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Working Paper 15 (2023)

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On the timing of marriage and childbearing: Family formation pathways among immigrants in Switzerland

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This paper examines childbearing in and outside of marriage as a manifestation of the Second Demographic Transition among immigrant populations in Switzerland. Based on full-population register data, we simultaneously analyse fertility and partnership changes by time since migration. Results from a multistate event history model show that most of the differences in family formation patterns between migrant groups and natives are in the sequencing of marriage and first birth among childless unmarried women. Out of wedlock family trajectories prove to be a common experience for European migrants, but a sustainable family pathway only among Swiss, French, and Sub-Saharan African women. Among married women, it is the risk of a third birth that marks the differences between groups; first and second birth rates are relatively similar across migrant groups. Considering the legal constraints imposed by immigration policies and distinguishing transition patterns by time since migration support the disruption hypothesis among EU migrants and the interrelated events hypothesis among non-EU groups. Family size and the partnership context of fertility highlight which family regime prevails in different population subgroups and the role that immigrants play in the Second Demographic Transition and family transformation in Europe.

Keywords: Second Demographic Transition, Immigrants, Fertility, Marriage, Nonmarital childbearing

1   Introduction

Europe has seen significant changes in family formation patterns and living arrangements since the 1950s (Buchmann and Kriesi 2011). New forms of conjugal life and entry into adulthood have gradually become more common and acceptable. This includes the increase in (pre-

marital) cohabitation, childbearing outside of marriage, divorce, or re-partnering. Changes in the type and timing of events, and the order in which they occur have been seen as a manifestation of the Second Demographic Transition (Lesthaeghe 2010, 2014). Nonetheless, research shows that instead of being a general trend that uniformly affects all individuals and all family-life domains, variation in life courses took distinct forms and paces in different countries and among different social groups (Van Winkle 2018; Widmer and Ritschard 2009). In Europe, the growing share of international migrants from countries with different family systems contributes to this diversity (Andersson 2020). However, despite extensive research on fertility and partnership dynamics among immigrant populations, the partnership context of fertility, including nonmarital or (pre)marital childbearing, only received passing attention (Adserà and Ferrer 2015).

The literature proposes different views on why immigrants' family behaviours differ from that of natives in host countries with the aim of understanding the consequences of migration for families. A large stream of research focuses on heterogeneity in fertility (Kulu et al. 2017, 2019) while another stream examines variation in partnership formation or dissolution, with a strong focus on intermarriages (Andersson et al. 2015; Hannemann et al. 2020; Hannemann and Kulu 2015; Kulu and González-Ferrer 2014). The literature highlights the influence of social distance and time (i.e., duration since migration/intergenerational changes) in explaining the distinctiveness of the migrant population, generally through processes of socialisation and adaptation. In Europe, studies show greater differences in fertility and partnership patterns among immigrants from geographically (and culturally) distant countries, characterised by higher marriage than cohabitation rates, and higher third and fourth birth risks. Recently, joint examination of childbearing and partnership transitions has further revealed that changes in fertility behaviours across generations occur more rapidly than changes in partnership behaviours (Kulu et al. 2022; Mikolai and Kulu 2022). While fertility decisions seem more

affected by structural-economic factors and individuals' life circumstances, partnership behaviours appear to be more influenced by normative cultural factors (Andersson 2020; Kulu et al. 2022). Nevertheless, what is often perceived as family ideals or cultural preferences may be induced by the migration process itself, which involves strict legal requirements, especially in the family domain.

Using full-population register data, this paper examines the prevalence and sequencing of marriage and childbearing by parity among immigrant and native women in Switzerland. We enhance previous research on immigrant family life course in different ways. First, we focus on childbearing by parity in and outside of marriage as a manifestation of the Second Demographic Transition (SDT) for various migrant groups. The SDT focuses on interrelated changes in fertility, family formation, and partnership behaviour (Sobotka 2008) induced by ideological and cultural shifts toward an "individualistic family model" (Lesthaeghe 2010, 2014). Declining fertility rates (below replacement levels) and a weakening link between marriage and childbearing are key indicators of the STD; a useful framework to explain family formation trends among immigrants who may find themselves in between two cultures. The adoption of family formation behaviours prevalent in the receiving country, including family size and union type, is often perceived as indicative of social distance between groups and assimilation to the mainstream society (Holland and Wiik 2021). Whether women marry first and then have children, marry largely after the first birth, marry later, or never marry (with or without having (additional) children) provide insights into the family norms and values of immigrants with various cultural backgrounds. The timing and prevalence of divorce is also indicative of prevailing family norms in certain groups and is included as a competing outcome in family trajectories.

Second, we emphasise the role of time since migration and distinguish family patterns that are interrelated with the migration event and those that occur later in the settlement process. Studies

have shown how (international) migration and family formation are interrelated as they are often part of the same process (Milewski 2007; Clara Helena Mulder 1993). However, the interaction of family ideals, as expressed by the type and sequencing of events, and legal constraints (i.e., entry requirements imposed by migration policies) have received little attention. Legal requirements lead to a selection effect, and selection is expected to operate differently across origin countries depending on whether women have free movement and access to the labour market. The reason for migration clearly shapes family formation patterns with delayed family transitions for employment-related migrants and accelerated transitions for marriage-related migrants (Kulu et al. 2019). The level and sequence of family events may also be distorted by the act of migration, thus creating a mismatch with family ideals e.g., by opting for marriage rather than a consensual union to secure legal status in the country. By studying the risk of first and higher order births among unmarried and married women at different stages of the migration process, we seek to distinguish between behaviours that are induced by (or happen in tandem with) the migration process and those that are the result of cultural norms or preferences.

Third, we use register data for the entire resident population of Switzerland for the period 2012-2018. The population register was adopted only recently, in 2010, and for this reason register-based (partnership and fertility) research is still very new in the country. The data document all births, marriages, and divorces for the entire resident population which allows for very detailed group-specific analysis. We take advantage of this comprehensive data to highlight variations in family pathways of a large number of immigrant groups in a context where migration is mainly motivated by professional reasons but with important differences by origin.

Following new developments in family life course research (see Kulu et al. 2022; Mikolai and Kulu 2022), we investigate partnership and fertility trajectories jointly in a multi-state event history framework. We model the time to a set of competing events among unmarried and

married women and analyse 1) the transition to marriage or a (first, second or third) birth among unmarried women, and 2) the transition to divorce or a (first, second or third) birth among married women. Simultaneous analysis of partnership changes and childbearing allows for a better understanding of which family pattern (as expressed by family size and partnership context of fertility) prevails in different population subgroups and the role that immigrants play in the SDT and family transformation in Europe.

2 Background

2.1 Migration, partnership changes, and fertility: Theoretical considerations

There are five well-established hypotheses to explain the differences in family formation patterns between natives and immigrants (for overviews see Kulu 2005; Kulu and González-Ferrer 2014). Some hypotheses emphasise the influence of origin and destination contexts, while others highlight the role of the migration process itself, thus disentangling the roles of structural factors from those of the cultural context in family behaviours (Andersson 2020). *The socialisation hypothesis* emphasises cultural inheritances and the persistence of norms and values acquired early in life. Important decisions about family size and union type are expected to reflect the dominant family model at origin. Differences in family behaviours are thought to persist over time (since migration) and even be transmitted from one migrant generation to the other. T*he adaptation hypothesis*, by contrast, states that immigrants will adapt their behaviours to the new social environment. With time and prolonged exposure to new family norms at the destination, the family behaviours of immigrants are expected to converge to that of the native population.

The selection hypothesis also expects similarities in family behaviours between immigrants and natives. It assumes that immigrants have chosen a destination that matches their preferences and lifestyle, including in the family domain. Immigrants are a select group in the sense that

their preferences differ from the dominant norms in the country of origin and resemble those prevailing in the host country (Mikolai and Kulu 2022). By contrast to the adaptation hypothesis, similarities with natives are supposed to be stable over time. Legal requirements for migration also imply a selection effect. Unlike the self-selection mechanism described above, the selection induced by the legal entry requirements does not imply similarities with the native population but rather differences across migrant origin groups. Depending on the country of citizenship, access to the territory is limited to specific administrative grounds. While EU migrants in Switzerland enjoy freedom of movement and access to the labour market, access to visas for non-EU citizens is often limited to family purposes, and access to the labour market is subject to a strict quota system. As a result, the migration system contributes to the selection of family-oriented profiles among non-EU migrants and work-oriented ones among EU migrants.

The relevance of the disruption and interrelation of life events hypotheses is also related to the migration motives and (family) circumstances. On the one hand, *the disruption hypothesis* highlights the uncertainty, stress, and integration challenges that surround the migration process. Family formation plans may be delayed until migrants have established themselves economically, socially, and culturally in the host country (Kulu et al. 2019). For couples, decreased fertility shortly before and/or after migration is expected, especially among partners who moved at different time periods and lived apart for some time (Milewski 2007). For singles, one can expect delayed marriage and childbearing due to the time needed to find a partner. *The interrelation of life events*, on the other hand, states that migration coincides with other family events (Andersson 2004). It is generally seen as a matter of timing rather than causality. From a life-course perspective, migration and family formation are seen as interdependent or "parallel careers" (Courgeau 1990; Clara H. Mulder and Wagner 1993). It has been shown that migration, marriage, and first pregnancy follow each other in a short sequence and that the

transition to first birth increases during the first year of marriage, stressing the endogeneity of these events (Baizán et al. 2003; Milewski 2007). While the disruption hypothesis can be expected to be more relevant for single migrants and those migrating for employment reasons (especially for women), the interrelation of life events hypothesis may be more accurate for family migrants.

2.2 Immigrants' family behaviours: Empirical evidence

Research on partnership dynamics in Europe has examined the timing, type, and likelihood of union formation and dissolution among immigrants and their descendants. In the past, the partnership pathways of immigrants resembled those of the native populations in Europe. Despite higher fertility levels for some migrant groups both immigrants and natives tended to follow a path of direct marriage and childbearing within marriage (Mikolai and Kulu 2022). Increased family complexity and diversity in the last decades, including the postponement of marriages and the spread of cohabitation, non-marital childbearing, and divorce (Thomson 2014) have been observed to varying degrees in the migrant population.

Recent studies have shown significant heterogeneity in partnership formation according to the origin and generation of international migrants. In most cases, these behaviours seemed to reflect the patterns prevailing in immigrants' countries of origin, providing support for the socialisation hypothesis (e.g., Hannemann et al. 2020; Kulu et al. 2022). Nevertheless, other studies have found evidence of adaptation and selection mechanisms (e.g., Andersson et al. 2015; González-Ferrer et al. 2016; Hannemann and Kulu 2015; Pailhé 2015; Rahnu et al. 2015). In general, studies show that immigrants from geographically and culturally close countries (e.g., EU migrants in Europe) have family patterns similar to those of the natives, including a higher propensity to cohabit before marriage or a first birth. By contrast, immigrants from more conservative countries often follow a path of direct marriage and have larger families (see

Andersson et al. 2015 for Sweden; Delaporte and Kulu 2022, Pailhé 2015 for France; Kuhnt and Crape 2020, Liu and Kulu 2021 for Germany; Mikolai and Kulu 2022 for the UK).

Couple formation (or marriage migration) as a special case of family reunification largely account for the elevated marriage and first birth risks around international migration (Andersson et al. 2015; Toulemon 2004). The interrelation of life events hypothesis is particularly relevant in explaining the partnership pattern of these populations. Family-related migration remains a dominant form of legal entry for non-European immigrants in European countries. Although ways of living together as a family have changed (e.g., nonmarital cohabitation, living apart together), most countries still adhere to the traditional model of marriage as a basis for entry into the territory (Kofman 2004). As a result, family ideals may be distorted by the intention to migrate to another country, with accelerated and elevated transitions to marriage for those whose visa is conditional on family ties. By contrast, single migrants were shown to marry at older ages (Carlson 1985; Milewski 2003) - a pattern that may be explained by a need for a longer searching time for a partner (Milewski 2007). This is in line with the disruption hypothesis. The postponement of marriage (and possibly parenthood) for unmarried migrants may also be explained by a selection effect: individuals migrating for education- or employment-related reasons may have different family aspirations or simply be at different stages of their life course.

Findings on family dissolution among immigrant populations are rather mixed. In a comparative study of four European countries, Hannemann and colleagues (2019) found lower divorce risks among women from more conservative countries (i.e., South Asian women in the United Kingdom and Turkish women in France) stressing the embeddedness of culture and social norms towards this event. Other studies have found higher divorce rates among (certain groups of) foreign-born individuals as compared to the native-born (Andersson 2015, Nekby 2012). The stress and disruption of family life induced by the migration process, and exposure

to new gender norms were highlighted as possible explanations for relatively high divorce risks among immigrants. Exogamous marriage is another factor linked to a higher likelihood of divorce (Milewski and Kulu 2014). However, divorce may be incompatible with maintaining legal status in the host country, thus diminishing the chances of experiencing this event especially in the first years after immigration.

Studies on fertility dynamics among immigrant populations are abundant (see Adserà and Ferrer 2015; Kulu et al. 2019; Kulu and González-Ferrer 2014; Kulu and Milewski 2007 for reviews). Based on the five above-mentioned hypotheses, previous research has attempted to understand whether and how immigration influences fertility levels in European countries (Kulu and González-Ferrer 2014). Again, studies report significant variation across population subgroups. While immigrants from European countries often show similarities (or convergence) with natives, immigrants from non-Western countries show higher levels of fertility. In general, immigrants from countries with more conservative family patterns experience earlier transitions to parenthood, and have similar risks of a second birth as natives, but the propensity for a third or fourth birth is higher (Kulu et al. 2022). Higher fertility levels for non-Western immigrants were found, for instance, among Eastern and Southern European immigrants in Switzerland (Rojas et al. 2018); Turkish and Sub-Saharan African immigrants in France (Delaporte and Kulu 2022; Pailhé 2015); Turkish immigrants in Germany (Milewski 2007, 2010); immigrants from the Maghreb region in Spain (González-Ferrer et al. 2016); immigrants from Morocco and Turkey in Belgium (Van Landschoot et al. 2017); and Pakistani and Bangladeshi immigrants in the UK (Kulu et al. 2017; Kulu and Hannemann 2016). Age at migration, marital status, and reason the for migration are strong predictors of the timing and level of fertility (Andersson 2004; Cygan-Rehm 2011; Milewski 2007; Wolf 2016). Women who were married at the time of migration or migrated for family reasons had particularly high fertility levels shortly after arrival. By comparison, employment-related migrants had lower

fertility levels during the first years (Castro Martin and Rosero-Bixby 2011; Mussino et al. 2015; Mussino and Strozza 2012; Persson and Hoem 2014).

The literature on immigrants' fertility and partnership dynamics has focused only marginally on the partnership context of fertility including nonmarital and (pre)marital childbearing (Adserà and Ferrer 2015). For the US, Noghanibehambari et al. (2022) showed that the home country's average characteristics such as age at first birth and prevalence of nonmarital fertility have a strong and significant effect on the family behaviours adopted by the descendants of immigrants. Other studies in the United States show a lower propensity of nonmarital births among children of immigrants and a higher propensity among Mexican Americans (Anyawie 2022; Glick 2010; Landale and Oropesa 2007; Wildsmith and Raley 2006). In Europe, studies on the partnership context of fertility are often limited to the occurrence and stability of interethnic marriage (Dribe and Lundh 2012; González-Ferrer 2006; Milewski and Kulu 2014). By jointly analysing partnership and childbearing changes, a few studies recently addressed this gap showing a stronger association between marriage and childbearing, and a lower risk of nonmarital and premarital childbearing among immigrant populations (Delaporte and Kulu 2022; Liu and Kulu 2021). In a British study, Mikolai and Kulu (2022) concluded that European and Western immigrants are experiencing increasingly diverse family trajectories with cohabitation, non-marital childbearing, and separation being common experiences. By contrast, the partnership pathways leading to childbearing among other immigrant groups have remained relatively stable over time (Mikolai and Kulu 2022). In a cross-country comparative study, Kulu and colleagues (2022) found striking similarities in the preference for marriage between migrant generations and across migrant origins with strongly marriage-centred family forms. They concluded that, compared to fertility behaviours, partnership patterns are less affected by the destination context and more by the migration background.

2.3 Migration policy, immigration, and family patterns in Switzerland

As a country with a high standard of living and a dynamic labour market, Switzerland attracts a significant number of immigrants. The foreign-born population (i.e., the population born abroad regardless of nationality) represents 31% of the total population (SFSO 2021). Although historically migration to Switzerland has been mainly motivated by professional reasons, the share of migrants arriving for family or humanitarian reasons has increased over time. After the Second World War, a rotating guest worker policy was introduced to ensure the temporary nature of migration and respond to the demand for low-skilled workers (Ruedin et al. 2015). Immigrants, mainly from Italy and to a lesser extent Spain, were granted seasonal or short-term permits. It was only in the 1980s that migration became more permanent with the introduction of long-term residence permits and a loosening of the rules on family reunification. The migrant population has also diversified during this period with the arrival of Portuguese and ex-Yugoslavian workers (Piguet 2009). In the 1990s, asylum applications increased due to numerous conflicts, mainly with refugees fleeing the Balkan region.

The year 2002 marked a turning point in Swiss migration policy, as Switzerland joined the EU/EFTA Agreement of the Free Movement of Persons. The conditions of entry, residence and work were then facilitated for EU/EFTA nationals. At the same time, entry for third country nationals was restricted to family reunification, study, and asylum (Piguet 2005). Employment-related migration for third-country nationals is now limited to highly skilled workers. International organisations are an important entry point for highly qualified third-country nationals. As a result of these policies, the reasons for migration and the skill composition of the population vary by origin country. While employment is the main reason for migration for many migrants (72% for Germans, 71% for Italians, and 58% for Western European migrants), family reasons were cited by the majority of migrants from the Balkans (73%), South America (68%), and West Africa (61%) (nccr – on the move 2021).

Research on the partnership patterns of immigrants in Switzerland mainly focus on mixed marriages (see for instance Potarca and Bernardi 2018). The type of union (consensual union or marriage) and the partnership context of fertility (nonmarital childbearing, single parenthood) have not yet received much attention. Premarital cohabitation is common practice in Switzerland. However, as opposed to many other European countries where cohabitation has become an alternative to marriage, out of wedlock births account only for one in four births (SFSO 2017). Studies show that couples in Switzerland often marry during the first pregnancy (Charton and Wanner 2001; Rossier and Legoff 2005). Conservative attitudes towards marriage and institutional constraints, including the recognition of paternity and children's rights, were mentioned as factors reinforcing the link between marriage and fertility (Goff and Ryser 2010).

There is a larger literature on immigrants' fertility. The impact of foreigner fertility on the overall TFR was shown to be larger in Switzerland than in other European countries (Sobotka 2008). In 2021, almost 40% of all births were to women of foreign nationality[1]. However, despite a TFR that is about 0.5 higher than that of Swiss women, foreigners do not have larger families. In fact, a study by Burkimsher and colleagues (2020) as well as the statistics from household registration (STATPOP) and the Families and Generations Surveys (FGS) indicate the opposite. In a study on first and second birth risks among immigrants, their descendants, and natives, Rojas and colleagues (2018) reported higher first birth risks among immigrants, especially among immigrants from Eastern and Southern Europe. However, they found a lower transition rate to a second birth among all immigrant groups.

2.4 Hypotheses

Based on the literature and distinct migration policies for EU and non-EU migrants in Switzerland, we derive the following hypotheses. First, the literature consistently shows that

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[1] National statistics in Switzerland are generally compiled on the basis of citizenship rather than the country of birth.

family behaviours in host countries resemble those prevailing in the country of origin. Focusing on the partnership context (and levels) of fertility, we expect lower marriage rates and a greater propensity to have children (first and higher order births) outside marriage among EU migrants. By contrast, we expect higher marriage rates and a greater propensity to have larger families within marriage among non-Western migrants *(socialisation hypothesis)*. Second, EU and non-EU migrants in Switzerland are subject to different entry requirements selecting work-oriented profiles in the former case and family-oriented ones in the latter. Distinguishing by time since migration, we expect EU migrants to experience lower marriage and fertility transitions in the first two years following arrival to Switzerland *(disruption and selection hypotheses)*. By contrast, we expect non-EU migrants to experience higher marriage and fertility transitions in the first two years following arrival to Switzerland *(Interrelation of life events and selection hypotheses)*. Distinct patterns by time since migration are expected but only for the first birth (Milewski 2007).

3 Data and methods

3.1 Data

We use linked administrative registers that cover all residents of Switzerland between 2012 and 2018. The data comes from three different sources: (1) The Population and Household register, (2) the Vital register, and (3) the Social Security register. The Population and Household register (STATPOP) provides information on different demographic dimensions for all persons legally living in Switzerland (on the reference date of December 31 of each year). These characteristics include age, sex, (date of) marital status, nationality, country of birth, and year of arrival in Switzerland. Additionally, a household ID allows to identify co-residents of the same dwelling but does not document their relationship[2]. This means that information on

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[2] The population register was first introduced in 2010 but it is only since 2012 that a household ID is available.

parental status and number of children in the household (parity) is not directly available in the dataset. For women who do not have children during this period, we define parity as the number of children in the household whose age difference with the mother is between 15 and 45 years[3]. For women who have children in the household during the observation period, this information is directly retrieved from the Vital register (description below).

Fertility and partnership transitions are extracted from the Vital register (BEVNAT), which provides continuous and detailed information on childbirth, marriage, and divorce, including the links to the parents or the (ex-)partner. For each new birth, the register also documents parity and marital status at birth. Family events that took place abroad among individuals domiciled in Switzerland are also documented in the register. The data does not gather information on non-marital cohabitation which means that both unpartnered and cohabiting individuals are referred to as 'unmarried'. Although childbearing within cohabitation and lone parenthood are two distinct family trajectories, both can be considered a manifestation of the SDT. Finally, the Social Security register (CdC) contains the annual income of all residents with a declared professional activity in Switzerland.

We analyse women between the ages of 15 and 45. We start observing women at different ages in 2012 (or later for those who migrated to Switzerland or reached age 15 between 2013 and 2017) until 2018, or until they reach age 45, emigrate, or die. We exclude women who were already divorced or had three or more children when first observed. Overall, the study population consists of 1,806,174 women, 41% of whom are born abroad.

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[3] Based on the number of children in the household and their ages we were able to infer parity with a high degree of certainty. We validated this measure 1) using the Structural Survey, a nationally representative survey that contains information on the relationships between household members and 2) using the parity variable in the Vital register (for those having children between 2013-2018).

3.2   Analytical strategy

To analyse partnership and fertility trajectories jointly, we use a multi-state event history approach (see Mikolai and Kulu 2022 for a comprehensive overview of the modelling strategy). Figure 1 illustrates the possible states (combinations of marital status and parity in boxes) and competing transitions (arrows) considered in this study. We estimate different sets of models by marital status (unmarried or married) and parity (childless, one-child, or two-child mothers). First, we analyse competing partnership and fertility outcomes for unmarried women. Unmarried childless women can either marry or have a first child; unmarried mothers with one child can either have a second child or marry; and unmarried mothers with two children can either have a third child or get married. In a second step, we examine the competing partnership and fertility outcomes for married women. This population is at risk of either having a (first, second, or third) child or experiencing a divorce.

Figure 1: States and competing partnership and fertility outcomes
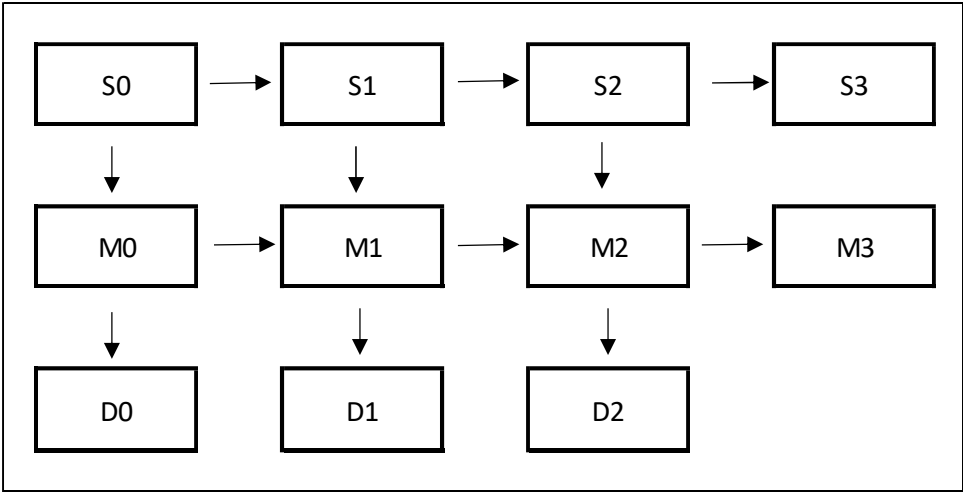
Notes: S=Single (unmarried); M=Married; D=Divorce; the numbers 0-3 represent women's parity (i.e., 0 child, 1 child, 2 children, or 3+ children).

We estimate piecewise constant exponential models for competing risks and incorporate different 'clocks'. Age is the baseline risk in all models. In the risk sets of married women, we also account for marriage duration; in the risk sets of mothers, we account for time since last

birth. An interaction term between the type of event and the migrant's country of birth allows us to test whether certain groups are more likely to experience one transition than another.

3.3 Variables

The main variable of interest is individuals' country of birth. For all models, we compare the family behaviour of natives (born in Switzerland) with that of women born abroad. Register data for the entire resident population allows for country-specific analysis. We distinguish women born in Germany, Italy, France, Portugal, and Spain (the largest origin groups in Switzerland among EU countries), as well as women born in Kosovo and Turkey (the largest non-EU origin countries in Switzerland). Due to smaller cell sizes, we have grouped individuals born in other countries by region of birth, distinguishing women from other EU countries, other European countries (Macedonia, Serbia, Bosnia-Herzegovina, and Russia represent 78% of this groups), Sub-Saharan Africa, North Africa, Latin America, North America, South Asia, Asia, and Oceania. Throughout this paper we distinguish between EU and non-EU migrants, as the former are free to enter, live and work in Switzerland, while the latter are subject to strict legal requirements.

Also of key importance is time since migration. To test our hypotheses, we distinguish the first two-year period after arrival from subsequent years. Age is categorised into 5-year age groups: 15-19 (reference), 20-24, 25-29, 30-34, 35-39, and 40-44. The models also include different duration variables. Marriage duration and time since last birth are divided into four categories: 0-1 year (reference), 1-3 years, 3-5 years, and 5+ years. The data does not provide information on the level of education. Instead, we use annual household income (measured as a continuous variable) and the employment status of women as socio-economic indicators. Employment status is coded as 1 if the woman received any income during the given year and 0 otherwise.

4 Results

4.1 Descriptive

Table 1 describes the number of person-years and family transitions by marital status and country of birth. Swiss women account for the largest share of person-years (63%) and events both as unmarried and married. All origin groups are in sufficient numbers to warrant detailed group-specific analysis. Approximately three quarters of the time at risk for native women is as unmarried. This proportion is higher than for all migrant groups and can be explained by the younger age structure of this population (individuals who reached age 15 between 2013 and 2018 were included in the dataset resulting in a larger population of those ages among the Swiss population). Other groups are underrepresented in the unmarried category. This is the case for (in ascending order) women born in Turkey, Kosovo, other European countries, North Africa, and South Asia. By contrast, women from Germany, France, and North America contribute to over 60% of their risk time as unmarried.

Table 1: Number of person-years and family events by marital status and country of birth, women aged 15-45 in Switzerland (2012-2019)

	Outcomes of single women				
	Person-years	Birth		Marriage	
		N	rate	N	rate
Switzerland	3616138	53812	0.015	100830	0.028
Italy	85736	1545	0.018	2635	0.031
Germany	265812	6728	0.025	8856	0.033
Portugal	109087	3771	0.035	4048	0.037
France	121614	3313	0.027	2937	0.024
Spain	36772	894	0.024	1134	0.031
Other EU countries	230639	3910	0.017	7727	0.034
Kosovo	21371	414	0.019	1967	0.092
Turkey	16447	146	0.009	888	0.054
Other European countries	97397	1522	0.016	6513	0.067
Sub-Saharan Africa	72948	4026	0.055	2188	0.030
North Africa	10836	119	0.011	391	0.036
Latin America	83963	1850	0.022	2544	0.030
North America	43806	389	0.009	971	0.022
Asia	108525	1444	0.013	2849	0.026
South Asia	24986	458	0.018	1017	0.041
Oceania	6706	92	0.014	180	0.027

	Outcomes of married women				
	Person-years	Birth		Divorce	
		N	rate	N	rate
Switzerland	1401584	157486	0.112	20668	0.015
Italy	61864	4817	0.078	387	0.006
Germany	139800	13968	0.100	1164	0.008
Portugal	169720	10649	0.063	967	0.006
France	59244	5282	0.089	617	0.010
Spain	25554	2047	0.080	183	0.007
Other EU countries	193420	14592	0.075	2008	0.010
Kosovo	80445	1189	0.015	537	0.007
Turkey	63937	4909	0.077	879	0.014
Other European countries	301988	26376	0.087	3119	0.010
Sub-Saharan Africa	62851	5886	0.094	1213	0.019
North Africa	32285	2887	0.089	687	0.021
Latin America	138049	7954	0.058	2784	0.020
North America	27483	2323	0.085	229	0.008
Asia	149023	9793	0.066	1868	0.013
South Asia	69105	4894	0.071	334	0.005
Oceania	5131	408	0.080	53	0.010

Sources: Statpop, Bevnat (2012-2018). Authors' own calculations.

4.2 Outcomes of unmarried women

We present the results of the piecewise constant exponential models for unmarried childless

women (Figure 2) and unmarried mothers with one or two children (Figure 3). Relative risks

are the result of an interaction between the type of event and migrant origin in a competing events framework. Unmarried women, who may be unpartnered or living in a non-marital cohabitation, are at risk of getting married or having a(n additional) child. The reference category is the hazard of marrying among unmarried Swiss women (denoted by 1). Because distinct patterns by time since migration are expected for the first birth only, we present the results by time since migration in the main text for childless women and in the appendix for higher order births.

Figure 2a shows the relative risks of a first birth or first marriage among childless unmarried women. In this population, the risk of marrying is the highest, followed by the risk of a first birth. Among Swiss women, the risk of marrying is about twice as high as the risk of having a first birth. Overall, we find similar patterns among women from EU countries. The risk of a first birth out of wedlock is somewhat higher for all EU groups, ranging from a 10% increase among women from other EU countries to a 75% increase among French women. Portuguese women stand out by an even higher risk of first birth (2.7 times higher), but also by a higher propensity to marry (30% higher).

Figure 2: Outcomes of unmarried childless women

a) Relative risks of a first birth or first marriage by migrant origin
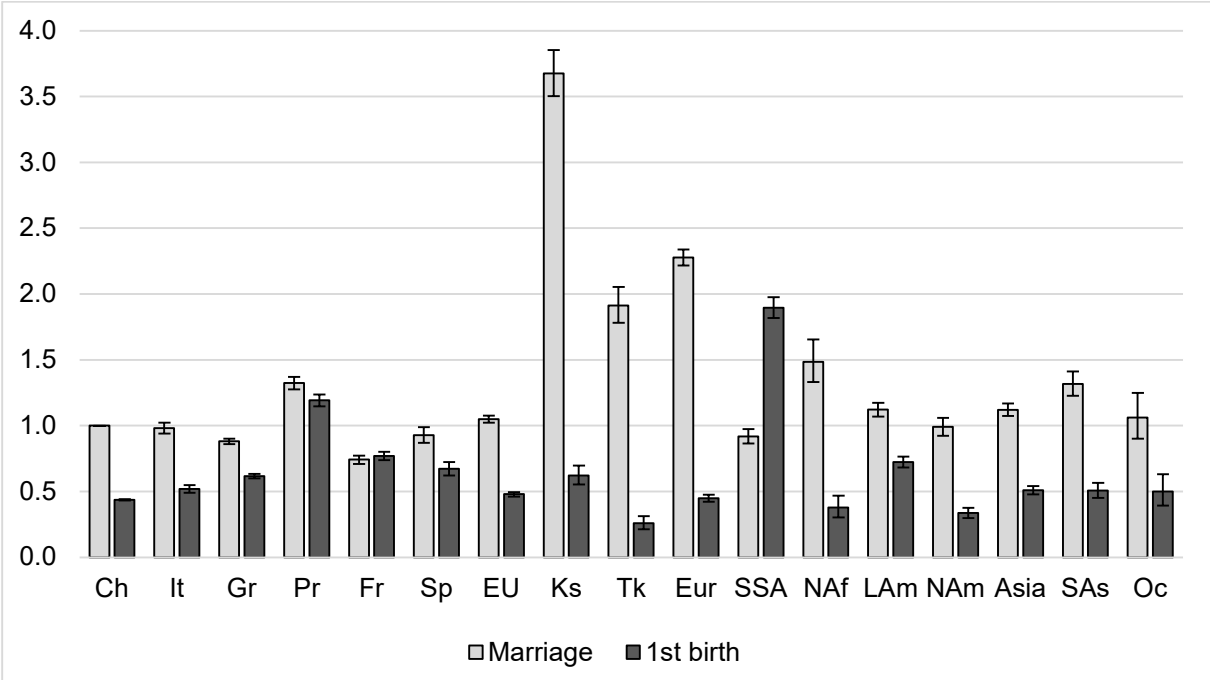
□ Marriage ■ 1st birth

b) Relative risks of a first birth or first marriage by migrant origin and time since migration

□ Marriage ■ 1st birth
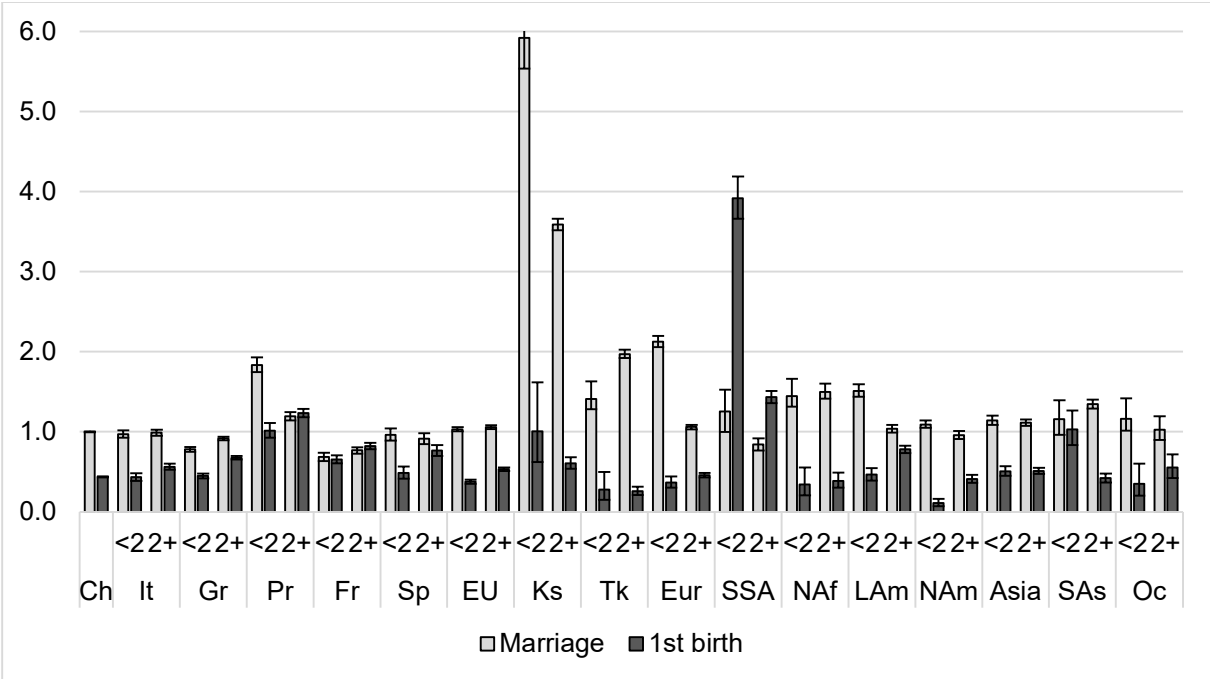
Note: CH=Switzerland; It=Italy; Gr=Germany; Pr=Portugal; Fr=France; Sp=Spain; EU=other EU countries; Ks=Kosovo; Tk=Turkey; Eur=other European countries (not in the EU); SSA=Sub-Saharan Africa; NAf=North Africa; LAm=Latin America; NAm=North America; Asia; SAs=South Asia; Oc=Oceania.

Sources: Statpop, Bevnat, CdC (2012-2018). Authors' own calculations. 95% confidence intervals.

Greater differences emerge among women from non-EU countries. The most prominent difference is observed among women from Sub-Saharan Africa for whom the risk of a first birth outside of marriage is the highest among all groups; their propensity to marry is, however, comparable to that of native women. Part of this dynamic can be explained by the very nature of the administrative data, which only records civil statuses (as compared to, for example, religious marriages). Contrary to expectations, women from non-EU countries have similar or even higher first birth risks than unmarried Swiss women. Only women from Turkey and North America have a lower risk of first birth outside marriage. Other patterns of family formation marked by a higher propensity to marry can be identified. This is the case among women from Kosovo, Turkey, and other European countries, and to a lesser extent for women born in North Africa, Latin America, and South Asia.

The results clearly support differentiated effects by time since migration (Figure 1b). We find that, in the first two years following immigration, women from EU countries have similar first birth risks to Swiss women (with the exception of the Portuguese). After more than two years in the country, the risk of a first birth is higher than for Swiss women. The differences range from a 20% increase for women from other EU countries to a 90% increase for French women. For Portuguese women, the risk of a first birth is 2.3 times higher in the first two years and 2.8 times higher in the following years. Marriage risks, by contrast, do not differ by time since migration, again, with the exception of the Portuguese whose risk of marrying is elevated following immigration.

The relationship between family events and time since migration operates differently among non-EU migrants. Women from Kosovo, Sub-Saharan Africa, and South Asia have increased first birth risks shortly after arrival (as compared to Swiss women, and to their counterpart who spent more time in the country). For other groups, this association is reversed. This is the case among women from Latin and North America for whom the risk of a first birth is higher after

two years. Marriage risks are higher among women from Kosovo, Sub-Saharan Africa and Latin America in the first two years following immigration.

Figure 3 shows the relative risks of a birth or marriage among unmarried mothers, providing a measure of the extent to which nonmarital childbearing continues beyond the first birth. Due to a smaller number of events (only 1% of all births are a third birth of unmarried mothers) and large confidence intervals for some groups, we have pooled the transitions to second and third births. Differences in marriage and birth risks between migrant groups and natives are much smaller among unmarried mothers than they were among childless unmarried women. Unmarried mothers are a select group, and probably even more so among women born in countries with more conservative family values; the results reflect this dynamic.

Again, the results show greater similarities to the patterns of native women among women born in EU countries. The Portugueses, French, and Spaniards are somewhat less likely than natives to marry; other groups do not differ. Swiss natives and French women are the most likely to have a second or third child as unmarried and these are the only European groups who are more likely to have a second or third child than to marry. Non-EU women also show lower second or third birth risks compared to natives. Again, women from Sub-Saharan Africa stand out with 30% higher risks of a second or third birth while unmarried. By contrast, Turkish unmarried women are the least likely to give birth to a second or third child. As opposed to first birth risks, higher order births among unmarried mothers are less likely in the first two years in the country (with the exception of South Asian women) (Figure A.1). Among unmarried mothers, some groups maintain a high propensity to marry. This is the case among women born in Kosovo, Turkey, other European countries, North Africa, Asia, and South Asia. No clear patterns emerge by time since migration.

Figure 3: Outcomes of unmarried mothers: Relative risks of a second/third birth or first marriage by migrant origin
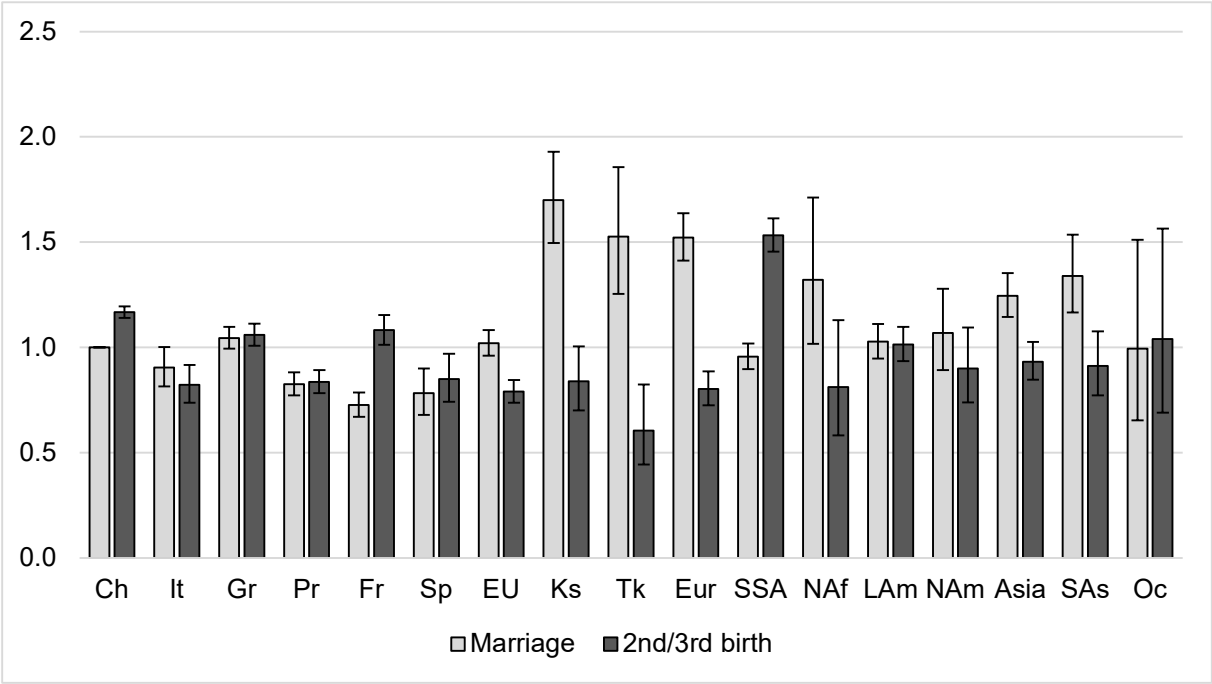
Note: CH=Switzerland; It=Italy; Gr=Germany; Pr=Portugal; Fr=France; Sp=Spain; EU=other EU countries; Ks=Kosovo; Tk=Turkey; Eur=other European countries (not in the EU); SSA=Sub-Saharan Africa; NAf=North Africa; LAm=Latin America; NAm=North America; Asia; SAs=South Asia; Oc=Oceania.
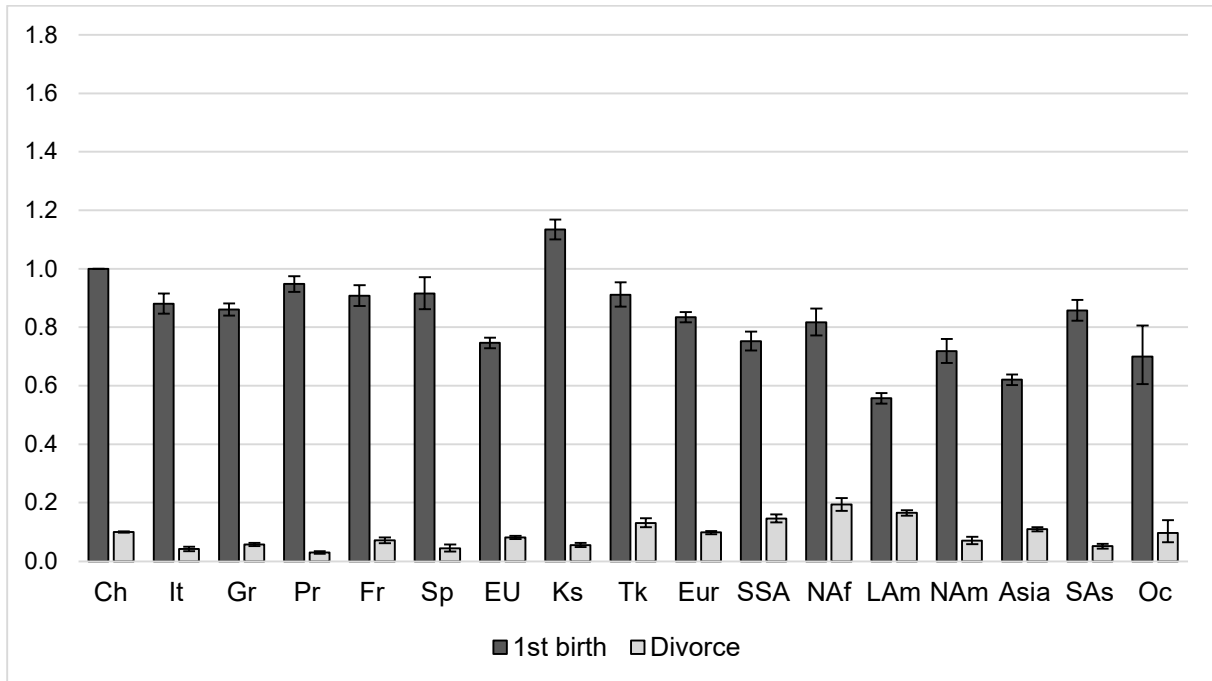
Sources: Statpop, Bevnat, CdC (2012-2018). Authors' own calculations. 95% confidence intervals.

4.3 Outcomes of married women

Figures 4 to 6 illustrate the patterns of married women's transitions to divorce or a first, second, and third childbirth, respectively. The reference category is the hazard of a (first, second, or third) birth among married Swiss women (denoted by 1). Among childless married women (Figure 4), childbirth is the most likely outcome, followed by divorce; the latter being about ten times less likely than the former.

Figure 4: Outcomes of childless married women

a) Relative risks of a first birth or divorce by migrant origin

a) Relative risks of a first birth or divorce by migrant origin and time since migration
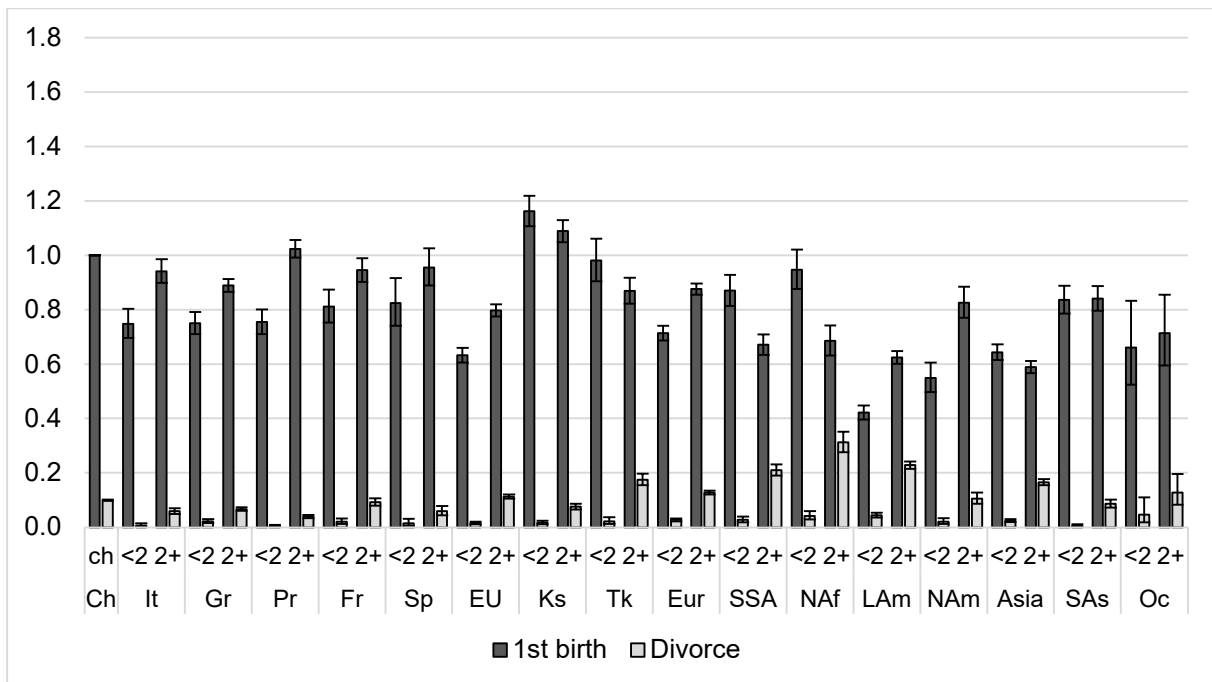
Note: CH=Switzerland; It=Italy; Gr=Germany; Pr=Portugal; Fr=France; Sp=Spain; EU=other EU countries; Ks=Kosovo; Tk=Turkey; Eur=other European countries (not in the EU); SSA=Sub-Saharan Africa; NAf=North Africa; LAm=Latin America; NAm=North America; Asia; SAs=South Asia; Oc=Oceania.

Sources: Statpop, Bevnat, CdC (2012-2018). Authors' own calculations. 95% confidence intervals.

Married women show some variation in first birth risks between migrant groups. Women from the most represented EU countries in Switzerland have slightly lower first birth risks (10-15% less) than native Swiss women whereas women from other EU countries exibit 25% lower first birth risks. First birth risks of non-EU migrants are generally somewhat lower than those of native women. Women from Latin America and Asia have the lowest first birth risks; about half of that of Swiss women. The only exception is women form Kosovo whose first birth risks are about 15% higher than those of native women.

Just like the transition to a first birth among unmarried women, married women from EU countries have lower first birth risks in the first two years following immigration compared to later years. In the first two years after arrival, they are 20% (French and Spaniard) to 60% (other EU countries) less likely to have a first child compared to Swiss married women. After a settlement period of more than two years, the hazard of a first birth is higher and more similar to those of Swiss women. Nevertheless, women from Germany and other EU countries maintain lower first birth risks in the long run; about 10% and 20% respectively. Women from non-EU countries, by contrast, often experience increased risks of the transition to a first birth shortly after migration. This is the case for women from Kosovo, Turkey, Sub-Saharan Africa, and North Africa. This pattern is reversed for some non-EU groups: women from Latin and North America, and women from other European countries are more likely to have a first child after more than two years in the country.

We also find differences in the magnitude of divorce risks by migrant origin. We find more differences in the risks of divorce among women from non-EU countries with women from Kosovo, South Asia, and North America having the lowest divorce rates and women from North Africa, Sub-Saharan Africa, and Latin America having the highest. Divorce risks are especialy low in the first two years following immigration for both EU and non-EU migrants.

Figure 5 shows the patterns of transitions to a second birth vs. divorce among married mothers with one child. Variations between migrant groups for the risk of a second birth are comparable to those for the risk of a first birth. Women from all EU countries have lower second birth risks than native Swiss women with the Portuguese having the lowest risks. Only women from Kosovo, North America, and Oceania have second birth rates comparable to those of native women; all other groups are less likely to have a second birth.

Once again, childbirth is less likely in the first two years after arrival in Switzerland among EU women (although confidence intervals overlap in a few cases) (Figure A.2). We do not find a common pattern among women from non-EU countries. While women from Sub-Saharan and North Africa are more likely to have a second birth in the first two years, women from Turkey, Europe, South Asia, and Latin and North America are more likely to experience this transition later in the settlement process. The relative risks of divorce, on the other hand, are very similar to those observed for childless married women.

Figure 5: Outcomes of married women with one child: Relative risks of a second birth or divorce by migrant origin
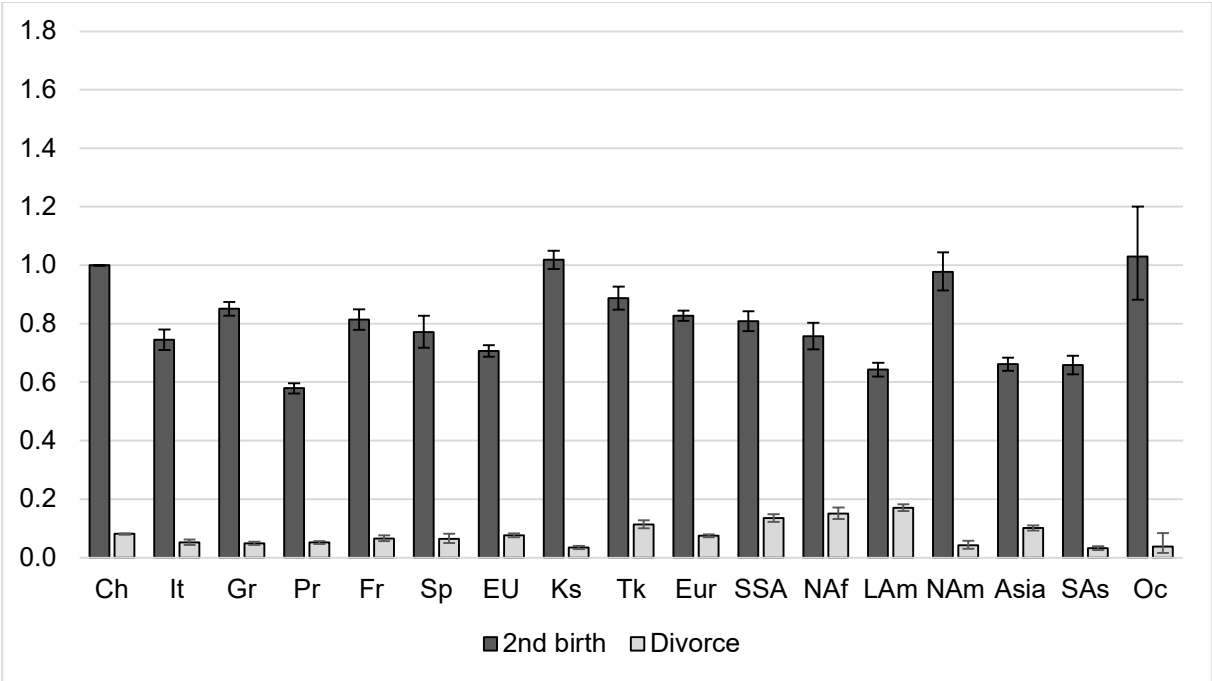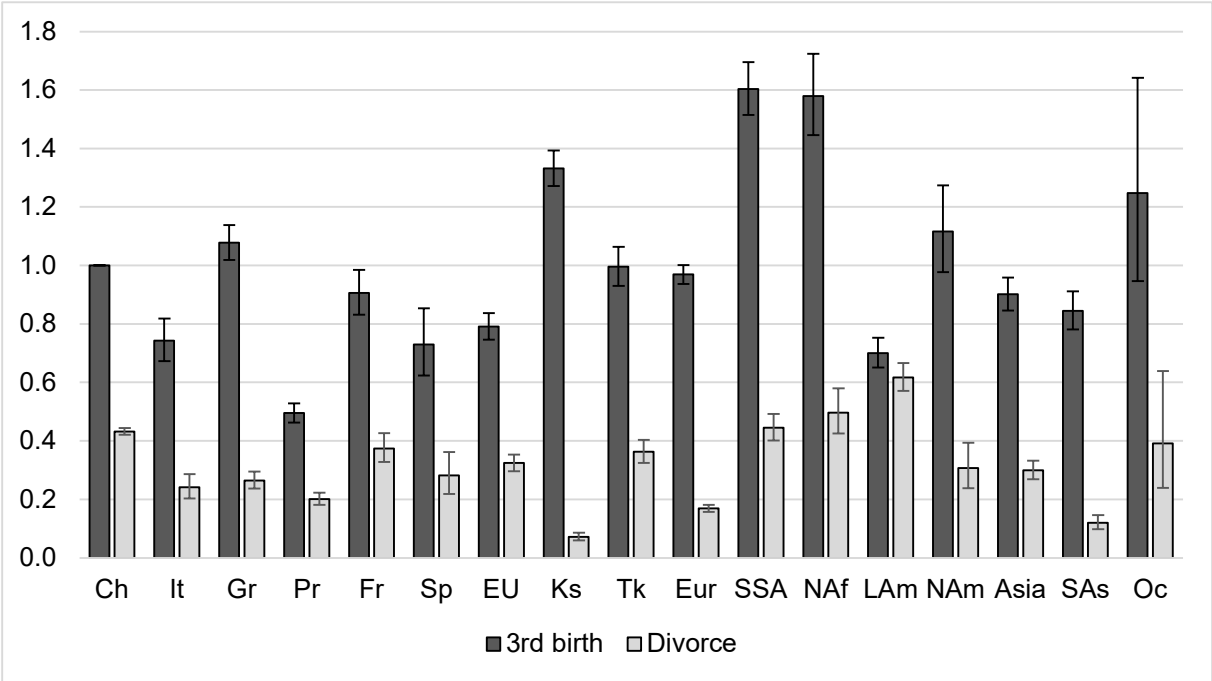
Figure 6: Outcomes of married women with two children: Relative risks of a third birth or divorce by migrant origin

Note: CH=Switzerland; It=Italy; Gr=Germany; Pr=Portugal; Fr=France; Sp=Spain; EU=other EU countries; Ks=Kosovo; Tk=Turkey; Eur=other European countries (not in the EU); SSA=Sub-Saharan Africa; NAf=North Africa; LAm=Latin America; NAm=North America; Asia; SAs=South Asia; Oc=Oceania.

Sources: Statpop, Bevnat, CdC (2012-2018). Authors' own calculations. 95% confidence intervals.

Figure 6 shows the relative risks of a third birth or divorce among married mothers with two children. Compared to the patterns of transitions to a first and second birth, significant differences emerge between groups. Among EU countries, only women from Germany display slightly higher third birth risks (about 10%) than Swiss women. While Portuguese women have about half the risk of Swiss women, other groups are about 10% (France) to 25% (Italy, Spain) less likely to have a third birth. Many migrant women from non-EU countries have high third birth rates. Immigrants from Kosovo, Sub-Saharan Africa, and North Africa are more likely than native married women to have a third child. The risks increase by 30% for the first group and by 60% for the last two groups. Overall, third birth risks appear higher after more than two years in the country, but large confidence intervals do not allow for a clear conclusion (Figure A.3).

The (relative) risk of divorce appears higher compared to those reported for the transitions to first and second births among married women. One has to consider, however, that the risk of a third birth (the reference category) is lower than the risks of a first and second birth. Women from Latin America have the highest divorce rates and women from Sub-Saharan Africa and North Africa have similar divorce rates compared to native women. All other groups are less likely than native women to get divorced among married mothers with two-children.

5   Discussion

This paper simultaneously analysed marriage and childbearing changes among native and immigrant women in Switzerland. Taking advantage of full-population registers, we analysed detailed patterns of transitions by migrant's country of origin and time since migration. The paper contributes to the literature by providing new insights into the partnership context of fertility, and the interrelatedness of family and migration dynamics overall and in Switzerland in particular. Childbearing in and outside of marriage has been seen as a manifestation of the Second Demographic Transition; a development induced by ideational and cultural transformations (Lesthaeghe 2010, 2014). However, studies show that assimilation in the family sphere among immigrant populations occurs more slowly than assimilation in other domains opening discussion on a possible Third Demographic Transition (Coleman 2006).

Using a multistate event history approach, we found that most of the differences in family formation patterns between migrant groups and natives were in the sequencing of marriage and first birth among childless unmarried women. A few groups of migrants from countries with more conservative family systems (Kosovar, Turkish, other Europeans) experienced marriage-centered family behaviours. Even when having a first child outside of marriage, these groups maintained a higher propensity to marry later. We also found trends of nonmarital family formation among both EU and non-EU groups. When they were unmarried, migrant women

were generally more likely than Swiss women to have a first birth (with a few exceptions). The risks of a second or third birth outside marriage was however higher for Swiss, French, and Sub-Saharan African women suggesting that out of wedlock motherhood trajectories are a more sustainable alternative to marriage among these groups. One must consider, however, that women who migrate as single are a select group and their family preferences are likely to differ from those of their married counterparts. The descriptive statistics showed that some non-EU groups are very unlikely to be unmarried (at arrival). By contrast, EU migrants are more represented in the unmarried category and are also more likely to experience childbearing in this situation, suggesting that nonmarital family formation is a common experience among this group. Once married, patterns of transitions are more similar across groups. It is the risk of a third birth that marks the differences between groups; first and second birth risks are somewhat lower but similar across groups.

Distinguishing by time since migration allowed for a better understanding of the rationale behind migration and family formation, and interdependency of these events. Migration policies influence both family choices (consensual unions versus marriages) and the profile of migrant populations (i.e., in terms of family and professional aspirations). We found timing effects among childless (married and unmarried) women but no clear patterns emerged among mothers. Results showed a clear difference in the likelihood of having a first child or getting married in the first two years following immigration compared to subsequent years. More importantly, we found the opposite timing effect for EU and non-EU migrants which points to different rationales behind the migration process. EU migrants were less likely to have a first birth in the first two years following immigration than in later years. This may be explained by the fact that the majority of EU migrants come to Switzerland for professional reasons. Many of them migrate as primary migrants and are unpartnered. Besides, the early years may be seen as an investment in the professional sphere and therefore not considered an appropriate time to start

a family even for those in a relationship. This is in line with the disruption hypothesis. Nevertheless, selection effects are also likely at play. Women who migrate for professional reasons may be more inclined to prioritise the professional sphere over the family sphere (aspirations for the latter may also be lower among these migrants). Immigrant women to Switzerland were shown to either work full-time or be inactive whereas Swiss women are more likely to work part-time (Lacroix and Vidal-Coso 2018). The trade-off between family and work in the country remains important for women given the high costs and low provision of childcare support, thus reinforcing this dynamic. In addition, migration to Switzerland by EU migrants is often temporary. Many will only stay for a few years to gain work experience and consolidate their finances - a life-course stage that might not be seen as compatible with family formation.

By contrast, non-EU migrants had higher transition rates to marriage and first birth in the first two years following immigration (especially among married women) than in later years. This is in line with previous studies documenting the '3 pack' of marriage, migration, and first child (Milewski 2007), thus supporting the interrelation of events hypothesis. Although some migrants may have liberal views on cohabitation and marriage, legal constraints certainly reinforce the link between marriage and migration. This requirement may explain the higher propensity to marry for some groups, over and above individual preferences, especially non-Europeans. Nevertheless, studies document strong social reproduction of family formation behaviours among the second generation (see, for instance, (Mikolai and Kulu 2022) suggesting that legal requirements alone do not explain conservative attitudes towards marriage. The higher risks of marriage and third births for some migrant groups also support our hypothesis that non-EU migrant women are positively selected for their family aspirations. Non-EU nationals who wish to migrate for professional reasons face many obstacles. Nonetheless, some non-EU groups are likely overrepresented among the highly skilled. Immigrants from North

America are a good example as they often migrate to Switzerland for a brief period to take on a specific appointment.

Divorce risks were rather similar across migrant origin groups, although a few non-EU groups experienced an increased likelihood of divorce compared to Swiss women. Distinguishing by time since migration showed a common pattern of decreased divorce risks in the first two years following immigration for all groups.

As expected, we found rather homogeneous transition patterns among EU migrants with trends of nonmarital family formation. Switzerland has a fairly conservative attitude towards marriage and marital childbearing and many EU migrants come from countries that are further along in the Second Demographic Transition. By contrast, we found greater heterogeneity among migrants from non-EU countries; a much more diverse population in terms of cultural backgrounds and migration processes. Future research would benefit from analysing duration within different states (including cohabitation) as a way to disentangle for whom nonmarital cohabitation and childbearing become a sustainable family pathway as opposed to a temporary stage before marriage, thus enriching the discussion of the role migrants play in the Second Demographic Transition and family transformations in Europe.

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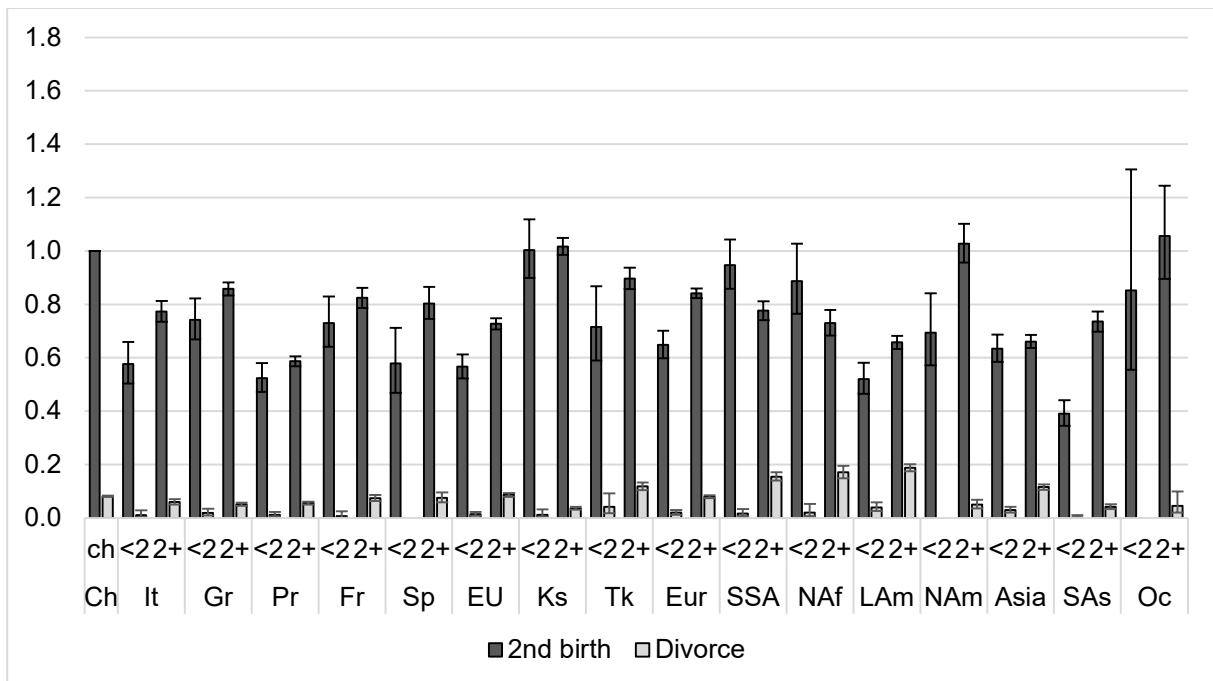
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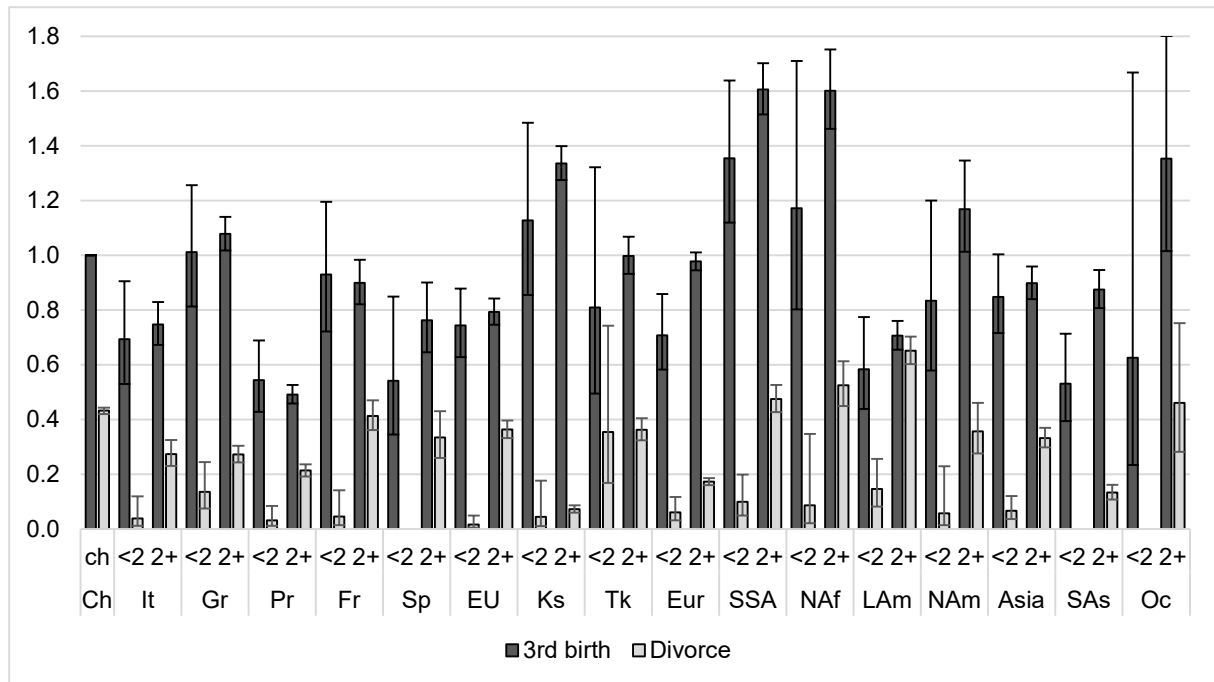
A.1. Outcomes of unmarried mothers: relative risks of a second/third birth or first marriage by migrant origin and time since migration
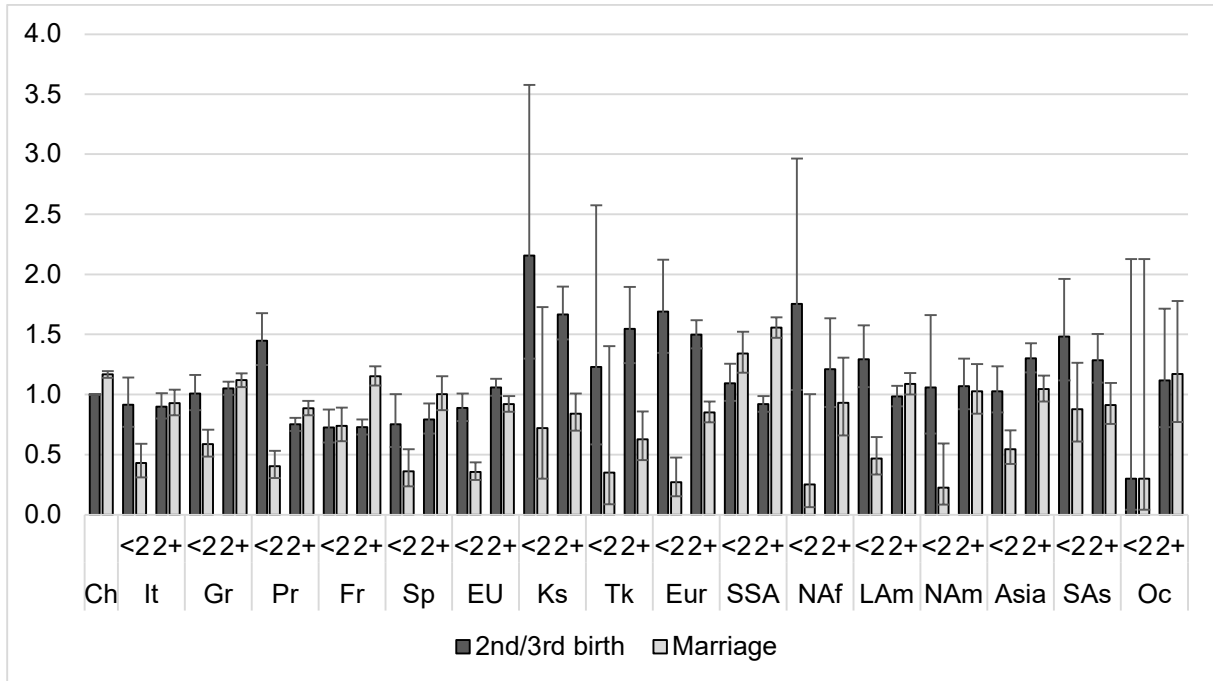
A.2 Outcomes of married mothers: relative risks of a second birth or divorce by migrant origin and time since migration

A.3 Outcomes of married mothers: relative risks of a third birth or divorce by migrant origin and time since migration

Note: CH=Switzerland; It=Italy; Gr=Germany; Pr=Portugal; Fr=France; Sp=Spain; EU=other EU countries; Ks=Kosovo; Tk=Turkey; Eur=other European countries (not in the EU); SSA=Sub-Saharan Africa; NAf=North Africa; LAm=Latin America; NAm=North America; Asia; SAs=South Asia; Oc=Oceania.

Sources: Statpop, Bevnat, CdC (2012-2018). Authors' own calculations. 95% confidence intervals.