Marriage Type and Immigrant Integration: Evidence from Canada*

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Intermarriage with native-born individuals may facilitate immigrants' economic integration through access to host-country networks and information. However, identifying its causal effects is challenging due to endogenous marriage decisions. Using Canada's Longitudinal Immigration Database, I combine exact matching with modern event study methods to estimate the dynamic effects of intermarriage and within-immigrant marriage. I find that both marriage types lead to substantial employment and earnings losses, particularly among women, with little evidence of an additional intermarriage premium. This finding generally holds across immigrant subgroups, including those expected to benefit most from host-country networks and information. Moreover, immigrants married to higher-earning spouses experience larger earnings declines, consistent with household income effects and specialization. Overall, the results suggest that intermarriage provides limited additional labor market benefits relative to within-immigrant marriage, while household-level mechanisms may play an important role in shaping immigrants' economic outcomes following marriage.

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1. Introduction

Intermarriage between foreign-born and native-born individuals has traditionally been viewed as an indicator of immigrant social integration. However, intermarriage may itself play an important role in shaping immigrants' economic integration. Upon arrival, immigrants often face disadvantages in the host country labor market, partly due to limited language proficiency, unfamiliarity with local institutions, and a lack of host-country-specific knowledge and networks. Marriage to a native-born individual may help immigrants overcome these barriers by facilitating language acquisition, expanding access to social and professional networks, and providing information about local labor market opportunities. In some settings, intermarriage may also facilitate the acquisition of legal status, further improving immigrants' economic prospects. On the other hand, intermarriage may have offsetting effects. Differences in outside options and bargaining power within households may influence labor supply and household specialization. Moreover, because native-born individuals tend to have higher earnings than immigrants on average, marrying a native-born spouse may generate income effects that reduce the immigrant spouse's labor supply. Whether intermarriage improves immigrants' economic outcomes relative to marriage with another immigrant is therefore an empirical question.

Identifying the causal effects of intermarriage is challenging because marriage decisions are endogenous to immigrants' labor market prospects. Immigrants who marry native-born individuals may differ systematically from those who marry other immigrants in terms of language proficiency, cultural background, education, and unobserved characteristics associated with labor market success. Moreover, many factors that influence intermarriage decisions may also directly affect immigrants' economic outcomes. These include immigration policies (Amuedo-Dorantes et al., 2020), language proficiency (Bleakley and Chin, 2010), intergroup contact (Bazzi et al., 2019), changes in the composition of local populations (Fouka et al., 2022), and access to legal status (Adda et al., 2025). Consequently, observed differences in labor market outcomes between intermarried and within-immigrant married individuals may reflect selection rather than the effects of spouse type.

Existing studies have employed different identification strategies to address these concerns. One strand of the literature uses instrumental variables, particularly sex ratios and co-ethnic population shares, to identify the effects of intermarriage on immigrant earnings (Meng and Gregory, 2005; Furtado and Theodoropoulos, 2010; Meng and Meurs, 2009). However, the validity of these instruments is potentially questionable. Sex ratios may affect bargaining power in marriage markets and household specialization (Angrist, 2002), while co-ethnic

population shares may directly influence immigrants' labor market opportunities through ethnic networks and enclaves (Edin et al., 2003; Damm, 2009; Battisti et al., 2022). Another strand exploits longitudinal data and individual fixed effects to account for time-invariant unobserved heterogeneity. Using data from Sweden and Germany, respectively, Nekby (2010) and Nottmeyer (2010) find limited evidence of additional earnings benefits from intermarriage once individual heterogeneity and selection are taken into account. However, conventional two-way fixed effects estimators may involve problematic comparisons between already-treated and newly treated individuals when treatment timing varies and treatment effects are heterogeneous (Roth et al., 2023).

This paper revisits the relationship between intermarriage and immigrant economic integration using rich Canadian longitudinal administrative data and modern difference-in-differences methods. I use the Longitudinal Immigration Database (IMDB), which links immigrant landing records to annual tax information. These data allow me to track immigrants' employment, earnings, marital status, and fertility over time, while observing detailed characteristics at landing. I also use the 2016 Census linked to the IMDB to examine the family backgrounds of native-born spouses. An important restriction is that immigrants in my sample are permanent residents. As a result, the potential benefits of intermarriage through obtaining permanent resident status are largely absent, allowing the analysis to focus more directly on labor market and household mechanisms.

My empirical strategy addresses two challenges. First, immigrants who intermarry differ systematically from those who marry other immigrants. To improve comparability, I employ coarsened exact matching (Iacus et al., 2012) based on predetermined characteristics, including gender, country of birth, landing year, education at landing, age, marriage cohort, and geographic location. Second, marriage occurs at different times for different individuals, and its effects may evolve over time. Conventional dynamic two-way fixed effects estimators can therefore produce misleading estimates in the presence of heterogeneous treatment effects. To address this concern, I use the difference-in-differences estimator developed by De Chaisemartin and d'Haultfoeuille (2026), which allows for staggered treatment adoption and dynamic treatment effects. I distinguish two transitions: entering a marriage with another immigrant and entering a marriage with a native-born individual. For each marriage type, I estimate dynamic effects relative to remaining unmarried, using immigrants who have not yet married as controls. Identification relies on parallel trends and no anticipation, which I assess using pre-treatment placebo estimates.

I find three main results. First, marriage is followed by substantial declines in immigrants'

employment and earnings, with remarkably similar trajectories across marriage types. The estimated effects are initially small but become increasingly negative over time. Seven years after the first marriage, employment declines by approximately 8 percentage points, while log wage earnings fall substantially for both intermarried and within-immigrant married individuals. Despite the potential advantages of marrying a native-born spouse, I find little evidence of an additional intermarriage premium in either employment or earnings. These findings are robust to the alternative difference-in-differences estimator of Callaway and Sant'Anna (2021), which also reveals no systematic differential earnings trends over an extended pre-marriage period.

Second, the effects of marriage differ substantially by gender and spousal characteristics. Female immigrants experience considerably larger earnings declines following marriage than male immigrants, consistent with the possibility of household specialization. There is some evidence that intermarriage is associated with smaller earnings losses among women, although this advantage is modest relative to their overall earnings declines. I also find that immigrants who marry higher-earning spouses experience substantially larger declines in their own earnings. This pattern is consistent with household income effects and specialization, although differences in spousal earnings may also reflect selection into marriage. In addition, I find little evidence that the earnings consequences of intermarriage vary systematically with whether a native-born spouse is a second-generation immigrant or shares the immigrant's ethnic background.

Third, I investigate whether intermarriage provides additional benefits through access to host-country networks and information. If this mechanism is important, the intermarriage premium should be larger among immigrants who face greater barriers to accessing local labor market opportunities. I therefore examine heterogeneity by age at marriage, years since arrival, region of birth, local ethnic enclave size, and education. Across most of these dimensions, I find little evidence of systematically larger benefits from intermarriage. One notable exception is immigrants from Africa, Asia, and Oceania, who experience smaller earnings losses when marrying native-born individuals rather than other immigrants. However, this advantage is relatively modest and does not fully offset the earnings losses associated with marriage. Overall, these findings provide limited evidence that access to host-country networks through intermarriage generates substantial additional earnings benefits.

This paper contributes to two related strands of the literature. First, it contributes to research on intermarriage and immigrant integration by providing new longitudinal evidence from Canada and revisiting the economic returns to intermarriage using difference-

in-differences estimators that accommodate staggered treatment timing and heterogeneous effects. Relative to previous studies relying on instrumental variables or conventional fixed effects, the analysis places greater emphasis on dynamic treatment effects and the validity of pre-treatment comparisons. The detailed administrative data also allow me to examine several potential mechanisms and sources of heterogeneity, particularly the role of host-country networks and spousal characteristics.

Second, this paper contributes to the broader literature on the economic consequences of marriage. A substantial body of research documents a marriage wage premium among men and investigates whether it reflects selection, productivity changes, or household specialization (Korenman and Neumark, 1991; Antonovics and Town, 2004). Theoretical models of household production emphasize gains from specialization within marriage (Becker, 1973), while more recent research highlights the role of gender norms and relative earnings in shaping labor supply and household decisions (Bertrand et al., 2015). This paper extends these discussions to immigrants and distinguishes the consequences of marriage by the spouse's immigrant status. In contrast to the conventional male marriage premium, I find that marriage is associated with earnings declines among both male and female immigrants, although the losses are substantially larger among women. Moreover, immigrants who marry higher-earning spouses experience larger earnings declines, consistent with the potential importance of household income effects and specialization. These findings suggest that the economic consequences of marriage may differ between immigrants and the populations traditionally studied in the marriage premium literature.

The remainder of the paper is organized as follows. Section 2 describes the institutional background, data, and sample construction. Section 3 presents the matching procedure and empirical strategy. Section 4 reports the main effects of marriage on employment, earnings, and fertility. Section 5 examines heterogeneous effects and potential mechanisms, including host-country networks and spousal characteristics. Section 6 concludes.

2. Institutional Background and Data

2.1. Institutional Background

Permanent residents (PRs) in Canada are admitted through three broad immigration categories: economic immigration, family sponsorship, and refugee or protected-person programs. Under family sponsorship, Canadian citizens and permanent residents can sponsor eligible spouses or partners for permanent residence. Historically, Canadian immigration policy

placed greater emphasis on legally married spouses. The Immigration and Refugee Protection Act (IRPA), which came into force in 2002, expanded the recognition of partnerships for immigration purposes, explicitly including common-law and conjugal partners. The accompanying regulations also established a three-year financial sponsorship undertaking for spouses and partners, replacing the longer ten-year undertaking under the previous system. Under this undertaking, sponsors remain financially responsible for eligible sponsored spouses or partners for three years after they obtain permanent residence.

Spousal sponsorship can involve applicants residing either outside or within Canada. For applicants residing abroad, processing times are relatively short, typically around 12 months. Inland applicants may initially hold temporary resident status, such as a work or study permit, before obtaining permanent residence through family sponsorship. In December 2014, the Canadian government introduced a pilot program allowing certain inland spousal sponsorship applicants to obtain open work permits while their permanent residence applications were being processed, even before approval in principle.

However, these channels are less relevant for immigrants who already hold permanent resident status before marriage. Permanent residents generally have the right to live and work in Canada without employer-specific work authorization, and subsequent marriage does not itself confer additional work authorization. Maintaining permanent resident status generally requires satisfying a residency obligation of 730 days within a five-year period, while eligibility for citizenship depends primarily on physical presence and other statutory requirements. Consequently, restricting attention to immigrants who enter marriage after obtaining permanent residence substantially reduces the role of immigration-related legal benefits in explaining differences in labor market outcomes across marriage types.

For the empirical analysis, an important distinction is that Canadian administrative tax data recognize both legal marriages and common-law partnerships. Beginning with the 1992 tax year, common-law unions were reported as a separate marital-status category on the T1 General Tax form. According to the Canada Revenue Agency (CRA), individuals are generally considered common-law partners if they have lived together continuously in a conjugal relationship for at least 12 months, or if they satisfy specified conditions involving a child by birth, adoption, or dependency. Thus, common-law status may be reported only after a period of cohabitation has already occurred.

Throughout this paper, I use the term "marriage" to refer to both legal marriages and common-law partnerships, unless otherwise specified. Because the administrative data record annual marital status rather than the precise date a relationship began, the first observed year

of marriage or common-law status may differ from the actual beginning of the relationship.

2.2. Data

2.2.1 The Canadian Longitudinal Immigration Database

The primary data source is the Canadian Longitudinal Immigration Database (IMDB), an administrative dataset containing immigration records for individuals admitted to Canada as permanent residents, with historical admission records extending back to 1952. The database also contains information on temporary resident permits. It is linked to the T1 Family File (T1FF), which is constructed using annual tax information and provides detailed individual- and family-level demographic and income characteristics. In the version of the data used in this study, annual tax information is available from 1982 through 2021.

The IMDB contains detailed characteristics recorded at admission, including gender, country of birth, immigration category, year and month of landing, birth year, education at admission, language proficiency, and previous Canadian experience. Information on temporary resident permits, including permit type and validity dates, is also available for individuals with recorded pre-admission temporary resident status.

The linked T1FF provides longitudinal information on individuals' family composition, including marital status, spousal identifiers, and the number of children, as well as detailed income components.[1] These records allow me to construct annual measures of employment, wage earnings, family formation, and spousal earnings. However, tax records do not provide information on hourly wages or hours worked. Consequently, changes in annual earnings cannot be decomposed directly into changes in hourly wages and hours of employment.

An important advantage of the linked administrative data is the ability to identify spouses and distinguish between intermarriage and within-immigrant marriage. For immigrants whose spouses are also immigrants, the IMDB provides detailed information about both partners' characteristics at admission. For immigrants married to native-born individuals, comparable characteristics are unavailable because native-born spouses do not appear in the IMDB. Nevertheless, information on spousal income can be obtained from the family tax records, allowing me to examine heterogeneity in marriage effects by spousal earnings.

[1]Total income consists of market income and government transfers. Market income includes employment income, investment income, and other private income. Employment income includes both wage earnings and self-employment earnings. Unless otherwise stated, I use the term "earnings" to refer specifically to wage earnings throughout the paper.

2.2.2 Linkage to the Census

The IMDB is also linked to the 2016 Census of Population long-form questionnaire, which covers approximately 25% of Canadian households. This linkage supplements the administrative tax records with information about individuals' family backgrounds and other socioeconomic characteristics.

In particular, the Census linkage allows me to distinguish native-born spouses with immigrant parents (second-generation immigrants) from those whose parents were also born in Canada. For second-generation spouses, I can additionally identify their parents' countries of birth. This information allows me to investigate whether the economic effects of intermarriage differ according to the native-born spouse's immigrant family background and whether the spouses share a common country-of-origin background.

2.2.3 Main Estimation Sample

The main estimation sample consists of immigrants who were admitted to Canada as permanent residents in or after 1980, were single at admission, and subsequently entered a legal marriage or common-law partnership observable in the tax records. I further require that their spouses can be identified through the spousal identifiers in the T1FF, allowing me to distinguish marriages with native-born individuals from those with other immigrants.

Restricting the sample to individuals who were single at admission helps ensure that the marriages studied occurred after the immigrants obtained permanent residence. This restriction is important for isolating the potential labor market and household effects of marriage from the direct legal benefits of obtaining permanent residence through spousal sponsorship. In particular, immigrants in the estimation sample already possessed permanent resident status before the observed marriage, so marriage itself was not required to obtain that status.

I distinguish two types of marriage. An "intermarriage" refers to a legal marriage or common-law partnership between an immigrant and a native-born individual, while a "within-immigrant marriage" refers to a union between two immigrants. For brevity, I refer to these categories as intermarriage and intramarriage, respectively. The treatment year is defined as the first year in which an immigrant is observed as married or living common-law in the administrative tax records. Prior to this year, individuals are classified as unmarried and may contribute observations to the comparison group.

3. Estimation Strategy

In this section, I present the empirical strategy for estimating the effects of intermarriage and intramarriage on immigrants' labor market outcomes. I also describe the matching procedure used to improve comparability between the two marriage groups, thereby facilitating a more meaningful comparison of their estimated treatment effects.

3.1. Matching Between Spousal Types

A key challenge in estimating the effects of intermarriage relative to within-immigrant marriage is selection into different marriage types. In my sample, only approximately 30% of marriages are between immigrants and Canadian-born individuals. Moreover, immigrants who intermarry differ systematically from those who marry other immigrants. In particular, intermarried immigrants are more likely to originate from Europe and the Americas, have lower levels of education, and are more likely to be female. These differences raise concerns that observed differences in post-marriage outcomes may reflect pre-existing characteristics rather than the effects of intermarriage itself.

To improve comparability between the two groups, I employ coarsened exact matching (CEM), following Iacus et al. (2012). Specifically, I match intermarried immigrants with immigrants who marry other immigrants based on a set of pre-marriage characteristics, including gender, country of birth, landing year, education at landing, landing age, marriage cohort, and geographic location. CEM temporarily coarsens these characteristics into discrete categories and performs exact matching on the resulting strata. Observations belonging to strata that do not contain both intermarried and within-immigrant married individuals are excluded from the matched sample.

This procedure improves balance in observed characteristics and restricts the analysis to immigrants with comparable backgrounds and marriage timing. By comparing individuals within matched strata, I aim to reduce concerns about selection into marriage types based on observable characteristics. Nevertheless, matching does not address selection on unobserved factors that may jointly influence marriage decisions and subsequent integration outcomes.

3.2. Estimation of Dynamic Treatment Effects

To estimate the dynamic effects of intermarriage and within-immigrant marriage on immigrant integration, a natural starting point is a dynamic two-way fixed effects (TWFE) specification

with two treatments:

$$y_{it} = \sum_{l \neq -1} \beta_l^1 \mathbf{1}\{F_i^1 = t - l\} + \sum_{l \neq -1} \beta_l^2 \mathbf{1}\{F_i^2 = t - l\} + \theta_i + \eta_t + \epsilon_{it}, \tag{1}$$

where y_{it} denotes the outcome of immigrant i in year t, F_i^1 and F_i^2 denote the years in which immigrant i first enters a within-immigrant marriage and an intermarriage, respectively, and θ_i and η_t represent individual and year fixed effects. The coefficients β_l^1 and β_l^2 are intended to capture the dynamic effects of the two marriage types relative to the year immediately preceding marriage ($l = -1$).

However, conventional dynamic TWFE estimators can produce biased estimates in settings with staggered treatment adoption and heterogeneous treatment effects. In particular, the estimation may involve forbidden comparisons in which already-treated individuals serve as controls for individuals who receive treatment later. With multiple treatments, the estimated coefficients may also be contaminated by the effects of other treatments, making their causal interpretation problematic.

To address these concerns, I employ the difference-in-differences estimator developed by De Chaisemartin and d'Haultfoeuille (2026), which accommodates staggered treatment adoption, heterogeneous treatment effects, and dynamic effects of past treatment exposure. In my setting, immigrants transition from being single to either marrying another immigrant or marrying a native-born individual. Since these two marriage types are mutually exclusive at the time of first marriage, I estimate the dynamic effects of entering each marriage type separately, using immigrants who have not yet entered either type of marriage as controls. This approach avoids the problematic comparisons arising in conventional TWFE estimators while allowing the effects of marriage to evolve over time.

Let F_i denote the year in which immigrant i first marries, with $F_i = \infty$ for immigrants who remain unmarried throughout the observation period. Let $K_i \in \{1, 2\}$ denote the type of first marriage, where $K_i = 1$ indicates within-immigrant marriage and $K_i = 2$ indicates intermarriage. For each marriage type k, define the treatment indicator as

$$D_{it}^k = \mathbf{1}\{F_i \leq t, K_i = k\}. \tag{2}$$

I treat entry into the first marriage as an absorbing treatment, so that the treatment indicator remains equal to one following divorce or separation. Accordingly, the estimated effects capture the consequences of entering a particular type of first marriage, rather than the effects of current marital status.

Let $Y_{it}(0)$ denote the potential outcome of immigrant i in year t if the immigrant had remained unmarried, and let $Y_{it}(k, f)$ denote the potential outcome if the immigrant first entered marriage type k in year f. The dynamic average treatment effect for immigrants entering marriage type k in year f, evaluated l years after marriage, is defined as

$$ATT^k_{f,l} = E\left[Y_{i,f+l}(k, f) - Y_{i,f+l}(0) \mid F_i = f, K_i = k\right]. \tag{3}$$

Identification relies on two key assumptions. The first is *conditional parallel trends*, which requires that, in the absence of marriage, immigrants entering a particular marriage type would have experienced the same average changes in outcomes as comparable immigrants who remain unmarried. Formally, for $k \in \{1, 2\}$, $t \geq f$, and a set of predetermined characteristics X_i,

$$\begin{aligned} &E\left[Y_{it}(0) - Y_{i,f-1}(0) \mid F_i = f, K_i = k, X_i = x\right] \\ &\quad = E\left[Y_{it}(0) - Y_{i,f-1}(0) \mid F_i > t, X_i = x\right]. \end{aligned} \tag{4}$$

This assumption allows immigrants entering different marriage types to differ in their initial outcome levels, but requires their counterfactual outcome trends to be comparable to those of immigrants who remain unmarried.

The second assumption is *no anticipation*, which requires that future marriage does not affect outcomes before marriage occurs:

$$Y_{it}(k, f) = Y_{it}(0), \qquad \forall\, t < f, \quad k \in \{1, 2\}. \tag{5}$$

This assumption rules out behavioral responses to anticipated marriage, such as changes in employment and earnings before the wedding. Identification also requires sufficient overlap between immigrants entering marriage and comparable immigrants who remain unmarried at each event-time horizon.

Under these assumptions, the cohort-specific dynamic treatment effect can be identified by comparing changes in outcomes among immigrants entering marriage type k in year f with those among immigrants remaining unmarried through year $f + l$:

$$\begin{aligned} ATT^k_{f,l} = &E\left[Y_{i,f+l} - Y_{i,f-1} \mid F_i = f, K_i = k\right] \\ &- E\left[Y_{i,f+l} - Y_{i,f-1} \mid F_i > f + l\right], \end{aligned} \tag{6}$$

where the expectations are appropriately adjusted for the predetermined characteristics X_i. I aggregate the cohort-specific effects to obtain the average dynamic treatment effects of each marriage type.

To assess the plausibility of the identifying assumptions, I conduct placebo tests based on outcome changes before marriage. Specifically, for each placebo horizon $p \geq 1$, I compare changes in outcomes between years $f-1-p$ and $f-1$ among immigrants entering marriage type k in year f with the corresponding changes among immigrants who remain unmarried:

$$\begin{aligned} P_{f,p}^{k} = E\left[Y_{i,f-1} - Y_{i,f-1-p} \mid F_i = f, K_i = k\right] \\ - E\left[Y_{i,f-1} - Y_{i,f-1-p} \mid F_i > f-1\right]. \end{aligned} \tag{7}$$

The expectations are again adjusted for predetermined characteristics. Under the parallel trends and no-anticipation assumptions, these placebo effects should equal zero. I report the placebo estimates at different pre-marriage horizons and jointly test whether they are statistically different from zero.

Finally, comparing the estimated dynamic effects of intermarriage and within-immigrant marriage provides evidence on how the consequences of entering marriage differ by spouse type.

4. Main Results

4.1. Employment and Earnings

I begin by examining the dynamic effects of marriage on immigrants' employment and earnings, separately by marriage type. Figures 1 and 2 present the estimated effects of entering a within-immigrant marriage and an intermarriage, respectively. Both sets of estimates are obtained using the difference-in-differences estimator described in Section 3, with immigrants who have not yet married serving as the comparison group.

Figure 1 shows that employment declines gradually following marriage, with similar patterns across the two marriage types. The estimated effects are close to zero immediately after marriage but become increasingly negative after one year. By seven years after marriage, the probability of employment has declined by approximately 8 percentage points relative to the counterfactual of remaining unmarried. Importantly, the estimated employment effects are nearly identical for immigrants who marry native-born individuals and those who marry other immigrants. This suggests that intermarriage is not associated with an additional

employment advantage relative to within-immigrant marriage.

Figure 2 presents the corresponding results for log wage earnings. Similar to employment, earnings decline for both groups beginning one year after marriage, with the losses becoming increasingly pronounced over time. By seven years after marriage, the estimated decline in log earnings is approximately 0.4 for immigrants in within-immigrant marriages and slightly smaller for those in intermarriages. Despite this modest difference, the overall earnings trajectories are remarkably similar across marriage types. Thus, the main results provide little evidence that intermarriage generates an earnings premium relative to within-immigrant marriage.

The placebo estimates based on outcomes fives years before marriage provide evidence on the plausibility of the identifying assumptions. For employment, the joint tests of pre-treatment effects yield p-values of 0.659 for within-immigrant marriages and 0.054 for intermarriages. For log earnings, the corresponding p-values are 0.310 and 0.100. Although the employment placebo test for intermarriages is significant at 10% level, the results generally do not indicate substantial differential pre-marriage trends and do not necessarily invalidate the substantive employment losses after marriage.

Two features of the empirical design may help explain the relatively small pre-treatment effects. First, I restrict the sample to immigrants who eventually marry or enter a common-law partnership. Conditional on marriage type and observed characteristics, the timing of marriage may be less strongly related to unobserved determinants of labor market outcomes than the decision to marry itself. Second, my definition of marriage includes common-law partnerships. Under the Canada Revenue Agency's definition, couples who have lived together continuously in a conjugal relationship for at least 12 months are generally recognized as common-law partners. Therefore, the first observed year of marriage or common-law status is likely to be closer to the beginning of cohabitation than a measure based solely on legal marriage. If the labor market effects of marriage arise primarily from cohabitation and associated changes in household decisions, this broader definition may reduce concerns about prolonged anticipation effects preceding the observed treatment date.

4.2. Robustness

To assess the robustness of the main findings, I re-estimate the dynamic effects using the difference-in-differences estimator proposed by Callaway and Sant'Anna (2021) (CSDID). This estimator accommodates staggered treatment adoption and heterogeneous treatment effects by estimating group-time average treatment effects, which are subsequently aggregated across

marriage cohorts and event times. Since it is designed for a single treatment, I implement the estimator separately for intermarried and within-immigrant married individuals.

Figure 14 presents the estimated dynamic effects on log wage earnings using CSDID. The results closely resemble those obtained using the dCDH estimator. Earnings decline progressively following marriage, and the magnitude and evolution of these declines are similar across the two marriage types. The estimates therefore reinforce the main finding that intermarriage is not associated with a substantial earnings advantage relative to within-immigrant marriage.

An additional advantage of this specification is that it permits the examination of a longer pre-treatment period. In particular, I examine earnings trends up to eight years before marriage and find no statistically significant evidence of differential pre-trends. The absence of detectable differences over this longer period provides further support for the plausibility of the parallel trends assumption.

4.3. Effects on Fertility

I next examine whether marriage type is associated with differences in fertility, which may be relevant for understanding the observed labor market effects. Figure 3 presents the dynamic effects of marriage on the number of children in the household, separately by spouse type.

Both marriage types exhibit similar fertility dynamics. The number of children initially declines relative to the comparison group in the first years following marriage, before increasing steadily in subsequent years. By seven years after marriage, the estimated increase in the number of children is approximately 0.9 for immigrants in within-immigrant marriages and 0.8 for those in intermarriages. Thus, intermarried immigrants have approximately 0.1 fewer children than their within-immigrant married counterparts at this horizon.

The smaller fertility response among intermarried immigrants provides an additional dimension along which marriage types may differ, despite their similar labor market trajectories. However, this difference in fertility is relatively modest and does not appear to translate into meaningful differences in employment or earnings outcomes.

The placebo tests for fertility reject the null of no pre-treatment effects for both marriage types, raising concerns about the validity of the identifying assumptions. The decline in the number of children in the household before marriage may reflect changes in childcare arrangements as single parents enter romantic relationships. Moreover, the sharp decline around the year of marriage may reflect changes in household composition, as children from previous relationships may no longer be counted in the household following union formation,

while children born within the new union enter the household over time. These patterns suggest that changes in the observed number of children may capture household reorganization rather than fertility decisions alone. Consequently, the estimated effects on the number of children, particularly differences across marriage types, should be interpreted with caution.

5. Heterogeneity and Potential Mechanisms

5.1. Heterogeneity by Gender

I first investigate whether the effects of marriage differ between male and female immigrants. Previous research emphasizes that marriage may influence labor supply and earnings differently across genders, particularly through household specialization and the allocation of market and non-market work (Becker, 1973).

Figure 4 presents the dynamic effects on log employment earnings separately for men and women. The results reveal substantial gender differences. For male immigrants, marriage is associated with relatively modest earnings changes, and there is no evidence of a positive marriage earnings premium. In contrast, female immigrants experience large and persistent earnings declines following marriage. By seven years after marriage, the estimated reduction in log earnings among women approaches 0.5, substantially exceeding the corresponding decline among men. These patterns are consistent with household specialization, whereby marriage may induce a reallocation of labor supply and household production responsibilities between spouses.

Comparing marriage types within gender, I find some evidence that women who marry native-born individuals experience smaller earnings declines than women who marry other immigrants in the first two years after marriage. This pattern suggests a potential intermarriage earnings advantage among female immigrants, although the evidence is weaker than the pronounced overall gender difference and the intermarriage premium disappears in the longer term. Among male immigrants, the earnings trajectories are similar across marriage types, providing little evidence of an intermarriage premium.

5.2. Potential Network and Information Benefits of Intermarriage

One potential mechanism through which intermarriage may improve immigrant integration is access to networks and information in the host country. Marriage to a native-born individual may facilitate access to employment opportunities, job referrals, language resources, and

information about local labor market institutions. Unlike settings in which intermarriage may also facilitate the acquisition of legal status, all immigrants in my sample are permanent residents. Consequently, improvements in legal immigration status are unlikely to explain differences in labor market outcomes across marriage types in this setting.

If intermarriage provides network or information benefits, these benefits may be particularly important for immigrants who otherwise face greater barriers to accessing host-country networks. To investigate this possibility, I examine heterogeneity by age at marriage, years since arrival in Canada, region of birth, local ethnic enclave size, and education.

Figure 5 presents the results by age at marriage. Younger immigrants may have less established professional networks and therefore potentially benefit more from the connections provided by Canadian-born spouses. However, the estimated earnings effects remain similar across marriage types within both younger and older groups. Although younger immigrants experience larger earnings declines following marriage than older immigrants, this difference does not translate into a systematic intermarriage advantage.

Figure 6 examines heterogeneity by years since arrival at the time of marriage. Immigrants who have spent fewer years in Canada may have less knowledge of local institutions and labor markets, making the information provided by a Canadian-born spouse potentially more valuable. Nevertheless, the estimated earnings trajectories are broadly similar across marriage types for both recent arrivals and immigrants with longer residence in Canada.

Immigrants from Africa, Asia, and Oceania may face greater cultural and linguistic barriers than those from Europe and the Americas, potentially increasing the value of host-country networks. Figure 7 examines heterogeneity by region of birth. Consistent with this hypothesis, intermarried immigrants from Africa, Asia, and Oceania experience smaller earnings losses following marriage than their counterparts who marry other immigrants. However, this intermarriage advantage is not sufficiently large to offset the overall earnings losses associated with marriage.

Figure 8 investigates heterogeneity by local ethnic enclave size. Immigrants residing in areas with smaller co-national communities may have fewer opportunities to obtain employment-related information and referrals through ethnic networks. If intermarriage provides an alternative source of information, its benefits may be particularly pronounced for these immigrants. Contrary to this prediction, I find similar earnings effects across marriage types regardless of enclave size. One possible explanation is that immigrants with limited access to co-national networks may already rely more heavily on broader host-country networks for labor market information and opportunities, regardless of their spouse's

immigrant status. Consequently, intermarriage may provide fewer additional network benefits for these immigrants than initially expected.

Finally, Figure 9 examines heterogeneity by education. Lower-educated immigrants may face greater informational barriers in the labor market and potentially benefit more from networks provided by native-born spouses. While earnings declines following marriage are substantially larger among immigrants with a high school education or less than among those with at least some college education, the estimates do not show a clear intermarriage premium within either education group.

Figure 13 summarizes the estimated differences between the effects of intermarriage and within-immigrant marriage across the main outcomes and heterogeneity groups. Most differences are relatively small and statistically insignificant, providing little evidence of a systematic intermarriage premium. The notable exception is immigrants from Africa, Asia, and Oceania, for whom intermarriage is associated with smaller earnings losses. Nevertheless, the estimated advantage remains modest relative to the overall earnings losses following marriage.[2]

Overall, these results provide limited evidence that intermarriage generates additional earnings benefits through access to host-country networks and information. Although the absence of systematic heterogeneity does not rule out network mechanisms, the findings suggest that such benefits are generally too small to produce a substantial intermarriage earnings premium. Even among immigrants from more culturally distant regions, where some evidence of an intermarriage advantage emerges, the estimated benefit is insufficient to fully offset the earnings losses associated with marriage.

5.3. The Role of Spousal Characteristics

5.3.1 Spousal Generation Status

Although intermarriage is defined as marriage between an immigrant and a native-born individual, native-born spouses may differ substantially in their family backgrounds and connections to immigrant communities. In particular, second-generation immigrants, defined as native-born individuals with at least one immigrant parent, may retain stronger ties to immigrant communities than native-born individuals with native-born parents.

Using the 2016 Census linked to the IMDB, I identify whether native-born spouses are second-generation immigrants. Approximately 40% of native-born spouses in intermarriages

[2]The 95% confidence intervals for the differences are constructed under the assumption that the estimated effects of intermarriage and within-immigrant marriage are independent.

are second-generation immigrants. I then examine whether the earnings effects of intermarriage differ according to the spouse's generation status. The dynamic treatment effects are estimated using the CSDID estimator, focusing exclusively on intermarriage.

Figure 10 shows that the estimated effects on log wage earnings are similar for immigrants married to second-generation and other native-born spouses. Both groups experience substantial earnings declines following marriage, with little evidence of statistically meaningful differences in their trajectories.

I further distinguish second-generation spouses based on whether the immigrant shares the same country of birth as either of the spouse's parents. This distinction provides a proxy for shared ethnic or cultural background within intermarriages. As shown in Figure 11, the estimated earnings effects are again broadly similar regardless of whether the immigrant and spouse share this background.

These findings suggest that the earnings consequences of intermarriage are not strongly associated with the generation status or shared parental-origin background of native-born spouses.

5.3.2 Spousal Earnings

Another potential explanation for the earnings declines following marriage is household income effects. Immigrants who marry higher-earning spouses may have weaker incentives to participate in the labor market or supply the same amount of labor, particularly if household specialization increases following marriage.

To investigate this possibility, I examine heterogeneity by spousal earnings. Figure 12 shows that immigrants who marry high-earning spouses experience substantially larger declines in their own wage earnings than those who marry lower-earning spouses. Among immigrants with high-earning spouses, the decline in log earnings becomes increasingly pronounced over time, while the decline is considerably smaller among those with lower-earning spouses.

Importantly, even among immigrants who marry high-earning spouses, I find no statistically significant earnings advantage associated with intermarriage. The estimated trajectories remain similar across marriage types.

One limitation is that the original matching procedure does not necessarily ensure balance in observed characteristics between intermarried and within-immigrant married individuals within each spousal earnings subgroup. Consequently, differences in estimated effects across marriage types within these subgroups should be interpreted with caution, as they may partly reflect differences in individual characteristics rather than the effects of spouse type.

6. Conclusion

Intermarriage has long been viewed as an indicator of immigrant social integration and a potential channel through which immigrants improve their economic outcomes. Marriage to a native-born individual may facilitate access to host-country networks, information, and labor market opportunities. However, marriage may also influence household specialization and labor supply decisions, potentially offsetting these benefits. This paper examines the dynamic effects of intermarriage and within-immigrant marriage on immigrants' labor market outcomes using Canadian longitudinal administrative data. By combining coarsened exact matching with modern difference-in-differences estimators, I estimate the effects of entering each marriage type relative to remaining unmarried and investigate whether these effects differ systematically by spouse type.

I find that marriage is followed by substantial and persistent declines in immigrants' employment and wage earnings. These losses occur among both male and female immigrants, although they are considerably larger among women. Despite the potential advantages of marrying a native-born individual, the estimated employment and earnings trajectories are remarkably similar between intermarriage and within-immigrant marriage, providing little evidence of a systematic additional intermarriage premium.

I further investigate the mechanisms underlying these patterns. Immigrants who marry higher-earning spouses experience larger earnings declines, consistent with the potential importance of household income effects and specialization. In contrast, I find limited evidence that intermarriage generates substantial additional earnings benefits through access to host-country networks and information. The estimated effects are broadly similar across marriage types regardless of age at marriage, years since arrival, local ethnic enclave size, and education. One notable exception is immigrants from Africa, Asia, and Oceania, who experience smaller earnings losses when marrying native-born individuals rather than other immigrants. Nevertheless, this advantage is relatively modest and does not fully offset the overall earnings losses following marriage. Similarly, I find little evidence that the effects of intermarriage vary systematically with the native-born spouse's immigrant family background.

These findings suggest that the economic consequences of marriage for immigrants may be driven more by changes in household decisions than by the additional host-country resources potentially available through intermarriage. However, the evidence on underlying mechanisms is suggestive rather than causal. Moreover, the estimated effects of intermarriage and within-immigrant marriage are defined relative to remaining unmarried and may apply to different populations. Therefore, differences between the two sets of estimates should not necessarily be

interpreted as the causal effects of choosing a native-born rather than an immigrant spouse.

Overall, this paper provides new evidence on the relationship between marriage and immigrant economic integration. While intermarriage may facilitate social integration and access to host-country resources, these potential advantages do not translate into a substantial or systematic additional earnings premium in the Canadian setting. More broadly, the findings highlight the importance of considering household labor supply decisions alongside social networks and information when evaluating the economic consequences of marriage for immigrants.

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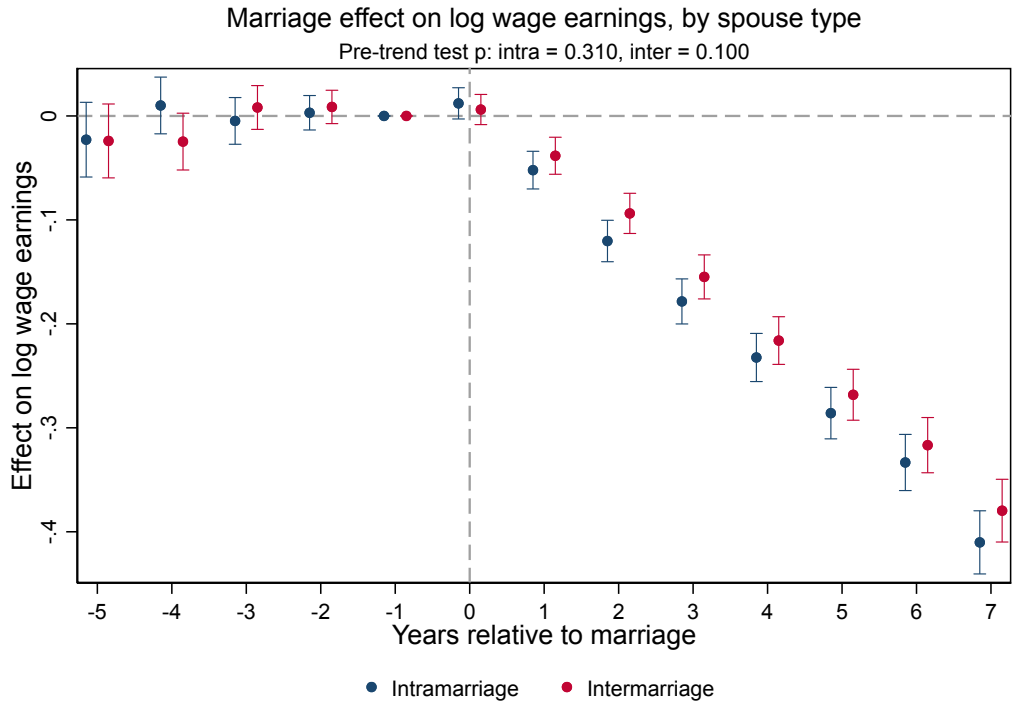
Figures

Figure 1: Dynamic Effects of Marriage on Employment, by Spouse Type



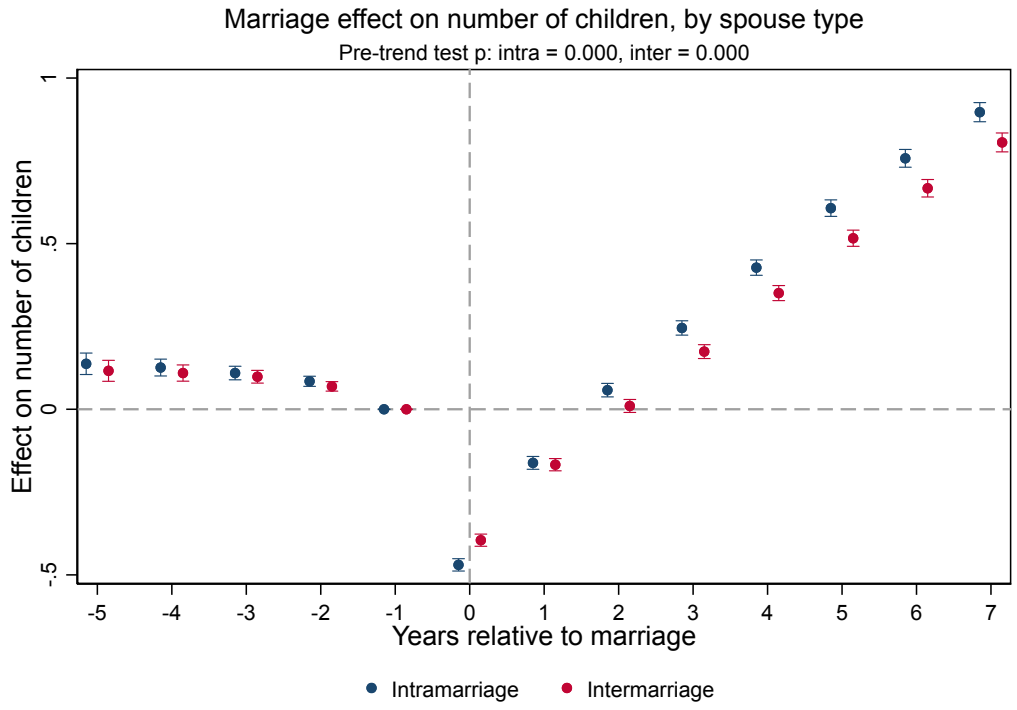
Notes: The figure reports dynamic difference-in-differences estimates of the effects of entering a within-immigrant marriage or an intermarriage on the probability of employment. The comparison group consists of immigrants who have not yet married. The reference period is the year immediately before marriage.

Figure 2: Dynamic Effects of Marriage on Log Wage Earnings, by Spouse Type



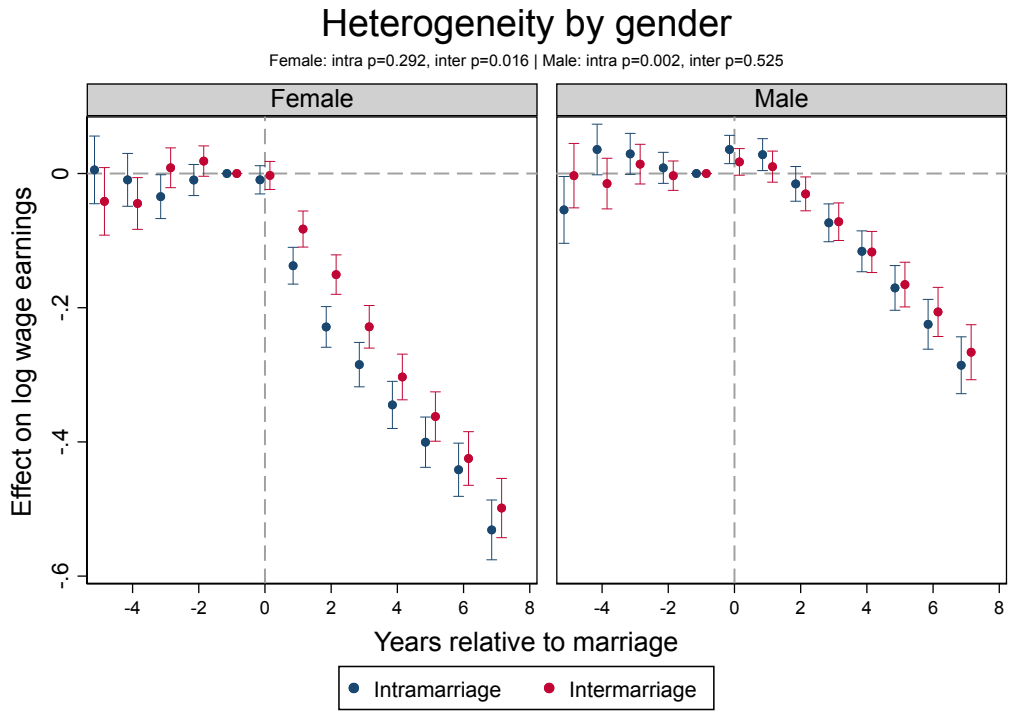
Notes: The figure reports dynamic difference-in-differences estimates of the effects of entering a within-immigrant marriage or an intermarriage on log wage earnings. The comparison group consists of immigrants who have not yet married. The reference period is the year immediately before marriage.

Figure 3: Dynamic Effects of Marriage on the Number of Children, by Spouse Type



Notes: The figure reports dynamic treatment effects of entering a within-immigrant marriage or an intermarriage on the number of children. The comparison group consists of immigrants who have not yet married. The reference period is the year immediately before marriage.

Figure 4: Heterogeneous Effects of Marriage on Log Wage Earnings, by Gender



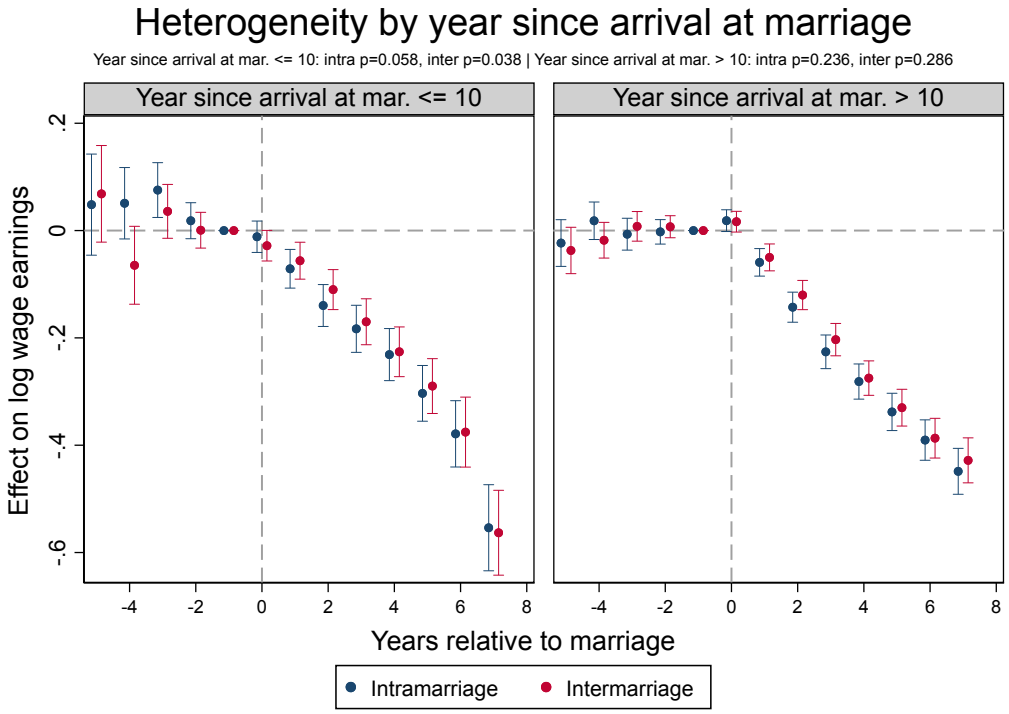
Notes: The figure reports dynamic treatment effects on log wage earnings separately for male and female immigrants and by marriage type. Within each gender group, the effects of intermarriage and within-immigrant marriage are estimated relative to remaining unmarried.

Figure 5: Heterogeneity in Marriage Effects by Age at Marriage



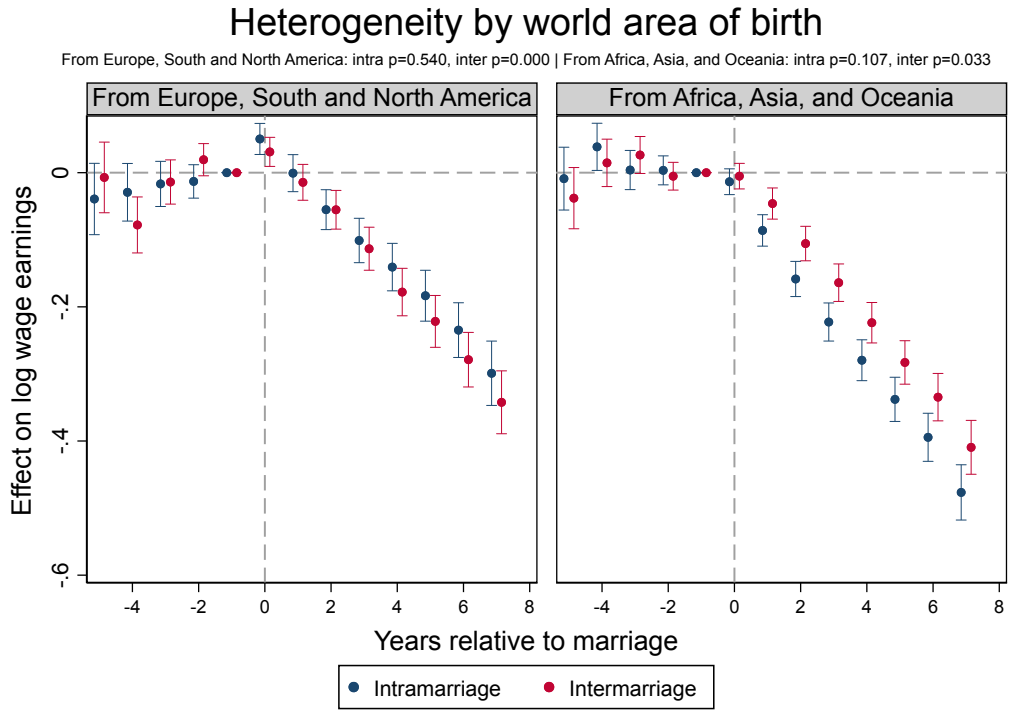
Notes: The figure reports dynamic effects on log wage earnings by marriage type and age at marriage. Immigrants are divided into those aged 30 or younger and those older than 30 at marriage. The comparison group consists of immigrants who have not yet married.

Figure 6: Heterogeneity in Marriage Effects by Years Since Arrival



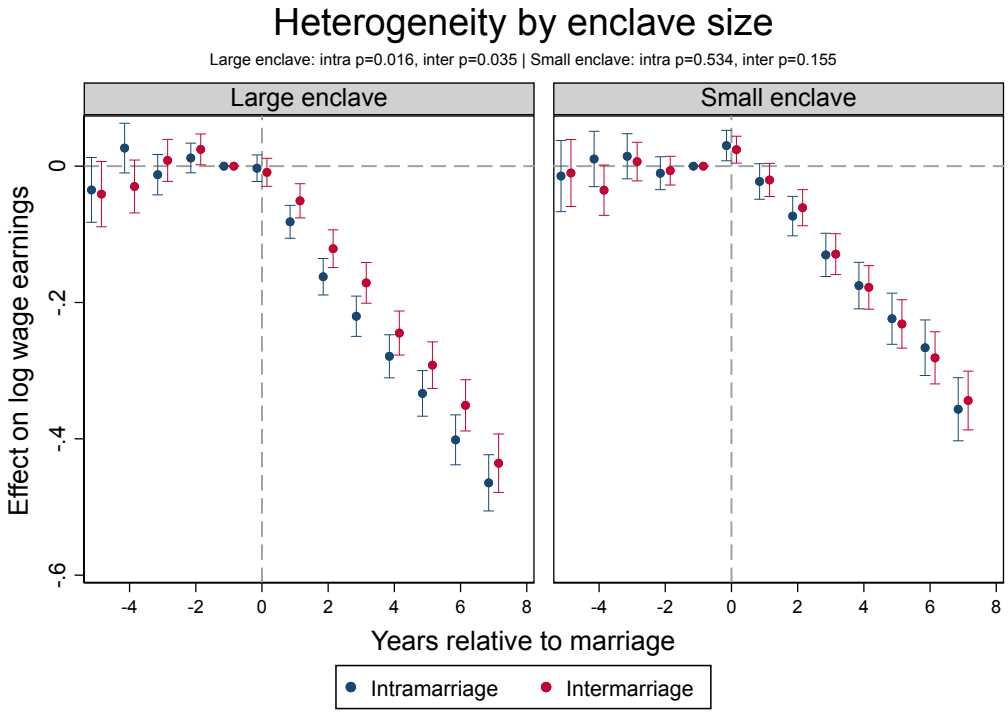
Notes: The figure reports dynamic effects on log wage earnings by marriage type and years since arrival in Canada at marriage. Immigrants are divided into those with 10 or fewer years of residence and those with more than 10 years. The comparison group consists of immigrants who have not yet married.

Figure 7: Heterogeneity in Marriage Effects by Region of Birth



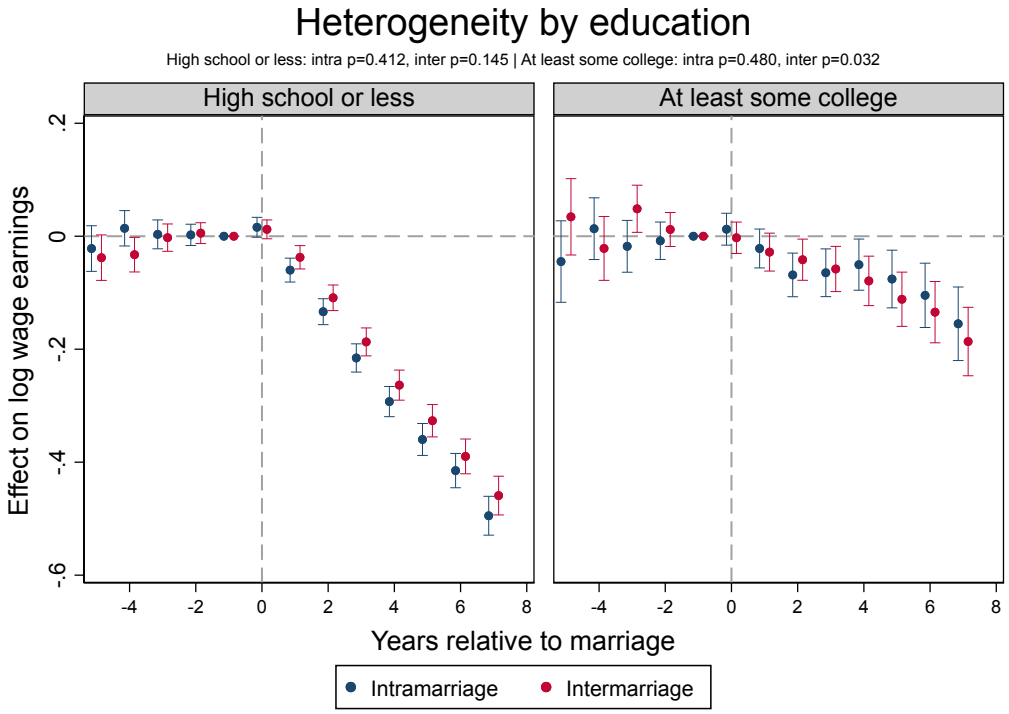
Notes: The figure reports dynamic effects on log wage earnings by marriage type and region of birth. Immigrants are divided into those originating from Europe and the Americas and those from Africa, Asia, and Oceania. The comparison group consists of immigrants who have not yet married.

Figure 8: Heterogeneity in Marriage Effects by Local Ethnic Enclave Size



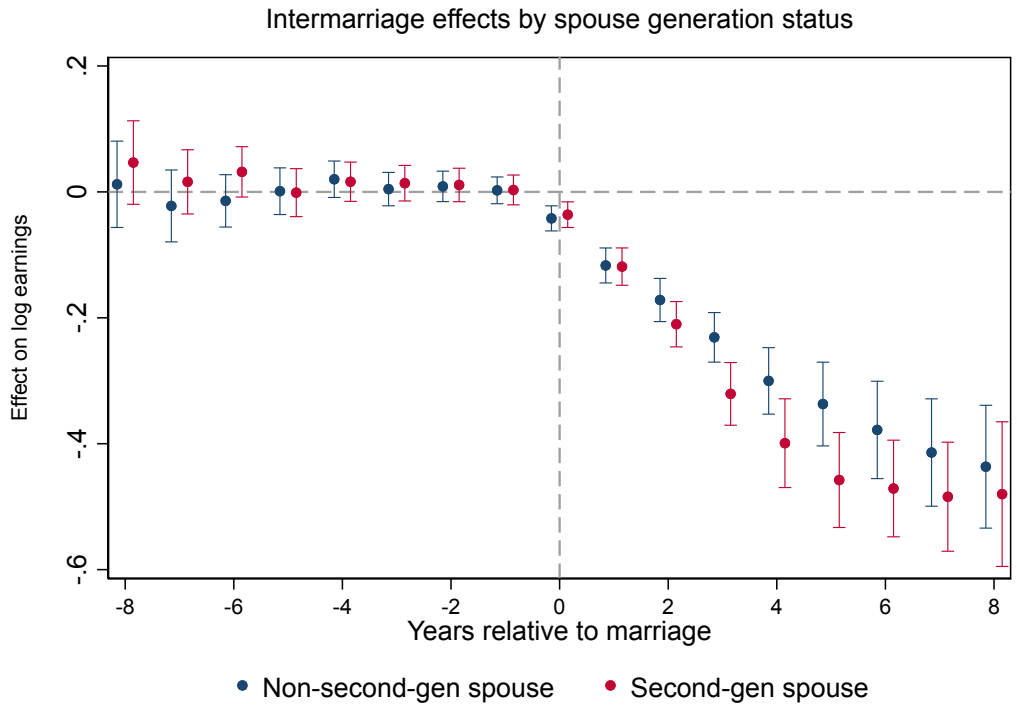
Notes: The figure reports dynamic effects on log wage earnings by marriage type and the size of immigrants' local co-national communities. Immigrants are divided into those residing in areas with relatively large and small co-national enclaves. The comparison group consists of immigrants who have not yet married.

Figure 9: Heterogeneity in Marriage Effects by Education



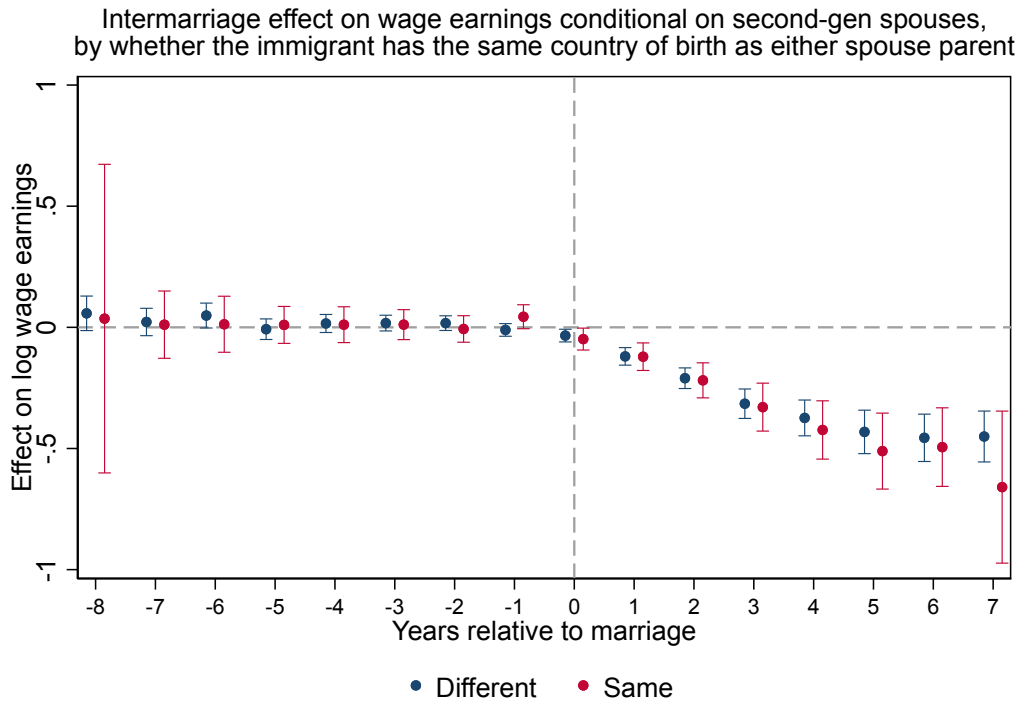
Notes: The figure reports dynamic effects on log wage earnings by marriage type and educational attainment. Immigrants are divided into those with a high school education or less and those with at least some college education. The comparison group consists of immigrants who have not yet married.

Figure 10: Effects of Intermarriage on Log Wage Earnings, by Spousal Generation Status



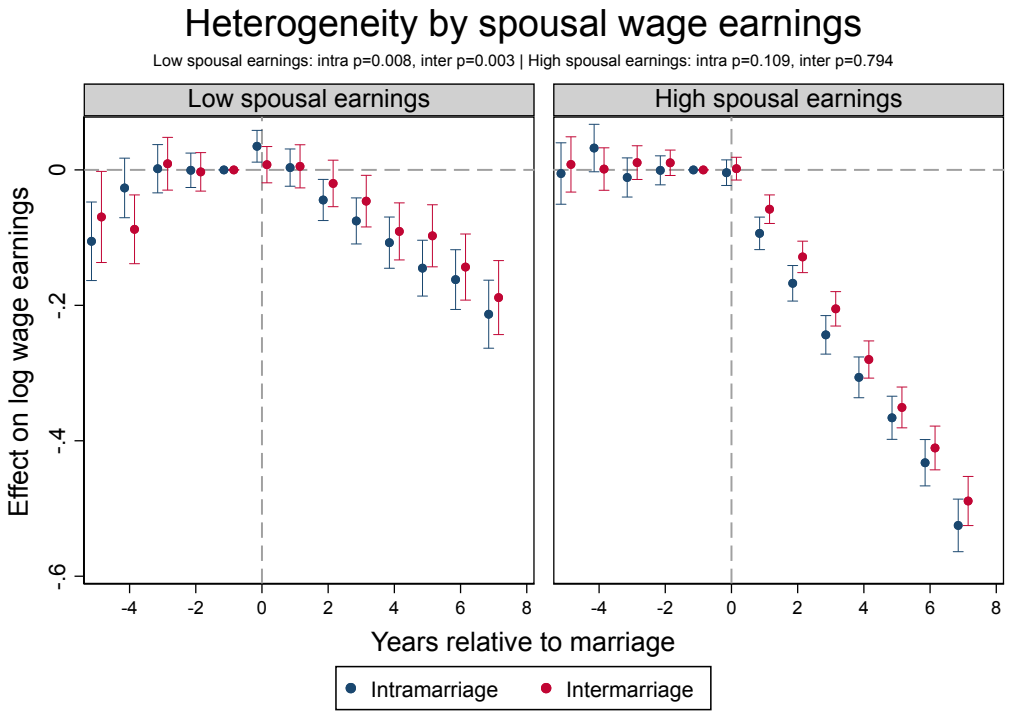
Notes: The figure reports dynamic treatment effects of intermarriage on log wage earnings, estimated using the difference-in-differences estimator of Callaway and Sant'Anna (2021). Canadian-born spouses are distinguished according to whether they are second-generation immigrants, defined as individuals with at least one immigrant parent. The analysis focuses exclusively on intermarriages.

Figure 11: Effects of Intermarriage by Shared Parental-Origin Background



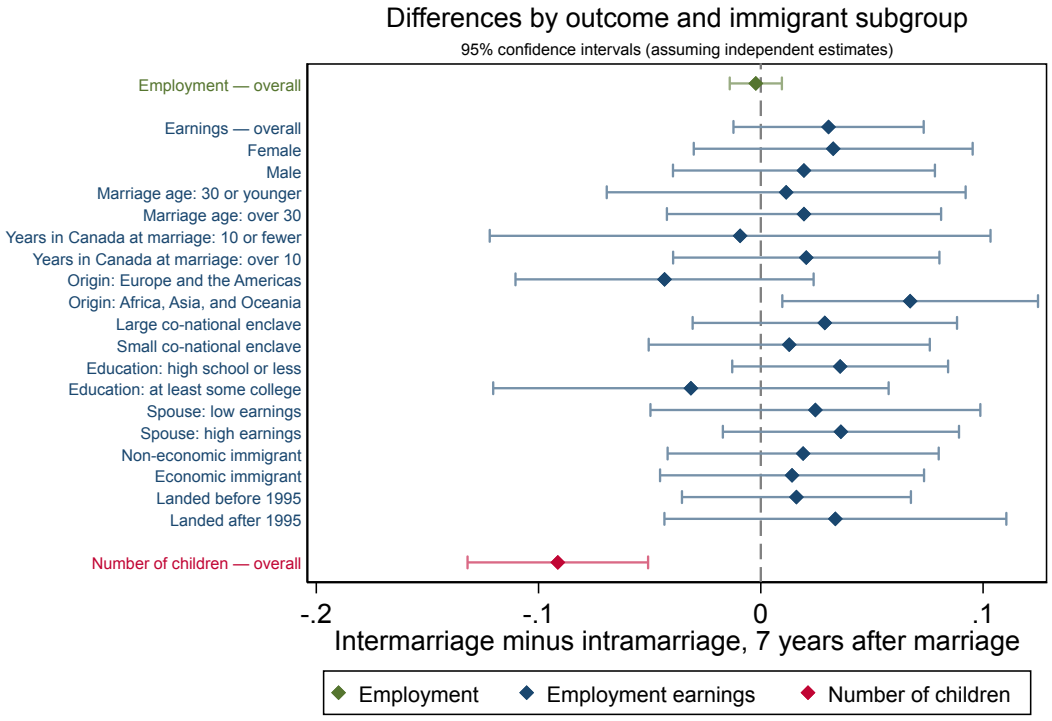
Notes: The figure reports dynamic treatment effects of intermarriage on log wage earnings among immigrants married to second-generation Canadian-born spouses, estimated using the difference-in-differences estimator of Callaway and Sant'Anna (2021). Couples are distinguished according to whether the immigrant shares the same country of birth as either of the spouse's parents.

Figure 12: Heterogeneity in Marriage Effects by Spousal Earnings



Notes: The figure reports dynamic effects on log wage earnings by marriage type and spousal earnings. Immigrants are divided into those married to lower-earning and higher-earning spouses. The comparison group consists of immigrants who have not yet married. The original matching procedure does not necessarily ensure balance in observed characteristics across marriage types within each spousal earnings subgroup.

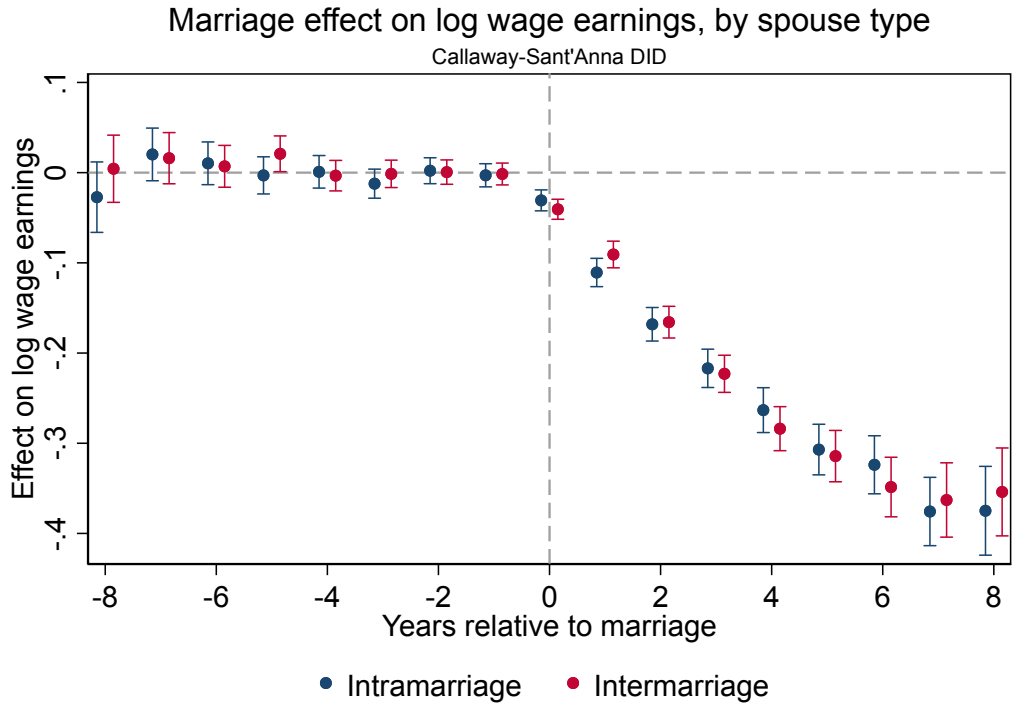
Figure 13: Differences in Marriage Effects Across Outcomes and Immigrant Subgroups



Notes: The figure reports the differences between the estimated effects of intermarriage and within-immigrant marriage at seven years after marriage, across the main outcomes and earnings heterogeneity groups. Positive estimates indicate more favorable outcomes under intermarriage relative to within-immigrant marriage. Horizontal bars represent 95% confidence intervals, calculated under the assumption that estimates for the two marriage types are independent.

A. Figures

Figure 14: Dynamic Effects of Marriage on Log Wage Earnings: Callaway and Sant'Anna Estimator



Notes: The figure reports dynamic treatment effects of entering a within-immigrant marriage or an intermarriage on log wage earnings, estimated separately using the difference-in-differences estimator of Callaway and Sant'Anna (2021). The figure also presents pre-treatment estimates to assess differential trends before marriage.