

Holland, Jennifer A.; Wiik, Kenneth Aa.

**Working Paper**

## Marriage before children? First family formation among the children of immigrants in Norway

Discussion Papers, No. 973

**Provided in Cooperation with:**

Research Department, Statistics Norway, Oslo

*Suggested Citation:* Holland, Jennifer A.; Wiik, Kenneth Aa. (2021) : Marriage before children? First family formation among the children of immigrants in Norway, Discussion Papers, No. 973, Statistics Norway, Research Department, Oslo

This Version is available at:

<https://hdl.handle.net/10419/250140>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



# Marriage before children?

First family formation among the children of immigrants in Norway

TALL

SOM FORTELLER

DISCUSSION PAPERS

973

Jennifer A. Holland and Kenneth Aa. Wiik

*Jennifer A. Holland and Kenneth Aa. Wiik*

## **Marriage before children?**

First family formation among the children of immigrants  
in Norway

**Abstract:**

Differences in the timing and pathway into family life provide insights into the social distance between majority and immigrant-background groups. Increasing similarity in these processes across immigrant generations may indicate blurring of group distinctions. We situate our study in Norway, a country on the forefront of family change with an increasingly diverse population. Using administrative register data and discrete-time event history models, we demonstrate differential timings and propensities to form families via marriage or a nonmarital first birth among the majority population and the children of immigrants from ten countries of (parental) origin in Europe, the Middle East, East Africa, South Asia, South-East Asia and Latin America. Results demonstrated a generational shift toward the Nordic late marriage pattern among women and men originating from Bosnia-Herzegovina, Kosovo, Somalia, Sri Lanka, Iraq, Iran and Vietnam and men with origins in Turkey. We find limited evidence of generational shifts in the propensity to form a family via a non-marital first birth, however, in some context, those who form families via this pathway also follow the majority timing pattern, regardless of background or generation. Findings suggest that jointly investigating the timing of family formation and distinct pathways into family life provides new insights into the gradations in and the context of adaptation and diminishing social distance between groups in diverse societies.

**Keywords:** Children of immigrants; Second generation; Family formation; Marriage; Parenthood; Norway.

**JEL classification:** J10, J12, J15, Y8

**Acknowledgements:** This work was funded by the Norwegian Research Council [grant number 250486]. We would like to thank Terje Skjerpen for useful comments.

**Address:** Jennifer A. Holland, Erasmus University Rotterdam, Dept. of Public Administration and Sociology. E-mail: [j.a.holland@essb.eur.nl](mailto:j.a.holland@essb.eur.nl)

**Address:** Kenneth Aarskaug Wiik, Statistics Norway, Research Department. E-mail: [kaw@ssb.no](mailto:kaw@ssb.no)

---

**Discussion Papers**

comprise research papers intended for international journals or books. A preprint of a Discussion Paper may be longer and more elaborate than a standard journal article, as it may include intermediate calculations and background material etc.

*The Discussion Papers series presents results from ongoing research projects and other research and analysis by SSB staff. The views and conclusions in this document are those of the authors*

© Statistics Norway  
Abstracts with downloadable Discussion Papers  
in PDF are available on the Internet:  
<http://www.ssb.no/en/forskning/discussion-papers>  
<http://ideas.repec.org/s/ssb/dispap.html>

ISSN 1892-753X (electronic)

## Sammendrag

I dag får over halvparten av alle nordmenn sine førstefødte mens de er samboere, mens 15% av første fødsler er til enslige mødre. Samtidig har andelen som gifter seg sunket jevnt og trutt og gjennomsnittsalderen ved første ekteskap har økt, og i dag er kvinner og menn godt inne i 30-årene før de eventuelt gifter seg. Men man trenger ikke gå veldig mange tiår tilbake før de fleste nordmenn var gift i god tid før de fikk sine første barn og ugifte par som ventet barn «måtte» gifte seg. Dette tradisjonelle familieetableringsmønsteret er fortsatt gjeldende i store deler av verden.

I denne artikkelen bruker vi norske registerdata og ser nærmere på den første familieetableringen til barn av innvandrere i Norge. Nærmere bestemt undersøker vi forskjeller i timingen og tilbøyeligheten til å danne familier via ekteskap eller en utenomekteskapelig første fødsel. Vi fokuserer på innvandrere som ankom før de fylte 18 år (generasjon 1.5) og norskfødte med innvandrerforeldre (2. generasjon) med opprinnelse fra ti land i Europa, Midtøsten, Øst-Afrika, Sør-Asia, Sørøst-Asia og Latin-Amerika. I tillegg til forskjeller på tvers av opprinnelsesland og generasjoner, sammenlikner vi deres atferd med personer uten innvandrerbakgrunn. Eventuelle forskjeller i timingen og veier inn i første famielietablering gir innsikt i den sosiale avstanden mellom grupper med og uten innvandrerbakgrunn. Dersom norskfødte med innvandrerforeldre i større grad enn innvandrere utsetter første ekteskap og i stedet etablerer sine første familier via en første fødsel, kan det tyde på at slike gruppeskiller minsker over tid. Resultatene viser at norskfødte kvinner og menn med opprinnelse fra Bosnia-Hercegovina, Kosovo, Somalia, Sri Lanka, Irak, Iran og Vietnam, samt menn med opprinnelse i Tyrkia, i større grad enn tidliginnvandrere med samme landbakgrunn følger det nordiske sene ekteskapsmønsteret. Vi finner ikke et liknende generasjonsskifte i tilbøyeligheten til en første utenomekteskapelig fødsel, men de fleste som danner familier via denne veien gjør det på omtrent samme tidspunkt i livsløpet som dem uten innvandrebakgrunn, uavhengig av opprinnelsesland eller generasjon.

# 1. Introduction

Family life behaviours have long been taken as key indicators of group boundaries and social distance (Glick 2010; Kalmijn 1998; Lamont and Molnár 2002). Chief among these is intermarriage (Gordon 1964), often considered the strongest indicator of boundary crossing at the individual-level, and boundary weakening and the diminishing social distance between groups when intermarriage becomes more widespread in a society (see, for instance: Kalmijn and Van Tubergen 2010; Qian and Lichter 2007). However, due to well-documented tendencies toward homogamy across a variety of characteristics, such as ethnicity and education, partner choice may not be an ideal measure of more subtle forms of “boundary blurring” between social groups (Alba 2005; Sassler and Qian 2003). To identify blurring and shifting boundaries in the family life course it is useful to consider a wider range of family behaviour markers.

In contexts where the family life course has become diversified and destandardised, the adoption of new family formation behaviours, such as cohabitation and non-marital childbearing, and the timing of these behaviours may provide insight into the distinction and distance between social groups and integration. Family formation behaviours and their timing are also associated with education and labour force participation (Buchmann and Kriesi 2011) and may thus be an important mechanism for socioeconomic integration of migrant-background populations into receiving societies.

Most studies of the family behaviour of immigrants and their children have focused on marital behaviour (Kulu et al. 2014; Wiiket al. 2021) or differences in fertility (Kulu et al. 2019). So far, little research has considered how these population sub-groups, and particularly the second generation, adapt to new family demographic behaviour in their countries of residence, such as whether a first birth precedes first marriage (Kulu et al. 2019). Also, much research has focused on immigrants and descendants from contexts with high fertility and universal marriage, and it has tended to focus on women (Andersson 2021).

We situate our study in Norway, an ideal context for investigating whether changing family behaviours can provide deeper insights into boundary blurring and social distance. Like other European contexts, Norway is increasingly diverse, with growing shares of immigrants and their descendants. Today, nearly one in five Norwegian residents were born abroad or born in Norway to two foreign-born parents (i.e. the second generation) (Statistics Norway 2021a). And, as elsewhere in Northwestern Europe, large groups of descendants of immigrants are reaching family formation ages; currently, there are about 200,000 second-generation immigrants in Norway, of which one-third are aged 16 and above (Statistics Norway 2021a). At the same time, the majority population (those born in Norway to two Norwegian-born parents) forms their families later and the order of life course events is changing: a majority of first births are non-marital, with 55 percent of all first births taking place

within non-marital cohabitation and 15 percent to single mothers (Statistics Norway 2021b). The mean age at first birth has increased steadily and is currently at 30 years for women and 32 years for men (Statistics Norway 2021b). More than 90 percent of first unions are currently cohabitations (Wiik 2009), and the average age at first marriage is reaching the mid-30s for both genders (Statistics Norway 2021c). These trends are evident or emerging in other European, Anglo-Saxon and Latin American countries, but from a wider, global perspective the early onset and the magnitude of these family life course changes are distinct in the Nordic countries (Buchmann and Kriesi 2011; Lesthaeghe 2010; Neyer and Andersson 2008).

The adoption of new family behaviours and the later timing of family formation may emerge across immigrant generations, shaped by social influence and learning from family, peers or the media, or because new behaviours and their timing are simply more efficient with respect to other aspects of Norwegian society, such as the educational system, labour market or social policies. To investigate the blurring of differentials in the timing and pathway into family life across immigrant generations, we compare first family formation behaviours of the second generation (i.e. those born in Norway with two foreign-born parents), of immigrants arriving in their countries of residence prior to age 18 (the so-called “1.5 generation”) and the majority population (i.e. those born in Norway to two Norwegian-born parents). The family formation behaviours of the children of immigrants are likely shaped by both the influence of their families of origin and the dominant timing and pathway preferences in their country of birth and residence (Adserà and Ferrer 2016; Holland and De Valk 2013; Tønnessen 2020). We therefore 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 second generation, as compared to the 1.5-generation, but earlier as compared to the majority population.

Using Norwegian population register data, we explore these family dynamics for women and men born between 1972 and 2001, living in Norway at age 18. We focus on ten countries of (parental) origin with the largest shares of 1.5 and second generation at the time of our analysis (1990 through 2019) and compare their timing and pathway into family life with a five-percent random sample of the majority population. Beginning a family via a non-marital birth or marriage, and the timing of these transitions provide further evidence of differences (or similarities) in the meaning attached to family formation across majority and migrant-background subpopulations. Furthermore, by investigating multiple countries of (parental) origin, countries that are often too small to be captured in survey data, we shed light on whether changes in the timing of and pathways into family life across immigrant generations is a more general social process (Neyer and Andersson 2008).

## **2. Family dynamics as measures of social distance**

Given the intimate nature of family bonds and the role of families in the maintenance of group identity and cultural practices, 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 partnering, whereby individuals cross group boundaries (e.g. ethnic, religious, class) in selecting a partner. As a marginal behaviour, mixed partnering can be taken as an example of boundary crossing. However, once it is widespread, the marked distinction between social groups, or “bright boundary,” is no longer salient (Alba 2005). As such, widespread mixed partnering and intermarriage can be taken as the final step in the assimilation process (Qian and Lichter 2007). If intermarriage is rare, varies considerably by origin group, 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 et al. 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 distinctions.

### **2.1 Pathways into family life**

The ordering of life course events is becoming ever more diverse in Western societies (Buchmann and Kriesi 2011). Increasingly, a first birth is likely to occur prior to or in the 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). In many European countries, non-marital births are more prevalent among economically disadvantaged groups (Buchmann and Kriesi 2011). Norway is a forerunner of trends toward increasing non-marital childbearing in Europe, with the majority of all first births occurring to unmarried cohabiting parents (Statistics Norway 2021b) and more than 40% of first marriages occurring after a first conception or birth (Holland 2017). Globally, the proportion of births occurring outside of marriage varies considerably. Where data are available, there is evidence that these births constitute a majority in Latin America (Laplante et al. 2015) and are increasingly common in some Sub-Saharan African contexts (Clark et al. 2017), but are less common in Asia, Eastern and Southern Europe, the Middle East and East Africa (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 favour particular family forms (Neyer and Andersson 2008).



## **2.2 Timing of family formation**

The timing of family formation plays a pivotal role in the unfolding of life courses (Billari 2005; Elder 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, 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 (Holland and De Valk 2013) can facilitate other aspects of social stratification, since early family formation may limit the pursuit of higher education and labour market activities, particularly for women (e.g. Dale et al. 2006; Ní Bhrolcháin and Beaujouan 2012).

Individual preferences and the influences of family and close social relations play a central role in determining the timing of family formation events (Billari 2005). However, the wider social context is also a key determinant, with the normative or ideal ages for family formation reflecting prevailing cultural norms regarding family formation and gender roles (Elder 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; United Nations, Dept. of Economic and Social Affairs, Population Division 2019a, 2019b) 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).

## **3. How do patterns of family formation change?**

The diffusion and adoption of new family behaviours occur through social influence and learning (Vitali et al. 2015). New behaviours are communicated through social channels, such as family, friends 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 and childbearing may be more consistent with extended periods of schooling and establishing oneself on the labour market (Dale et al. 2006; 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 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 also indirectly influence family life preferences and behaviours (Lesthaeghe 2010). For example, 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. So too, if both women and men consider 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. Indeed, women's socioeconomic position was identified as a main predictor of the diffusion of non-marital childbearing in Norway (Vitali et al. 2015).

### **3.1 Changes across migrant generations**

Processes of diffusion will also shape the adoption of later family formation and non-marital childbearing among immigrants and their descendants, alongside the influences of their countries of (parents') origin (Holland and De Valk 2013; Sassler and Qian 2003; Wiik and Holland 2018). 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).

Recent research from countries such as Sweden (Andersson et al. 2017), the UK (Kulu and Hannemann 2016), Switzerland (Guarin Rojas et al. 2018), France (Paihlé 2017), and Norway (Lappegård, 2006) confirm that descendants of immigrants postpone first childbearing as compared to first-generation immigrants originating from the same countries. There is also evidence that the second generation and immigrants arriving at younger ages defer first marriage, are less likely to form endogamous partnerships (Kulu and González-Ferrer 2014; Muttarak and Heath 2010), and more likely to cohabit exogamously (Wiik and Holland 2021), than those arriving at later ages.

Taken together, this leads us to propose two generational hypotheses:

*Hypothesis 1:* First-generation immigrants, arriving in their countries of residence in childhood, will form families earlier and be more likely to marry (prior to a first birth) and less likely to have a non-marital first birth relative to their second generation and majority peers (H1).

*Hypothesis 2:* Second-generation individuals are less likely to marry (prior to a first birth) and more likely to have a non-marital birth than 1.5 generation immigrants, with the timing of these events falling between those of their 1.5 and majority peers (H2).

### **3.2 Social distance between countries of origin and residence**

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; Wiik and Holland 2021). Norway became a country of net-immigration in the late 1960s. From then, social policies shaped the character of migration flows in considerable ways. In the early years, migration was characterized by labour migration, predominantly from Pakistan, Turkey, India and Morocco. In the mid-1970s, Norway implemented a non-Nordic block on migration, before shifting to policies favouring refugee migration and family reunification in the 1980s and 1990s (Brochmann and Kjelstadli 2008). The country received a substantial number of refugees from Vietnam and Chile in the 1970s and 1980s, Iran and Sri Lanka in the 1980s, and refugees from Bosnia-Herzegovina and Kosovo fleeing the Balkan wars in the 1990s. In the late 1990s and 2000s non-Nordic immigration to Norway has been dominated by refugees from Somalia, Afghanistan, Iraq and Syria, as well as family reunifications for these and earlier immigrants. With the enlargements of the European Union in 2004 and 2007, labour migration increased again, particularly from Eastern Europe (Brochmann and Hagelund 2011).

Currently, nearly half of the Norwegian migrant-background population originates from countries in Asia, the Middle East, and Africa (Statistics Norway 2021a). And, given the country's history of modern migration, most of the adult second generation population are of South and Southeastern Asian and Middle Eastern origin. Many countries in these global regions are predominantly Muslim, with traditional family formation patterns centred on early and universal marriage and high (marital) fertility (Blekesaune 2020; De Valk and Milewski 2011; Jones and Yeung 2014). Religiosity often functions as a "bright boundary" between social groups in diverse societies (Alba and Foner 2015). It is positively related to conservative family formation attitudes and behaviour, like marrying without prior cohabitation and early childbearing (Berrington 2020; Blekesaune 2020; Wiik 2009). Cohabitation and non-marital fertility, on the other hand, is associated with individualization and secularization (Lesthaeghe 2010). A recent survey of the twelve largest immigrant groups in Norway confirmed that 42 percent identified themselves as Muslims, 34 percent as Christians, 7 percent as Hindus or Buddhists, and 17 percent as secular (Barstad 2019). Among those from Pakistan and Somalia, three-quarters were highly religious, whereas Iranian immigrants were mostly secular.

In other country contexts, research confirms that women of Turkish origin have their first children earlier than other groups of descendants in several countries such as Sweden (Andersson et al. 2017), Switzerland (Guarin Rojas et al. 2018), and France (Paihlé 2017). Also, in the UK, the descendants of Pakistani and Bangladeshi immigrants have a high fertility level (Wilson and Kuha 2018), and second-generation Bangladeshis, Pakistanis, and to a lesser degree Indians, have higher marriage expectations

and lower expectations for cohabitation than those who self-identified as “white British” (Berrington 2020). In Sweden, descendants of immigrants from high-fertility countries like Turkey, Lebanon, and Syria, had their first births earlier than natives (Scott and Stanfors 2011). Andersson, Obucina and Scott (2015) found that female immigrants and their native-born daughters from North Africa, the Arab Middle East, Turkey, and South Asia were more marriage prone than those with Swedish-born parents.

On the other hand, non-formal partnering and non-marital fertility is widespread and accepted in South and Middle America (Esteve et al. 2012; Laplant et al. 2015). In many Sub-Saharan African countries, it is not uncommon to live together without marrying (Hattori and Doodoo 2007) and non-marital childbearing is common (Clark et al. 2017). In line with these findings, Gonzales-Ferrer et al (2017) showed that the fertility pattern of Latin-American 1.5-generation-women had converged with the mainstream Spanish fertility pattern. Also, Sub-Saharan African immigrants in France postpone first and second births and they form their first unions later in life than other immigrant groups in France (Paihé 2017).

Given this diversity in the immigrant populations, it is essential to differentiate immigrants and their descendants by countries of (parental) origin. In this paper, we focus on countries of origin with the largest shares of 1.5- and second-generation individuals in the key family formation years (age 18 or older). We include ten origin countries in six global regions: Bosnia-Herzegovina and Kosovo (Europe); Turkey, Iraq and Iran (Middle East); Somalia (East Africa); Pakistan and Sri Lanka (South Asia); Vietnam (Southeast Asia); and Chile (Latin America). This broad grouping of countries provides us with considerable diversity in the origin-country family formation regimes, as compared to the Nordic model. In nearly all of these contexts, family formation occurs earlier (on average) and the vast majority of children are born to married parents (United Nations 1999; United Nations, Dept. of Economic and Social Affairs, Population Division 2019a, 2019b). These contrasts allow us to explore persistence and change in family formation behaviours and timing across immigrant generations (Kalmijn and Van Tubergen 2010).

On the other hand, Chile is a context with patterns of family formation similar to those found in Norway. In 2017-18, 74 percent of all Chilean children were born to unmarried mothers (OECD 2020a), and the mean age at first marriage was 32 for women and 33 for men (OECD 2020b). To the extent to which adaptation to the Norwegian model of the timing and pathway is contingent upon the degree of social distance between countries of (parental) origin and residence (Holland and De Valk 2013), Chilean-background men and women provide an interesting contrast to the other origin countries under study; we would expect family behaviours and timing among those with a Chilean background to be quite similar to the Norwegian-majority, regardless of generation.

While we do not formulate country-specific hypotheses, we do expect to find country-specific differences in overall levels and timing of marriage and non-marital childbearing, and in the degree of generational adaptation of these behaviours. If we find consistency in our generational findings among individuals from diverse origins, this would provide some evidence for a more general theory of the generation blurring of group distinctions, as measured by our pathway and timing framework.

## **4. Data and method**

### **4.1 Data and sample**

Data for these analyses come from administrative register data, covering the entire population of Norway. These high-quality data allow for the quantitative exploration of family formation behaviours of migrants and their descendants, groups often too small to be captured in nationally representative survey data or hard-to-reach using standard large-scale survey methodologies due to social exclusion, a lack of trust, language difficulties, or residential mobility (e.g., Barnes 2008). Data were obtained directly from the population registers covering births, deaths, im-/emigration, civil-status changes, and foreign-born status through 2019. In addition, we supplemented the population data with longitudinal register data on education, annual total income, and place of residence. Such linking of data is facilitated through a system of universal ID numbers.

We limited our analysis to individuals born between 1972 and 2001, who were born in Norway or who arrived as children or adolescents (prior to age 18). We focused on these birth cohorts because the second generation living in Norway is relatively young and we wanted to compare the family formation of these young adults with similar cohorts of first-generation migrants and the Norwegian majority population. We excluded first-generation immigrants arriving in Norway after age 18 because migration and family formation is often endogenous, resulting in the distortion in the measurements of the timing of family events (Andersson 2004). We further excluded those born in Norway with one foreign-born and one native-born parent (the “2.5 generation”), as the vast majority originates from Nordic, Western European and Anglo-Saxon countries, and prior research has shown that their family behaviour is very similar to that of the majority populations, both in Norway (Wiik and Holland 2018) and elsewhere (e.g., Kleinepier and de Valk 2016).

We selected countries constituting the largest immigrant sending countries, with enough individuals belonging to the second and 1.5 generations: Bosnia-Herzegovina, Kosovo, Turkey, Iraq, Iran, Somalia, Pakistan, Sri Lanka, Vietnam, and Chile. We excluded two origin countries, because there were insufficient shares (less than 1,000 individuals) of 1.5 (Afghanistan) or second (Poland) generation individuals above the age of 17 living in Norway. We could identify all individuals

comprising these groups who are registered in Norway and compare these groups with a five-percent random sample of the majority population. In total, our analysis sample comprised 143,705 individuals, of which 48.3 percent were women and 51.7 percent were men.

## **4.2. Dependent variable and analytical strategy**

We identified all first marriages and first births occurring after age 17 and prior to age 48, between 1990 and through 2019. Our central interest is understanding: 1) how common is it for individuals to form their families via marriage, which can be considered the prevailing global family formation pathway, or via a first birth, the modal pathway in Norway; and 2) the 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 country of origin, relative to the experiences of the majority population in Norway.

In discrete-time event-history analyses, we followed individuals from the year they turned 18 to the year of any registration of marriage or birth or censoring due to death, emigration or the end of the observation period (i.e., December 31, 2019), whichever came first. 599 individuals were excluded from the sample because they married ( $n=181$ ) or had a first birth ( $n=418$ ) before they turned 18 years. If a first marriage and a first birth occurred in the same year, we used the month of the event to decide which came first. The cases in which the two events occurred in the same month ( $n=2,293$ ), were defined as marriages.

As the dependent variable is nominal with three values (i.e., first marriage or first birth versus no family formation), we used multinomial logistic regression analysis to model the transition to first marriage or first birth in year  $t$ , given that none of these events occurred in  $t-1$ . Standard errors from these regression models were adjusted for clustering on respondents. For ease of interpretation and comparison, we present our main results graphically as predicted probabilities with 95-percent confidence intervals, with control variables set at their mean values.

## **4.3. Independent variables**

Our main explanatory variables were migrant generations and countries of origin. First, we distinguished immigrant-background subpopulations with two foreign-born parents based on country of birth and grouped individuals into the following migrant generations: 1) the “1.5 generation,” those born abroad who migrated to Norway before the age of 18, and 2) the ‘second generation,’ those born in their country of residence. We contrast these groups with 3) majority-background individuals, i.e. those individuals born in Norway with two Norwegian-born parents. Next, to account for differences in the composition of each of the generational groups, we differentiated immigrant-background

populations by countries of (parents') origin. For the 1.5 generation, country of origin was assigned based on country of birth. For the second generation (i.e., Norwegian-born with two foreign-born parents), we followed the standard rules employed by statistical organizations where country of origin is assigned based on mother's birth country; if mother's country of birth was missing, country of origin was assigned based on father's birth country.

We controlled for education using yearly updated information on highest educational level achieved as of October the previous year. This variable has four categories: 1) primary education (<11 years); 2) secondary education (11-13 years); 3) tertiary education (14+ years); 4) missing. Next, we made a variable measuring whether the respondents were enrolled in full-time education (1) or not (0) at time  $t-1$ . We also controlled for total income before taxes in year  $t-1$ . The income estimates were adjusted for inflation, and given in whole 10,000s of 2015-Norwegian Kroner. Another potential confounder is size of place of residence. Respondents living in municipalities with more than 60,000 inhabitants at time  $t-1$  were defined as living in an urban area and coded 1. Otherwise, this indicator was set to 0. The models also included a continuous time-varying variable for respondent's *age* reported in years above 18. This variable captures the duration dependence of the estimated hazard of first union formation. To allow for non-linearity, a quadratic term for age was added to the equation in addition to the linear. Also, a variable for calendar year of observation was incorporated. This item was measured continuously in years.

## 5. Results

### 5.1 Descriptive statistics

Descriptive statistics of the shares of immigrant-background populations by generation and countries of origin and the majority sample are presented in Table 1 (women upper panel, men lower panel). Just over half of each of the samples have a majority background, about one-quarter migrated themselves (1.5 generation) and just over one-in-five are the children of two immigrant parents born in Norway (2<sup>nd</sup> generation). The country of (parental) origin composition of the female and male subsamples are roughly comparable. The largest origin group is from Pakistan (about 10 percent of each sample). The next largest group has origins in Vietnam, followed by Iraq, Somalia, and Turkey. Less than four percent of the sample has origins in Bosnia-Herzegovina, Iran, Kosovo and Sri Lanka. The smallest group are (descendants of parents) from Chile, comprising about 2 percent of the sample.

**Table 1.** Countries of (parental) origin and generation. Shown separately for women ( $n=69,218$ ) and men ( $n=75,321$ ) born 1972-2001, who were either native-born or who immigrated prior to age 18

Countries of origin	Generation						Total	Column percent
	Majority		1.5		2			
	n	Row percent	n	Row percent	n	Row percent		
<b>Women</b>								
Majority	37,565	100.0	-	-	-	-	37,565	54.3
Turkey	-	-	1,184	40.3	1,751	59.7	2,935	4.2
Bosnia-H.	-	-	1,966	73.9	696	26.1	2,662	3.9
Kosovo	-	-	1,561	67.9	738	32.1	2,299	3.3
Somalia	-	-	2,564	76.8	773	23.2	3,337	4.8
Sri Lanka	-	-	687	31.2	1,513	68.8	2,200	3.2
Iraq	-	-	2,857	82.6	600	17.4	3,457	5.0
Iran	-	-	1,516	67.8	720	32.2	2,236	3.2
Pakistan	-	-	1,995	27.9	5,048	72.1	7,003	10.1
Vietnam	-	-	1,713	42.0	2,370	58.0	4,083	5.9
Chile	-	-	875	60.7	566	39.3	1,441	2.1
Total	37,565	54.3	16,878	24.4	14,775	21.4	69,218	100.0
<b>Men</b>								
Majority	39,274	100.0	-	-	-	-	39,274	52.7
Turkey	-	-	1,288	40.6	1,885	59.4	3,173	4.3
Bosnia-H.	-	-	2,040	74.8	687	25.2	2,727	3.7
Kosovo	-	-	1,791	70.6	746	29.4	2,537	3.4
Somalia	-	-	3,182	78.6	866	21.4	4,048	5.4
Sri Lanka	-	-	934	37.2	1,578	62.8	2,512	3.4
Iraq	-	-	3,642	85.6	613	14.4	4,255	5.7
Iran	-	-	1,818	71.1	740	28.9	2,558	3.4
Pakistan	-	-	2,147	29.0	5,264	71.0	7,411	10.0
Vietnam	-	-	1,937	43.1	2,562	56.9	4,499	6.0
Chile	-	-	848	56.8	645	43.2	1,493	2.0
Total	39,274	52.7	19,627	26.4	15,586	20.9	74,487	100.0

Source: Norwegian Population Registers.

Note: 5% random sample of majority (Norwegian born to two Norwegian-born parents).

Descriptive statistics for the dependent variable and other covariates are presented in Table 2, measured in the last year of observation (i.e. upon family formation or censoring). During the period of observation (1990 through 2019), 23.4 percent and 19.5 percent of women and men (respectively) married. Slightly larger shares (28.0 percent of women and 22.9 percent of men) experienced a non-marital first birth. More women than men formed families, reflecting that women tend to experience family formation events at a younger age, on average. In line with this, we also find that the average age of women is lower than for men.



**Table 2.** Descriptive statistics for variables used. Shown separately for women ( $n=69,218$ ) and men ( $n=75,321$ ) born 1972-2001, who were either native-born or who immigrated prior to age 18

	Women				Men			
	n	%	Mean	SD	n	%	Mean	SD
Event								
Censoring (no marriage or birth)	33,629	48.6			42,922	57.6		
Marriage	16,180	23.4			14,490	19.5		
Non-marital first birth	19,409	28.0			17,075	22.9		
Age, year t			25.2	5.3			26.8	5.8
Education level, year t-1								
Primary	20,915	30.2			27,749	37.3		
Secondary	22,635	32.7			27,070	36.3		
Tertiary	23,751	34.3			17,806	23.9		
Missing	1,917	2.8			1,862	2.5		
Enrolled in education, year t-1	26,353	38.1			21,945	29.5		
Annual income (10,000 2015-NOK), year t-1			19.4	18.6			26.1	27.8
Residing in municipality with > 60,000 residents, year t-1	40,252	58.2			42,368	56.9		
Calendar year, t			2012.8	7.6			2014.3	6.8
<i>N</i> Individuals		69,218				74,487		
<i>N</i> Person-years		579,609				735,564		

Source: Norwegian administrative registers.

Note: 5% random sample of majority (Norwegian born to two Norwegian-born parents). Descriptive statistics for time-varying covariates reported in the last observation prior to event or censoring.

The women's sample is more highly educated, on average. About thirty percent of the sample has only primary education at last observation, while about a third of the women's sample each has secondary or tertiary education. Among men, just below 40 percent of the sample have completed primary and secondary education, while about a quarter have completed tertiary education. A very small percentage of women and men are missing highest level of education in the registers. The large share of primary-only education reflects the young sample, with some individuals only observed during their teenage years when they may have not yet completed secondary (or tertiary) education. Indeed, we find that about 38 and 30 percent of women and men are still enrolled in education at last observation. The women in our sample have average annual incomes of about 190,000 Norwegian Kroner, while men have an average annual income of 260,000 Norwegian Kroner. Nearly 60 percent of women and men are living in municipalities with more than 60,000 residents, with the vast majority of these (more than 30 percent of each sample) living in one of Norway's three largest cities: Oslo, Bergen or Trondheim.

## 5.2 Multivariate regression results

Tables 3 and 4 provide discrete-time event history models for women and men (respectively), predicting the competing risk of a first marriage or a non-marital first birth. Results from two alternative models not controlling for socioeconomic variables are presented in Appendix Tables A1 (women) and A2 (men). As shown in Table 3, immigrant-background women are more likely to marry (versus remaining unmarried and childless) in any given year relative to majority women. The increased propensity of marriage (on average) ranges from 1.59 times greater among women with Chilean origins to 8.8 higher among those with a Turkish background. Net of country of origin, women belonging to the second generation were 22 percent less likely to marry in any year than the 1.5 generation.

On the other hand, women from nearly all origin groups are less likely than majority women to experience a non-marital first birth, relative to remaining unmarried and childless. This lower risk ranges from more than a fifty percent lower risk among women with origins in Sri Lanka and Iran to about a thirty percent lower risk among women with origins in Turkey and Vietnam. Women with origins in Kosovo and Iraq are not statistically different from majority women with regard to their risk of a non-marital first birth. Women originating from Somalia and Chile, on the other hand, have a higher risk of a non-marital first birth than majority women. Similar to the results for marriage, we find that second generation women are less likely to form a family via first birth, relative to the 1.5 generation.

With respect to the other covariates, we find the usual age gradient in both marriage and first births, with an increasing risk of family formation with increasing age, but this relationship reverses at higher age, due to the negative quadratic term. The tertiary educated women are considerably more likely to marry relative to the primary educated. With respect to non-marital first births, these are most common among those with the lowest level of education, while both the secondary and tertiary educated have a 30 percent lower risk of a non-marital birth, relative to remaining unmarried and childless. Being enrolled in education is associated with a lower risk of both marriage and a non-marital first birth.

Net of other covariates, we find a higher risk of both marriage and a non-marital first birth for each additional 10,000 Norwegian Kroner in annual income. Residing in a more populated area increases the risk of marriage but decreases the risk of a non-marital first birth. Finally, we find negative period association, whereby the risk of both marriage and a non-marital first birth declines over the period of observation (1990 through 2019).

**Table 3.** Discrete-time event history multinomial model predicting first marriage or first non-marital birth versus remaining unmarried and childless (base). Women

	Model 2							
	First marriage				First non-marital birth			
	B	SE		e <sup>B</sup>	B	SE		e <sup>B</sup>
Age	0.69	0.02	***	2.00	0.57	0.01	***	1.77
Age <sup>2</sup>	-0.01	0.00	***	0.99	-0.01	0.00	***	0.99
Country of (parental) origin								
Majority (reference)				1.00				1.00
Turkey	2.17	0.04	***	8.76	-0.38	0.07	***	0.68
Bosnia-Herzegovina	1.06	0.04	***	2.89	-0.51	0.05	***	0.60
Kosovo	1.65	0.05	***	5.21	-0.04	0.05		0.96
Somalia	0.58	0.06	***	1.78	0.39	0.04	***	1.48
Sri Lanka	1.63	0.05	***	5.10	-0.80	0.09	***	0.45
Iraq	1.37	0.04	***	3.94	0.04	0.05		1.04
Iran	0.79	0.05	***	2.19	-0.75	0.06	***	0.47
Pakistan	1.92	0.03	***	6.85	-0.66	0.05	***	0.52
Vietnam	0.78	0.03	***	2.19	-0.42	0.04	***	0.66
Chile	0.46	0.06	***	1.59	0.33	0.05	***	1.39
Generation								
1.5 (reference)				1.00				1.00
2nd	-0.25	0.03	***	0.78	-0.48	0.04	***	0.62
Education level, t-1								
Primary (reference)				1.00				1.00
Secondary	-0.01	0.02		0.99	-0.35	0.02	***	0.71
Tertiary	0.35	0.03	***	1.42	-0.36	0.02	***	0.70
Missing	-0.44	0.06	***	0.64	-0.23	0.06	***	0.80
Enrolled in education, t-1	-0.41	0.02	***	0.67	-0.96	0.02	***	0.38
Annual income <sup>a</sup> , t-1	0.01	0.00	***	1.02	0.02	0.00	***	1.02
Residing in municipality with > 60,000 residents, t-1	0.06	0.02	**	1.06	-0.30	0.02	***	0.74
Calendar year, t	-0.06	0.00	***	0.94	-0.04	0.00	***	0.96
Constant	112.27	2.72	***	5.73E+48	63.57	2.39	***	4.06E+27
<i>N</i> individuals	69,218							
<i>N</i> person-years	579,609							
Log-likelihood (null)	-161,630.3							
Log-likelihood (model)	-145,270.1							
Degrees of freedom	42							
AIC	290,624.1							
BIC	291,097.4							

\* p < 0.05 \*\* p < 0.01 \*\*\* p < 0.001

Note: 5% random sample of majority (Norwegian born to two Norwegian-born parents). Standard errors adjusted for clustering on respondents. e<sup>B</sup> = exponentiated B (odds ratios).

<sup>a</sup> Income in whole 10,000s of 2015 Norwegian Kroner.

Source: Norwegian administrative registers.

Results for the same model for men are presented in Table 4. We find very similar results for men as for women, with only a handful of differences. The higher risk of marriage, relative to remaining unmarried and childless, is evident and of a similar magnitude for all countries of origin. And, like for

women, we find that men of the second generation are significantly less likely to marry than 1.5 generation men, net of other covariates.

**Table 4.** Discrete-time event history multinomial model predicting first marriage or first non-marital birth versus remaining unmarried and childless (base). Men

	<b>Model 2</b>							
	<b>First marriage</b>				<b>First non-marital birth</b>			
	B	SE		e <sup>B</sup>	B	SE		e <sup>B</sup>
Age	0.86	0.02	***	2.36	0.83	0.02	***	2.30
Age <sup>2</sup>	-0.01	0.00	***	0.99	-0.01	0.00	***	0.99
Country of (parental) origin								
Majority (reference)				1.00				1.00
Turkey	2.12	0.04	***	8.30	-0.19	0.06	**	0.83
Bosnia-Herzegovina	0.94	0.04	***	2.55	-0.15	0.04	***	0.86
Kosovo	1.54	0.05	***	4.68	0.03	0.05		1.03
Somalia	0.54	0.06	***	1.72	-0.09	0.05		0.92
Sri Lanka	1.55	0.04	***	4.71	-0.80	0.08	***	0.45
Iraq	1.15	0.04	***	3.14	-0.19	0.05	***	0.83
Iran	0.53	0.05	***	1.69	-0.48	0.05	***	0.62
Pakistan	2.07	0.03	***	7.92	-0.53	0.05	***	0.59
Vietnam	0.99	0.03	***	2.70	-0.31	0.04	***	0.73
Chile	0.17	0.08	*	1.18	0.40	0.05	***	1.49
Generation								
1.5 (reference)				1.00				1.00
2nd	-0.33	0.03	***	0.72	-0.41	0.04	***	0.66
Education level, t-1								
Primary (reference)				1.00				1.00
Secondary	0.11	0.02	***	1.11	-0.18	0.02	***	0.84
Tertiary	0.44	0.03	***	1.55	-0.28	0.02	***	0.76
Missing	-0.26	0.06	***	0.77	-0.33	0.08	***	0.72
Enrolled in education, t-1	-0.31	0.02	***	0.73	-0.51	0.03	***	0.60
Annual income <sup>a</sup> , t-1								
Residing in municipality with	0.01	0.00	***	1.01	0.01	0.00	***	1.01
> 60,000 residents, t-1	0.14	0.02	***	1.15	-0.21	0.02	***	0.81
Calendar year, t	-0.06	0.00	***	0.94	-0.04	0.00	***	0.96
Constant	107.47	3.06	***	4.72E+46	56.65	2.76	***	2.27E+25
<i>N</i> individuals				74,487				
<i>N</i> person-years				735,564				
Log-likelihood (null)				-155,112.5				
Log-likelihood (model)				-136,949.7				
Degrees of freedom				42				
AIC				273,983.4				
BIC				274,466.7				

\* p < 0.05 \*\* p < 0.01 \*\*\* p < 0.001

Note: 5% random sample of majority (Norwegian born to two Norwegian-born parents). Standard errors adjusted for clustering on respondents. e<sup>B</sup> = exponentiated B (odds ratios).

<sup>a</sup> Income in whole 10,000s of 2015 Norwegian Kroner.

Source: Norwegian administrative registers.

As for women, by and large immigrant-background men are less likely to experience a non-marital first birth than majority men, with exceptions that are similar to those for women: men with origins in Kosovo and Somalia are not statistically different in their risk of a first birth, as compared to majority men, and men originating from Chile are 49 percent more likely to experience a first birth than majority Norwegians. As for women, the second generation are less likely to experience a first birth, relative to the 1.5 generation.

With respect to other covariates, the patterns for men are largely similar to those for women, excepting the educational gradient for marriage; whereas we found a u-shaped pattern for women, there is a positive education gradient for men’s marriage.

**5.3 Predicted probabilities for models interacting age, origin and generation**

The models presented in Tables 3 and 4 provided some indications of generational differences, but these were averaged across all origin groups. Moreover, in these models we did not test if there was a change in the timing of marriage and non-marital first births across immigrant generations. To better investigate these origin and timing processes, we conducted discrete time hazards models including three-way interactions between age and age-squared, origin country and generation. These models allow us to relax the assumption that generation and age operate proportionally for all countries of origin, to better understand generation-origin differences in the age-risk profile for marriage and a non-marital first birth. For ease of interpretation, we present these results graphically with predicted probabilities. Full regression results are available in Appendices A3 and A4. There are considerable age differences across the different origin-generation sub-populations in our analysis. We therefore estimated predicted probabilities for each three years from age 18 through the 90<sup>th</sup> percentile of age for each sub-population, as to not extrapolate the age-risk profile beyond our populations of analysis.

**Figure 1.** Predicted probabilities of family formation via marriage or a non-marital first birth, with 95-percent confidence intervals. Majority women.

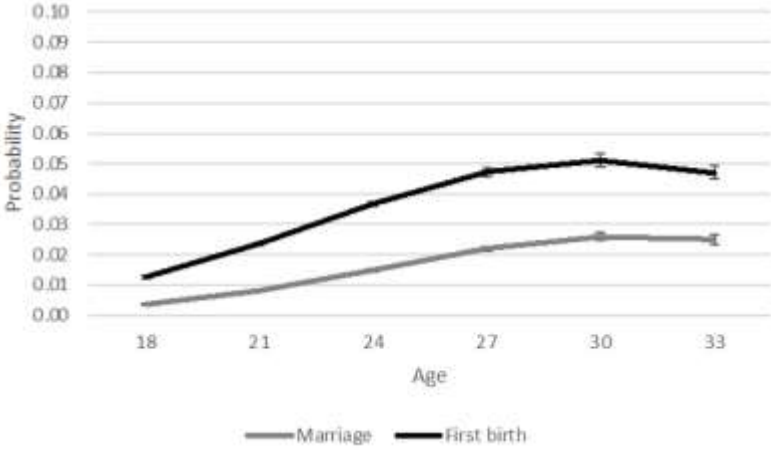
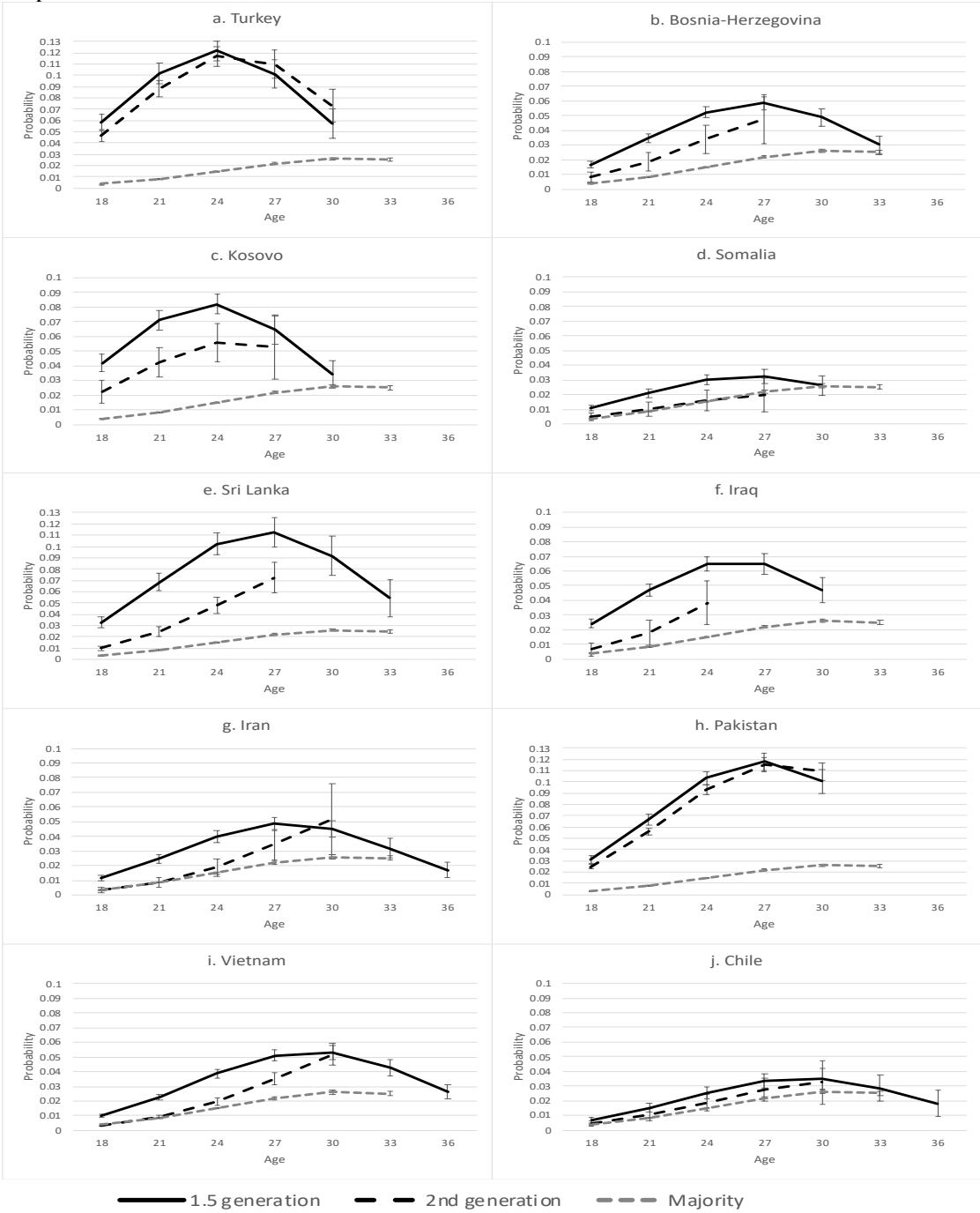


Figure 1 presents the age-specific probabilities of first marriage and non-marital first birth for the 5-percent random sample of Norwegian majority women. The predicted probability of forming a family via a first birth rather than marriage is higher at each age. These risk profiles constitute the baseline for comparisons of the propensity and relative timing of marriage and first non-marital birth for the immigrant-background subpopulations in Norway.

**Figure 2.** Predicted probabilities of family formation via marriage by country of (parental) origin, with 95-percent confidence intervals. Women.

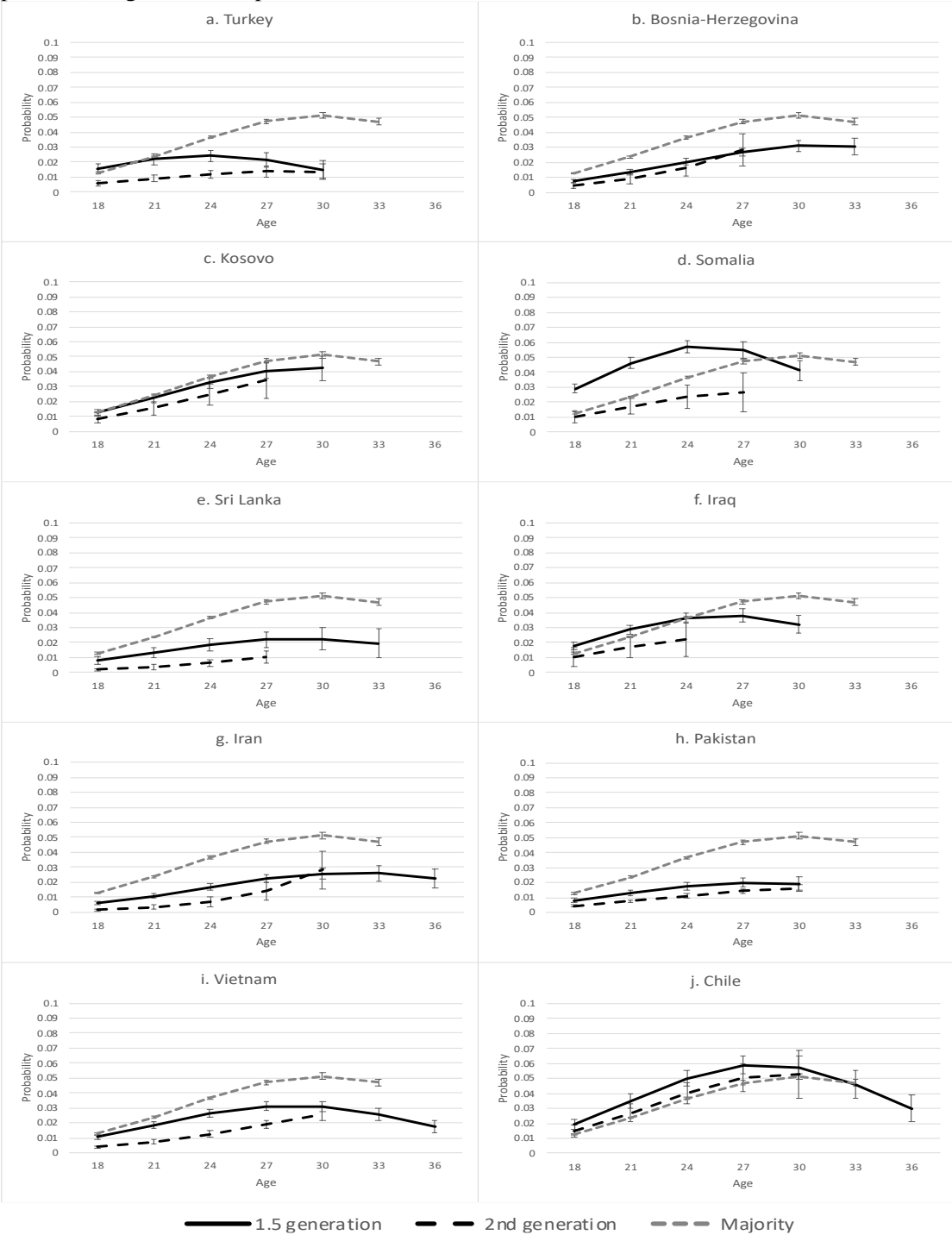


Figures 2 and 3 present the age-specific risk profiles for first marriage and a non-marital first birth (respectively) for immigrant-background women from the ten (parental) origin countries and their majority counterparts in Norway. Marriage (Figure 2, panels a and h) is early and common for women of both the 1.5 and 2<sup>nd</sup> generations with origins in Turkey and Pakistan. Among these country-of-origin groups, there is little evidence of generational shifts toward the majority marriage propensity and timing pattern. We also find limited evidence for our generational hypotheses among women of Chilean-origin, for whom the age-profile of marriage and the overall propensity to marry is very similar to that of Norwegian majority women (Figure 2, panel j). For all other countries, there is evidence of generational shifts: marriage occurs less often and later among the second generation, relative to the 1.5 generation (H1), but in almost all cases marriage is still more common among the second-generation group than among the majority (H2). Only among Somalian immigrants and descendants do we see that the second generation marries at about the same rate and with similar timing to majority women (Figure 2, panel d).

With respect to women's non-marital first births (Figure 3), there is some evidence of a generational shift toward later timing of first births among those originating from Kosovo, Somalia, Iraq, Iran and Vietnam. However, in some of these countries the shift is very slight or, because the second generation is still quite young, it is difficult to see if this is indeed a tempo shift, consistent with our hypotheses, or a change to a lower quantum of first births, in contrast to our hypotheses. Indeed, for nearly all countries (excepting Bosnia-Herzegovina, Kosovo and Chile), there is a lower observed propensity to experience a non-marital first birth among the second generation as compared to the 1.5 generation, in contrast with hypothesis 2.

Although lower shares of immigrant-background women experience a non-marital first birth, as compared to majority women, those with origins in Bosnia-Herzegovina, Kosovo, Iran and Vietnam follow the Norwegian timing pattern. Chilean origin women demonstrate both similar timing and magnitude of non-marital births to Norwegian majority women. In contrast with our generational hypothesis, we find higher levels of early non-marital childbearing among women originating from Somalia and Iraq.

**Figure 3.** Predicted probabilities of family formation via non-marital first birth by country of (parental) origin, with 95-percent confidence intervals. Women



In Figure 4 we see that majority men show a similar pattern of age-specific probabilities of first marriage and non-marital first births to that of majority women, although men form their first families at later ages than women. These risk profiles are included in the figures for each of the ten countries of origin studied here as a baseline of comparison.



**Figure 4.** Predicted probabilities of family formation via marriage or a non-marital first birth, with 95-percent confidence intervals. Majority men

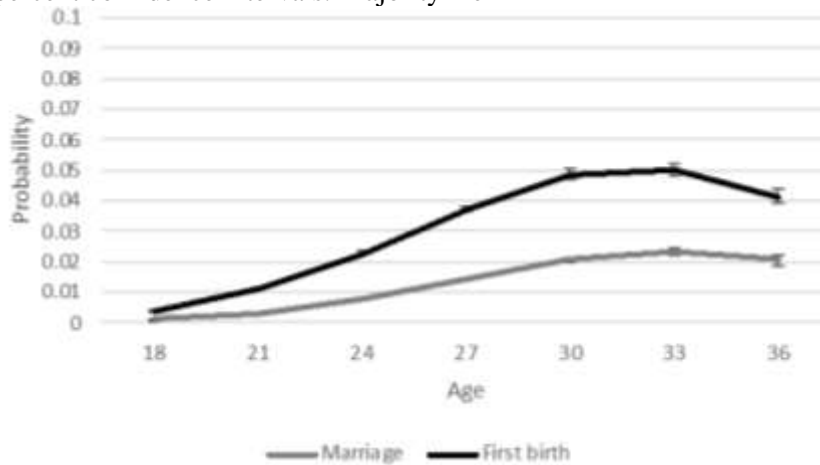


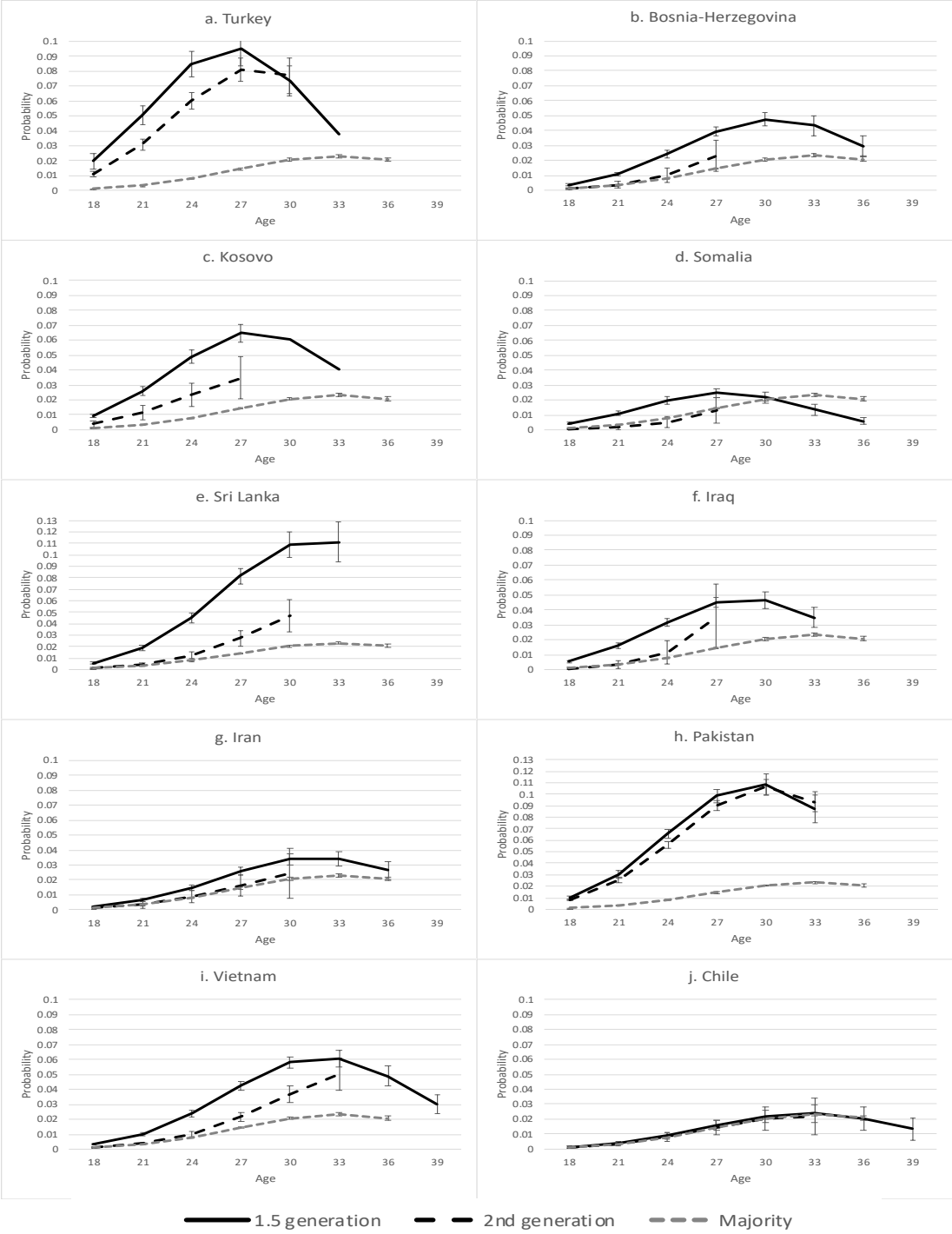
Figure 5 presents results for the risk of marriage for 1.5 -and second-generation men from each (parental) origin country. Among the children of immigrants originating from all countries, except Chile, we find evidence of a generational shift in marriage timing and propensity, in line with our hypotheses. Marriage is most common among the 1.5 generation; among the second generation, marriage occurs less frequently and later, although the magnitude of the difference in comparison to the 1.5 generation is not always large (e.g. Pakistan). The second generation’s age-profile falls in between those of the 1.5 generation and the majority in the case of Turkey, Bosnia-Herzegovina, Kosovo, Sri Lanka, Iraq and Vietnam. Among men originating from Somalia and Iran, the second-generation’s age pattern is indistinguishable from that of the majority subpopulation. As for women, the age-patterns of marriage among the 1.5 and second generations with a Chilean background are indistinguishable from that of the majority.

Figure 6 shows the age profiles of non-marital first births for men from the ten origin countries, relative to majority men. Although the overall magnitude of the risk of a birth is lower, we find evidence of generational shifts to later first birth timings among immigrant-background men from Turkey, Bosnia-Herzegovina, Somalia, Iraq and Vietnam. Among Chilean-origin men, the first birth risk is higher among the 1.5 generation than for majority men, and we find evidence of a generational shift toward the Norwegian timing pattern among the second generation.

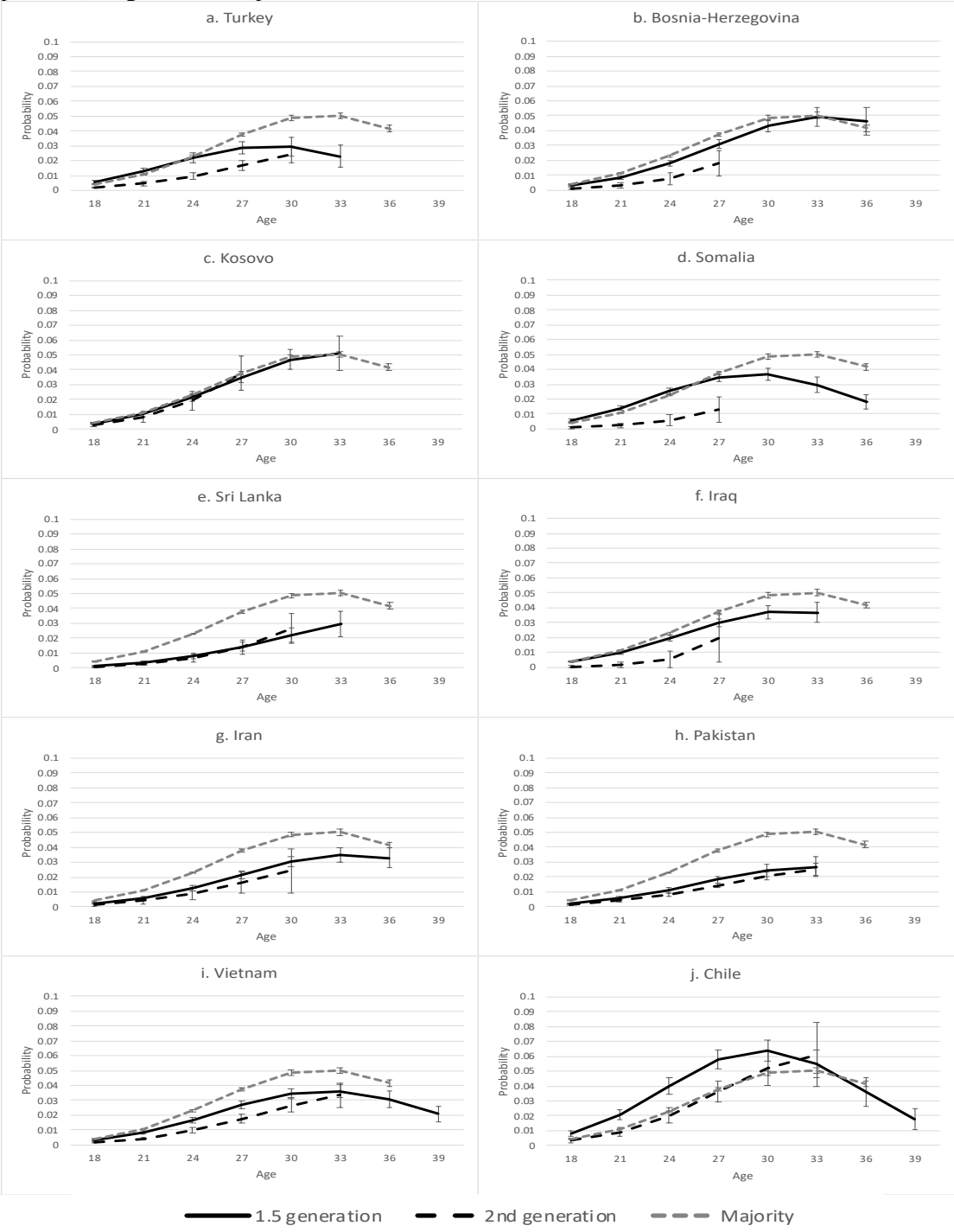
The age profile and magnitude of the risk of a non-marital first birth is quite similar to the Norwegian majority among men originating from Kosovo and among the Bosnian-Herzegovinian 1.5 generation. Even though the propensity to have a non-marital first birth is lower among the Bosnian-Herzegovinian second generation, these men seem to follow the Norwegian timing pattern. Similarly, among those originating from Iraq, Iran, Sri Lanka, Pakistan and Vietnam, fewer men form families via a non-marital birth, but those who do have a late-age-profile, comparable to majority men. Among

immigrant-background men from these countries, adoption of the behaviour and the timing seem to go hand-in-hand.

**Figure 5.** Predicted probabilities of family formation via marriage by country of (parental) origin, with 95-percent confidence intervals. Men



**Figure 6.** Predicted probabilities of family formation via non-marital first birth by country of (parental) origin, with 95-percent confidence intervals. Men



## 6. Discussion and conclusion

Using high-quality administrative register data, this paper investigated family formation behaviours of the children of immigrants and majority individuals born between 1972 and 2001, living in Norway at age 18. To better capture subtler processes of cultural adaptation, we investigated the timing of family formation and the pathway into family life: when do people form families and do they do so via marriage or a first birth? We hypothesized that we would find a negative generational gradient in the propensity to marry and to 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, depending upon the outcome of interest (marriage or first birth) and country of (parental) origin.

Results for marriage showed that women and men originating from Bosnia-Herzegovina, Kosovo, Somalia, Sri Lanka, Iraq, Iran and Vietnam most closely followed our generational hypotheses. This pattern was also evident for men with origins in Turkey and (at younger ages) Pakistan. Among these groups there was a clear generational gradient in the propensity and timing of marriage, with the 1.5 generation most likely to marry at early ages, and the second generation falling somewhere in between or showing age patterns and a propensity statistically indistinguishable from the majority population. Among these origin groups, distinctions between the marital behaviours of the children of immigrants and majority young adults blur and diminish across generations.

With respect to non-marital childbearing, we found the most consistent evidence of our generational hypotheses among those with (parental) origins in Bosnia-Herzegovina, Somalia, Iraq and Vietnam among both men and women, and further among women with a Kosovar, Sri Lankan, Iranian and Pakistani background and men with a Turkish background. Central to our thesis was the interpretation of non-marital childbearing as a part of a broader socio-cultural shift toward new meanings of marriage, where it is no longer a pre-requisite for childbearing (Heuveline and Timberlake 2004; Holland 2017). The incorporation of non-marital childbearing into the family life courses of immigrants and their descendants could, therefore, represent a narrowing of the social distinctions between groups. Still, it could also be that social groups have different motivations for non-marital childbearing. For example, 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 require high (socio-)economic underpinnings (Buchmann and Kriesi 2011; Perelli-Harris et al. 2010). However, if non-marital childbearing only reflected a pattern of disadvantage among the children of immigrants, we would also expect an early age-at-first-birth profile among those experiencing a non-marital first birth. Among a subset of origin groups (Bosnia-Herzegovina, Kosovo, Iran and Vietnam among women, and Iraq, Iran, Sri Lanka, Pakistan and

Vietnam among men), we found that while the propensity to experience a non-marital first birth was always lower, the timing profile matched that of the Norwegian majority. 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 act, for which we might expect a progressive increase in the propensity to form families via non-marital childbearing and progressive postponement of these births across generations.

In further support of the idea that non-marital childbearing constitutes a bright boundary, across all countries of origin, second-generation men and women were less likely to experience a first birth, as compared to the 1.5 generation. To the extent that we observed blurring, this was via timing rather than overall propensity. On the other hand, our finding of higher levels of non-marital first births at young ages among 1.5-generation women with origins in Turkey, Somalia and Iraq is at odds with generational patterns of acculturation and (possibly) more consistent with pattern of disadvantage theory.

Notwithstanding these findings for these groups of 1.5 generation women, in the country-of-origin groups where we did find a generational gradient, we found them for men and women alike. And, where these generational differences were not similar across genders, there were no clear country-specific pattern. These findings underscore the importance of also studying men's family behaviour and fertility, not only women's.

To produce stable age-specific estimates of the transition to marriage or a first birth, it was necessary to have sufficient numbers of observations at each age. As such, we chose to focus on ten distinct origin countries in six global regions, constituting the largest sending immigrant countries to Norway: Bosnia-Herzegovina and Kosovo (Europe); Turkey, Iraq and Iran (Middle East); Somalia (East Africa); Pakistan and Sri Lanka (South Asia); Vietnam (South-East Asia); and Chile (Latin America). These countries and regions have distinct patterns of family formation, as compared to the Nordic model. We did not formulate hypotheses about patterns among particular country groups, but it was notable that we found differential support for our generational hypotheses by countries: there was a clear generational shift for those with origins in Eastern Europe, but evidence for this shift was more mixed among those with origins in the Middle East and East Africa and in Asia. Although we cannot identify the causal mechanism driving these distinct patterns 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 increasing Pan-European socio-cultural linkages, may imply a reduced social distance between immigrants and their descendants from Eastern Europe and majority Norwegians. In our

analysis, individuals with Chilean origins were also similar to the Norwegian majority in their age-specific patterns of marriage and non-marital first births. Given high levels of non-marital childbearing, cohabitation and late ages for marriage in Chile (Esteve et al. 2012; Laplante et al. 2015), it is unsurprising that we find such similarities in the family formation patterns of Chilean-origin men and women living in Norway and our Norwegian majority sub-sample.

On the other hand, higher levels of religiosity among immigrants (Barstad 2019) and their descendants, and particularly among those of Muslim origins (Friberg and Sterri 2021), may create more social distance between these groups and more secular Norwegian populations, resulting in more distinct family formation patterns and a smaller degree of change across immigrant generations. Our results confirmed that this was particularly evident with respect to marriage among those with origins in Pakistan and Turkey. Similar findings were reported by Lappegård (2006) who found no clear signs of a generational gradient in marriage among Norwegian women of Pakistani and Turkish origin. Somalian-origin individuals (particularly among the 1.5 generation), on the other hand, displayed a distinct pattern of lower levels of marriage and high levels of non-marital childbearing. In line with this latter finding, research from Sweden does confirm that the female descendants of immigrants from the Horn of Africa have lower marriage probabilities (Andersson et al. 2015) than native Swedes. Also, results from qualitative research suggest that Somalian marriages in Norway often only take place in unofficial religious ceremonies (Bredal and Wærstad 2014), and therefore are not always included in the population registers. This highlights another important aspect of social distance: the extent to which we can capture subgroups in even the most complete data sources when degrees of social separation are high. Extending this study to explore differences by particular sub-national populations using survey or qualitative data may allow us to fine-tune our understanding of the adaption and blurring processes observed with these large-scale data.

A key strength of this study was our ability to use a unique and powerful source of social science data: administrative registers. These data are particularly useful for studying hard-to-reach or small population sub-groups, although as noted above, they do not always provide perfect coverage. Even so, these data provide us with a powerful, long view of the unfolding of the family life course across nearly three decades. At the same time, because the second generation is quite young for many of our origin groups, only time will tell whether some of the changes we observed are driven by postponement and adaptation to the Norwegian family formation model or overall lower levels of family formation among the second generation. Also, these data cannot provide us with insights into the motivations and meanings of individuals' family life course 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. The increasing availability of population register estimates of non-marital

cohabitation will offer researchers the opportunity to explore the adoption of an additional dimension of the Nordic family system among immigrants and their descendants.

Taken together these results deepen our understanding of shifting social distinctions 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 behaviours and the timing of family life course events allow us to gain a better understanding of the gradations of family and social change in diverse societies. Our study highlights the importance of accounting for the timing, as well as the incidence, of multiple family processes, and how change occurs at the intersection of generation and origin.

## References

- Adams, B. N., and J. Trost (Eds.). (2005). *Handbook of World Families*. Thousand Oaks, CA: Sage Publications.
- Adserà, A., and A. Ferrer. (2016). The fertility of married immigrant women to Canada. *International Migration Review*, 50(2), 475–505.
- Alba, R. (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, R., and N. 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.
- Andersson, G. (2004). Childbearing after Migration: Fertility Patterns of Foreign-Born Women in Sweden. *International Migration Review*, 38(2), 747–74.
- Andersson, G. (2021). Family behaviour of migrants. In N. F. Schneider & M. Kreyenfeld (Eds), *Research Handbook on the Sociology of the Family* (pp.263–276). Cheltenham, UK: Edward Elgar Publishing.
- Andersson, G., O. Obućina, and K. Scott. (2015). Marriage and divorce of immigrants and descendants of immigrants in Sweden. *Demographic Research*, 33, 31–64.
- Andersson, G., L. Persson, and O. Obućina. (2017). Depressed fertility among descendants of immigrants in Sweden. *Demographic Research*, 36, 1149–1184.
- Barnes, W. (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.
- Barstad, A. (2019). Innvandereres religion og integrering [Immigrants' religion and integration]. *Statistiske analyser*, 2019, 22. <https://www.ssb.no/befolkning/artikler-og-publikasjoner/er-religiose-innvandrere-mindre-integrert>
- Berrington, A. (2020). Expectations for family transitions in young adulthood among the UK second generation. *Journal of Ethnic and Migration Studies*, 46(5), 913–935.
- Billari, F. 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, P. M., C. Becker, and K. M. Fitzpatrick. (1984). Intersecting Social Affiliations and Inter-marriage. *Social Forces*, 62(3), 585–606.
- Blekesaune, M. (2020). The fertility of female immigrants to Europe from Christian and Muslim countries. *Journal of Religion and Demography*, 7, 222–237.



- Bredal, A. and T. L. Wærstad. (2014). *Gift, men ugift. Om utenomrettslige religiøse vigsler [Married, Yet Unmarried. On Unregistered Religious Marriages]*. Report 2014:06. Oslo, Norway: Institute for Social Research.
- Brochmann, G., and A. Hagelund. (2011). Migrants in the Scandinavian welfare state. The emergence of a social policy problem. *Nordic Journal of Migration Research*, 1(1), 13–24.
- Brochmann, G., and K. Kjeldstadli. (2008). *A History of Immigration. The Case of Norway 900-2000*. Oslo, Norway: Universitetsforlaget.
- Buchmann, M. C., and I. Kriesi. (2011). Transitions to adulthood in Europe. *Annual Review of Sociology*, 37, 481–503.
- Clark S., A. Koski, and E. Smith-Greenaway. (2017). Recent Trends in Premarital Fertility across Sub-Saharan Africa. *Studies in Family Planning*, 48(1), 3–22.
- Dale, A., J. Lindley, and S. Dex. (2006). A life-course perspective on ethnic differences in women's economic activity in Britain. *European Sociological Review*, 22(3), 323–337.
- De Valk, H., and N. Milewski. (2011). Family life transitions among children of immigrants: An introduction. *Advances in Life Course Research*, 16(4), 145–51.
- Elder, G. H. (1985). Perspectives on the Life Course. In G. H. Elder Jr. (Ed.), *Life Course Dynamics* (pp. 23–49). Ithaca, NY: Cornell University Press.
- Esteve, A., R. Lesthaeghe, and A. López-Gay. (2012). The Latin American cohabitation boom, 1970-2007. *Population and Development Review*, 38, 55–81.
- Friberg, J. H., and E. B. Sterri (2021). Decline, revival, change? Religious adaptations among Muslim and non-Muslim immigrant origin youth in Norway. *International Migration Review*. DOI: 10.1177/0197918320986767
- Glick, J. E. (2010). Connecting Complex Processes: A Decade of Research on Immigrant Families. *Journal of Marriage and Family*, 72(3), 498–515.
- Gordon, M. M. (1964). *Assimilation in American Life*. New York: Oxford University Press.
- Guarin Rojas, E. A., L. Bernardi, and F. Schmid. (2018). First and second births among immigrants and their descendants in Switzerland. *Demographic Research*, 38(11), 247–286.
- Hattori, M. K. and F. N-A. Doodoo. (2007). Cohabitation, marriage, and 'sexual monogamy' in Nairobi's slums. *Social Science and Medicine*, 64, 1067–1078.
- Heuveline, P., and J. 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, J. A. (2013). Love, Marriage, then the Baby Carriage? The timing of marriage and childbearing in Sweden. *Demographic Research*, 29(11), 275–306.

- Holland, J. A. (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, J. A., and H. De Valk. (2013). Ideal ages for family formation among immigrants in Europe. *Advances in Life Course Research*, 18(4), 257–69.
- Huschek, D., H. De Valk, and A. 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.
- Jones, G. W., and W-J. J. Yeung. (2014). Marriage in Asia. *Journal of Family Issues*, 35, 1567–1583.
- Kalmijn, M. (1998). Intermarriage and Homogamy: Causes, Patterns, Trends. *Annual Review of Sociology*, 24(1), 395–421.
- Kalmijn, M. and G. Kraaykamp. (2018). Determinants of cultural assimilation in the second generation. A longitudinal analysis of values about marriage and sexuality among Moroccan and Turkish migrants. *Journal of Ethnic and Migration Studies*, 44, 697–717.
- Kalmijn, M., and F. Van Tubergen. (2010). A Comparative Perspective on Intermarriage: Explaining Differences Among National-Origin Groups in the United States. *Demography*, 47(2), 459–479.
- Kleinepiers, T., and H. De Valk. (2016). Ethnic differences in family trajectories of young adult women in the Netherlands: Timing and sequencing of events. *Demographic Research*, 35(24), 671–710.
- Kulu, H., and A. González-Ferrer. (2014). Family Dynamics Among Immigrants and Their Descendants in Europe: Current Research and Opportunities. *European Journal of Population*, 30(4), 411–435.
- Kulu, H. and T. Hannemann. (2016). Why does fertility remain high among certain UK born ethnic minority women? *Demographic Research*, 35(49), 1441–1488.
- Kulu, H., N. Milewski, T. Hannemann, and J. Mikolaj. (2019). A decade of life-course research on fertility of immigrants and their descendants in Europe. *Demographic Research*, 40, 1345–1374.
- Lamont, M., and V. Molnár. (2002). The Study of Boundaries in the Social Sciences. *Annual Review of Sociology*, 28(1), 167–195.
- Laplante, B., T. Castro-Martin, C. Cortina and T. Martin-Garcia (2015). Childbearing within Marriage and Consensual Union in Latin America, 1980-2010. *Population and Development Review*, 42(1), 85–108.
- Lappegård, T. (2006). Family formation and education among Pakistani, Turkish and Vietnamese women in Norway. *Genus*, 62(1), 75–95.
- Lesthaeghe, R. J. (2010). The Unfolding Story of the Second Demographic Transition. *Population and Development Review*, 36(2), 211–251.

- Muttarak, R., and A. Heath. (2010). Who intermarries in Britain? Explaining ethnic diversity in intermarriage patterns. *The British Journal of Sociology*, 61(2), 275–305.
- Nazio, T., and H.-P. 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, G., and G. Andersson. (2008). Consequences of Family Policies on Childbearing Behavior: Effects or Artifacts? *Population and Development Review* 34(4), 699–724.
- Ní Bhrolcháin, M., and É. Beaujouan. (2012). Fertility postponement is largely due to rising educational enrolment. *Population Studies*, 66(3), 311–27.
- OECD. (2020a). SF2.4 Share of births outside of marriage. *OECD Family Database*. Data retrieved 17 November 2021, from <https://www.oecd.org/els/family/database.htm>
- OECD. (2020b). SF3.1: Marriage and divorce rates. *OECD Family Database*. Data retrieved 17 November 2021, from <https://www.oecd.org/els/family/database.htm>
- Oppenheimer, V. K. (2003). Cohabiting and Marriage during Young Men’s Career-Development Process. *Demography*, 40(1), 127–149.
- Pailhé, A. (2017). The convergence of second-generation immigrants’ fertility patterns in France: The role of sociocultural distance between parents’ and host country. *Demographic Research*, 36(45), 1361–1398.
- Perelli-Harris, B., and N. Sánchez Gassen. (2012). How similar are cohabitation and marriage? Legal approaches to cohabitation across Western Europe. *Population and Development Review*, 38(3), 435–467.
- Perelli-Harris, B., W. Sigle-Rushton, M. Kreyenfeld, T. Lappegård, R. Keizer, and C. Berghammer. (2010). The Educational Gradient of Childbearing within Cohabitation in Europe. *Population and Development Review*, 36(4), 775–801.
- Perelli-Harris, B., M. Kreyenfeld, W. Sigle-Rushton, R. Keizer, T. Lappegård, A. Jasilioniene, C. Berghammer, and P. Di Giulio. (2012). Changes in union status during the transition to parenthood in eleven European countries, 1970s to early 2000s. *Population Studies*, 66(2), 167–182.
- Qian, Z., and D. T. Lichter. (2007). Social boundaries and marital assimilation: Interpreting trends in racial and ethnic intermarriage. *American Sociological Review*, 72(1), 68–94.
- Rogers, E. M. (2003). *Diffusion of innovations*. New York: Free Press.
- Sassler, S., and Z. Qian. (2003). Marital Timing and Marital Assimilation: Variation and Change among European Americans between 1910 and 1980. *Historical Methods*, 36(3), 131–148.
- Scott, K., and M. Stanfors. (2011). The transition to parenthood among the second generation: Evidence from Sweden, 1990-2005. *Advances in Life Course Research*, 16, 190–204.

- Soehl, T., and J. 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. (2021a). Immigrants and Norwegian-born to immigrant parents. <https://www.ssb.no/en/statbank/table/13055/>. Accessed 9 June 2021.
- Statistics Norway. (2021b). Population statistics. Births. <https://www.ssb.no/en/statbank/list/fodte>. Accessed 16 October 2021.
- Statistics Norway. (2021c). Marriages and divorces. <https://www.ssb.no/en/befolkning/barn-familier-og-husholdninger/statistikk/ekteskap-og-skilsmisser>. Accessed 10 November 2021.
- Tønnessen, M. (2020). Declined total fertility rate among immigrants and the role of newly arrived women in Norway. *European Journal of Population*, 36, 547–573
- 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 2020.
- United Nations, Department of Economic and Social Affairs, Population Division (2019a). *World Fertility Data 2019 (POP/DB/Fert/Rev2019)*. Available from <https://www.un.org/development/desa/pd/data/world-fertility-data>
- United Nations, Department of Economic and Social Affairs, Population Division (2019b). *World Marriage Data 2019 (POP/DB/Marr/Rev2019)*. Available from <https://www.un.org/development/desa/pd/data/world-marriage-data>
- Vitali, A., A. Aassve, and T. Lappegård. (2015). Diffusion of Childbearing Within Cohabitation. *Demography*, 52(2), 355–377.
- Wiik, K. Aa. (2009). You'd better wait! Socio-economic background and timing of first marriage versus first cohabitation. *European Sociological Review*, 25, 139–153.
- Wiik, K. Aa., and J. A. Holland. (2018). Partner choice and timing of first marriage among the children of immigrants in Norway and Sweden. *Acta Sociologica*, 61(2), 143–162.
- Wiik, K. Aa., and J. A. Holland. (2021). Origin and residential influences on the first partnership choices of the children of immigrants in Norway. *Discussion paper 968*. Statistics Norway: Oslo.
- Wiik, K. Aa., L. Dommermuth, and J. A. Holland. (2021). Partnership Transitions among the Children of Immigrants in Norway: The Role of Partner Choice. *Population Studies*, 75(1), 133–152.
- Wilson, B., and Kuha, J. (2018). Residential segregation and the fertility of immigrants and their descendants. *Population, Space and Place*, 24(3), e2098.

## Appendix tables

**Table A1.** Discrete-time event history multinomial model predicting first marriage or first non-marital birth versus remaining unmarried and childless (base). Women

	Model 1							
	First marriage				First non-marital birth			
	B	SE		e <sup>B</sup>	B	SE		e <sup>B</sup>
Age	0.90	0.02	***	2.46	0.72	0.01	***	2.76
Age <sup>2</sup>	-0.01	0.00	***	0.99	-0.01	0.00	***	0.99
Country of (parental) origin								
Majority (reference)				1.00				1.00
Turkey	2.13	0.04	***	8.41	-0.35	0.07	***	0.70
Bosnia-Herzegovina	1.04	0.04	***	2.83	-0.61	0.05	***	0.54
Kosovo	1.63	0.05	***	5.10	0.01	0.06		1.01
Somalia	0.43	0.06	***	1.54	0.34	0.04	***	1.40
Sri Lanka	1.53	0.05	***	4.62	-0.99	0.09	***	0.37
Iraq	1.28	0.04	***	3.60	-0.01	0.04		0.99
Iran	0.72	0.04	***	2.05	-0.85	0.06	***	0.43
Pakistan	1.83	0.03	***	6.23	-0.74	0.05	***	0.48
Vietnam	0.74	0.03	***	2.10	-0.51	0.04	***	0.60
Chile	0.37	0.06	***	1.45	0.29	0.05	***	1.34
Generation								
1.5 (reference)				1.00				1.00
2nd	-0.22	0.03	***	0.80	-0.55	0.04	***	0.58
Calendar year, t	-0.06	0.00	***	0.94	-0.03	0.00	***	0.97
Constant	102.03	2.68	***	2.05E+44	55.58	2.32	***	1.37E+24
<i>N</i> (individuals)				69,218				
<i>N</i> (person-years)				579,609				
Log-likelihood (null)				-161,630.3				
Log-likelihood (model)				-149,121.2				
Degrees of freedom				30				
AIC				298,302.4				
BIC				298,640.5				

\*  $p < 0.05$  \*\*  $p < 0.01$  \*\*\*  $p < 0.001$

*Note:* 5% random sample of majority (Norwegian born to two Norwegian-born parents). Standard errors adjusted for clustering on respondents. e<sup>B</sup> = exponentiated B (odds ratios).

*Source:* Norwegian administrative registers.

**Table A2.** Discrete-time event history multinomial model predicting first marriage or first non-marital birth versus remaining unmarried and childless (base). Men

	Model 1							
	First marriage				First non-marital birth			
	B	SE		e <sup>B</sup>	B	SE		e <sup>B</sup>
Age	1.06	0.02	***	2.89	0.96	0.01	***	2.61
Age <sup>2</sup>	-0.02	0.00	***	0.98	-0.01	0.00	***	0.99
Country of (parental) origin								
Majority (reference)				1.00				1.00
Turkey	2.02	0.04	***	7.54	-0.25	0.06	***	0.78
Bosnia-Herzegovina	0.90	0.04	***	2.46	-0.25	0.05	***	0.78
Kosovo	1.43	0.05	***	4.18	0.17	0.05		1.19
Somalia	0.27	0.06	***	1.31	0.30	0.05	***	1.35
Sri Lanka	1.49	0.04	***	4.44	-0.91	0.08	***	0.40
Iraq	1.00	0.04	***	2.72	-0.27	0.05		0.76
Iran	0.47	0.05	***	1.60	-0.64	0.05	***	0.53
Pakistan	1.97	0.03	***	7.17	-0.66	0.05	***	0.52
Vietnam	0.92	0.03	***	2.51	-0.45	0.04	***	0.64
Chile	-0.01	0.08		0.99	0.25	0.05	***	1.28
Generation								
1.5 (reference)				1.00				1.00
2nd	-0.26	0.03	***	0.77	-0.45	0.04	***	0.64
Calendar year, t	-0.06	0.00	***	0.94	-0.03	0.00	***	0.97
Constant	96.36	2.98	***	7.06E+41	44.07	2.66	***	1.38E+19
<i>N</i> (individuals)				74,487				
<i>N</i> (person-years)				735,564				
Log-likelihood (null)				-155,112.5				
Log-likelihood (model)				-139,535.2				
Degrees of freedom				30				
AIC				279,130.4				
BIC				279,475.6				

\*  $p < 0.05$  \*\*  $p < 0.01$  \*\*\*  $p < 0.001$

*Note:* 5% random sample of majority (Norwegian born to two Norwegian-born parents). Standard errors adjusted for clustering on respondents. e<sup>B</sup> = exponentiated B (odds ratios).

*Source:* Norwegian administrative registers.

**Table A3.** Discrete-time event history multinomial model predicting first marriage or first non-marital birth. With interactions between age and age-squared, origin country and generation. Women

	Model 3							
	First marriage				First non-marital birth			
	B	SE		e <sup>B</sup>	B	SE		e <sup>B</sup>
Age	0.76	0.02	***	2.13	0.61	0.02	***	1.83
Age <sup>2</sup>	-0.01	0.00	***	0.99	-0.01	0.00	***	0.99
Country of (parental) origin × Age								
Majority (reference)				1.00				1.00
Turkey	0.35	0.01	***	1.42	0.09	0.02	***	1.10
Bosnia-Herzegovina	0.18	0.01	***	1.20	-0.05	0.01	***	0.95
Kosovo	0.33	0.02	***	1.39	0.01	0.01		1.01
Somalia	0.15	0.02	***	1.17	0.13	0.01	***	1.14
Sri Lanka	0.24	0.01	***	1.27	-0.02	0.02		0.98
Iraq	0.24	0.01	***	1.27	0.07	0.01	***	1.07
Iran	0.13	0.01	***	1.14	-0.07	0.01	***	0.93
Pakistan	0.23	0.01	***	1.26	-0.02	0.02		0.98
Vietnam	0.10	0.01	***	1.11	0.00	0.01		1.00
Chile	0.07	0.02	***	1.08	0.05	0.01	***	1.05
Country of (parental) origin × Age <sup>2</sup>								
Majority (reference)				1.00				1.00
Turkey	-0.01	0.00	***	0.99	-0.00	0.00	***	1.00
Bosnia-Herzegovina	-0.01	0.00	***	0.99	0.00	0.00	**	1.00
Kosovo	-0.01	0.00	***	0.99	-0.00	0.00		1.00
Somalia	-0.01	0.00	***	0.99	-0.00	0.00	***	1.00
Sri Lanka	-0.01	0.00	***	0.99	-0.00	0.00		1.00
Iraq	-0.01	0.00	***	0.99	-0.00	0.00	***	1.00
Iran	-0.00	0.00	***	1.00	0.00	0.00	***	1.00
Pakistan	-0.01	0.00	***	0.99	-0.00	0.00		1.00
Vietnam	-0.00	0.00	***	1.00	-0.00	0.00		1.00
Chile	-0.00	0.00	**	1.00	-0.00	0.00	***	1.00
Country of (parental) origin × 2 <sup>nd</sup> Generation × Age								
Majority (reference)				1.00				1.00
Turkey	-0.05	0.02	**	0.95	-0.13	0.03	***	0.88
Bosnia-Herzegovina	-0.09	0.04	*	0.91	-0.10	0.04	**	0.91
Kosovo	-0.09	0.04	*	0.91	-0.06	0.03	*	0.94
Somalia	-0.11	0.05	*	0.90	-0.10	0.04	**	0.90
Sri Lanka	-0.17	0.02	***	0.85	-0.19	0.05	***	0.83
Iraq	-0.22	0.06	***	0.80	-0.06	0.07		0.95
Iran	-0.18	0.04	***	0.83	-0.21	0.03	***	0.81
Pakistan	-0.04	0.01	***	0.96	-0.08	0.02	***	0.93
Vietnam	-0.14	0.02	***	0.87	-0.14	0.02	***	0.87
Chile	-0.06	0.04		0.95	-0.04	0.03		0.96
Country of (parental) origin × 2 <sup>nd</sup> Generation × Age <sup>2</sup>								
Majority (reference)				1.00				1.00
Turkey	0.00	0.00	*	1.00	0.00	0.00	**	1.00
Bosnia-Herzegovina	0.00	0.00	*	1.00	0.00	0.00	**	1.00
Kosovo	0.00	0.00		1.00	0.00	0.00		1.00
Somalia	0.00	0.00		1.00	0.00	0.00		1.00
Sri Lanka	0.01	0.00	***	1.01	0.01	0.00	***	1.01
Iraq	0.01	0.00	**	1.01	0.00	0.00		1.00

**Table A3** (cont.)

Iran	0.01	0.00	***	1.01	0.01	0.00	***	1.01
Pakistan	0.00	0.00	***	1.00	0.00	0.00	***	1.00
Vietnam	0.00	0.00	***	1.00	0.00	0.00	***	1.00
Chile	0.00	0.00		1.00	0.00	0.00		1.00
Education level								
Primary (reference)				1.00				1.00
Secondary	-0.01	0.02		0.99	-0.35	0.02	***	0.71
Tertiary	0.34	0.03	***	1.40	-0.37	0.02	***	0.69
Missing	-0.49	0.05	***	0.61	-0.31	0.06	***	0.73
Enrolled in education	-0.39	0.02	***	0.67	-0.95	0.02	***	0.39
Annual income <sup>a</sup>	0.01	0.00	***	1.01	0.02	0.00	***	1.02
Residing in municipality with > 60,000 residents	0.04	0.02	*	1.04	-0.30	0.02	***	0.74
Calendar year of observation	-0.06	0.00	***	0.94	-0.04	0.00	***	0.96
Constant	107.48	2.73	***	4.76E+46	62.17	2.40	***	9.96E+26
<i>N</i> (individuals)				69,218				
<i>N</i> (person-years)				579,609				
Log-likelihood (null)				-161,630				
Log-likelihood (model)				-144,673.6				
Degrees of freedom				100				
AIC				289,547.2				
BIC				290,674.2				

*Note:* 5% random sample of majority (Norwegian born to two Norwegian-born parents). Standard errors adjusted for clustering on respondents. e<sup>B</sup> = exponentiated B (odds ratios).

<sup>a</sup> Income in whole 10,000s of 2015 Norwegian Kroner.

\* p < 0.05 \*\* p < 0.01 \*\*\* p < 0.001

*Source:* Norwegian administrative registers.



**Table A4.** Discrete-time event history multinomial model predicting first marriage or first non-marital birth. With interactions between age and age-squared, origin country and generation. Men

<b>Model 3</b>								
	<b>First marriage</b>				<b>First non-marital birth</b>			
	B	SE		e <sup>B</sup>	B	SE		e <sup>B</sup>
Age	0.91	0.02	***	2.49	0.84	0.02	***	2.33
Age <sup>2</sup>	-0.01	0.00	***	0.99	-0.01	0.00	***	0.99
Country of (parental) origin × Age								
Majority (reference)				1.00				1.00
Turkey	0.34	0.01	***	1.40	0.07	0.02	***	1.07
Bosnia-Herzegovina	0.12	0.01	***	1.13	-0.04	0.01	***	0.96
Kosovo	0.24	0.01	***	1.27	-0.01	0.01		0.99
Somalia	0.19	0.02	***	1.21	0.06	0.01	***	1.06
Sri Lanka	0.14	0.01	***	1.15	-0.13	0.02	***	0.88
Iraq	0.18	0.01	***	1.20	0.00	0.01		1.00
Iran	0.07	0.01	***	1.07	-0.06	0.01	***	0.94
Pakistan	0.22	0.01	***	1.25	-0.05	0.02	***	0.95
Vietnam	0.09	0.01	***	1.10	-0.02	0.01	*	0.98
Chile	0.02	0.02		1.02	0.08	0.01	***	1.08
Country of (parental) origin × Age <sup>2</sup>								
Majority (reference)				1.00				1.00
Turkey	-0.01	0.00	***	0.99	-0.00	0.00	***	1.00
Bosnia-Herzegovina	-0.00	0.00	***	1.00	0.00	0.00	**	1.00
Kosovo	-0.01	0.00	***	0.99	0.00	0.00		1.00
Somalia	-0.01	0.00	***	0.99	-0.00	0.00	***	1.00
Sri Lanka	-0.00	0.00	***	1.00	0.00	0.00	***	1.00
Iraq	-0.01	0.00	***	0.99	-0.00	0.00		1.00
Iran	-0.00	0.00	***	1.00	0.00	0.00	***	1.00
Pakistan	-0.01	0.00	***	0.99	0.00	0.00		1.00
Vietnam	-0.00	0.00	***	1.00	0.00	0.00		1.00
Chile	-0.00	0.00		1.00	-0.00	0.00	***	1.00
Country of (parental) origin × 2 <sup>nd</sup> Generation × Age								
Majority (reference)				1.00				1.00
Turkey	-0.09	0.02	***	0.92	-0.15	0.03	***	0.86
Bosnia-Herzegovina	-0.16	0.04	***	0.85	-0.15	0.06	*	0.86
Kosovo	-0.10	0.05		0.91	-0.07	0.03	*	0.94
Somalia	-0.33	0.06	***	0.72	-0.26	0.07	***	0.77
Sri Lanka	-0.15	0.03	***	0.86	-0.06	0.04		0.94
Iraq	-0.31	0.08	***	0.73	-0.35	0.14	*	0.71
Iran	-0.07	0.06		0.93	-0.04	0.05		0.96
Pakistan	-0.03	0.01	**	0.97	-0.04	0.02	*	0.96
Vietnam	-0.12	0.02	***	0.89	-0.08	0.02	***	0.92
Chile	-0.01	0.04		0.99	-0.11	0.03	***	0.89
Country of (parental) origin × 2 <sup>nd</sup> Generation × Age <sup>2</sup>								
Majority (reference)				1.00				1.00
Turkey	0.00	0.00	***	1.00	0.00	0.00	***	1.00
Bosnia-Herzegovina	0.01	0.00	***	1.01	0.00	0.00	*	1.00
Kosovo	0.00	0.00		1.00	0.00	0.00	**	1.00
Somalia	0.01	0.00	***	1.01	0.01	0.00	***	1.01
Sri Lanka	0.00	0.00	***	1.00	0.00	0.00		1.00
Iraq	0.01	0.00	***	1.01	0.01	0.01	*	1.01

**Table A4** (cont.)

Iran	0.00	0.00		1.00	0.00	0.00		1.00
Pakistan	0.00	0.00	**	1.00	0.00	0.00		1.00
Vietnam	0.00	0.00	***	1.00	0.00	0.00	***	1.00
Chile	0.00	0.00		1.00	0.00	0.00	***	1.00
Education level								
Primary (reference)				1.00				1.00
Secondary	0.11	0.02	***	1.11	-0.18	0.02	***	0.84
Tertiary	0.41	0.03	***	1.51	-0.29	0.02	***	0.75
Missing	-0.30	0.06	***	0.74	-0.36	0.08	***	0.70
Enrolled in education	-0.28	0.02	***	0.75	-0.50	0.03	***	0.61
Annual income <sup>a</sup>	0.01	0.00	***	1.01	0.01	0.00	***	1.01
Residing in municipality with > 60,000 residents	0.13	0.02	***	1.14	-0.21	0.02	***	0.81
Calendar year of observation	-0.06	0.00	***	0.94	-0.04	0.00	***	0.97
Constant	101.98	3.08	***	1.94E+44	54.89	2.77	***	6.91E+23
<i>N</i> (individuals)				74,487				
<i>N</i> (person-years)				735,564				
Log-likelihood (null)				-155,112.5				
Log-likelihood (model)				-136,478.4				
Degrees of freedom				100				
AIC				273,156.8				
BIC				274,307.7				

*Source:* Norwegian administrative registers.

*Note:* 5% random sample of majority (Norwegian born to two Norwegian-born parents). Standard errors adjusted for clustering on respondents. e<sup>B</sup> = exponentiated B (odds ratios). <sup>a</sup> Income in whole 10,000s of 2015 Norwegian Kroner.

\* p < 0.05 \*\* p < 0.01 \*\*\* p < 0.001