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Abstract: Differences in how people form families and the timing of family formation can provide insights into social distance between groups. We situate our study in Norway and Sweden, countries on the leading edge of family changes associated with the so-called Second Demographic Transition and with increasingly diverse populations. Within these contexts, beginning a family via marriage or via a non-marital first birth and the timing of this transition may provide evidence of differences (or similarities) in the meaning attached to family formation across majority and immigrant-background women. Immigrant-generational shifts in the timing and pathway into family life may indicate boundary blurring between majority and immigrant background groups. Using comparable register data and applying demographic modeling techniques, we compare the likelihood, timing, and mode of entry into family life by majority status, immigrant generation and region of (parental) origin. We find that the progressive adoption of the Nordic late marriage pattern across immigrant generations is contingent on global region of (parental) origin. However, regardless of immigrant background status, those who form families via a non-marital first birth, the modal pathway into family life in Norway and Sweden, also follow the timing pattern observed among majority populations. Results highlight the value of considering a broader range of family behaviors and the timing of family life course events to gain a better understanding of the gradations of social change in diverse societies.

Keywords: Social Groups, Second Generation, Norway, Sweden, Family Formation, Marriage, Parenthood

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Introduction

Complex societies are characterized by countless number of social groups (Simmel 1908). Individuals experience multiple group affiliations, across families, kin groups, neighborhoods, occupation, educational and class status, and ethnic group and immigrant generation, for example. Boundaries between groups are dynamic: they may be bright or blurry; they may be redefined, shifting with changes in self-presentation or social representation; some may cease to be salient, while other new boundaries may emerge (Alba 2005). The intersections between groups and group similarities can promote intergroup relations (Blau, Beeker, and Fitzpatrick 1984), reducing the social distance between groups and may ultimately contribute to the blurring or dissipating of symbolic or social boundaries (Alba 2005).

Family life behaviors have long been taken as key indicators of symbolic and social boundaries and social distance (Bean and Stevens 2003; Glick 2010; Kalmijn 1998; Lamont and Molnár 2002; Rosenfeld 2002; Szalay and Maday 1983). Chief among these is intermarriage (Gordon 1964), often considered the strongest indicator of boundary crossing, initially, and boundary weakening and diminishing social distance when it becomes more widespread (see, for instance: Bean and Stevens 2003; Kalmijn 1998; Kalmijn and Van Tubergen 2010; Pagnini and Morgan 1990; Qian and Lichter 2007; Rosenfeld 2002). However, due to a well-documented tendency toward homogamy across a variety of characteristics (race, ethnicity, education, as well as nativity), partner choice may not be an ideal measure of subtler "boundary blurring" between social groups (Alba 2005; Sassler and Qian 2003; Wiik and Holland 2017). To identify blurring and shifting boundaries, it is useful to consider a wider range of family behaviors. As family life courses become increasingly destandardized, the adoption of new family behaviors, such as non-marital cohabitation and non-marital childbearing, and the timing of these behaviors may provide insight into the distinction and distance between social groups.

We situate our study in Norway and Sweden. Like other European contexts, the Nordic countries are increasingly diverse, with growing shares of immigrants and their descendants. In 2016 16.8% of Norwegian and 22.8% of Swedish residents were born abroad or were born in their countries of residence to at least one foreign born parent (Statistics Norway, 2017a; Statistics Sweden 2017). At the same time, these countries are on the leading edge of many aspects of family change associated with the Second Demographic Transition (Lesthaeghe 2010; Neyer and Andersson 2008). Majority populations in these

countries form their families later and the order of life course events is changing: a majority of first births occur to cohabiting couples, prior to (or in the absence of) marriage (Eurostat 2017; Statistics Norway 2017b), and for those who do marry, union formalization increasingly follows rather than precedes a first birth (Holland 2013, 2017*)*. These trends have emerged in other European and Anglo-Saxon countries, but from a global perspective the early onset and the magnitude of these family life course changes is distinct in the Nordic countries (Adams and Trost 2005; Sobotka and Toulemon 2008; Andersson et al. 2017b).

The adoption of these new family behaviors and the later timing of family formation may occur across generations, shaped by social influence and learning through family, peer or media channels or if new behaviors and their timing are simply more efficient with respect to other aspects of Nordic society, such as educational systems, labor markets or social policies. To investigate boundary blurring across generations, we compare family formation behaviors of the second generation, distinguishing those with one or two foreign born parents, with those behaviors of immigrants arriving in their countries of residence in school ages (after age 7 and prior to age 18, the so-called "1.5 generation") and majority populations (i.e. those born in their country of residence to parent also born in their country of residence). As the family formation behaviors of the children of immigrants are likely shaped by both the influence of their family of origin and the dominant timing and pathway preferences in their country of birth and residence (Foner 1997; Holland and De Valk 2013), we expect that the propensity to have a non-marital first birth will increase with successive immigrant generations, while the propensity to marry should decrease. So too, regardless of the pathway into family life (marriage or a first birth), we expect that family formation should occur later among the children of immigrants, as compared to the 1.5-generation, but (perhaps) earlier as compared to majority populations.

Using population register data, we explore these family dynamics for women born between 1972 and 1989, living in Norway or Sweden at age 18, and further distinguishing the diverse regions of (parents') origin of those with an immigrant background. Beginning a family via marriage or a nonmarital birth, and the timing of these transitions will provide further evidence of differences (or similarities) in the meaning attached to family formation across majority and migrant-background subpopulations.

Background and Theory

Family Dynamics as Measures of Social Distance

Family behaviors have long been taken as a metric for measuring social distance between groups and how group distinctions decline over time and across generations. Given the intimate nature of family bonds and the role of families in the maintenance of group identity and cultural practices, through the socialization of children, family and family practices play a central role in the maintenance or the breaking down of social group boundaries (Kalmijn 1998). The greatest attention has been given to intermarriage or mixed unions, whereby individuals cross group boundaries (e.g. ethnic, religious, class) in selecting a partner. As a marginal behavior, mixed partnering can be taken as an example of boundary crossing. However, once intermarriage is widespread, what once might have been a marked distinction between social groups, or a 'bright boundary,' is no longer salient (Alba, 2005). As such, mixed unions can be taken as the final step in the assimilation process (Qian and Lichter, 2001).

There is considerable variation in the degree to which intermarriage and mixed partnerships occur. With respect to immigrants and their descendants, intermarriage may become more common across generations, with the second and third generations more likely to form a mixed union than their first-generation counterparts, who may also be partnered at the time of their arrival in their countries of residence (Kulu and González-Ferrer, 2014; Muttarak and Heath, 2010). In Norway, and particularly in Sweden, this generational gradient is evident: among first generation immigrants arriving as children, one fifth and one third of married men and women partnered with a majority spouse in Norway and Sweden, respectively; among the second generation with two foreign born parents, these shares constituted 17.6% in Norway and 45% in Sweden; and among the second generation with one majority parent, about three-quarters married a majority spouse (Wiik and Holland, 2017). Even so, some second-generation groups may be less likely to intermarry. Alba and Foner (2015) found considerable variation in rates of mixed unions among second generation men and women in France, Germany, Great Britain and the Netherlands; in particular, they highlight the importance of the "bright boundaries," such as the religious divide between Muslim groups and secular or Christian majority populations, as a determinant of rates of mixed partnership formation (Alba and Foner 2015, 44).

If intermarriage is rare, varies considerably for certain groups, and indicates only the most advanced degree of assimilation, it may not be an ideal measure of subtler processes of

adaptation that erode social distance between groups. Indeed, 'structural assimilation' between groups, such as intermarriage, is typically preceded by cultural adaptation, including the adoption of common language, practices and mores (Blau, Beeker, and Fitzpatrick 1984; Gordon 1964). Even where norms or preferences for in-group partnering remain, changes in the pathway into family life and the timing of family formation may reveal these cultural shifts and the blurring of group boundaries.

Pathways into Family Life

The ordering of life course events is becoming ever more diverse in Western societies (Sobotka and Toulemon 2008; Andersson et al. 2017b). Increasingly, a first birth is likely to occur prior or in the complete absence of marriage, typically within a cohabiting union, but in some contexts, such as the United Kingdom and the United States, also to lone mothers (Perelli-Harris et al. 2012). Norway and Sweden have often been identified as being forerunners of trends toward increasing non-marital childbearing in Europe, with more than half of all firsts birth first births occurring to unmarried cohabiting parents (Eurostat 2017; Statistics Norway 2017b) and more than 40% of first marriages occurring after a first conception or birth (Holland 2013, 2017). Globally, the proportion of births occurring outside of marriage vary considerably. Where data are available, there is some evidence that these births constitute a (near) majority in some Latin American and African contexts, but are less common in Asia, Eastern and Southern Europe, and the Middle East (United Nations 1999). This variation may in part be due to normative differences, socio-historical variation in family life (Adams and Trost 2005) or social policies which favor particular family forms (Neyer and Andersson 2008). Among groups with origins in countries where there are strong norms against childbearing outside of marriages or where it infrequently occurs, the propensity to form families via a first birth, rather than marriage, may indicate processes of adaptation to the Nordic family formation model.

Timing of Family Formation

The timing of family formation plays a pivotal role in the unfolding of life courses (Billari 2005; Elder Jr. 1985). Differential timing preferences between majority and immigrant-background populations can influence the degree to which intermarriage and mixed union formation is even possible (Kalmijn and van Tubergen 2006, 2010; Sassler and Qian 2003; Soehl and Yahirun 2011). More generally, the extent to which preferences for the timing of

family formation are distinct from those of the majority can pose a barrier for other aspects of social stratification, since early family formation may limit the pursuit of higher education and labor market activities, particularly for women (e.g. Brewster and Rindfuss 2000; Ní Bhrolcháin and Beaujouan 2012).

Individual preferences and agency, as well as the influences of family and close social relations, play a central role in determining the timing of family formation events (Barber 2000; Billari 2005). However, individuals' location in time and place are also key determinants, with the normative or ideal ages for family formation reflecting prevailing cultural norms regarding family formation and gender roles (Elder Jr. 1985; Holland and De Valk 2013). Indeed, there is substantial global variation in the average age of first marriage and first birth (Adams and Trost 2005; Hajnal 1982) and the influences of both countries of (familial) origin and residence may shape individuals' understandings of how family formation fits into the life course (Holland and De Valk 2013).

How Do Patterns of Family Formation Change?

The diffusion and adoption of new family behaviors, such as childbearing within cohabitation, occurs through social influence and learning (Vitali, Aassve, and Lappegård 2015). New behaviors are communicated through social channels, such as family, friend or education and work networks, through the mass media, or in structural ways, such as through the influence of social policies (Nazio and Blossfeld 2003; Neyer and Andersson 2008; Rogers 2003). New practices might also be adopted if they are considered more efficient or effective (Nazio and Blossfeld 2003; Rogers 2003); for example, later union formation may be more consistent with extended periods of schooling and establishing oneself on the labor market (Cherlin 2000; Holland and Vitali 2017; Oppenheimer 2003). Cultural portrayals of non-marital childbearing, or policies designed to accommodate childbearing within non-marital unions, such as the transfer of filial rights and responsibilities regardless of marital status, might act to lessen stigma toward and diminish social sanctions toward childbearing outside of marriage (Neyer and Andersson 2008; Perelli-Harris and Sánchez Gassen 2012).

Social influences, such as an emphasis on gender egalitarianism, may indirectly influence family life preferences and behaviors (Lesthaeghe 2010; Trost 1978). For example, both women and men consider both their own and their partner's economic success to be essential prior to forming a family, they may postpone marriage and childbearing to older ages. So too, if marriage is perceived as a patriarchal institution, individuals may forego

marriage, choosing instead to cohabit and go on to have a non-marital birth. Indeed, women's socioeconomic position was identified as a main predictor of the diffusion of non-marital childbearing in Norway (Vitali, Aassve, and Lappegård 2015).

Processes of diffusion will also shape the adoption of later marriage and childbearing within cohabitation among immigrants and their descendants as well, alongside the influences of their countries of (parents') origin (Holland and De Valk 2013; Sassler and Qian 2003; Wiik and Holland 2017). Change will occur across individual life courses, by duration of residence, but also across generations. Generational replacement is one of the main drivers of acculturation (Sassler and Qian 2003). Among the descendants of immigrants, the influence of co-ethnic third parties, including parents and peers, might become more diffuse, as they are joined by the influences of majority-background peers, through work and education networks, and the (local) mass media (Nazio and Blossfeld 2003).

For the children of immigrants with one majority-background parent, the so-called 2.5 generation, the transmission of majority family formation timing and behaviors will also occur through parental socialization within the household. The 2.5 generation may also identify less strongly with the minority group than those with two immigrant parents. Correspondingly, recent research using data on 14-year-old Swedes confirm that these "mixed children" have more contact with natives and hold more liberal family values than their counterparts with two immigrant parents (Kalmijn 2015).

This leads us to propose two generational hypotheses:

First generation immigrants, arriving in their countries of residence in childhood, will have the most distinct patterns of family formation relative to their second generation and majority peers (H1).

The second generation can be distinguished by the number of majority parents: the family formation timing and behaviors of children of one immigrant and one majority parent will be more like those of their majority peers, as compared to the children of two immigrants (H2).

Variation in the adoption of the Nordic model of the timing and pathway into family life may also be associated with the degree of social distance between countries of (parental) origin and residence (Holland and de Valk 2013). The immigrant populations in Norway and

Sweden are diverse and there is substantial variation in the family formation patterns in countries of origin (Andersson et al. 2015; Andersson et al. 2017a). As such, it is essential to differentiate immigrants and their descendants by their regions of (parental) origin. While it would be preferable to explore variation in family formation by country- or even lower-level subgroupings, due to small numbers of individuals across generational groups from individual countries and in order to ensure sufficient variation between family formation patterns in countries of origin and residence, we chose to focus on those with origins in three global regions: Eastern Europe; Middle East and North Africa; and Asia and Oceania (excluding Australia and New Zealand). Although these regional groupings are broad, these regions represent contexts with considerable differentiation in family formation regimes relative to the Nordic model. In these contexts, family formation occurs earlier (on average) and the vast majority of children are born to married parents (United Nations 1999; United Nations, Department of Economic and Social Affairs, Population Division 2015). As such we will better be able to identify persistence and change in family formation behaviors and timing across generations (Kalmijn and Van Tubergen 2010). However, as we do not account for individual and country of (parental) origin differences that might facilitate or slow the adaption of the Nordic family formation model, we do not generate hypotheses regarding regional differences in change in the pathway and timing of family formation. Still, consistency in our generational findings (H1 and H2) for individuals with origins in these diverse regions would be consistent with a more general theory of "boundary blurring," as measured by our pathway and timing framework.

Data and Methods

Data for these analyses come from administrative register data, covering the entire populations of Norway and Sweden. These high-quality data are globally unique. They allow for the exploration of family formation dynamics across migrant subpopulations, groups often too small to be captured in nationally representative survey data and often hard-to-reach due to social exclusion, a lack of trust, language difficulties, or residential mobility (Barnes 2008; Stoop, Billiet, and Koch 2010). Data for Norway were obtained directly from the population registers covering births, deaths, im-/emigration, civil-status changes, and foreign-born status through 2012, housed at Statistics Norway. Data for Sweden were obtained from the Sweden in Time: Activities and Relations (STAR) collections of data, which includes information on

births, deaths, im-/emigration, civil status changes (from 1968), and foreign-born status for all persons residing in Sweden through 2007.[1]

We limit our analysis to women born between 1972 and 1989, who were born in Norway or Sweden or who arrived as school-aged children or adolescents (after age 7 and prior to age 18). We focus on these birth cohorts because the second generation living in Norway and Sweden is relatively young and we wanted to compare the family formation of these young adults with similar cohorts of first generation migrants and Swedish and Norwegian majority populations. We distinguish immigrant-background subpopulations based on country of birth and number of foreign born parents: the 1.5 generation, those born abroad who migrated to Sweden or Norway between the ages of 7 and 18 (school-age); the second generation, those born in their country of residence, with two foreign-born parents; and those born in their country of residence, with one foreign-born and one native-born parent, hereafter referred to as the 2.5 generation. We contrast these groups with majority-background individuals, i.e. those individuals born in their countries of residence with two native-born parents. We exclude the first-generation immigrants arriving in Norway or Sweden after age 18 because migration and family formation is often endogenous, resulting in the distortion of the timing of family events (Andersson 2004; Toulemon 2004). We exclude the first generation arriving prior to age 7 because first generation immigrants arriving prior to school age may be more similar to the second generation.

In order to account for differences in the composition of each of the generational groups, we further disaggregate immigrant-background populations by region of (parents') origin, selecting those with origins in Eastern Europe (11% and 17% of our immigrant background samples in Norway and Sweden, respectively), the Middle East and North Africa (10% and 15% of the Norwegian and Swedish samples, respectively), and Asia and Oceania (excluding Australia and New Zealand) (20% and 5% in Norway and Sweden, respectively). For the 1.5 generation, region of origin is assigned based on country of birth. For the 2.5 generation (the second generation with one foreign-born parent), region of origin is assigned based on country of birth of the foreign-born parent. For the second generation (with two foreign-born parents), we follow the standard rules employed by statistical organizations: region of origin is assigned based on mother's birth country; if mother's country of birth is missing, region of origin is assigned based on father's birth country. We could identify all

[1] *STAR was created by Statistics Sweden for a consortium of research projects at the Swedish Institute for Social Research (SOFI) and the Stockholm University Demography Unit (SUDA). The collections of data are maintained at Statistics Sweden and are available only by remote online access.*

individuals comprising these groups who are legally registered in Norway or Sweden. We contrast these groups with a five-percent random sample of the majority population in each country. In total, our analysis samples comprise 210,587 women in Sweden and 73,320 women in Norway.

We identify all first marriages and first births occurring after age 18 and prior to age 36, between 1990 and 2007 in Sweden and between 1990 and 2012 in Norway.[2] Our central interest is understanding: 1) how common is it for individuals to form their families via marriage, which can be considered the standard global family formation pathway, or via a first birth, an increasingly common family formation pathway in Northern and Western Europe and the modal pathway in both Norway and Sweden and 2) the relative timing of family formation via these two pathways. In considering both the pathway into and timing of family formation, our central comparison will be how these demographic events vary by immigrant generation and region of origin, relative to the experiences of the majority populations in Norway and Sweden.

The life table is the standard demographic methodological device for investigating time-to-event patterns within populations (Preston, Heuveline, and Guillot 2001). While its original use was to investigate patterns of mortality, the life table can be applied to any decrement process (Andersson and Philipov 2002). Because we consider entry into marriage or the experience of a first birth as competing events, in our analysis we use the multiple decrement life table, an extension of the basic life table. Unlike the standard life table, where individuals have only one mode of exit from the 'population at risk,' in a multiple decrement framework the intensity of exit is modeled for multiple modes of exit. In our case, exit from the population of unmarried, childless individuals living in Sweden or Norway can occur via marriage, via a first birth, or via death or out-migration (modeled jointly as a "residual" process).

The life table is a non-parametric analytical tool; however, we can investigate differences in the frequency and timing of different pathways into family life across immigrant generation and region of origin by constructing separate life tables for each immigrant generation and region of origin category for Norway and Sweden. Preliminary analyses suggest similar patterns of the pathway and timing of entry into families across

[2] *Data for Sweden were available through December 2007, when the oldest birth cohort (born in 1972) were 35 years old. Because we have an additional five years of data for Norway, we are able to follow individuals born between 1972 and 1977 until age 35. However, in order to investigate family transitions across a comparable age range in both the Swedish and Norwegian analysis, we right censor individuals born in 1972-77 living in Norway in December of the year they turn 35.*

generation and region of (parental) origin in Norway and Sweden, likely a result of similar institutional, economic and cultural characteristics. As such, and for ease of interpretation, we construct our life tables with pooled data for Norway and Sweden. In total, we calculate 10 multiple decrement cohort life tables (3 generations * 3 regions of origin + the majority population).

From these life tables, we derive the age-specific probability of marrying and the age-specific probability of a first birth (net of competing probabilities) and present these results in graphical form. Where few events are recorded, there is considerable variability in the age-specific probabilities. To improve the clarity of the figures, we present three-year moving averages of each age-specific probability. Full life tables by generation and region of origin for Norway and Sweden are presented in the Appendix.

Results

Descriptive statistics regarding shares of immigrant-background populations by generation and region of origin and the majority sample are included in Table 1 (Norway) and 2 (Sweden). From these tables, we first note that a slightly smaller share of the Norwegian sample immigrated or has an immigrant background (48% in Norway versus 65% in Sweden), reflecting the shorter history of migration in Norway. Next, Asia and Oceania (excluding Australia and New Zealand) is the largest immigrant background region in Norway, with nearly a quarter of the analysis sample. In Sweden, on the other hand, the largest share of immigrant-background women have their origins in Eastern Europe, followed closely by the Middle East and North Africa.

[Table 1 about here]
[Table 2 about here]

Figure 1 presents the age-specific probabilities of marriage and parenthood for the combined 5% random samples of majority women in Norway and Sweden. The probability of forming a family via a first birth rather than marriage is higher at each age, although marriage risks peak earlier (just before age 30) than first birth risks (peaking just after age 30). These two risk profiles constitute the baseline for comparisons of the propensity and relative timing of marriage and first birth for the immigrant subpopulations in Norway and Sweden.

[Figure 1 about here]

Figures 2 and 3 present the age-specific risk profiles for marriage and parenthood (respectively) for Eastern European-origin women and their majority counterparts in Norway and Sweden. As shown in Figure 2 there is evidence of distinct generational change in the propensity and timing of marriage among Eastern European immigrants and their descendants. Among the 1.5 generation, marriage risks are considerably higher at earlier ages. There is an earlier marriage pattern among the second generation as well, although the risk of marriage at younger ages is lower than that of the 1.5 generation. Among those of the second generation with one immigrant parent (the 2.5 generation), the risk profile for marriage is similar to that of majority women, although the peak in marriage risks occurs somewhat later (around age 32).

Turning to the risk of parenthood, there is an increase in the likelihood of forming a family via first birth relative to marriage across immigrant generations, particularly after age 27 (Figure 3). We find only limited evidence of a generational gradient for the timing of a first birth, however; among those Eastern-European-origin women who pursue the dominant Nordic family formation pathway via a nonmarital birth, the timing of family formation is quite like that of the majority population.

[Figure 2 about here]
[Figure 3 about here]

Among immigrants and their descendants from the Middle East and North Africa (Figures 4 and 5) and from Asia (Figures 6 and 7), we see patterns of family formation that are substantially more distinct from majority populations. With respect to the risk profiles for marriage, there is an early marriage pattern for women of the 1.5 and second generation with origins in the Middle East and North Africa and in Asia. However, unlike among those of Eastern European origin, the generational gradient is not evident for the timing of marriage; both the 1.5 and second generation are more likely to marry at earlier ages and the differences between these two generational groups is marginal. The propensity to form a family via a first birth is lower among women of immigrant-background as compared to majority women. There is evidence of a U-shaped association between generation and the propensity to form

families via parenthood at early ages, inconsistent with our generational gradient hypotheses (*H1* and *H2*): the lowest risk of a first nonmarital birth is evident among the second generation, while the risk among the 1.5 and 2.5 generations is more similar to the majority population. At older ages, the 2.5-generation, with one parent born in the Middle East and North Africa or in Asia, stands out as having the highest age-specific risks of first birth of all the immigrant-origin generations, though still lower than the majority populations. Given that union formation patterns are more dissimilar in the Middle East and North Africa and in Asia, processes of generational replacement may be slower to occur; a key determinant of following the Nordic family formation pattern may be exposure to a majority-background parent.

[Figure 4 about here]

[Figure 5 about here]

[Figure 6 about here]

[Figure 7 about here]

Discussion

Using high-quality administrative register data, this paper investigated boundary blurring between immigrants, their descendants and majority women born between 1972 and 1989, living in Norway and Sweden at age 18. Family practices play a central role in defining social group boundaries (Kalmijn 1998), but intermarriage may be a limited measure of the subtle blurring of boundary since it is often rare and indicates the most advanced degree of assimilation (Alba 2005; Gordon 1964; Sassler and Qian 2003). To better capture subtler processes of cultural adaptation and the erosion social distance between groups, we focused on the timing of family formation and the pathway into family life: do couples form families via marriage or a first birth? We hypothesized that we would find a negative generational gradient on the propensity to marry and form families at early ages, and a positive gradient on the propensity to form families via first non-marital birth and at older ages. Our results provided mixed evidence for such a gradient, and depended upon the outcome of interest (marriage or first birth).

Results for marriage among immigrants and their descendants of Eastern European origin most closely followed our generational hypotheses of "boundary blurring." There was a clear generational gradient in the propensity and timing of marriage, with the 1.5 generation most likely to marry and to experience that marriage at early ages, the 2.5 generation was most similar to the majority populations, and the second generation fell somewhere in between. With respect to first births, we found some support for our generational gradient hypothesis. However, across all generations, the majority timing pattern of entry into parenthood dominated. The majority timing pattern was also evident with respect to first births for immigrant-background women from the Middle East and North Africa, and Asia. It is interesting that, while the uptake of this pathway to family life is lower among immigrants and their descendants, among those who do pursue this modal Nordic family formation pathway, the Nordic timing pattern seems to dominate. This might suggest that the marital context of childbearing is a bright boundary between social groups (Alba 2005). Pursuing this pathway into family life may be a boundary crossing act, more akin to intermarriage, rather than boundary blurring, through the postponement of family formation.

With respect to the propensity to enter parenthood, as well as for the propensity and timing of marriage, among immigrant-background women from the Middle East and North Africa and from Asia, the 1.5 and second generation followed a pattern distinct from the 2.5 and majority populations. While it is not possible to conclude from these macro-level data what is driving the distinction between these two groups of women, we speculate that the role of socialization through a majority parent might be essential for determining whether a woman pursues this pathway into family life. Alternatively, this finding could be driven by the propensity to partner exogamously. The parents of the 2.5 generation partnered exogamously, and it may be that the intergenerational transmission of exogamy indirectly influences both the timing of family formation and the decision to have a child prior to or in the absence of marriage (Sassler and Qian 2003; Wiik and Holland 2017).

These results highlight the unique position of the second generation within societies. Distinguishing this heterogeneous group both by number of immigrant-background parents as well as by region of origin is essential for understanding the family lives of the descendants of migrants and their position within Nordic society, with respect to the family life course. Additional investigations into how the timing of and pathway into family life varies by partner choice may provide a further nuanced picture of group dynamics and social and symbolic boundaries between the second generation and their immigrant and majority-

background peers. Moreover, micro-level approaches using quantitative data, to understanding how family formation patterns are related to additional individual and background characteristics, or qualitative data, to better understand the meaning attached to the timing and pathway into family life, may help us to further understand the relative position of these groups within increasingly diverse societies.

A strength of the administrative register data used for these analyses is their coverage of population sub-groups, often missed in surveys, due to their small group sizes or because they may be 'hard to reach.' So too do these data provide a long view of the unfolding of the family life course across nearly two decades. At the same time, these data cannot provide us with insights into the motivations and meanings of individuals' family life courses choices. Additionally, further insight into the diffusion of Nordic family patterns could be gained by investigating the role of cohabitation in the family life course. In recent years, both Norway and Sweden have developed dwelling registers, but these covered only a handful of years at the end of our study period for Norway and did not exist by 2007 for Sweden. The availability of these non-marital cohabitation data will offer researchers the opportunity to explore the adoption of an additional dimension of the Nordic family system among immigrants and their descendants.

To produce stable age-specific estimates of the transition to marriage or a first birth using multiple decrement life tables, it was necessary to have sufficient numbers of observations at each age. As such, we chose to focus on three distinct global regions: Eastern Europe, the Middle East and North Africa and Asia. These regions represent three of the most common immigrant origin regions in Norway and Sweden, and have distinct patterns of family formation, as compared to the Nordic model (Andersson et.al. 2015; Andersson et al. 2017a). It was notable that we found differential support for our generational hypotheses in each of these global regions: there was a clear generational shift for those with origins in Eastern Europe, but this shift was less evident among those with origins in the Middle East and North Africa and in Asia. Although we cannot identify the causal mechanism driving this distinct pattern across generations, it may be that larger differences in the family formation patterns in countries of (parental) origin and residence might reduce the likelihood of generational change. Indeed, a higher prevalence of non-marital childbearing and a greater diffusion of non-marital cohabitation within Eastern Europe (Perelli-Harris et al. 2012), as well as closer socio-cultural, -political and -historical links, particularly between Scandinavia and the Baltic countries, may imply a reduced social distance between immigrants and their

descendants of Eastern Europe and majority Norwegians and Swedes. Extending this study to explore differences by countries of origin, or still better, among particular sub-national populations, since national-origin groups may be ethnically diverse (Kalmijn and van Tubergen 2010), using survey or qualitative data may allow us to fine tune our understanding of the adaption and boundary processes observed with these large scale, macro-level data.

Central to our thesis is the interpretation of non-marital childbearing as a part of the dominant pattern of family formation in Norway and Sweden. Indeed, the majority of all first births occur to unmarried, cohabiting couples, which many scholars have highlighted as part of a broader socio-cultural shift toward new meanings of marriage, where it is no longer a pre-requisite for childbearing (Cherlin 2000, 2009; Heuveline and Timberlake 2004; Holland 2013, 2017). We argue that the incorporation of cohabitation into the family life courses of immigrants and their descendants may represent a narrowing of the social distinctions between groups. However, it could also be that social groups have different motivations for non-marital childbearing. For examples, in some contexts, non-marital childbearing is strongly associated with socioeconomic status and may reflect a pattern of disadvantage, particularly if marriage is perceived to requiring high (socio-)economic underpinnings (Perelli-Harris et al. 2010). Given that immigrants and their descendants tend to experience greater economic hardship than their majority counterparts, we cannot dismiss the possibility that non-marital childbearing may operate as a function of disadvantage rather than adaptation or boundary blurring between groups. While the parallel negative generation gradients in the timing and propensity to marry do support our hypothesis, incorporating information on socioeconomic and economic status within a multivariate framework would allow for a deeper exploration of the pattern of disadvantage hypothesis with respect to immigrants and their descendants.

In this paper, we approached the question of family formation from an individual perspective. However, the characteristics and preferences of (potential) partners, as well as marriage market characteristics, place constraints on family formation. Adaptation and boundary blurring between groups is a "two-way" process, requiring the participation of both groups. Moreover, certain individuals (or groups of individuals) may be more likely to partner exogamously or with a someone within one's group but who favors Nordic patterns of family formation. It is difficult to ascertain whether the patterns identified here reflect the shifting individual preferences, which best characterizes an (individual-level) adaptation framework, the influence of a partner's preferences, or the dominant preferences within

marriage markets, which might speak to group and boundary dynamics. Differentiating these influences is essential for understanding the degree to which an individual has agency with respect to family formation or whether the timing and pathway into family life reflects group dynamics or external constraints.

Taken together the results presented here provide an important starting point for deepening our understanding of shifting social boundaries and group dynamics. The family is a core social institution, providing support for individuals across the life course, making it an important metric for exploring social distance. Going beyond intermarriage to incorporate family behaviors and the timing of family life course events allow us to gain a better understanding of the gradations of social change in diverse societies.

References

Adams, Bert N., and Jan Trost (Eds.). 2005. Handbook of World Families. Thousand Oaks, CA: Sage Publications.

Alba, Richard. 2005. "Bright vs. blurred boundaries: Second-generation assimilation and exclusion in France, Germany, and the United States." *Ethnic and Racial Studies* 28(1):20-49.

Alba, Richard, and Nancy Foner. 2015. "Mixed Unions and Immigrant-Group Integration in North America and Western Europe." *The ANNALS of the American Academy of Political and Social Science* 662(1):38-56.

Alba, Richard, and Victor Nee. 1997. "Rethinking Assimilation for a New Era of Immigration." *International Migration Review* 31(4):826-74.

_____. 2003. Remaking the American Mainstream: Assimilation and Contemporary Immigration. Cambridge, MA: Harvard University Press.

Andersson, Gunnar. 2004. "Childbearing after Migration: Fertility Patterns of Foreign-Born Women in Sweden." *International Migration Review* 38(2):747-74.

Andersson, Gunnar, and Dimiter Philipov. 2002. "Life-table representations of family dynamics in Sweden, Hungary, and 14 other FFS countries: A project of descriptions of demographic behavior." *Demographic Research* 7(4):67-144.

Andersson, Gunnar, Ognjen Obućina, and Kirk Scott. 2015. "Marriage and divorce of immigrants and descendants of immigrants in Sweden." *Demographic Research* 33(2):31-64.

Andersson, Gunnar, Lotta Persson, and Ognjen Obućina. 2017a. "Depressed fertility among descendants of immigrants in Sweden." *Demographic Research* 36(39):1149-84.

Andersson, Gunnar, Elizabeth Thomson, and Aija Duntava. 2017b. "Life-table representations of family dynamics in the 21st century." *Demographic Research* forthcoming.

Barber, Jennifer S. 2000. "Intergenerational Influences on the Entry into Parenthood: Mothers' Preferences for Family and Nonfamily Behavior." *Social Forces* 79(1):319-48.

Barnes, William. 2008. "Improving the participation of migrants in the Labour Force Survey: a review of existing practices in EU member states." Survey Methodology Bulletin 63:25-38.

Bean, Frank D., and Gillian Stevens. 2003. America's Newcomers and the Dynamics of Diversity. New York: Russell Sage Foundation.

Bernhardt, Eva, Francis Goldscheider, Calvin Goldscheider, and Gunilla Bjerén. 2007. Immigration, Gender and Family Transitions to Adulthood in Sweden. Lanham, MD: University Press of America.

Billari, Francesco C. 2005. "Life course analysis: two (complementary) cultures? Some reflections with examples from the analysis of the transition to adulthood." *Advances in Life Course Research* 10:261-81.

Blau, Peter M., Carolyn Beeker, and Kevin M. Fitzpatrick. 1984. "Intersecting Social Affiliations and Intermarriage." *Social Forces* 62(3):585-606.

Brewster, Karin L., and Ronald R. Rindfuss. 2000. "Fertility and Women's Employment in Industrialized Nations." *Annual Review of Sociology* 26(1):271-96.

Cherlin, Andrew J. 2000. "Toward a New Home Socio-Economics of Union Formation." In Linda J. Waite (Ed.), The Ties that Bind: Perspectives on marriage and cohabitation. Hawthorne, NY: Aldine de Gruyter.

_____. 2004. "The deinstitutionalization of American marriage." *Journal of Marriage and Family* 66(4):848-61.

_____. 2009. The Marriage-Go-Round: The state of marriage and the family in America today. New York: Alfred A. Knopf.

De Valk, Helga A. G., and Aart C. Liefbroer. 2007. "Timing Preferences for Women's Family-Life Transitions: Intergenerational Transmission Among Migrants and Dutch." *Journal of Marriage and Family* 69(1):190-206.

De Valk, Helga A. G., and Nadja Milewski. 2011. "Family life transitions among children of immigrants: An introduction." *Advances in Life Course Research* 16(4):145-51.

Elder Jr., Glen H. 1985. "Perspectives on the Life Course. " In G. H. Elder Jr. (Ed.), Life Course Dynamics (pp. 23-49). Ithaca, NY: Cornell University Press.

Eurostat. 2016. "Migrant Population Characteristics: Second generation immigrants in the EU generally well integrated into the labour market and have high educational attainment." Eurostat News Release 213/2016. 28 October 2016. http://ec.europa.eu/eurostat/documents/2995521/7724025/3-28102016-BP-EN.pdf/6e144b14-d5e1-499e-a271-2d70a10ed6fe

_____. 2017. "Marriages and births in Sweden." Retrieved June 16, 2017 from: http://ec.europa.eu/eurostat/statistics-explained/index.php/Marriages_and_births_in_Sweden

Foner, Nancy. 1997. "The Immigrant Family: Cultural Legacies and Cultural Changes." *International Migration Review* 31(4):961-74.

Glick, Jennifer E. 2010. "Connecting Complex Processes: A Decade of Research on Immigrant Families." *Journal of Marriage and Family* 72(3):498-515.

Gordon, Milton M. 1964. Assimilation in American Life. New York: Oxford University Press.

Hajnal, John. 1982. "Two Kinds of Preindustrial Household Formation System." *Population and Development Review* 8(3):449-94.

Heuveline, Patrick, and Jeffrey M. Timberlake. 2004. "The role of cohabitation in family formation: The United States in comparative perspective." *Journal of Marriage and Family* 66(5):1214-30.

Holland, Jennifer A. 2013. "Love, Marriage, then the Baby Carriage? The timing of marriage and childbearing in Sweden." *Demographic Research* 29(11):275-306.

_____. 2017. "The timing of marriage vis-à-vis co-residence and childbearing in Europe and the United States." *Demographic Research* 36(20):609-26.

Holland, Jennifer A., & Helga A. G. de Valk. 2013. "Ideal ages for family formation among immigrants in Europe." *Advances in Life Course Research* 18(4):257-69.

Holland, Jennifer A., and Agnese Vitali. 2017. "Economic Dependency and Cohabiting Couples' Union Transitions." Paper presented at the Population Association of America Annual Meetings, Chicago, IL, USA.

Huschek, Doreen, Helga A. G. De Valk, and Aart Liefbroer. 2010. "Timing of first union among second-generation Turks in Europe: The role of parents, peers and institutional context." *Demographic Research* 22(16):473-504.

Kalmijn, Matthijs. 1998. "Intermarriage and Homogamy: Causes, Patterns, Trends." *Annual Review of Sociology* 24(1):395-421.

_____. 2015. "The children of intermarriage in four European countries. Implications for school achievement, social contacts, and cultural values. " *The Annals of the American Academy of Political and Social Science* 662(1):246-65.

Kalmijn, Matthijs, and Frank Van Tubergen. 2006. "Ethnic intermarriage in the Netherlands: confirmations and refutations of accepted insights." *European Journal of Population* 22(4):371-97.

_____. 2010. "A Comparative Perspective on Intermarriage: Explaining Differences Among National-Origin Groups in the United States." *Demography* 47(2):459-79.

Kulu, Hill, and Amparo González-Ferrer. 2014. "Family Dynamics Among Immigrants and Their Descendants in Europe: Current Research and Opportunities." *European Journal of Population* 30(4):411-35.

Lamont, Michèle, and Virág Molnár. 2002. "The Study of Boundaries in the Social Sciences." *Annual Review of Sociology* 28(1):167-95.

Lesthaeghe, Ron J. 2010. "The Unfolding Story of the Second Demographic Transition." *Population and Development Review* 36(2):211-51.

Lieberson, Stanley, and Mary C. Waters. 1988. From Many Strands: Ethnic and racial groups in contemporary America. New York: Russell Sage Foundation.

Muttarak, Raya, and Anthony Heath. 2010. "Who intermarries in Britain? Explaining ethnic diversity in intermarriage patterns." *The British Journal of Sociology* 61(2):275-305.

Nauck, Bernhard. 2001. "Intercultural Contact and Intergenerational Transmission in Immigrant Families." *Journal of Cross-Cultural Psychology* 32(2):159-73.

Nazio, Tiziana, and Hans-Peter Blossfeld. 2003. "The diffusion of cohabitation among young women in West Germany, East Germany and Italy." *European Journal of Population* 19(1):47-82.

Neyer, Gerda, and Gunnar Andersson. 2008. "Consequences of Family Policies on Childbearing Behavior: Effects or Artifacts?" *Population and Development Review* 34(4):699-724.

Ní Bhrolcháin, Máire, and Éva Beaujouan. 2012. "Fertility postponement is largely due to rising educational enrolment." *Population Studies* 66(3):311-27.

Oppenheimer, Valerie Kincade. 2003. "Cohabiting and Marriage during Young Men's Career-Development Process." *Demography* 40(1):127-49.

Pagnini, Deanna L., and S. Philip Morgan. 1990. "Intermarriage and Social Distance Among U.S. Immigrants at the Turn of the Century." *The American Journal of Sociology* 96(2):405-32.

Perelli-Harris, Brienna, Michaela Kreyenfeld, Wendy Sigle-Rushton, Renske Keizer, Trude Lappegård, Aiva Jasilioniene, Caroline Berghammer, and Paola Di Giulio. 2012.

"Changes in union status during the transition to parenthood in eleven European countries, 1970s to early 2000s." *Population Studies* 66(2): 167-82.

Perelli-Harris, Brienna, Wendy Sigle-Rushton, Michaela Kreyenfeld, Trude Lappegård, Renske Keizer, and Caroline Berghammer. 2010. "The Educational Gradient of Childbearing within Cohabitation in Europe." *Population and Development Review* 36(4):775-801.

Perelli-Harris, Brienna, and Nora Sánchez Gassen. 2012. "How similar are cohabitation and marriage? Legal approaches to cohabitation across Western Europe." *Population and Development Review* 38(3):435-67.

Preston, Samuel H., Patrick Heuveline, and Michel Guillot. 2001. Demography: Measuring and Modeling Population Processes. Malden, MA: Blackwell Publishing.

Qian, Zhenchao, and Daniel T. Lichter. 2007. "Social boundaries and marital assimilation: Interpreting trends in racial and ethnic intermarriage." *American Sociological Review* 72(1):68-94.

Rogers, Everett M. 2003. Diffusion of innovations. New York: Free Press.

Rosenfeld, Michael J. 2002. "Measures of assimilation in the marriage market: Mexican Americans 1970-1990." *Journal of Marriage and Family* 64(1):152-62.

Sassler, Sharon, and Zhenchao Qian. 2003. "Marital Timing and Marital Assimilation: Variation and Change among European Americans between 1910 and 1980." *Historical Methods* 36(3):131-48.

Simmel, Georg. 1908 [1955]. Conflict and the Web of Group Affiliations. New York: Free Press.

Sobotka, Tomáš, and Laurent Toulemon. 2008. "Changing family and partnership behaviour: Common trends and persistent diversity across Europe." *Demographic Research* 19(6):85–138.

Soehl, Thomas, and Jenjira Yahirun. 2011. "Timing of union formation and partner choice in immigrant societies: The United States and Germany." *Advances in Life Course Research* 16(4):205-16.

Statistics Norway. 2017a. "Immigrants and Norwegian-born to immigrant parents." Retrieved June 16, 2017 from: http://www.ssb.no/en/befolkning/statistikker/innvbef

Statistics Norway. 2017b. "Population statistics. Births 2016." Retrieved June 16, 2017, from: https://www.ssb.no/en/befolkning/statistikker/fodte/aar

Statistics Sweden. 2017. "Summary of population statistics 1960-2016. Retrieved February 23, 2017, from: www.scb.se/en/finding-statistics/statistics-by-subject-area/population/population-composition/population-statistics/pong/tables-and-graphs/yearly-statistics--the-whole-country/summary-of-population-statistics/

Stoop, Ineke A. L. , Jaak Billiet, and Achim Koch. 2010. Improving survey response: lessons learned from the European Social Survey. Chichester, UK: John Wiley & Sons Ltd.

Szalay, Lorand B., and Bela C. Maday. 1983. "Implicit Culture and Psychocultural Distance." *American Anthropologist* 85(1):110-18.

Toulemon, Laurent. 2004. "Fertility among immigrant women: new data, new approach." *Population and Societies* 400:1-4.

Trost, Jan. 1978. "Attitudes toward and Occurrence of Cohabitation without Marriage." *Journal of Marriage and Family* 40(2):393-400.

United Nations. 1999. "Table 13. Live births by legitimacy status, and percent illegitimate: 1990 - 1998." in Demographic Yearbook 1999 - Natality Statistics. http://unstats.un.org/unsd/demographic/products/dyb/DYBNat/NatStatTab13.pdf (accessed 9 June 2017).

United Nations, Department of Economic and Social Affairs, Population Division (2015). World Marriage Data 2015 (POP/DB/Marr/Rev2015)

Vitali, Agnese, Arnstein Aassve, and Trude Lappegård. 2015. "Diffusion of Childbearing Within Cohabitation." *Demography* 52(2):355-77.

Wiik, Kenneth Aa. and Jennifer A. Holland. 2017. "Partner choice and timing of first marriage among the children of immigrants in Norway and Sweden." *Acta Sociologica*. Published online. doi: 10.1177/0001699317718611

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Tables and Figures

Table 1. Region of (parental) origin by immigrant status and generation, women in Norway

	1.5 Generation		2nd Generation		2.5 Generation		Majority		Total	
	n	%	n	%	n	%	n	%	n	%
Norway	0	0.0	0	0.0	0	0.0	21,887	100.0	21,887	51.5
Eastern Europe	3,609	35.1	544	10.0	1,251	25.8	0	0.0	5,404	12.7
Middle East, North Africa	2,856	27.8	1,025	18.8	1,185	24.4	0	0.0	5,066	11.9
Asia, Oceania	3,806	37.1	3,889	71.3	2,420	49.8	0	0.0	10,115	23.8
Total	10,271	100.0	5,458	100.0	4,856	100.0	21,887	100.0	42,472	100.0

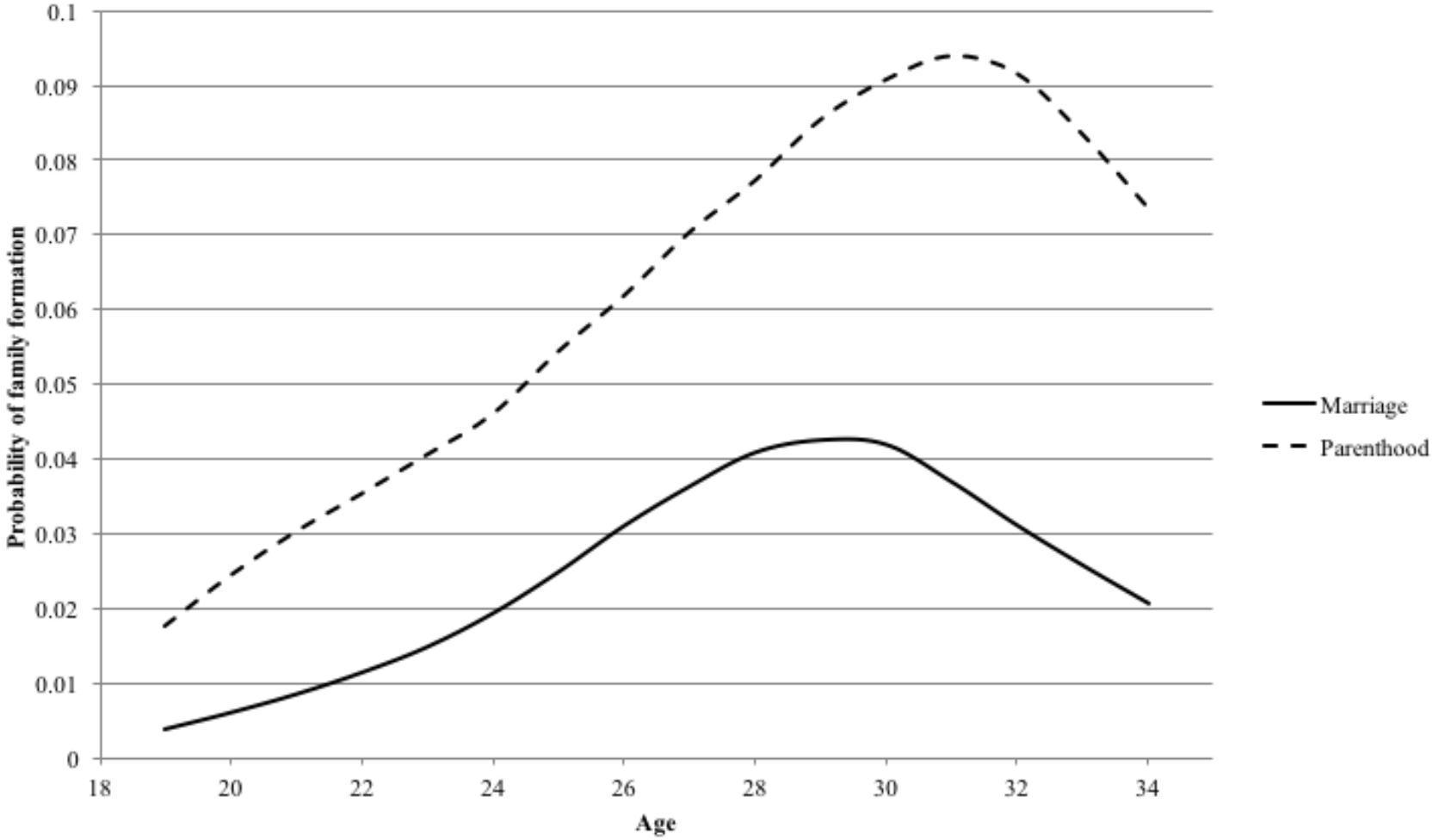
Note: Norwegian administrative registers. Statistics Norway.

Table 2. Region of (parental) origin by immigrant status and generation, women in Sweden

	1.5 Generation		2nd Generation		2.5 Generation		Majority		Total	
	n	%	n	%	n	%	n	%	n	%
Sweden	0	0.0	0	0.0	0	0.0	35,677	100.0	35,677	35.3
Eastern Europe	13,098	43.1	7,642	39.1	8,323	54.2	0	0.0	29,063	28.8
Middle East, North Africa	13,103	43.1	9,834	50.3	3,925	25.6	0	0.0	26,862	26.6
Asia, Oceania	4,193	13.8	2,081	10.6	3,102	20.2	0	0.0	9,376	9.3
Total	30,394	100.0	19,557	100.0	15,350	100.0	35,677	100.0	100,978	100.0

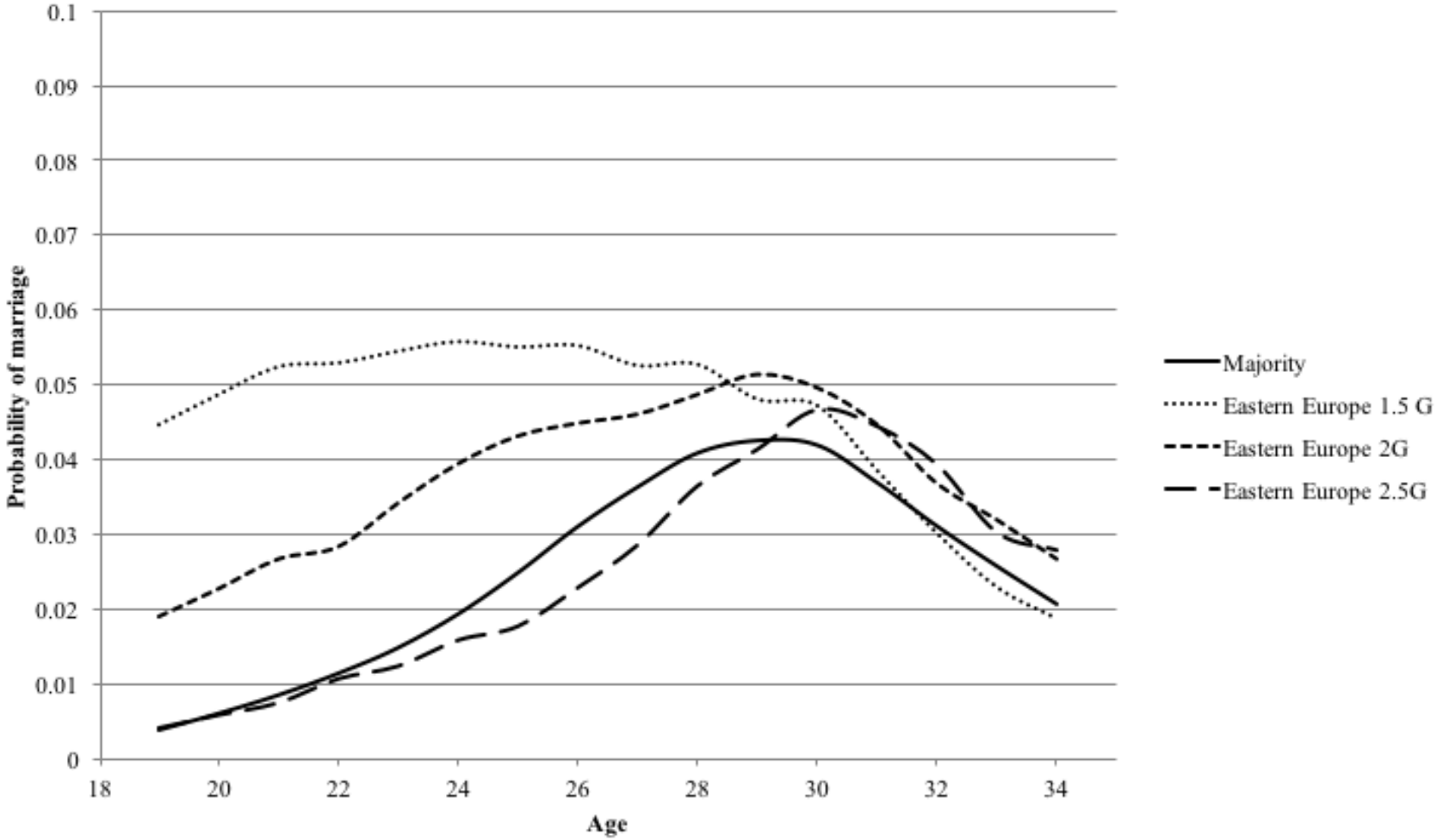
Note: Sweden in Time: Activities and Relations (STAR). Statistics Sweden.

Figure 1. Probability of first family formation via marriage or parenthood among majority populations in Norway and Sweden. Multiple decrement life tables



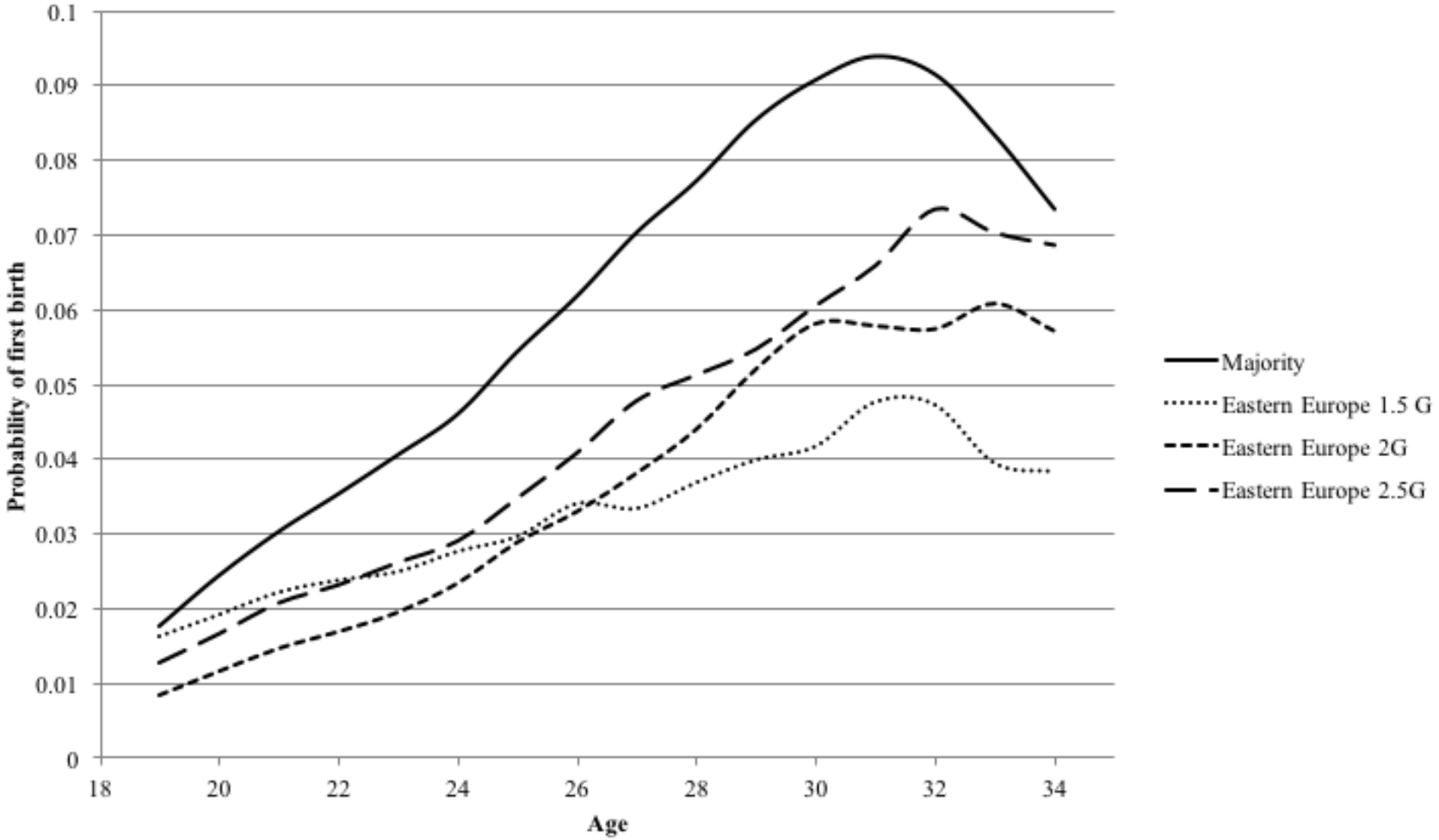
Note: Norwegian administrative registers. Statistics Norway; Sweden in Time: Activities and Relations (STAR). Statistics Sweden.

Figure 2. Probability of first marriage among Eastern European origin and majority populations in Norway and Sweden. Multiple decrement life tables



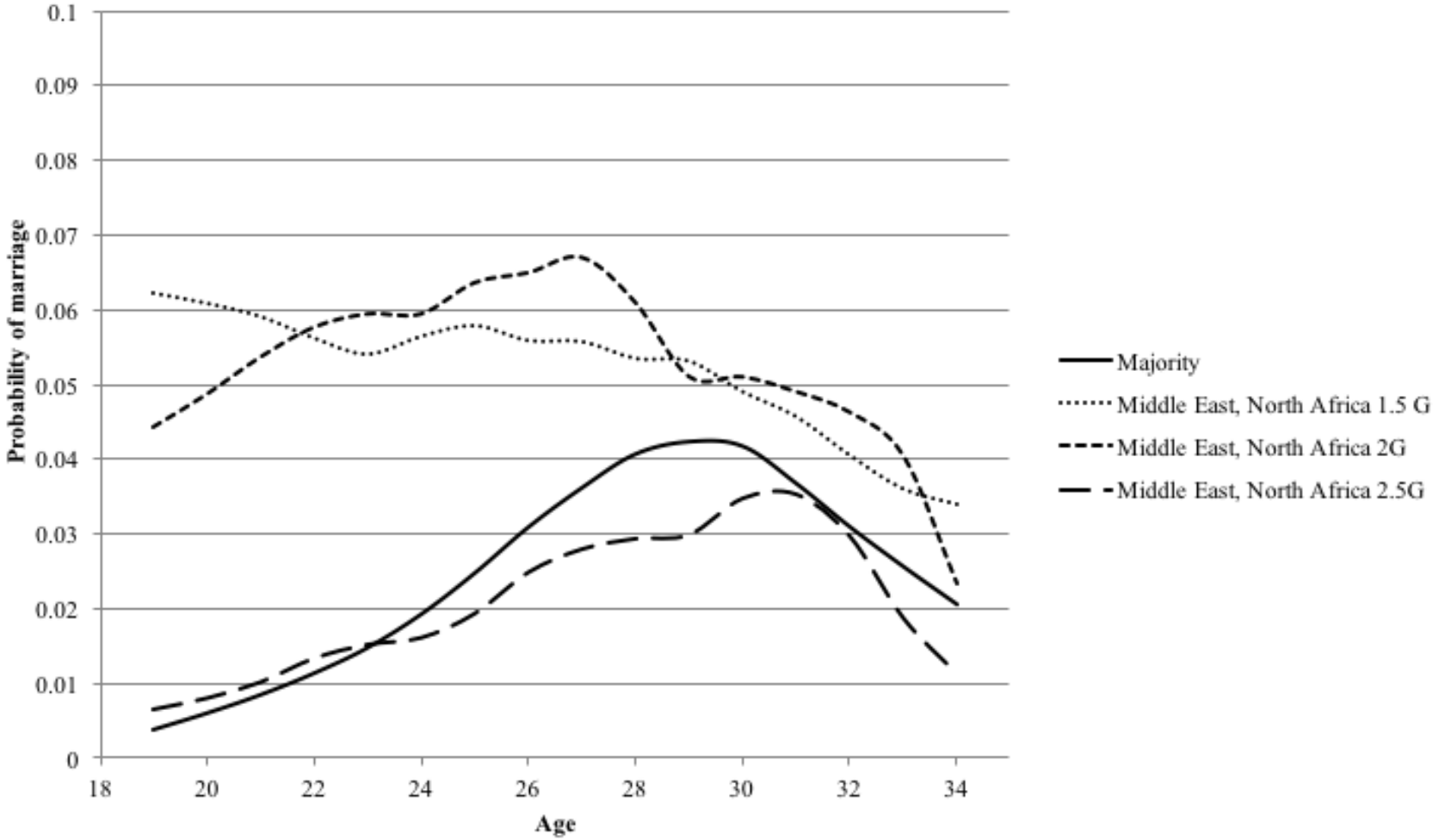
Note: Norwegian administrative registers. Statistics Norway; Sweden in Time: Activities and Relations (STAR). Statistics Sweden.

Figure 3. Probability of first non-marital birth among Eastern European origin and majority populations in Norway and Sweden. Multiple decrement life tables



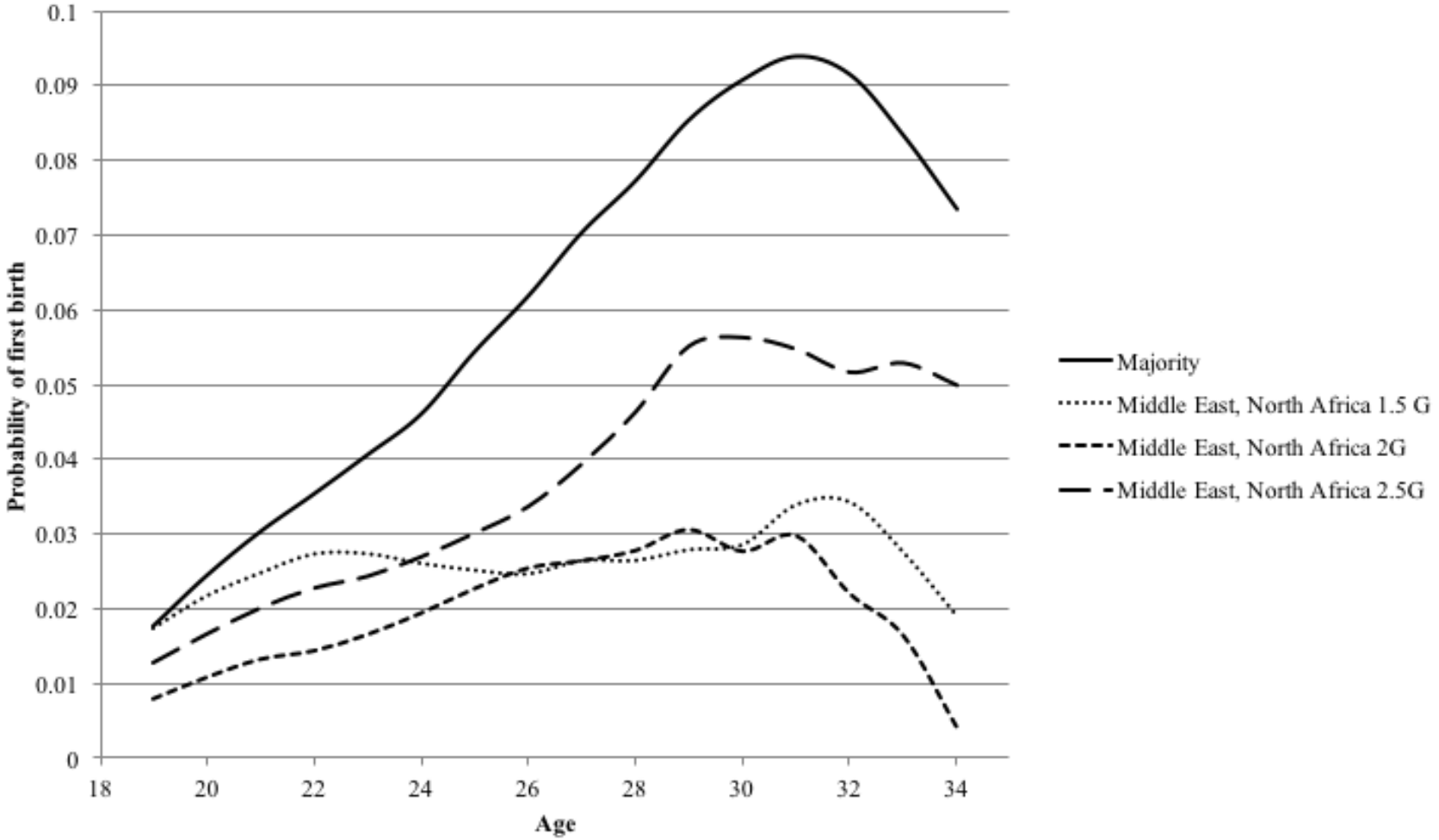
Note: Norwegian administrative registers. Statistics Norway; Sweden in Time: Activities and Relations (STAR). Statistics Sweden.

Figure 4. Probability of first marriage among Middle East and North African origin and majority populations in Norway and Sweden. Multiple decrement life tables



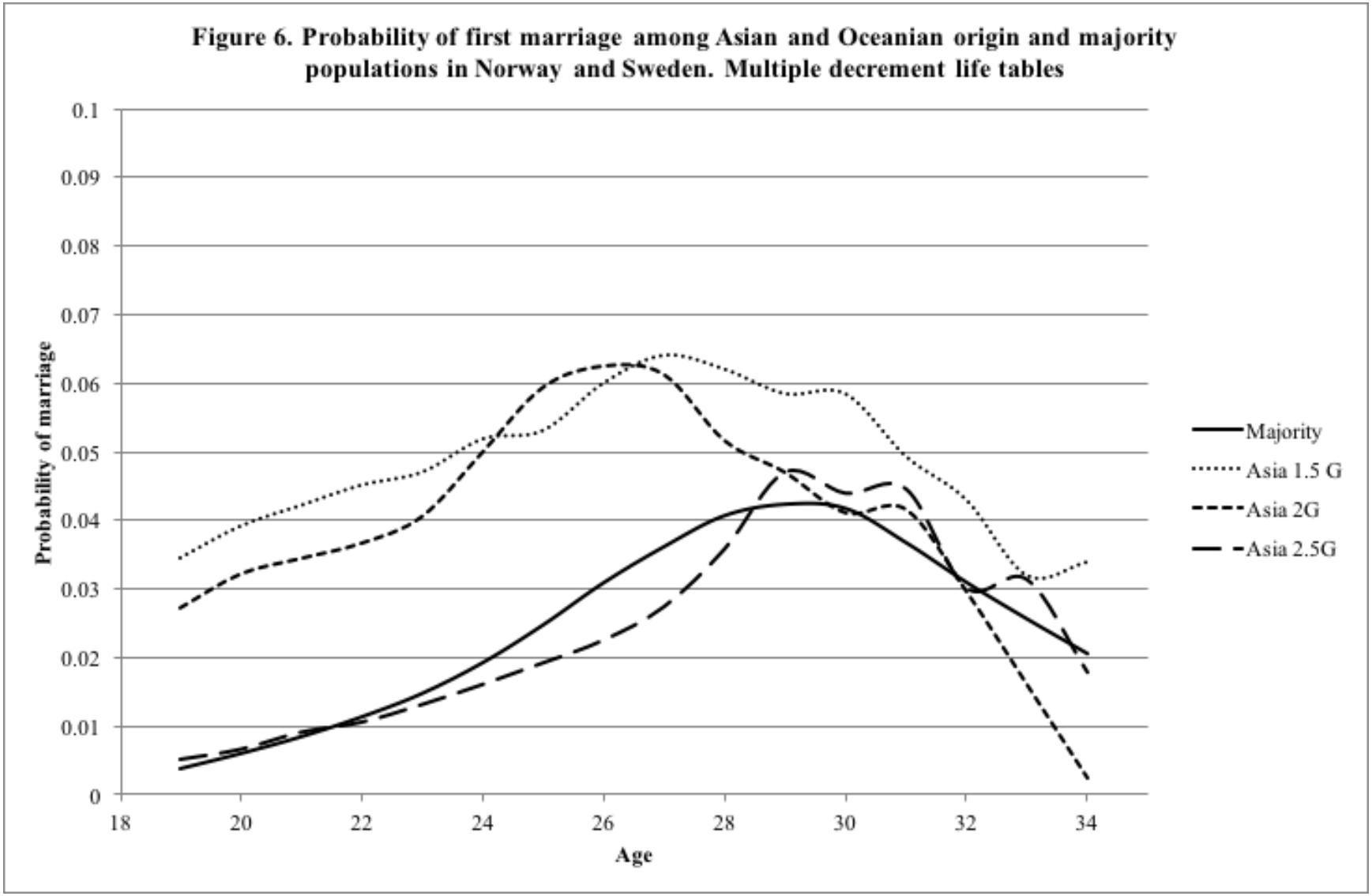
Note: Norwegian administrative registers. Statistics Norway; Sweden in Time: Activities and Relations (STAR). Statistics Sweden.

Figure 5. Probability of first non-marital birth among Middle East and North African origin and majority populations in Norway and Sweden. Multiple decrement life tables



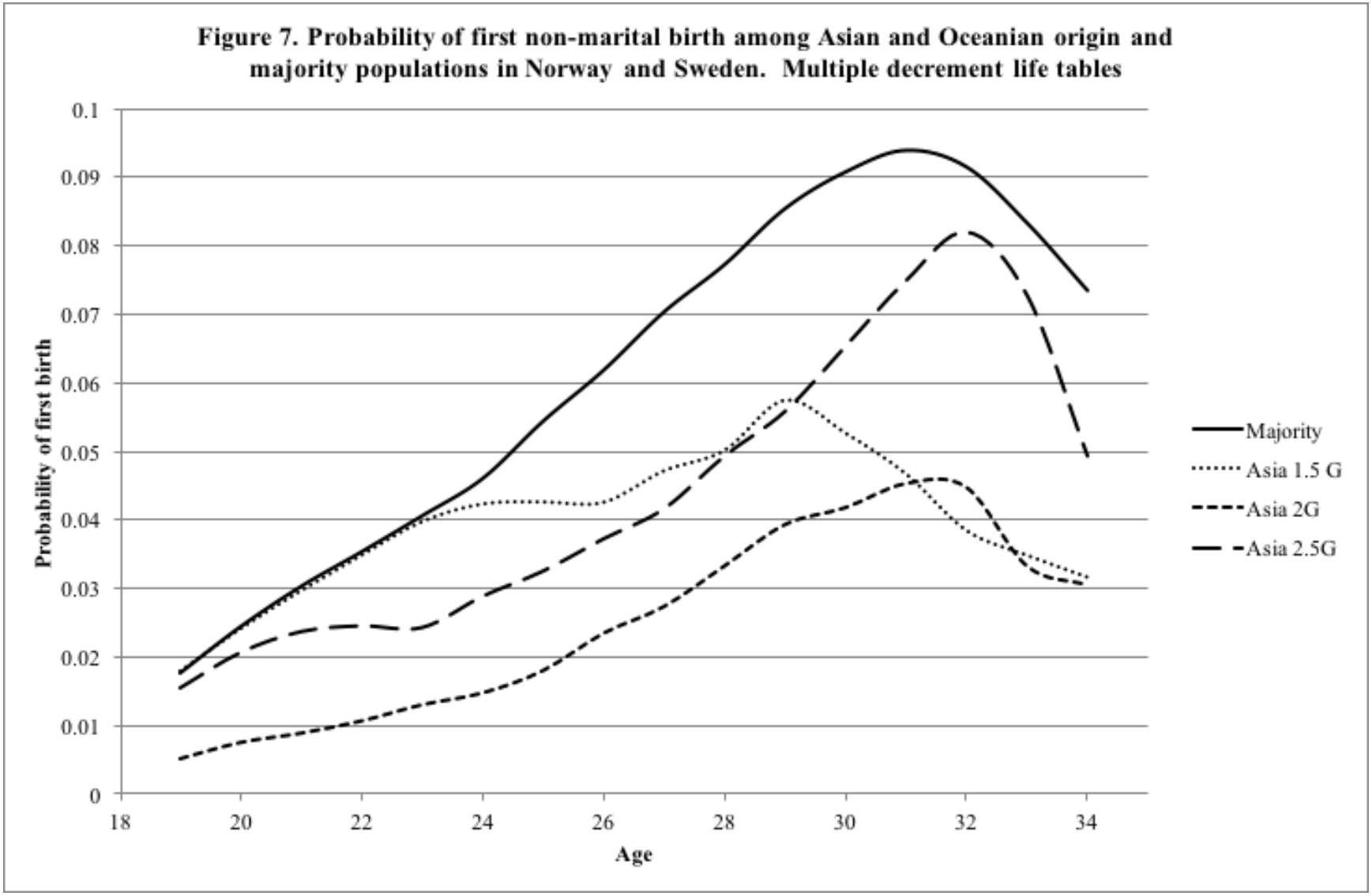
Note: Norwegian administrative registers. Statistics Norway; Sweden in Time: Activities and Relations (STAR). Statistics Sweden.

Figure 6. Probability of first marriage among Asian and Oceanian origin and majority populations in Norway and Sweden. Multiple decrement life tables



Note: Norwegian administrative registers. Statistics Norway; Sweden in Time: Activities and Relations (STAR). Statistics Sweden.

Figure 7. Probability of first non-marital birth among Asian and Oceanian origin and majority populations in Norway and Sweden. Multiple decrement life tables



Note: Norwegian administrative registers. Statistics Norway; Sweden in Time: Activities and Relations (STAR). Statistics Sweden.

Appendix

Appendix Table 1. Probability of first marriage (${}_nq_x^m$), multiple-decrement life table method with censoring at death and emigration, Norway

Age	Majority	Region of origin								
		Eastern Europe			Middle East and North Africa			Asia and Oceania		
		1.5 generation	2nd generation	2.5 generation	1.5 generation	2nd generation	2.5 generation	1.5 generation	2nd generation	2.5 generation
18	0.002	0.030	0.022	0.007	0.067	0.070	0.008	0.038	0.035	0.005
19	0.004	0.028	0.017	0.005	0.071	0.062	0.006	0.053	0.043	0.010
20	0.008	0.040	0.033	0.005	0.065	0.073	0.010	0.048	0.043	0.006
21	0.011	0.041	0.039	0.003	0.053	0.057	0.012	0.048	0.041	0.010
22	0.014	0.047	0.033	0.015	0.052	0.069	0.018	0.066	0.045	0.013
23	0.018	0.042	0.037	0.014	0.050	0.053	0.013	0.052	0.054	0.015
24	0.023	0.045	0.031	0.012	0.047	0.055	0.015	0.069	0.065	0.021
25	0.029	0.054	0.057	0.020	0.056	0.085	0.013	0.067	0.069	0.019
26	0.032	0.039	0.018	0.024	0.034	0.047	0.021	0.078	0.060	0.016
27	0.037	0.050	0.032	0.031	0.064	0.086	0.017	0.077	0.056	0.030
28	0.036	0.045	0.056	0.041	0.033	0.054	0.020	0.051	0.044	0.052
29	0.040	0.046	0.045	0.021	0.036	0.071	0.026	0.059	0.041	0.057
30	0.037	0.044	0.038	0.031	0.025	0.073	0.022	0.066	0.038	0.022
31	0.031	0.041	0.047	0.038	0.028	0.037	0.022	0.028	0.037	0.029
32	0.023	0.008	0.031	0.020	0.011	0.000	0.018	0.035	0.008	0.011
33	0.018	0.019	0.019	0.019	0.036	0.083	0.012	0.033	0.000	0.023
34	0.020	0.020	0.048	0.027	0.023	0.000	0.016	0.021	0.000	0.010
35	0.013	0.016	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: Norwegian administrative registers. Statistics Norway.

Appendix Table 2. Probability of first birth (${}_nq_x^b$), multiple-decrement life table method with censoring at death and emigration, Norway

Age	Majority	Region of origin								
		Eastern Europe			Middle East and North Africa			Asia and Oceania		
		1.5 generation	2nd generation	2.5 generation	1.5 generation	2nd generation	2.5 generation	1.5 generation	2nd generation	2.5 generation
18	0.015	0.019	0.009	0.016	0.023	0.006	0.019	0.021	0.007	0.020
19	0.027	0.021	0.015	0.012	0.033	0.018	0.021	0.028	0.007	0.031
20	0.034	0.027	0.008	0.022	0.030	0.010	0.026	0.031	0.010	0.032
21	0.039	0.027	0.014	0.025	0.029	0.024	0.027	0.029	0.013	0.032
22	0.043	0.029	0.020	0.033	0.040	0.020	0.026	0.040	0.013	0.031
23	0.047	0.032	0.019	0.034	0.026	0.023	0.034	0.040	0.019	0.030
24	0.053	0.027	0.031	0.040	0.025	0.018	0.036	0.042	0.017	0.047
25	0.061	0.036	0.043	0.033	0.038	0.016	0.050	0.042	0.025	0.037
26	0.073	0.038	0.031	0.055	0.027	0.012	0.028	0.047	0.039	0.048
27	0.072	0.042	0.043	0.046	0.037	0.039	0.048	0.056	0.031	0.064
28	0.085	0.037	0.049	0.041	0.036	0.043	0.075	0.050	0.040	0.068
29	0.092	0.053	0.068	0.047	0.043	0.029	0.060	0.076	0.054	0.064
30	0.096	0.047	0.038	0.062	0.025	0.024	0.076	0.044	0.034	0.085
31	0.092	0.035	0.070	0.084	0.055	0.074	0.051	0.038	0.053	0.075
32	0.097	0.059	0.062	0.061	0.066	0.000	0.046	0.039	0.059	0.083
33	0.084	0.051	0.019	0.069	0.036	0.000	0.036	0.027	0.000	0.045
34	0.071	0.020	0.071	0.090	0.000	0.000	0.032	0.021	0.045	0.020
35	0.071	0.063	0.100	0.090	0.000	0.000	0.000	0.000	0.000	0.000

Note: Norwegian administrative registers. Statistics Norway.

Appendix Table 3. Probability of first marriage (${}_nq_x^m$), multiple-decrement life table method with censoring at death and emigration, Sweden

Age	Majority	Region of origin								
		Eastern Europe			Middle East and North Africa			Asia and Oceania		
		1.5 generation	2nd generation	2.5 generation	1.5 generation	2nd generation	2.5 generation	1.5 generation	2nd generation	2.5 generation
18	0.001	0.044	0.013	0.003	0.057	0.039	0.006	0.025	0.011	0.002
19	0.003	0.047	0.017	0.004	0.061	0.050	0.008	0.037	0.011	0.007
20	0.005	0.053	0.026	0.005	0.060	0.050	0.010	0.035	0.016	0.009
21	0.007	0.057	0.023	0.010	0.053	0.057	0.013	0.032	0.013	0.012
22	0.009	0.057	0.029	0.008	0.055	0.062	0.017	0.037	0.021	0.012
23	0.012	0.055	0.031	0.014	0.056	0.060	0.017	0.041	0.024	0.016
24	0.015	0.063	0.043	0.014	0.064	0.057	0.015	0.036	0.052	0.019
25	0.021	0.060	0.044	0.020	0.059	0.074	0.033	0.044	0.064	0.026
26	0.031	0.055	0.044	0.019	0.053	0.065	0.037	0.053	0.045	0.037
27	0.038	0.063	0.048	0.029	0.059	0.059	0.028	0.053	0.069	0.040
28	0.044	0.053	0.048	0.036	0.057	0.058	0.037	0.051	0.019	0.040
29	0.049	0.052	0.051	0.048	0.051	0.024	0.038	0.053	0.052	0.062
30	0.047	0.044	0.057	0.047	0.055	0.061	0.050	0.069	0.056	0.031
31	0.045	0.054	0.043	0.056	0.047	0.055	0.040	0.016	0.061	0.087
32	0.037	0.043	0.036	0.041	0.040	0.031	0.016	0.047	0.000	0.028
33	0.034	0.019	0.033	0.031	0.034	0.031	0.000	0.038	0.000	0.050
34	0.026	0.038	0.026	0.025	0.043	0.000	0.000	0.083	0.000	0.000
35	0.020	0.000	0.017	0.045	0.000	0.000	0.000	0.000	0.000	0.000

Note: Sweden in Time: Activities and Relations (STAR). Statistics Sweden.

Appendix Table 4. Probability of first birth (${}_nq_x^b$), multiple-decrement life table method with censoring at death and emigration, Sweden

Age	Majority	Region of origin								
		Eastern Europe			Middle East and North Africa			Asia and Oceania		
		1.5 generation	2nd generation	2.5 generation	1.5 generation	2nd generation	2.5 generation	1.5 generation	2nd generation	2.5 generation
18	0.007	0.011	0.006	0.007	0.016	0.007	0.013	0.013	0.004	0.012
19	0.012	0.014	0.008	0.012	0.020	0.013	0.015	0.024	0.005	0.013
20	0.018	0.019	0.011	0.017	0.024	0.013	0.015	0.029	0.010	0.017
21	0.025	0.020	0.016	0.019	0.026	0.012	0.025	0.039	0.002	0.016
22	0.030	0.023	0.017	0.023	0.027	0.016	0.024	0.043	0.009	0.015
23	0.034	0.023	0.018	0.023	0.025	0.018	0.017	0.050	0.009	0.017
24	0.041	0.024	0.023	0.027	0.022	0.023	0.032	0.039	0.010	0.027
25	0.045	0.032	0.028	0.033	0.025	0.028	0.028	0.043	0.008	0.033
26	0.058	0.028	0.034	0.040	0.023	0.030	0.036	0.040	0.012	0.026
27	0.066	0.036	0.036	0.047	0.026	0.023	0.051	0.053	0.011	0.035
28	0.072	0.027	0.044	0.057	0.025	0.028	0.045	0.054	0.037	0.045
29	0.080	0.034	0.050	0.054	0.023	0.037	0.060	0.050	0.039	0.048
30	0.091	0.048	0.062	0.057	0.032	0.015	0.040	0.035	0.037	0.072
31	0.095	0.038	0.062	0.069	0.040	0.028	0.050	0.023	0.030	0.110
32	0.092	0.060	0.050	0.071	0.016	0.015	0.055	0.047	0.000	0.069
33	0.089	0.039	0.064	0.083	0.000	0.000	0.082	0.038	0.000	0.075
34	0.065	0.000	0.073	0.053	0.029	0.000	0.059	0.042	0.000	0.000
35	0.049	0.038	0.025	0.051	0.000	0.000	0.000	0.000	0.000	0.000

Note: Sweden in Time: Activities and Relations (STAR). Statistics Sweden.

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