Roots of the Depressed Fertility among Migrant Descendants

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Abstract

Recent research has challenged the notion that adaptation to the host society is the sole driver behind the fertility decline of migrant descendants. This study examines parenthood initiation in Finnish migrant descendants using administrative data. Findings reveal higher likelihood of parenthood during their teens and early to mid-twenties among migrants from high-fertility backgrounds arriving in Finland in youth. Conversely, mixed migrant-native background individuals display lower odds of parenthood compared to natives consistently across all age groups, with second-generation migrants presenting levels in between the previous two groups. Mediation analyses unveil that education for women and singlehood act as hindrances to parenthood for migrant descendants, regardless of region of origin and generation. We conclude that investments in social mobility, obstacles to emancipation, or disadvantages in the partnership market contribute to this fertility decline, alongside cultural assimilation, providing insights into the "depressed fertility" among migrant descendants observed in various European countries.

Keywords: migrant descendants, parenthood initiation, union formation, opportunity costs, register data, adaptation theory.

Highlights

Migrants from high-fertility backgrounds arrived in Finland in youth present a higher likelihood of parenthood during their teens and early to mid-twenties.

Mixed migrant-native background individuals display lower odds of parenthood compared to natives consistently across all age groups.

Education for women and singlehood act as hindrances to parenthood for migrant descendants, regardless of region of origin and generation.

The combined effect of obstacles to parenthood with cultural assimilation can explain the depressed fertility of migrant descendants.

INTRODUCTION

The puzzle of "depressed fertility" among migrant descendants

International migration is instigating a profound transformation in the demographic composition of most countries in the Global North. This demographic shift, coupled with a decrease in fertility rates, has thrust the fertility of migrant populations into the spotlight, capturing the attention of scholars and policymakers (Milewski & Adserà, 2022; Parrado, 2011; Sobotka, 2008). Of considerable interest from a demographic perspective, it also provides a vantage point through which to examine cultural change (Fernández & Fogli, 2009; Van Hook & Glick, 2020), shedding light on the interplay of different values, such as those surrounding the significance of marriage and parenthood. In this respect, *migrant descendants* hold a distinctive position compared to immigrants themselves, as they serve separate cultural influences from the impact of their country of origin's institutions and laws (Fernández, 2011; Parrado & Morgan, 2008; Smith, 2003). The study of migrant descendants helps mitigate potential distortions associated with the migration process itself, including factors such as selection into migration (Borjas, 1987) or postponement of childbearing until after resettlement (Lübke, 2015; Milewski, 2007), which have shaped the narrative about the reproductive behavior of migrant populations for decades.

Recognizing that the fertility of migrant populations represents a complex phenomenon, most scholars have turned to an inter-generational *convergence* model as their primary framework (Dubuc, 2012; Parrado & Morgan, 2008; Wilson, 2019). According to this, first-generation migrants carry values and behaviors that resemble those of their home country (Coleman & Dubuc, 2010; Sobotka, 2008). As time passes and subsequent generations become more exposed to the host society, there is an expectation that their values and behaviors will align with those of the local population. This alignment may occur through the absorption of customs, values, and behaviors of the dominant culture (*assimilation*) or as a sequence of deliberate decisions aimed at integrating into the host society (*adaptation*) (Alba & Nee, 2009; Gordon, 1964). This evolving resemblance encompasses both convergence with the native-born individuals in the number of children (quantum) and the timing of childbearing (tempo) (González-Ferrer et al., 2017; Kulu, 2005; Mussino et al., 2021). Still, fertility patterns rarely dissipate within one generation as families, by upholding distinct values and ideals, continue to *socialize* their children accordingly (De Valk & Liefbroer, 2007; Holland & de Valk, 2013), leading to notable variations (Milewski, 2011).

This convergence framework has encountered significant challenges, as evidenced by the growing body of empirical research (Kulu et al., 2017, 2019). A compelling case is observed in

Sweden, where a recent investigation has revealed that fertility patterns do not necessarily converge. The differences are less pronounced when comparing native-born individuals with first-generation migrants than when examining the second generation (Mussino et al., 2021). Even more intriguing is the phenomenon termed "depressed fertility", characterized by lower risks of entering parenthood among migrant descendants in comparison to their native-born counterparts (Andersson et al., 2017). In Sweden, this trend extends to second-generation women hailing from high-fertility regions, including Africa, Southeast Asia, and some Middle Eastern countries. Likewise, instances of reduced propensity to enter parenthood have been identified among migrant descendants from high-fertility backgrounds in France (Delaporte & Kulu, 2023; Dupray & Pailhé, 2018; Pailhé, 2017) and Spain (González-Ferrer et al., 2017).

Various hypotheses have emerged to shed light on the enigma of non-convergence. Still, a comprehensive understanding of this phenomenon continues to elude us. On the one hand, some scholars have focused on the *cultural dimension*, contending that discontinuities in the overall convergence process can be attributed to the formation of minority subcultures (Kulu et al., 2019; Kulu & Hannemann, 2016). These limit the exposure of migrant descendants to the local population, thus offering them the opportunity to perpetuate behaviors as if they were in their country of origin. In a similar vein, others have argued that second-generation migrants may exhibit an even stronger adherence to the cultural norms of their country of origin when compared to first-generation migrants (Mussino et al., 2021). Such "cultural entrenchment" can be fueled by limited exposure to the local population or negative experiences encountered in the host country, such as discrimination. It can also be influenced by the enduring connections to the country of origin and diaspora communities in other countries in a globalized world (Hampton, 2016).

On the other hand, alternative perspectives propose that deviations from the convergence model are rooted in *socio-economic and structural factors*. Pailhé (2017) argues that strategies for maximizing upward mobility may elucidate diminished fertility. Given that migrants and their descendants often commence from less advantageous positions, these may encounter obstacles in reconciling their family and career aspirations, resulting in postponed parenthood or a choice to forgo it entirely to concentrate on their career advancement. Andersson et al. (2017) suggest that obstacles in the partnership market can explain a depressed fertility. Presuming that migrant descendants favor endogamous unions over mixing with the locals (Carol, 2016; Huschek et al., 2012; Kalmijn, 1998), the limited availability of suitable partners can result in prolonged searches for a partner who can secure familial and communal approval, leading to delays in union formation and entry into parenthood. These viewpoints resonate with recent findings highlighting delayed union formation (Wiik, 2022) and unrealized fertility ideals (Carlsson, 2022) among second-generation women in the Nordic context.

Against this background, our study has two objectives. One is to *examine the likelihood of transitioning into parenthood among migrant descendants in Finland, considering their global region of origin and migrant generation and comparing them with native-born individuals*. Historically unexplored in the field of international migration studies due to its limited prominence as a destination for such flows, our goal is to provide insights into the fertility patterns of migrant descendants in Finland. While some prior research has focused on the fertility patterns among specific migrant groups (viz., Africa and the Middle East; see: Puur et al., 2023), a comprehensive analysis covering diverse origins and generational differences is lacking. We aim to determine whether Finland aligns with the convergence framework. Our study focuses solely on the transition into parenthood (first parity) due to the young age of most migrant descendants in Finland.

Our second aim is to *assess whether migrant descendants encounter barriers to parenthood, potentially contributing to their lower fertility rates.* Albeit previous research has suggested a link between reduced fertility of migrant descendants and investments in social mobility (Pailhé, 2017) or obstacles in union formation (Andersson et al., 2017), existing research designs that reliably distinguish between cultural aspects and other factors have proven elusive (Tønnessen & Wilson, 2023). To address this gap, our study employs a decomposition approach to differentiate between direct and indirect effects, examining the influences of educational attainment and partnership status on the likelihood of migrant descendants initiating parenthood compared to native-born individuals.

Using Finland's administrative registers, we identify men and women with migrant heritage and categorize them based on their global region of origin and generation. This classification encompasses the 1.5 generation[1] (individuals born abroad but arriving in Finland between ages 8 and 15), the second generation (those either born in Finland to two foreign-born parents or arrived before turning 8), and the 2.5 generation (born in Finland to a native-born parent and a foreign-born parent). Subsequently, we conduct a cohort study, tracking individuals born between 1980 and 1999 up until 2019, and comparing their risk of transitioning into parenthood with that of native-born Finns using survival techniques (Mills, 2011; Singer & Willett, 2003). While our focus is on women

[1] 1.5-generation migrants consist of individuals who accompanied their parents on the migration journey. Unlike individuals born in the destination country, 1.5-generation migrants have experienced varying exposure to their country of origin, influenced by their age at departure. Despite this, they have also undergone some socialization and acculturation in the country of destination (Liu & Kulu, 2023). Crucially, unlike those who migrated as adults, 1.5-generation migrants did not initiate the move themselves, instilling confidence that their fertility behavior is unaffected by (preparation for) the migration event.

for consistency with prior research, we have also analyzed data for men, and we will integrate these findings into our results and discussion sections for a comprehensive analysis.

Building upon the prevailing framework, we anticipate that migrant descendants from regions with high fertility rates and conservative gender norms will show higher odds of transition into parenthood compared to native-born Finns. We also expect these differences to be more pronounced among individuals with limited exposure to the local culture and institutions, with 1.5-generation migrants showing the lowest exposure due to partial socialization in the sending country. Following them are second-generation migrants who, although fully socialized in the host society, often retain significant influence from their parents' cultural values. The 2.5-generation, having been fully socialized in the host society and likely identifying less strongly with their country of origin, are also more likely to interact with the native population due to their mixed migrant-native background (Kalmijn, 2015).

Finally, we utilize the wealth of information within Finnish registers to discern differences between migrant descendants and native-born individuals in how educational attainment and partnership status impact parenthood initiation. Employing the Karlson-Holm-Breen method (Karlson et al., 2012), we break down the total effects from our survival models into direct and indirect effects. Drawing from previous literature highlighting migrant descendants' major investments on professional careers (Pailhé, 2017), we expect to find evidence of a significant deterrence effect for highly educated migrant descendants compared to similarly educated native-born individuals. Based on assertions by Andersson et al. (2017) regarding delays stemming from a preference for nativity or ethnicity within limited options, we anticipate evidence supporting a deterrent effect for migrant descendants related to their partnership status. Specifically, we expect the absence of a partner to have a stronger deterrent effect on parenthood for migrant descendants compared to native-born individuals.

DATA & METHODS

Finnish register data

The study uses administrative data from several register sources compiled at Statistics Finland. In Finland, every resident is assigned a unique personal identification number, facilitating data linkage to their children, parents, and partners. This capability grants us access to information regarding individuals' migration history through their own and their parents' mobility records, circumventing potential biases that arise in survey studies limited to areas with high migrant concentrations.[2] Beyond providing insights into an individual's (family) migration history, the registers also empower us to identify the timing of parenthood transitions, as we can connect individuals with their own children, and benefit from yearly updates on variables such as place of residence, educational attainment, and partnership status (Jalovaara & Fasang, 2017).

In the context of fertility, Finland sustained fertility rates slightly below the replacement level of 2.1 children per woman during the 1990s and 2000s. These rates were consistent with those of other Nordic countries but exceeded the European Union (EU) average. However, Finland has experienced an unprecedented decline in fertility since 2011, as fertility rates dropped from 1.86 children per women in 2010 to 1.32 in 2022. The shift is tied to the spread of child-free ideals among the youngest cohorts (Golovina et al., 2023). As documented by Hellstrand and others (2021), this difference is primarily attributed to delays or losses in first childbirth. Comolli et al. (2021) suggest that the fertility decline appears to have affected women across all education levels, with potentially more pronounced effects among women with only primary education.

Regarding migration, Finland's experience as a destination for large-scale migration is relatively recent. Immigration flows started gaining momentum only in the 1990s, and by 2020, migrant-origin individuals comprised around 7.7% of the entire population (Puur et al., 2022, 2023). These figures still fall considerably short of the proportions observed in neighboring countries such as Norway (16.3%) or Sweden (22.2%) (Wiik & Holland, 2018). Thus, most migrant groups have a relatively small-to-middle size during the study period covered in this research.

Sample construction

Our study adopts a cohort approach and centers on the women born between 1980 and 1999. This decision is influenced by data limitations, as international migration to Finland was historically infrequent, resulting in a small number of individuals with migrant heritage in previous cohorts. Our data coverage extends from 1995 until 2019. It means we can observe women only until age 20 (for those born in 1999) to 39 (for those born in 1980).

Within our data, we identified 14,389 1.5-generation migrants (born abroad but arriving in Finland before turning 16), 4,080 second-generation migrants (born in Finland to two foreign-born parents), and 15,696 2.5-generation migrants (born in Finland to a native-born parent and a foreign-

[2] As evidenced by Wilson & Kuha (2018), the fertility patterns of second-generation women from Pakistan and Bangladesh in England and Wales align more closely with the patterns observed among native-born women when they were raised in areas characterized by lower levels of residential segregation.

born parent).[3] The study excludes migrants who arrived in Finland after age 15. This choice is in response to the cohort design adopted here. Another reason is the advantage it offers in eliminating potential distortions associated with the migration process itself, including factors such as selection into migration (Borjas, 1987), postponement of childbearing until after resettlement (Lübke, 2015; Milewski, 2007), as well as addressing the complexities arising from unrecorded births if they occurred outside of the country.

Recognizing the small number of second-generation migrants, we opted to reclassify 1.5-generation migrants who arrived in Finland at age 7 or earlier as second-generation migrants. Our rationale stems from the substantial exposure to the host society experienced by individuals who arrived in early childhood. Having traversed the majority, if not the entirety, of the educational system and achieving full proficiency in the language, their trajectory closely resembles that of individuals born in Finland. This adjustment affected 4,881 individuals. Thus, our refined sample comprises 9,508 1.5-generation migrants, 8,961 second-generation migrants, and 15,696 2.5-generation migrants.

Using mobility data, we further categorize all migrant descendants into seven groups based on their ancestry: "Northwest Europe," "South & East Europe," "Former USSR," "Middle East & North Africa," "Sub-Saharan Africa," "South & Southeast Asia," and "East Asia, Americas, & Pacific."[4] While these categories may appear broad, they aim to capture variations in fertility behaviors from different regions while ensuring sufficient representation. Specifically, individuals from Middle East & North Africa, Sub-Saharan Africa, and, to a lesser extent, South & Southeast Asia are expected to display the most significant differences in behavior compared to native-born

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[3] While the differences in magnitude are apparent, the proportions of the total represented by each category (42.1% for the 1.5-generation, 11.9% for the second-generation, and 45.9% for the 2.5-generation) are relatively similar to those observed in other Nordic countries. For the cohort born between 1972 and 1989, corresponding values in Sweden were 173,146 (38.9%), 98,709 (22.2%), and 172,739 (38.9%), while in Norway, they were 45,006 (42.1%), 13,914 (11.9%), and 60,289 (45.9%) (Wiik & Holland, 2018).

[4] In our classification, "Northwest Europe" comprises the other Nordic countries, the United Kingdom, Ireland, Belgium, the Netherlands, Luxembourg, France, Germany, Austria, Switzerland, and Liechtenstein. "South & East Europe" encompasses Portugal, Spain, Italy, Malta, Greece, Cyprus, Andorra, Monaco, San Marino, Vatican City, Poland, Czechia, Slovakia, Hungary, Slovenia, Croatia, Serbia, Montenegro, Bosnia & Herzegovina, Albania, North Macedonia, Romania, and Bulgaria, together with former designations such as Czechoslovakia, Yugoslavia, and Serbia & Montenegro. "Former USSR" includes Russia, Belarus, Ukraine, Moldova, Lithuania, Latvia, Estonia, Georgia, Armenia, Azerbaijan, Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan, Tajikistan, and Mongolia. Under the category "Middle East and North Africa", we include Morocco, Western Sahara, Algeria, Tunisia, Libya, Egypt, Turkey, Israel, Palestine, Jordan, Lebanon, Syria, Iraq, Iran, Afghanistan, Saudi Arabia, Yemen (including the former South Yemen), Oman, United Arab Emirates, Qatar, Bahrain, and Kuwait. "Sub-Saharan Africa" includes all countries on the African continent except those mentioned in the previous category. "South & Southeast Asia" encompasses India, Pakistan, Nepal, Bangladesh, Sri Lanka, Myanmar, Thailand, Vietnam, Laos, Cambodia, Malaysia, Indonesia, Singapore, Brunei, the Philippines, East Timor, and Papua New Guinea. "East Asia, Americas, & Pacific" comprises China, Japan, South Korea, North Korea, Taiwan, Hong Kong, Macao, all countries in the American continent, Australia, New Zealand, and the islands in the Pacific.

individuals as based on their fertility levels in their countries of origin (Pezzulo et al., 2021). Our classification relies solely on the country of origin or ancestry,[5] as data regarding factors such as ethnicity, race, or self-identification (Qian & Lichter, 2007) are unavailable.

Figure 1

As illustrated in Figure 1, our three largest groups are "Former USSR (1.5G)", "Former USSR (2G)", and "Northwest Europe (2.5G)." This is unsurprising since the three most prominent migrant groups in Finland have traditionally been Russians, Estonians, and Swedes. On the other hand, "Northwest Europe (1.5G)", "Northwest Europe (2G)", "East Asia, Americas, and Pacific (1.5G)" and "East Asia, Americas, and Pacific (2G)" are infrequent, as are "Sub-Saharan Africa (2.5G)" and "South & Southeast Asia (2.5G)."

Matching and sampling

Our dataset comprises 34,165 migrant descendants and 575,965 native-born women, representing roughly 95% of all observations. Considering that immigration in Europe is a urban phenomenon (Castles et al., 2013), migrant descendants typically exhibit urban profiles (Milewski & Adserà, 2022), where the cost of childbearing tends to be higher (Mace, 2008). While debates persist about the appropriate reference category for migrant populations (Baykara-Krumme & Milewski, 2017; Guveli & Spierings, 2022; Lindström et al., 2022), our extensive dataset allows us at least to address potential imbalances between native-born and migrant descendant groups based on attributes such as age or habitat (Firebaugh, 2018, Chapter 5).

Table 1

Thus, we matched observations from women with migrant backgrounds (the treatment group) with those from the native-born women (the control group) on four dimensions: age, birth year, region in Finland,[6] and habitat (categorized as "rural," "semi-urban," and "urban"). As anticipated, these covariates showed high levels of imbalance between native-born women and those with migrant heritage. Table 1 captures this. The first column reports the chi-square (χ^2) difference for each variable separately, followed by a measure of its imbalance ($\mathcal{L}_1$). The $\mathcal{L}_1$

[5] For 1.5G migrants, their origin is determined based on their country of birth, alternatively, their nationality. For 2G and 2.5G migrants, we gather information from their parents' data. In the case of 2.5G migrants, their origin is considered to be the country of their foreign parent. Regarding 2G migrants, information is available for both parents. In most instances, these parents share the same country of origin. However, in the rare cases where parents have different countries of birth, we prioritize the mother's country of origin, aligning with established research on ethnic identity (Rumbaut, 1994).

[6] Mainland Finland is divided into 18 regions, with Uusimaa (the region encompassing Helsinki) representing the most urbanized area. We say mainland Finland because Finnish registers do not include the Åland Islands.

measure is a value that ranges between 0 and 1, with higher values signaling the existence of imbalances in that covariate between the treated and control groups (see Iacus et al., 2009). The multivariate imbalance measure for the joint distribution of all covariates, as captured at the bottom of the table ($\mathcal{L}_1$ = 0.342), confirms that our raw data is not balanced.

To address these imbalances, we utilized exact matching to pair observations from native-born women with those from migrant descendants. After matching, we excluded native-born women with unmatched observations, reducing our reference group to 509,446 unique women from the initial 575,938. To manage the large reference group, we sampled observations from 5,000 of the remining native-born women. Ultimately, our matched sample consists of 38,867 unique women, totaling 372,114 person-year observations, with 11,442 instances of transitioning to parenthood.

Variables

Our outcome of interest is the time it takes for a woman to have her first child. To determine this, we link each woman to all her biological children, calculating the age difference between the mother's birth year and that of her first-born child. It is important to note that stillborn children, not captured in the registers, are excluded from our analyses.

Finland has experienced a notable decrease in fertility rates in recent years, particularly in first-child births (Hellstrand et al., 2021), and linked to the increasing prevalence of child-free ideals among younger cohorts (Golovina et al., 2023). To address these trends, we have divided birth cohorts into 5-year intervals, namely "1980-84," "1985-89," "1990-94," and "1995-99."

We have created a four-category indicator for education, including "In education," "Low/Unknown status," "Intermediate," and "High." The "Intermediate" category comprises educational levels such as "Upper secondary level," "Post-secondary non-tertiary education," and "Short-cycle tertiary education," as defined by Statistics Finland. The "High" category encompasses individuals with qualifications equivalent to a "Bachelor's or higher level." Women aged 15 and 16 are classified as "In education," and beyond this age, only those identified within the "student" socioeconomic group are included in this category. Evidently, educational status change over time.

Following the methodology of Jalovaara and Fasang (2017), we have categorized women based on their partnership status, labeling them as "Never partnered," "Previous partner," "In cohabitation," or "Married." This classification is derived from cohabitation data registers and cross-referenced with information available in the FOLK dataset. Similar to education, partnership status is also subject to change over time.

Methods

Following established methodology in fertility research comparing migrant generations (Andersson et al., 2017; Kulu et al., 2017, 2019; Pailhé, 2017), we employ survival analysis, specifically a discrete-time approach, due to the annual data collection and lack of precise event dates (Mills, 2011, Chapter 9; Singer & Willett, 2003, Chapters 10–12). Entry into the risk set begins at age 15, and exit occurs upon becoming a mother. Women giving birth before age 15 are excluded. Right-censoring accounts for events like death or data ending in 2019. Migration does not necessarily lead to censoring, but periods abroad are not considered. Individuals can re-enter the sample if returning childless. With data spanning 1995 to 2019, tracking ranges from 5 to 25 spells depending on birth year.

Then, to evaluate if obstacles encountered by migrant descendants contribute to their fertility decline, we utilize the Karlson-Holm-Breen method (KHB; Karlson et al., 2012) on our survival model outputs. This method serves two purposes: first, to estimate the net effect of each migrant group by removing the influence of education and partnership status, enabling comparison of coefficients with and without these factors. Second, it decomposes total effects into direct and indirect effects via specified mediators (education and partnership status), allowing assessment of whether these factors affect migrant descendants differently than native-born individuals. The KHB method achieves this by comparing predicted values when the covariate is included (full model) versus excluded (reduced model). Formally, our reduced and full models are expressed as follows:

$$\text{logit}\,[p_{it}] = \alpha_0 ONE + \sum_{j=1}^{5} \alpha_j \widehat{AGE}_{it}^{j} + \beta_1 BACKG_{it} + \beta_2 COHORT_{it}$$

$$\text{logit}\,[p_{it}] = \alpha_0 ONE + \sum_{j=1}^{5} \alpha_j \widehat{AGE}_{it}^{j} + \beta_1 BACKG_{it} + \beta_2 COHORT_{it} + \beta_3 EDU_{i(t-1)} + \beta_4 PART_{i(t-1)}$$

where logit $[p_{it}]$ denotes the logit of the probability of event occurrence for individual i at time t. The alphas (α) represent intercept parameters, indicating the value of the logit hazard at a specific time point (e.g., at age 20). Following careful consideration, we chose to model time using a fifth-degree polynomial function of a standardized form of age ($\widehat{AGE}$).[7] The betas (β) are coefficients associated with the covariates: migrant background ($BACKG$), birth cohort ($COHORT$), education

[7] In a general specification of time, the model would count with 25 estimates, each corresponding to a specific year, ranging from age 15 to 39. This configuration resulted in a deviance of 1,929,538 and a Bayesian Information Criterion (BIC) of 1,929,934. We explored ten alternative specifications, including constant, linear, quadratic, cubic, and more. The analysis indicated that the 8th-degree polynomial was the optimal choice, with a deviance of 1,929,740 and the lowest BIC (1,929,882). However, the improvements in deviance beyond the 5th-degree polynomial were relatively modest (deviance = 1,930,259; BIC = 1,930,354), leading us to opt for a more parsimonious solution.

(EDU), and partnership status ($PART$). As the subscripts $t - 1$ indicate, for education and partnership status, we employ values observed in the previous year (a one-year lag).

RESULTS

Descriptive findings

Figure 2

In our effort to compare parenthood transition among various migrant origins and generations, we commence with a visualization of hazard and survival probabilities (see Figure 2). Two observations immediately come to the fore. First, for individuals from Northwest Europe and East Asia, Americas & Pacific, little generational change is observed. In contrast, significant behavioral variability is evident in the remaining five groups. Second, for these five groups, there is a progressive increase in the survival probability across generations:1.5-generation migrants exhibit the lowest levels, followed by the second generation, with 2.5-generation migrants ranking highest. This trend aligns with expectations from an inter-generational convergence standpoint but, surprisingly, all 2.5-generation migrants show higher survival probabilities compared to native-born women (depicted in black), betraying that factors beyond assimilation or adaptation to the local norm influence parenthood transition.

Table 2

The coefficients in Model 1 (see Table 2) support the findings from our visual analysis, controlling for age and birth cohort. Model 2 repeats this analysis after matching and sampling the reference category, yielding broadly consistent results with those of Model 1. Overall, the pattern suggests a higher likelihood of transitioning into parenthood for 1.5-generation women compared to native-born individuals, a trend that reverses in the 2.5 generation. The second generation appears to fall between these two groups, sometimes exhibiting similar behavior to the 1.5-generation. In other instances, there is evidence of lower hazards of entering motherhood already detected among the second generation.

There are two exceptions to the pattern describe above. Women from East Asia, Americas & Pacific display a negative coefficient across all three generation, indicating a lower likelihood of entering parenthood compared to native-born Finns. This outcome is unsurprising given the low fertility rates and later ages of parenthood transition in many countries within this category. Still, the persistence of this negative effect across generations implies minimal, if any, adaptation to the local population (i.e., adaptation from below, as discussed by Mussino et al., 2021). Women from Northwest Europe appear to display levels similar to those of native-born individuals, which aligns with expectations based on the small cultural and normative differences between these women and native-born Finns.

Main findings

Figures 3 & 4

Further investigation is required to determine the extent to which education and partnership status contribute to the observed differences. Before presenting additional findings, we offer visual representations of these two dimensions. Figures 3 and 4 illustrate the evolution of the risk set. The upper section shows the proportion of the risk set not experiencing the event of interest, while the lower section depicts the fraction of the same set that did experience the event. These breakdowns are further categorized by the woman's origin and education status (Figure 3) or partnership status (Figure 4). Pronounced differences are evident. Native-born women tend to be more educated on average, while women (partly) originating from the Middle East & North Africa, South & Southeast Asia, and Sub-Saharan Africa tend to have lower educational levels (see Figure 3). Figure 4 highlights differences in partnership status upon entering parenthood, with cohabitation being most prevalent among native-born women, and marriage being the norm among women (partly) originating from South & East Europe and the Middle East & North Africa.

To assess the impact of education and partnership status on parenthood initiation, we run a new model incorporating these dimensions (see Model 3, Table 2). Subsequently, we use the Karlson-Holm-Breen method to estimate mediation effects by comparing Model 3 (our full model) with Model 2 (our reduced model). Model 4 presents the main effects after adjusting for mediation through education and partnership status. It provides insight into the net effect for each specific group, factoring in education, partnership status, and other control variables (age and cohort).

Regarding the impact of education on entry into parenthood, Models 3 and 4 reveal distinct patterns. Women still in education exhibit a negative effect, with odds ratios ranging from 0.87 to 0.93 compared to women with intermediate education (the reference category). Conversely, women with high education show increased odds of becoming mothers, with odds ratios between 1.11 and 1.18, while those with low education display even higher odds ratios of 1.49 to 1.58.[8] As for partnership status, women who have never been in a couple or have previous but no current partners

[8] These values capture the 95% confidence intervals around the estimated odds ratio.

show significantly lower odds of becoming mothers compared to women in cohabitation. Conversely, married women are substantially more likely to become mothers compared to those in cohabitation.

Figures 5

To visually depict the change in estimated effects for each group before and after controlling for education and partnership status, Figure 5 (Panel A) provides a graphical representation. While there is a general reduction in the magnitude of observed differences between migrant descendants and native-born women after adjusting for these effects, differences persist for almost all groups compared to native-born individuals. This suggests that while education and partnership status can explain part of the variances in the likelihood of transitioning into parenthood, they alone are insufficient, indicating the presence of omitted variables, possibly including cultural factors.[9]

Figures 6

Despite the incomplete explanatory power of education and partnership status alone, we can utilize the portion of the observed discrepancy in Figure 5A to glean insights into the mechanisms driving the fertility decline among migrant descendants. To complement our findings in Figure 5, we present a depiction of the indirect effects—those mediated through education and partnership status—in Figure 6.

The indirect effect via still being in education shows a null-to-slightly-positive effect for women of migrant descent compared to native-born women. However, for those with low education, the indirect effect is consistently positive. Notably, as expected, we observe a consistently negative effect for highly educated migrant descendant women compared to their native-born counterparts, suggesting that highly educated migrant descendants may face higher opportunity costs of motherhood. Similarly, the influence of singlehood on parenthood appears notably pronounced for migrant descendants, with negative effects observed for the categories "Previous partner" and "Never partnered." This supports the notion that many migrant descendants encounter obstacles in forming and maintaining partnerships in their host country.

[9] To further explore differences in timing, we fitted an additional model with migrant origin interacted with age, specified as a cubic spline. Panels B-H in Figure 5 display the predicted probabilities of this model, controlling for birth cohort, education, and partnership status. The results reveal that positive effects observed among the 1.5 generation are primarily due to higher chances of parenthood in the late teens and early/mid-20s, with the gap compared to native-born women narrowing around age 30. In contrast, differences between native-born women and 2.5-generation migrants appear more stable over time, indicating a generalized lower probability irrespective of age. However, observations beyond age 30 are scarce, leading to tentative conclusions about any patterns past this age.

In summary, our results suggest that differences in education and partnership status do not fully explain the disparities in the likelihood of transitioning into parenthood between native-born Finnish women and women of migrant descent. Nevertheless, they strongly imply that women of migrant descent are more likely to face challenges in reconciling family and career aspirations, with the absence of a partner significantly influencing their fertility. Furthermore, while these trends diminish in magnitude across generations, our results underscore their persistent impact.

Findings for men

Figure 7

Figure 7 illustrates patterns similar to those observed among women, revealing that 1.5-generation male migrants from high-fertility contexts exhibit higher odds of transitioning into parenthood compared to native-born men. The 2.5 generation shows lower hazards, while second-generation migrants fall somewhere between the previous two. Also, as demonstrated in Panels B to H, while the higher hazards observed for 1.5-generation migrants primarily stem from parenthood at relatively early ages, the lower probability of parenthood among the 2.5 generation appears to be more prevalent, affecting individuals at all ages. Similar to women, we find that while education and partnership status can partially account for the observed discrepancies, these effects alone cannot fully explain the differences observed.

Figure 8

In analyzing the indirect effects (see Figure 8), a gender contrast becomes apparent. Female migrant descendants exhibit a negative effect through high education compared to their native-born counterparts. However, for male migrant descendants, we found no significant difference. It suggests that, unlike women, male migrant descendants with high education levels might not face distinct opportunity costs associated with fatherhood. Nevertheless, the wide confidence intervals around our estimates indicate potential statistical limitations due to the relatively small numbers of highly educated migrant descendants in our dataset. The indirect effects via "In education" and "Low education" mirror those observed among women, indicating no consistent pattern between native-born and migrant-descendant men still in education, and positive and consistent indirect effects for all migrant descendants via low education.

Similar to women, negative indirect effects are observed via "Previous partner" and "Never partnered", indicating a deterrent effect associated with the absence of a partner. Only men with a mixed background, including a Finnish and a Northwest European parent, deviate from this trend. The indirect effect of marriage on parenthood varies across groups, with a positive association observed for those originating from South & East Europe, Middle East & North Africa, and South & Southeast Asia, suggesting a close link between marriage and childbearing among these groups.

Overall, the findings support that, like women, education and partnership status incompletely explain differences between native-born Finns and migrant-descendant men. However, the deterrence effect via singlehood underscores challenges in union formation. Unlike women, we found no evidence of a deterrence effect via education.

DISCUSSION

The motivation behind this study stemmed from a puzzling trend observed across several countries: lower parenthood rates among migrant descendants. While conventional knowledge attributes a delay in parenthood initiation to adaptation to local norms and values (Alba & Nee, 2009; Gordon, 1964), recent studies have suggested that other factors, such as career investments or union formation obstacles (Andersson et al., 2017; Pailhé, 2017), may be key drivers. To explore these intuitions, we utilized data from Finnish registers. Two key highlights emerged from our study.

Depressed fertility: A pervasive trend among 2.5 generation migrants in Finland

Our first highlight is the significant gap in parenthood likelihood among migrant descendants, particularly for those more integrated with the local population (the 2.5-generation), compared to those with less exposure (the 1.5 and second generations). A fertility decline across generation is observed among migrants from high-fertility backgrounds, as well as from the Former USSR and South & East Europe. While this decline aligns with expectations of inter-generational convergence, the finding that most 2.5-generation migrants are less likely to transition into parenthood than native-born individuals challenges the anticipated behavioral alignment under the adaptation hypothesis. Our results resonate with the observed depressed first-birth rates among migrant descendants in other contexts (Andersson et al., 2017; González-Ferrer et al., 2017; Pailhé, 2017). Additionally, the absence of convergence from below (Mussino et al., 2021) among groups partly originating from low-fertility backgrounds further strengthens this observation, suggesting that factors beyond mere adaptation to local norms are at play.

Furthermore, our findings contribute two additional insights to the ongoing discussion. Firstly, we observe that fertility loss predominantly affects the 2.5 generation or those with a mixed migrant-native background, rather than second-generation migrants with two foreign-born parents—an important distinction often overlooked in previous research (Andersson et al., 2017; Guarin Rojas et al., 2018; Kulu et al., 2019; Van Landschoot et al., 2017). Secondly, while higher odds observed among 1.5-generation migrants primarily stem from a more rapid transition into parenthood during their teens and early to mid-twenties, for 2.5-generation migrants, the negative effect appears consistent across all ages. This observation underscores the significance of timing in understanding the factors contributing to "depressed fertility" among migrant descendants, often overlooked in previous discussions.

Combining cultural influences and obstacles to parenthood

The second highlight underscores our findings concerning the influence of education and partnership status. Although these dimensions alone do not fully explain the disparities in parenthood transition between native-born individuals and migrant descendants in Finland, our application of the KHB method (Karlson et al., 2012) to survival models has revealed intriguing patterns. These patterns can offer valuable insights into understanding the causal mechanisms (Hedström & Ylikoski, 2010) behind fertility patterns observed among migrant populations.

Specifically, our study has identified a significant and consistent deterrent effect for highly educated women of migrant descent, suggesting a higher opportunity cost of parenthood compared to their native-born counterparts. This effect was not observed among male migrant descendants, potentially due to the limited number of highly educated men in our sample. Thus, our findings support theories proposing a trade-off between social mobility and fertility (Kasarda & Billy, 1985), particularly affecting female migrant descendants as previously suggested (Pailhé, 2017).

The positive and consistent indirect effect observed via low education levels may stem from migrant groups upholding more traditional family roles, with women opting for shorter educational paths and embracing the role of stay-at-home mothers. Interestingly, a similar effect is observed among migrant descendant men. Thus, this may be indicative of a diversity of profiles among female migrant descendants and possibly linked to their assimilation into various segments of Finnish society (Portes et al., 2005; Portes & Zhou, 1993). Overall, while the minority of highly educated migrant descendants may face higher opportunity costs, their impact on overall fertility may be limited as the majority tend to opt for shorter educational paths associated with earlier entry into parenthood.

Our study has also uncovered a negative indirect effect when comparing migrant descendants with native-born individuals concerning the experience of singlehood, evident for both men and women. This finding lends support to the hypothesis proposed by Andersson et al. (2017) that migrant descendants may encounter challenges in finding suitable partners in their host country. Crossing cultural, religious, and racial/ethnic boundaries may present significant challenges for some individuals, compounded by family and community pressures discouraging intermarriage (Kalmijn & van Tubergen, 2006). Additionally, factors such as insufficient numbers of individuals from the same origin group in the destination country (Blau et al., 1982) or relatively lower socioeconomic profiles compared to the local population (Furtado, 2012) may contribute to a sense of "relative deprivation" among migrant descendants, prolonging periods of remaining single.

However, the persistence of this inhibiting effect among not only children of two migrant parents but also the 2.5 generation suggests that the story of endogamy among migrants may only partially explain this pattern. While family and community dynamics likely play a role, 2.5G individuals resulting from mixed immigrant-native unions may experience attenuated endogamy preferences and familial or community pressures from the migrant parent (Irastorza & Elwert, 2021). Hence, the underlying reasons for this observed effect likely stem from various sources, such as impediments to emancipation or societal attitudes less receptive to individuals with foreign backgrounds.

The observation that the mediating effect associated with never having had a partner is most pronounced for individuals (partly) originating from Sub-Saharan Africa and the Middle East & North Africa resonates with observed hierarchies in ethnic preferences in other European countries and the US (Lin & Lundquist, 2013; Potârcă & Mills, 2015). This hierarchy places Western Europeans at the top, while Black and Arab individuals are considered the least desirable groups. However, it is essential to note that Finnish registers only capture co-residential partnerships, not dating, suggesting that it may take longer for many migrant descendants to leave the parental home, contributing to their classification as "Never partnered." This could be associated with more conservative family arrangements and thicker informal social control networks (Bernardi & Klärner, 2014; Buyukkececi et al., 2020; Kavas & de Jong, 2020) that discourage non-marital cohabitation and childbearing, particularly among women (Mikolai & Kulu, 2023). The presence of a positive indirect effect via marriage among certain migrant groups suggests more conservative living arrangements, but the absence of a similar trend among other groups, particularly the 2.5 generation, indicates that social pressures may not be as significant as hindrances in union formation or inherited low socioeconomic status.

Scholars have often viewed immigrant-native unions as a key aspect of immigrant integration, considering intermarriage as a significant step in the assimilation process (Kalmijn, 1998; Qian & Lichter, 2007; Song, 2009). However, this perspective tends to overlook the socioeconomic dynamics of such partnerships and the potential perceptions others may hold toward their offspring. Research suggests a correlation between the lower socioeconomic status of locals and intermarriage with immigrant groups (Elwert, 2020; Guetto & Azzolini, 2015). Consequently, there is concern that children from these unions may face challenges associated with socioeconomic status and the perception of being (partly) migrant, regardless of their level of cultural integration.

Our findings suggest that obstacles to parenthood, especially related to union formation, contribute to the depressed fertility among migrant descendants. These obstacles can help explain the significant differences observed between the 1.5 and 2.5 generation. While our findings acknowledge the importance of adaptation, they also reveal the complexity of fertility patterns among migrant descendants. Despite a general trend towards convergence in fertility patterns associated with cultural assimilation (Kulu et al., 2017), our analysis highlights concurrent forces influencing fertility decline, adding complexity to the narrative of inter-generational convergence.

Limitations

Indeed, every study has its limitations, and ours is no exception. First, we acknowledge that our focus on individuals who have not completed their fertility window may limit the interpretation of our results, as future developments could alter the observed patterns. Additionally, the relatively young profile of most individuals in our data poses challenges in testing certain effects, such as the deterrence effect for male migrant descendants via high education.

Second, while we made efforts to address biases introduced by native-born individuals with unique profiles, we did not include a comprehensive set of potential controls in our analysis. Future studies could explore omitted aspects such as the influence of parental family attributes, economic uncertainty, genetic factors, or network effects (for a review, see: Balbo et al., 2013). Alternative designs, such as comparing fertility levels across generations by examining parents and their children (Kolk, 2014), may provide a more robust test for inter-generational convergence.

Lastly, while our approach aimed to disentangle the effects of obstacles to parenthood from cultural determinants, we acknowledge the interrelated causality of these dimensions. For instance, the lower socioeconomic status of migrant descendants compared to native-born individuals may lead to less promising employment prospects, causing delays in various life domains. This disadvantageous starting point may create a cascade effect that influences multiple aspects of life trajectories. Concurrently, gender differences in mate selection can complicate the relationship between cultural and socioeconomic factors. As Christopoulou & Lillard (2016) argue, migrant men may face disadvantages in the marriage market due to earning penalties and delays in financial maturity. However, (a perceived) adherence to traditional family values may confer advantages to migrant women over their native-born counterparts in partner selection. These observations highlight the complex interplay between cultural, socioeconomic, and gender-related factors. Further research is needed to disentangle these intricate relationships and their implications for understanding the fertility behavior of populations of migrant descent.

Conclusion

Our examination of Finnish administrative registers has shed light on the complexities surrounding the fertility patterns of migrant descendants. Contrary to prevailing notions emphasizing adaptation or assimilation as primary drivers of fertility decline among migrant descendants, our analyses reveal the significance of factors such as the need for greater investments in social mobility, obstacles to emancipation, and disadvantages in the partnership market. The interplay of these obstacles with ongoing cultural assimilation provides a compelling explanation for the phenomenon of "depressed fertility" observed among migrant descendants in various contexts (Andersson et al., 2017).

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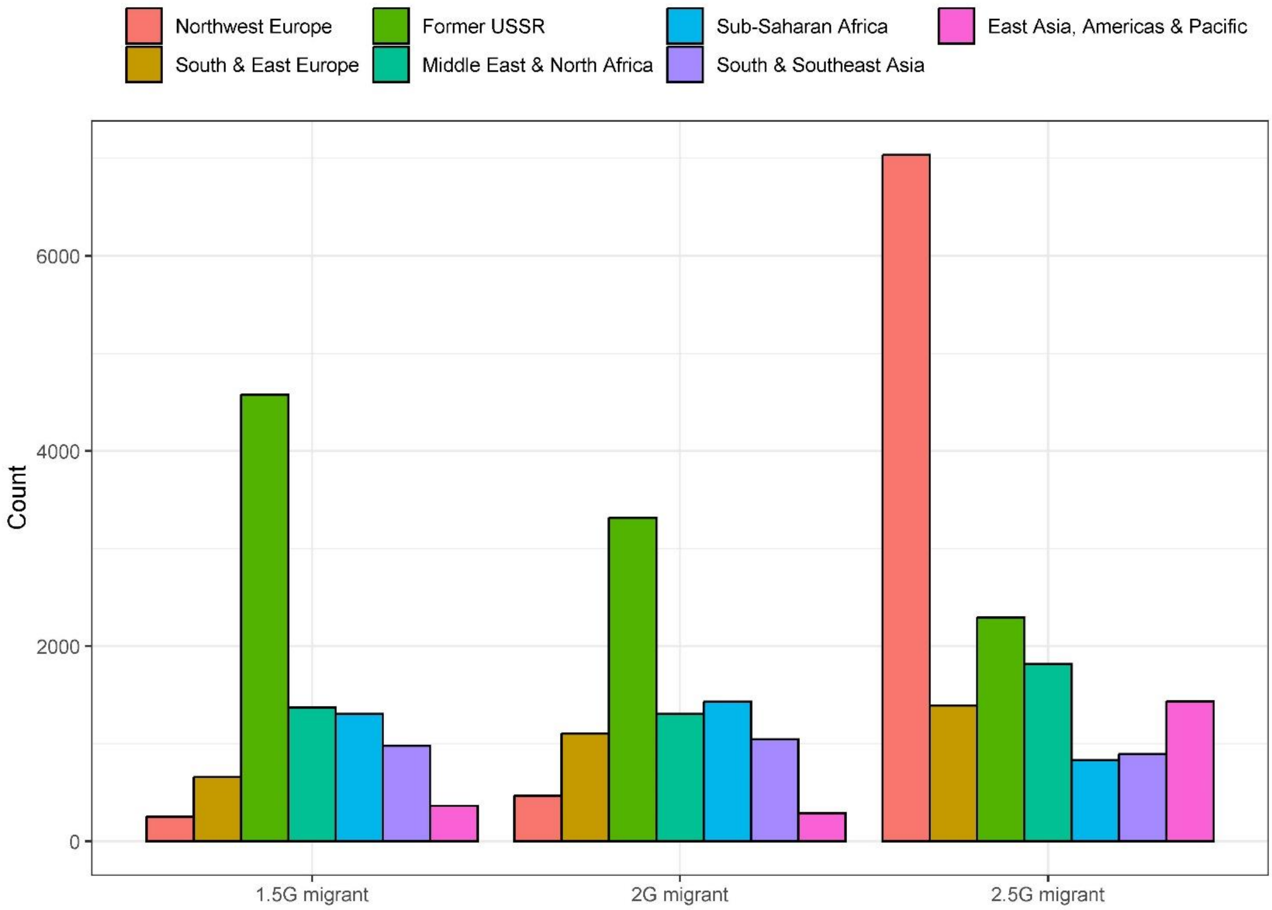
Tables & Figures

Figure 1. Number of migrant descendants based on region of origin and generation

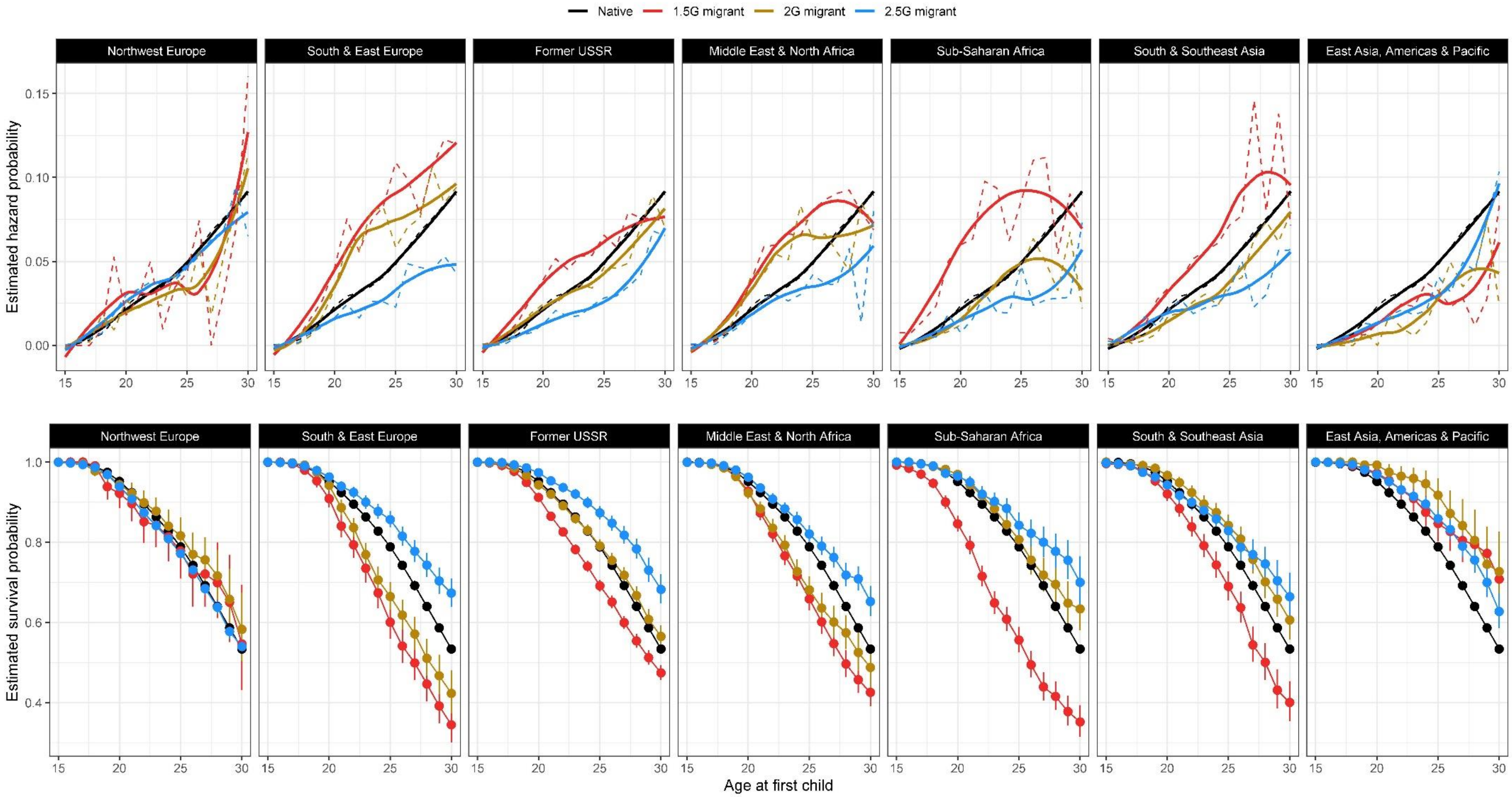


Caption: Certain categories exhibit significant homogeneity, predominantly represented by one or two countries, while others demonstrate more diverse origins. Notably, "Former USSR" is dominated by Russia and Estonia, accounting for over 95% of the category's composition. Similarly, approximately 69% of individuals categorized under "Northwest Europe" originate from Sweden. In the case of "Sub-Saharan Africa," Somalia alone contributes to around 58% of the category's population, and the countries that constituted the former Yugoslavia make up approximately 47% of the "South & East Europe" category. In contrast, several other categories display a broader array of countries. Within the "Middle East & North Africa" category, Iraq, Turkey, and Iran collectively contribute to 57.9% of the group, with Iraq representing 25.6%. "South & Southeast Asia" exhibits significant diversity, with Thailand (31.0%) and Vietnam (30.6%) being the two most prominent origins. Finally, for the "East Asia, Americas & Pacific" category, the United States (28.3%) and China (19.8%) are the primary contributors.

Table 1. Multivariate imbalance between observations from migrant-heritage and native-born women.

	Statistic (χ^2)	$\mathcal{L}_1$
Age	17,693.85	.098
Birth year	105,343.51	.229
Region in Finland	104,571.04	.249
Habitat	35,782.91	.142
Multivariate imbalance measure: $\mathcal{L}_1 = .342$		
Percentage of local common support: 81.1%		

Figure 2. Hazard and survival probabilities of parenthood by region of origin and generation



Caption: Data points beyond the age of 30 are omitted from the figure due to their large standard errors. For estimated hazard probabilities, we smoothed the curves using the LOESS algorithm to highlight the overall pattern, actual values are depicted with dashed thinner line.

Table 2. Discrete-time hazard models (partnership and education lagged)

	Model 1		Model 2		Model 3		Model 4	
	Log-Odds		*Log-Odds*		*Log-Odds*		*Log-Odds*	
Background (Ref.: Finland)								
Northwest Europe (1.5G)	0.034		-0.128		0.058		-0.037	
	(0.157)		(0.161)		(0.166)		(0.166)	
Northwest Europe (2G)	-0.065		-0.196	*	-0.164		-0.205	
	(0.107)		(0.110)		(0.113)		(0.113)	
Northwest Europe (2.5G)	0.152	***	0.026		0.044		0.038	
	(0.024)		(0.034)		(0.035)		(0.035)	
South & East Europe (1.5G)	0.524	***	0.450	***	0.336	***	0.332	***
	(0.057)		(0.062)		(0.066)		(0.066)	
South & East Europe (2G)	0.581	***	0.408	***	0.246	***	0.227	***
	(0.055)		(0.060)		(0.065)		(0.065)	
South & East Europe (2.5G)	-0.321	***	-0.420	***	-0.345	***	-0.411	***
	(0.057)		(0.061)		(0.063)		(0.063)	
Former USSR (1.5G)	0.242	***	0.164	***	0.155	***	0.151	***
	(0.023)		(0.033)		(0.035)		(0.034)	
Former USSR (2G)	0.040		-0.096	**	-0.032		-0.071	
	(0.035)		(0.042)		(0.044)		(0.044)	
Former USSR (2.5G)	-0.396	***	-0.534	***	-0.430	***	-0.491	***
	(0.053)		(0.058)		(0.059)		(0.059)	
Middle East & North Africa (1.5G)	0.430	***	0.322	***	0.177	***	0.139	**
	(0.044)		(0.049)		(0.054)		(0.053)	
Middle East & North Africa (2G)	0.507	***	0.319	***	0.272	***	0.192	**
	(0.055)		(0.061)		(0.065)		(0.065)	
Middle East & North Africa (2.5G)	-0.178	***	-0.319	***	-0.242	***	-0.310	***
	(0.053)		(0.058)		(0.060)		(0.060)	
Sub-Saharan Africa (1.5G)	0.847	***	0.686	***	0.956	***	0.837	***
	(0.044)		(0.050)		(0.053)		(0.052)	
Sub-Saharan Africa (2G)	-0.063		-0.257	***	0.166	**	-0.050	
	(0.071)		(0.076)		(0.078)		(0.078)	
Sub-Saharan Africa (2.5G)	-0.282	***	-0.443	***	-0.218	**	-0.355	***
	(0.088)		(0.092)		(0.094)		(0.094)	
South & Southeast Asia (1.5G)	0.415	***	0.294	***	0.236	***	0.221	***
	(0.056)		(0.061)		(0.064)		(0.064)	
South & Southeast Asia (2G)	-0.151	**	-0.275	***	-0.413	***	-0.424	***
	(0.068)		(0.072)		(0.075)		(0.075)	
South & Southeast Asia (2.5G)	-0.125		-0.294	***	-0.199	**	-0.248	*
	(0.078)		(0.081)		(0.084)		(0.084)	
East Asia, Americas & Pacific (1.5G)	-0.436	***	-0.520	***	-0.313	**	-0.446	*
	(0.127)		(0.129)		(0.132)		(0.132)	
East Asia, Americas & Pacific (2G)	-0.619	***	-0.727	***	-0.485	***	-0.648	**
	(0.164)		(0.166)		(0.169)		(0.169)	
East Asia, Americas & Pacific (2.5G)	-0.286	***	-0.399	***	-0.276	***	-0.369	***
	(0.060)		(0.064)		(0.066)		(0.066)	

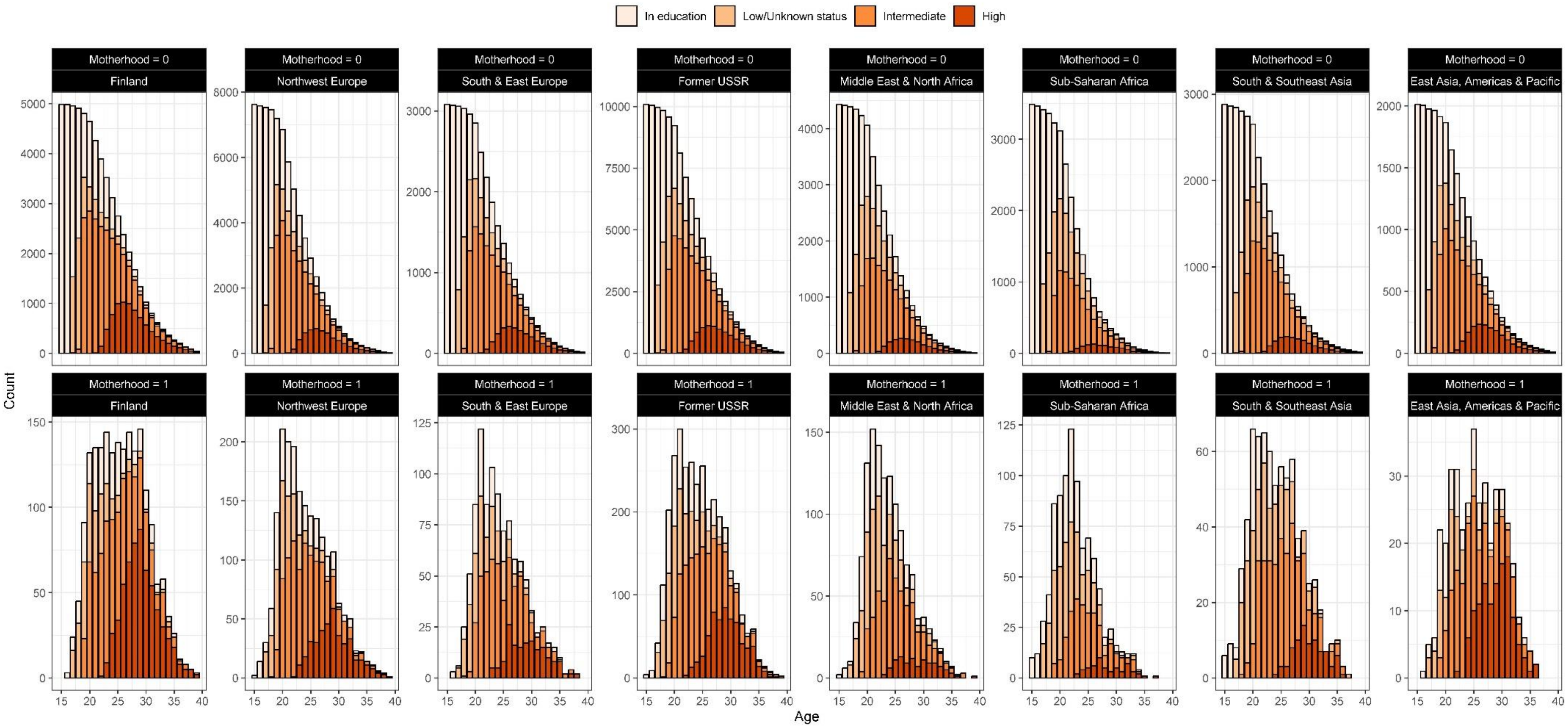
Note: * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test). Standard errors between parentheses.

Table 2. Discrete-time hazard models (continued)

	Model 1		Model 2		Model 3		Model 4	
	Log-Odds		*Log-Odds*		*Log-Odds*		*Log-Odds*	
Age	0.149	***	0.105	***	-0.057	***	0.085	***
	(0.002)		(0.008)		(0.009)		(0.008)	
Age^2	-0.024	***	-0.027	***	-0.012	***	-0.018	***
	(<0.001)		(0.002)		(0.002)		(0.002)	
Age^3	0.006	***	0.007	***	0.006	***	0.006	***
	(<0.001)		(<0.001)		(<0.001)		(<0.001)	
Age^4	-0.001	***	-0.001	***	-0.001	***	-0.001	***
	(<0.001)		(<0.001)		(<0.001)		(<0.001)	
Age^5	<0.001	***	<0.001	***	<0.001	***	<0.001	***
	(<0.001)		(<0.001)		(<0.001)		(<0.001)	
Birth cohort (Ref.: 1985-89)								
1980-84	0.136	***	0.064	**	0.038		0.083	**
	(0.005)		(0.026)		(0.028)		(0.028)	
1990-94	-0.230	***	-0.155	***	-0.086	***	-0.144	***
	(0.006)		(0.026)		(0.027)		(0.027)	
1995-99	-0.511	***	-0.432	***	-0.282	***	-0.375	***
	(0.011)		(0.035)		(0.036)		(0.036)	
Education (Ref.: Intermediate)								
In education					-0.105	***	-0.105	***
					(0.031)		(0.031)	
Low/Unknown status					0.431	***	0.431	***
					(0.029)		(0.029)	
High					0.137	***	0.137	***
					(0.032)		(0.032)	
Partnership status (Ref.: Cohabitation)								
Never partnered					-1.803	***	-1.803	***
					(0.029)		(0.029)	
Previous partner					-0.672	***	-0.672	***
					(0.033)		(0.033)	
Marriage					1.373	***	1.373	***
					(0.027)		(0.027)	
Constant	-3.330	***	-3.118	***	-2.489	***	-3.577	***
	(0.005)		(0.031)		(0.036)		(0.034)	
Matched data	No		Yes		Yes		Yes	
Adjusted coefficients (KHB)	–		–		No		Yes	
Events	240,919		11,442		11,442		11,442	
Total time at risk	7,604,948		372,114		372,114		372,114	
BIC	1,923,739		94,218		83,346		83,334	

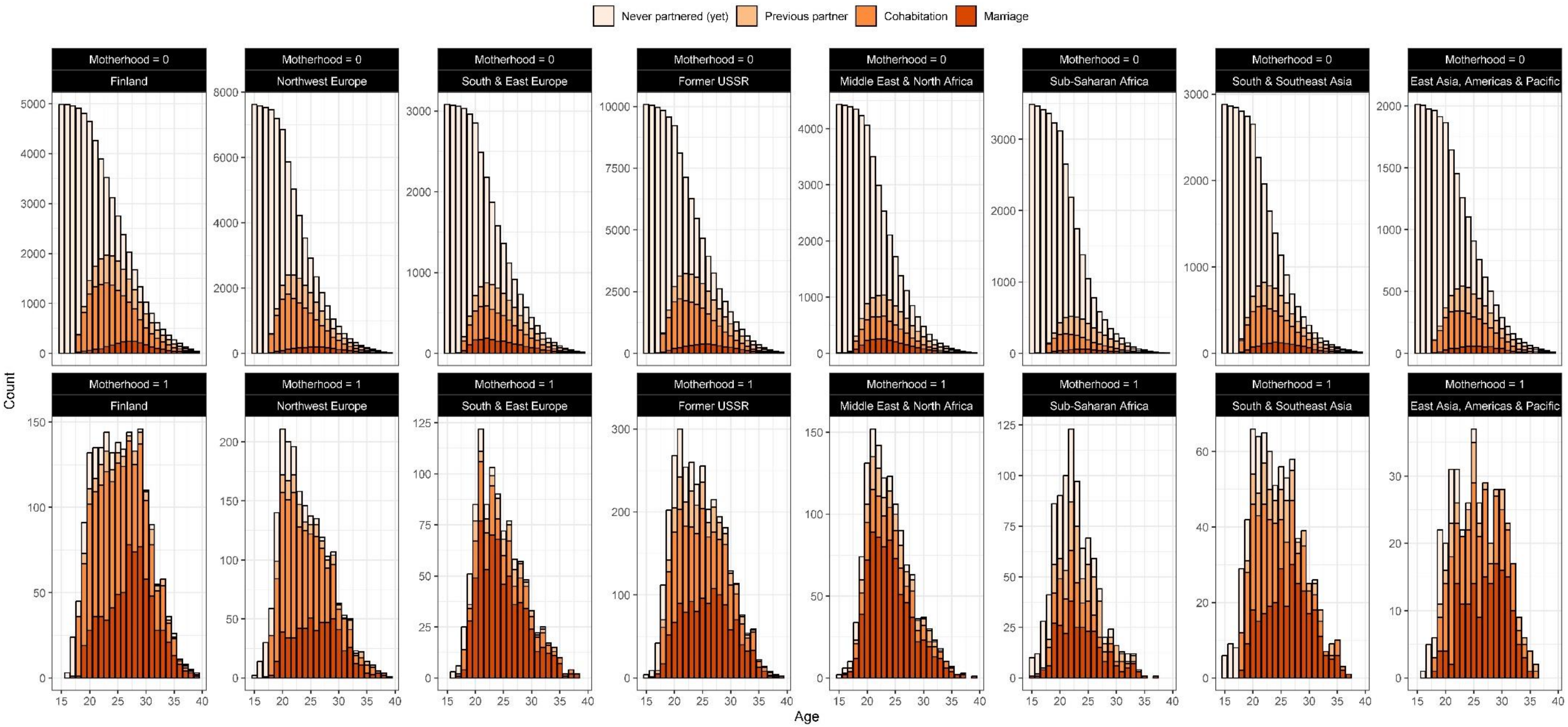
Note: * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test). Standard errors between parentheses.

Figure 3. Evolution of the risk set by education level



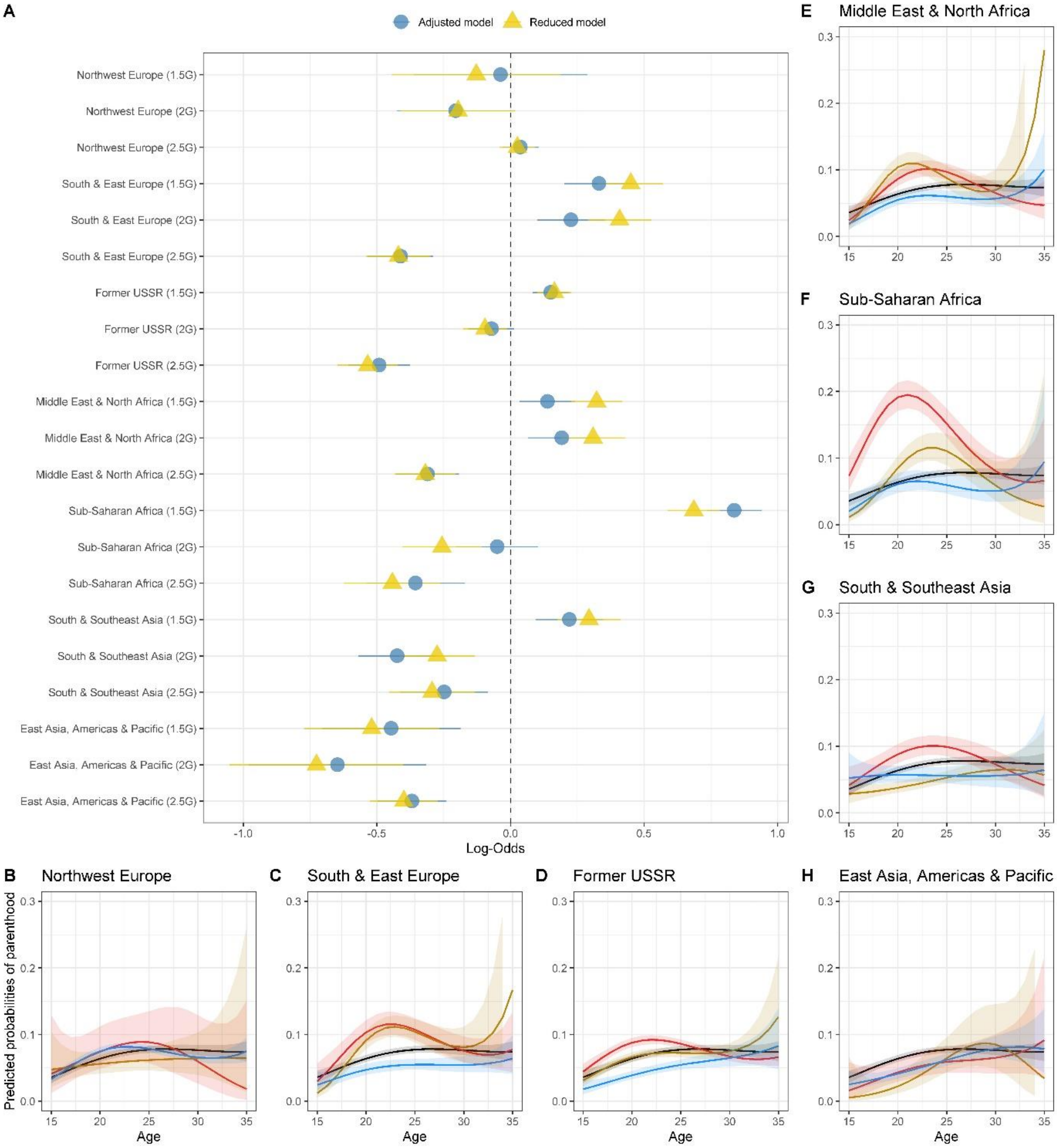
Caption: Disparities in education levels across groups are discernable by comparing the panels in the upper part of the figure. The proportion of women who attained high education is the highest for native-born Finns, followed by women (partly) from Northwest Europe, South & East Europe, Former USSR, and East Asia, Americas, Pacific. In contrast, the proportion of women with high education is comparatively smaller for those (partly) from the Middle East & North Africa, South & Southeast Asia, and, especially, Sub-Saharan Africa. These discrepancies are mirrored in the lower part of the graph, representing the subset of women who became mothers.

Figure 4. Evolution of the risk set by partnership status



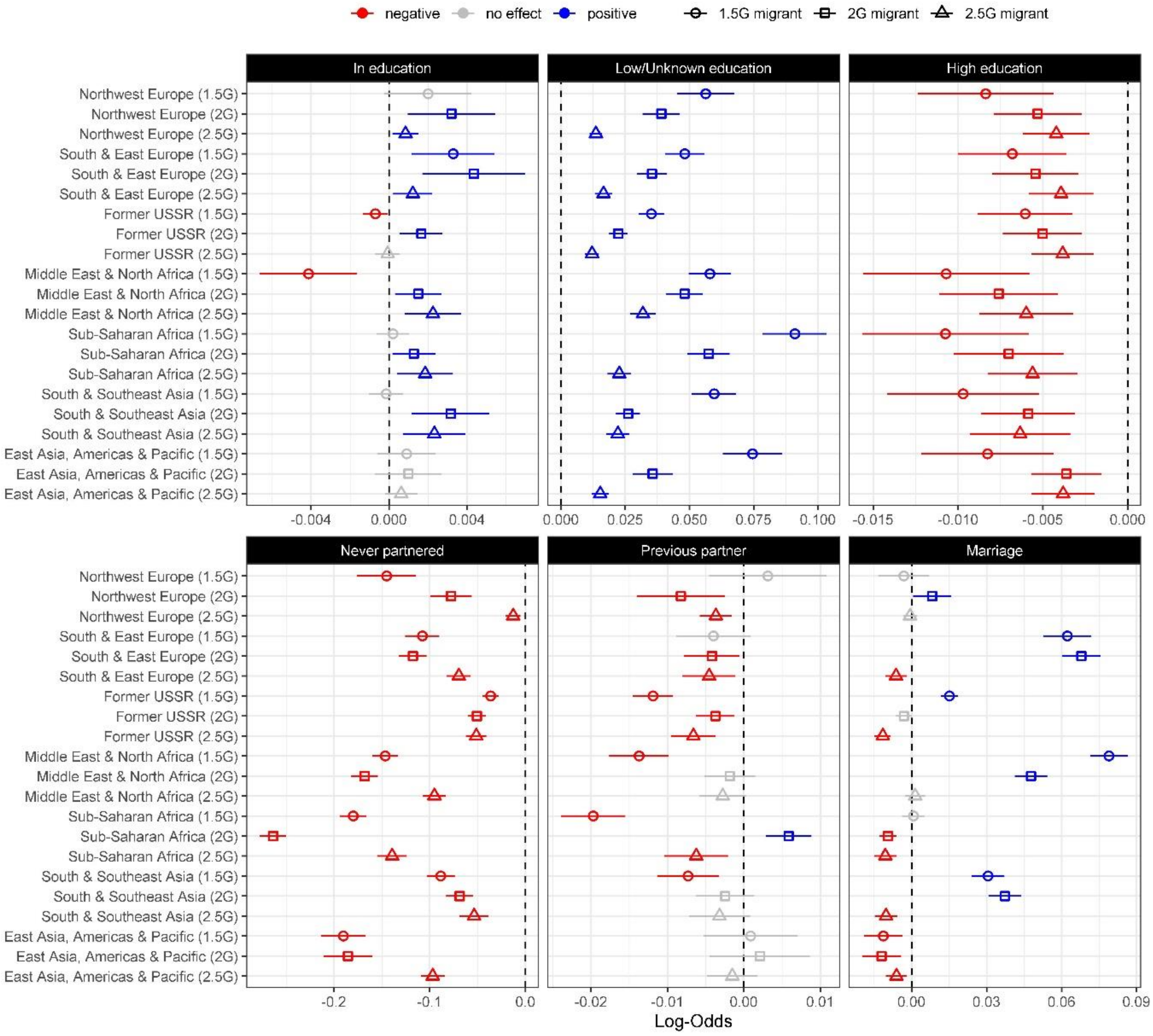
Caption: Examining the lower part of the figure, which represents women who became mothers, it becomes apparent that the most common status for native-born women when transitioning into parenthood is cohabitation, especially among the younger cohorts. A similar pattern is evident among women (partly) from Northwest Europe, Former USSR, South & Southeast Asia, and East Asia, Americas & the Pacific. In contrast, for women from South & East Europe and the Middle East & North Africa, marriage is the prevailing status, even among the young cohorts, possibly reflecting different cultural values related to the significance of marriage as a prerequisite before entering parenthood. Transitions to parenthood in a status other than married or in cohabitation are less frequent, though it accounts for a substantial portion among women (partly) from Sub-Saharan Africa.

Figure 5. Main results



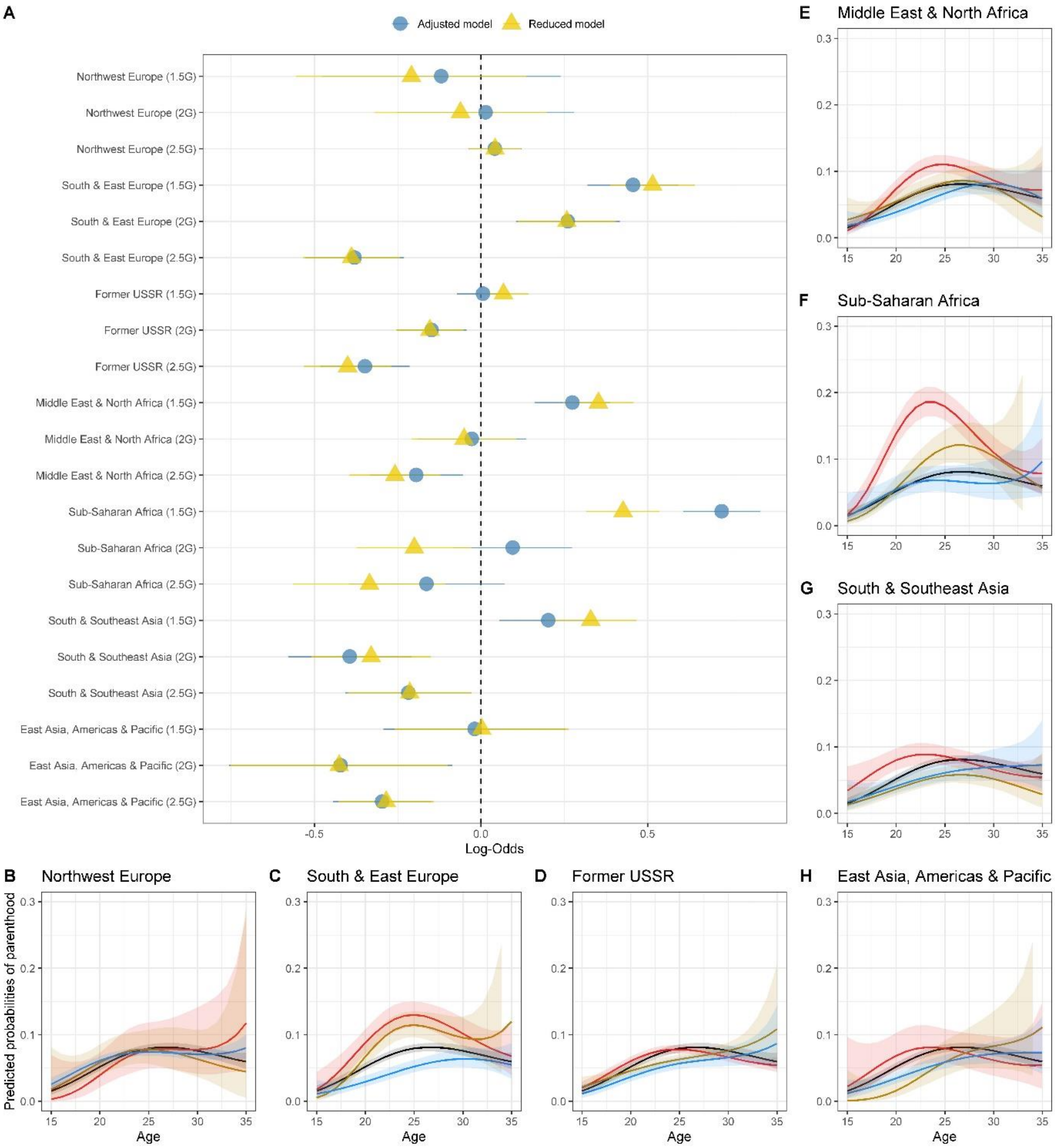
Caption: Panel A compares the coefficients of the estimated effects for different groups of migrant descendant women in the model incorporating education and partnership status (the adjusted model) versus the model excluding these effects (the reduced model). Panels B to H illustrate the expected probabilities of parenthood in the model with migrant origin interacted with age, specified as a cubic spline with no pre-established knots, along with birth cohort, education, and partnership status as controls. Within each panel, the red curve represents 1.5-generation migrants, the ochre curve denotes second-generation migrants, and the blue curve stands for 2.5-generation migrants. The black line represents native-born women (the reference category). Values beyond the age of 35 are omitted from the figure due to their large standard errors. Error bars represent 95% confidence intervals.

Figure 6. Indirect effects via education and partnership status (KHB method)



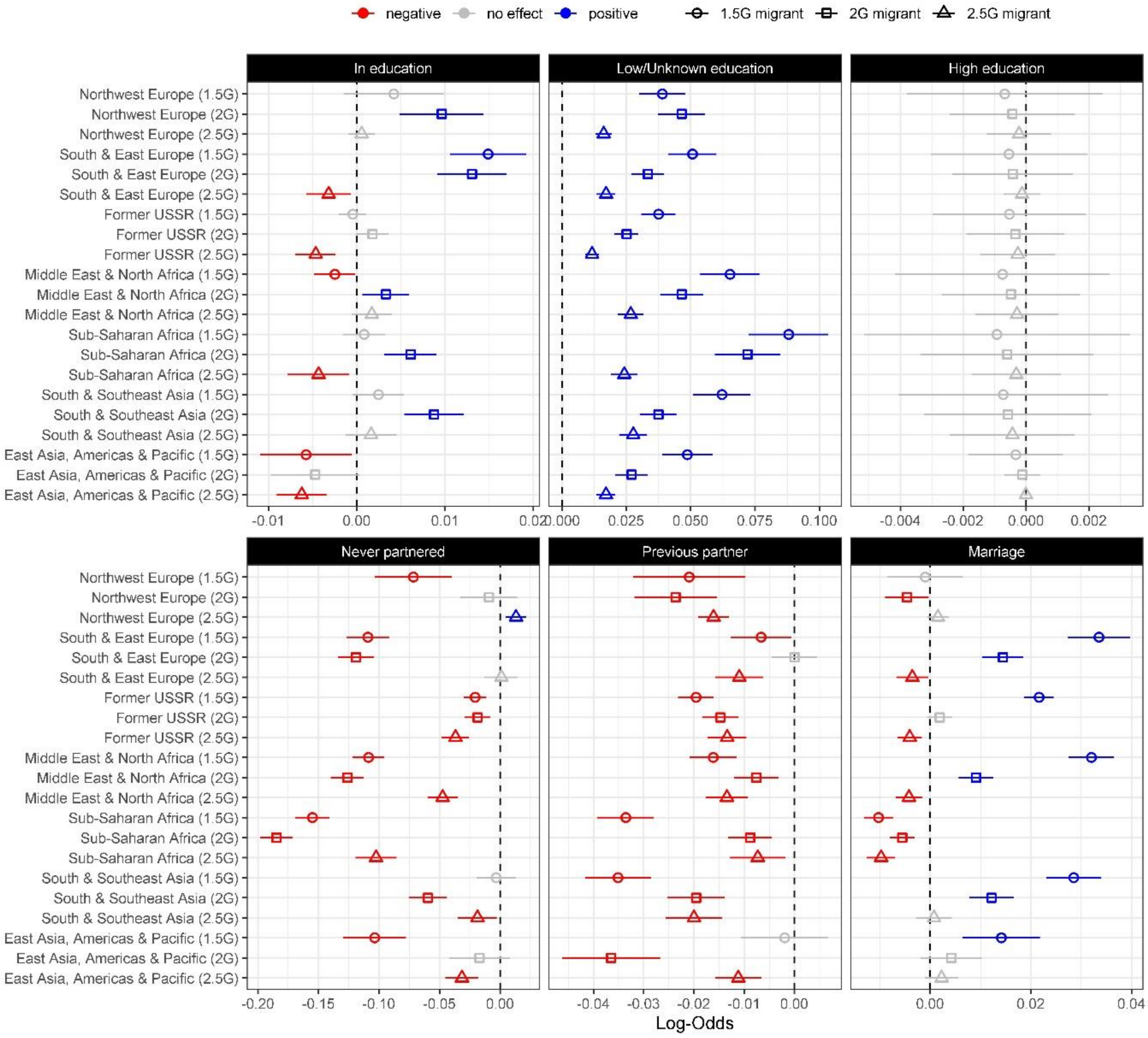
Caption: Error lines represent 95% confidence intervals.

Figure 7. Main results for men.



Caption: Panel A compares the coefficients of the estimated effects for different groups of migrant descendant men in the model incorporating education and partnership status (the adjusted model) versus the model excluding these effects (the reduced model). Panels B to H illustrate the expected probabilities of parenthood in the model with migrant origin interacted with age, specified as a cubic spline with no pre-established knots, along with birth cohort, education, and partnership status as controls. Within each panel, the red curve represents 1.5-generation migrants, the ochre curve denotes second-generation migrants, and the blue curve stands for 2.5-generation migrants. The black line represents native-born men (the reference category). Values beyond the age of 35 are omitted from the figure due to their large standard errors. Error bars represent 95% confidence intervals.

Figure 8. Indirect effects via education and partnership status (KHB method) for men



Caption: Error lines represent 95% confidence intervals.