 5 and does not re-marry	9.8%	6.9%	11.6%
ΔMultiple	= 1 if multiple changes in marital status	13.5%	16.6%	11.6%
Other changes:				
ΔState	= 1 if lives in more than one state/territory between Waves 5 and 21	12.0%	19.0%	7.9%
ΔKid	= 1 if has one or more children after Wave 5 (includes first child for those who are childless at Wave 5)	33.3%	58.8%	18.0%
Number of observations		772	289	483

Source: Household, Income and Labour Dynamics in Australia (HILDA), Waves 5 to 21.

believe our analysis provides support for the role of non-cognitive abilities in explaining labor market success.

The analysis in this article is based on a unique sample of women. All these women had to leave employment at marriage because of a marriage bar. Because Ireland is an historical oddity, only having abolished the marriage bar in the mid-1970s, there are women who are still alive at the time of writing, although this number is getting considerably smaller year on year. Because they are alive, some of them will most certainly be included in current or recent social surveys. However, we are aware of only one survey where women were asked questions about their personal experience of the marriage bar. This is TILDA. The TILDA survey also includes questions to measure the *Big-5* personality traits. Therefore, the TILDA data provide a unique opportunity to investigate the effects of personality on the probability of returning to work. It is also likely the last opportunity to do so. The analysis is based on data from 2014—10 years ago at the time of writing. With

TABLE 6 | Regression estimates of changes in personality traits, women aged 25–44 in 2005, Australia.

	(1) ΔExtraversion	(2) ΔEmotStability	(3) ΔConscientiousness	(4) ΔAgreeableness	(5) ΔOpenness
ReturnEmp	0.0085	−0.089	−0.089	−0.016	0.13*
	(0.1)	(−1.3)	(−1.4)	(−0.3)	(1.9)
Extraversion	−0.26***	—	—	—	—
	(-9.9)				
EmotStability	—	−0.51***	—	—	—
		(−17.2)			
Conscientiousness	—	—	−0.37***	—	—
			(−13.3)		
Agreeableness	—	—	—	−0.33***	—
				(−9.3)	
Openness	—	—	—	—	−0.33***
					(−10.7)
Age	0.0086	0.0061	0.0048	0.0044	0.00066
	(1.2)	(0.8)	(0.7)	(0.7)	(0.09)
Year12	0.16	0.14	0.068	0.067	0.044
	(1.5)	(1.3)	(0.7)	(0.7)	(0.4)
Cert	0.028	0.13	−0.0062	−0.054	−0.019
	(0.3)	(1.2)	(−0.06)	(−0.5)	(−0.2)
Diploma	0.020	0.27**	0.038	−0.0062	−0.12
	(0.2)	(2.4)	(0.4)	(−0.06)	(−1.1)
Degree	0.068	0.21**	−0.10	−0.0018	0.15
	(0.7)	(2.2)	(−1.2)	(−0.02)	(1.5)
Postgrad	0.12	0.18*	0.025	−0.11	0.12
	(1.1)	(1.7)	(0.3)	(−1.2)	(1.2)
Married	0.062	−0.020	0.23**	−0.027	−0.12
	(0.5)	(−0.2)	(2.1)	(−0.3)	(−1.0)
SepDivWid	−0.18	0.15	0.077	−0.019	−0.14
	(−1.3)	(1.1)	(0.6)	(−0.2)	(−1.1)
Kid	−0.0027	0.096	−0.046	0.070	0.093
	(−0.04)	(1.2)	(−0.7)	(1.0)	(1.2)
VIC	−0.015	−0.030	0.16**	0.10	0.023
	(−0.2)	(−0.4)	(2.1)	(1.4)	(0.3)
QLD	0.019	0.061	0.16**	0.082	0.016
	(0.2)	(0.7)	(2.1)	(1.1)	(0.2)
SA	−0.0044	−0.14	0.093	0.036	0.28**
	(−0.04)	(−1.2)	(0.9)	(0.3)	(2.5)
WA	0.071	0.099	0.17*	0.16	0.0043
	(0.6)	(0.9)	(1.7)	(1.5)	(0.04)
TAS	−0.13	0.19	−0.068	−0.085	0.013
	(−0.8)	(1.2)	(−0.5)	(−0.6)	(0.08)
NT	−0.100	0.41	0.14	0.013	0.042

(Continues)

TABLE 6 | (Continued)

	(1) ΔExtraversion	(2) ΔEmotStability	(3) ΔConscientiousness	(4) ΔAgreeableness	(5) ΔOpenness
(−0.4)	(1.6)	(0.6)	(0.06)	(0.2)	
ACT	−0.41*	−0.19	0.19	−0.017	−0.054
	(−1.9)	(−0.9)	(1.0)	(−0.09)	(−0.3)
ForBorn	0.025	0.034	−0.048	−0.071	0.038
	(0.3)	(0.4)	(−0.7)	(−1.0)	(0.5)
ΔMarried	−0.049	−0.086	0.33***	0.070	0.12
	(−0.4)	(−0.6)	(2.7)	(0.6)	(0.9)
ΔSepDivWid	0.029	−0.082	−0.16*	0.091	0.11
	(0.3)	(−0.8)	(−1.7)	(1.0)	(1.1)
ΔMultiple	0.064	−0.10	0.15*	0.23***	0.13
	(0.7)	(−1.0)	(1.8)	(2.7)	(1.4)
ΔState	−0.16*	0.30***	−0.047	0.021	0.013
	(−1.7)	(3.1)	(−0.6)	(0.2)	(0.1)
ΔKid	−0.073	−0.11	−0.017	0.038	−0.11
	(−0.8)	(−1.2)	(−0.2)	(0.5)	(−1.2)
Constant	0.71**	2.58***	1.64***	1.61***	1.08***
	(2.3)	(7.9)	(5.5)	(4.8)	(3.6)
R^2	14.6%	30.9%	22.0%	13.3%	15.7%
N	772	772	772	772	772

Note: *t*-statistics in parentheses.
$^{*}p < 0.10$ $^{**}p < 0.05$ $^{***}p < 0.01$
Source: Household, Income and Labour Dynamics in Australia (HILDA), Waves 5–21.

prevailing mortality rates, the number of women affected by the marriage bar has dwindled rapidly. It is unclear how many of these women are still alive, but it cannot be a large number.

The analysis carried out in this article focuses on the relationship between *Big-5* personality traits on the return to work among Irish women who were required to leave their jobs because of the marriage bar. We believe the main Irish analysis, coupled with the ancillary Australian analysis, provides evidence that the likely causal direction is personality to employment. Central to our approach is the view that for women affected by the marriage bar leaving work when they got married was not a "choice." Clearly, getting married is a choice. Therefore, one could argue that "choosing" to get married for women employed in jobs covered by the marriage bar is also "choosing" to leave employment. However, such a view ignores the historical reality that almost all women in the period covered by the marriage bar got married. If marriage is universal, then it is really not a "choice." For such women, differences in personality cannot be a factor in leaving employment because if they married, they had "no choice" but to leave employment.

The statistical analysis generates some evidence that personality traits, specifically agreeableness and extraversion, are important in the understanding of the decision to return to work. Among this group of women, "more agreeable" women and "less extroverted" women were less likely to return to work. There are several possible mechanisms that help understand the relationship between agreeableness and extraversion and returning to employment. One mechanism combines bargaining in the household and job search. It is reasonable to argue, especially given the period that our analysis refers to, that more agreeable and less extroverted women had less bargaining power within the household and searched for a new job less intensively after marriage. Therefore, such women were less likely to return to work.

Unfortunately, it is not possible to explore this mechanism with TILDA data. Doing so would require detailed information relating to the jobs these women had both before and after they left employment because of the marriage bar. At a minimum, this would require detailed employment and life histories, which have not been collected. In addition, only a very limited amount of employment-related information has been collected by retrospective questioning. However, there is recent research that supports this mechanism. More specifically, Flinn et al. (2018), using data from the HILDA survey, find that women's bargaining power within households is negatively associated with agreeableness and positively associated with extraversion. Using a German panel dataset on newly unemployed individuals between 2007 and 2008, Flinn et al. (2025) find that the number of job applications submitted by newly unemployed individuals is

negatively correlated with agreeableness and positively correlated with extraversion.

The analysis also suggests that three of *Big-5* personality traits, neuroticism, conscientiousness, and openness, are not associated with the probability of returning to work. We argue that this result might suggest that researchers should not assume that all *Big-5* personality traits are correlated with all possible labor market outcomes. The women in our sample had to leave employment at marriage. It could be that more conscientious women searched for a new job more intensively and therefore were more likely to return to work. Alternatively, it could be that more conscientious women shifted their focus and productivity to home production activities and therefore were less likely to return to work. The empirical evidence of our analysis seems to suggest that neither of these mechanisms dominates. However, one cannot exclude that evidence that one of these mechanisms dominates would have been found with a larger sample size.

We believe that marriage bars are best described as "institutionalized gender discrimination." The analysis carried out in this article is unique since it focuses on a group of women who *have been* discriminated against in the labor market. The analysis is not carried out on a group of women who *may have been* discriminated against in the labor market. Most empirical studies of gender discrimination focus on the latter group. Analyzing women affected by the marriage bar is analyzing women affected by discrimination. It is not necessary to establish this empirically—it is simply a fact. This is not to say that women not affected by marriage bars are not discriminated against. It is likely that in the period covered by the marriage bar, women employed in marriage bar and non-marriage bar jobs were likely discriminated against with respect to pay and other employment benefits. There is research that suggests that this might still be the case today in Ireland. Even though marriage bars do not exist anymore, gender discrimination does exist in many forms. Therefore, our main finding of a sizable effect of agreeableness and extraversion on return to work is not a historical artifact of no current value. We believe this is an important piece of information relating to the large topic of gender discrimination and that there is still much to be learned from the economic analysis of marriage bars.

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Conflicts of Interest

The authors declare no conflicts of interest.

Endnotes

[1] We are grateful to an anonymous referee for suggesting the analysis included in this sub-section.

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Appendix A

Measures of the *Big-5* Personality Traits in *The Irish Longitudinal Study on Ageing* (TILDA).

Measure	Item
Extraversion	I like to have a lot of people around meI laugh easilyI prefer jobs that let me work alone without being bothered by other peopleI really enjoy talking to peopleI like to be where the action isI shy away from crowds of peopleI often feel as if I'm bursting with energyI am a cheerful, high spirited personI don't get much pleasure from chatting with peopleMy life is fast-pacedI am a very active personI would rather go my own way than be a leader of others
Neuroticism	I am not a worrierAt times I have felt bitter and resentfulWhen I'm under a great deal of stress, sometimes I feel like I'm going to piecesI rarely feel lonely and blueI often feel tense and jitterySometimes I feel completely worthlessI rarely feel fearful or anxiousI often get angry at the way people treat meToo often, when things go wrong, I get discouraged and feel like giving upI am seldom sad and depressedI often feel helpless and want someone else to solve my problemsAt times I have been so ashamed I just want to hide
Conscientiousness	I keep my belongings neat and cleanI'm pretty good about pacing myself so as to get things done on timeI often come into situations without being fully preparedI try to perform all the tasks assigned to me conscientiouslyI have a clear set of goals and work towards them in an orderly fashionI waste a lot of time before settling down to workI work hard to accomplish my goalsWhen I make a commitment, I can always be counted on to follow throughSometimes I'm not as dependable or reliable as I should beI am a productive person who always gets the job doneI never seem to be able to get organizedI strive for excellence in everything I do
Agreeableness	I try to be courteous to everyone I meetAt times I bully or flatter people into doing what I want them toSome people think I'm selfish and egotisticalIf someone starts a fight, I'm ready to fight backI'm better than most people, and I know itWhen I've been insulted I just try to forgive and forgetI tend to assume the best about peopleSome people think of me as cold and calculatingI have no sympathy for beggarsI generally try to be thoughtful and considerateIf I don't like people I let them know itIf necessary, I am willing to manipulate people to get what I want
Openness	I enjoy concentrating on a fantasy or a daydream and exploring all its possibilities, letting it grow and developI think it's interesting to learn and develop new hobbiesI am intrigued by patterns I find in art and natureI believe letting students hear controversial speakers can only confuse and mislead themPoetry has little or no effect on meI would have difficulty just letting my mind wander without control or guidanceI seldom notice the moods or feelings that different environments produceI experience a wide range of emotions and feelingsSometimes when I am reading poetry or looking at a work of art, I feel a chill or a wave of excitementI have little interest in speculating on the nature of the universe or the human conditionI have a lot of intellectual curiosityI often enjoy playing with theories or abstract ideas

(Continues)