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First comes marriage or first comes carriage? Family trajectories for immigrants in Germany

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MigrantLife

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Abstract

Immigrants bring contemporary demographic changes to the destination country by their contribution to diversity, and future population changes by their unique partnership and fertility patterns. In this study, we examine the partnership and fertility trajectories for immigrants born between 1970 and 1999 from a life course perspective applying event history techniques to the German Socio-economic Panel Survey (GSOEP). By treating first entrance into cohabitation, marriage, and parenthood as competing events, we illuminate not only the differences between natives and immigrants but also highlight the heterogeneity among immigrant groups in family formation pathways. Controlling for cohort effects and socioeconomic conditions, individuals with Turkish background continue to stand out with an earlier and higher level of entrance into marriage and parenthood. The risk of non-marital or pre-marital childbearing is lower for immigrants than German natives, especially for Turkish Germans. Marriage remains important to individuals of immigrant backgrounds, despite growing levels of cohabitation and non-marital childbearing in the recent years.

Introduction

Germany has been one of the largest migrant destinations in Europe in the past few decades. The immigrants who arrived in Germany contribute to its diversifying landscape. Of the various aspects of the changing population, demographers are particularly interested in the unique family characteristics that set immigrant groups apart from natives, such as the timing and level of conjugal union formation and childbearing. In the context of declining fertility and increasing family complexity in the Western world (Kreyenfeld & Konietzka, 2017; Lesthaeghe & Permanyer, 2014; Thomson 2014), understanding the family processes of immigrants is vital for predicting population changes. Moreover, migration researchers and policy makers often use family behavior as both a predictor and an outcome of interest in measuring the level of integration of immigrants with the native population (Baykara-Krumme & Milewski, 2017; Kuhnt & Krapf, 2020; Milewski, 2009; Wolf & Kreyenfeld, 2020). To this end, observing the differences among the family processes of different migrant generations, or first, 1.5, and second-generation individuals, is pivotal.

The pathway to family formation for migrants and natives can differ due to cultural ideologies (Kagitcibasi, 2017), economic circumstances, and structural opportunities (Kulu & González-Ferrer, 2014). Previous research has shown that non-European migrants and their descendants in European countries tend to follow conservative family trajectories (Kalmijn & Kraaykamp, 2018; Rahn et al., 2015). The mechanisms that contribute to these differences may vary for those of first, 1.5, or second-generation individuals. The family formation of immigrants can differ substantially from both non-migrants in the destination and origin due to the population itself being self-selected, such as married women joining their husband at the destination through family reunification schemes (Andersson, 2004). Furthermore, economic and housing uncertainties upon arrival may disrupt one's family formation plans. Child migrants, or 1.5 generation migrants, many of whom arrived with their parents, do not face the same constraints. Their partnership and fertility behaviors are often influenced by the adaptation process toward the mainstream. They tend to be partially socialized at the origin and partially socialized at the destination, or "straddle both worlds" ranging from feeling a member of fully both to neither of those worlds (Rumbaut & Ima, 1988). Second-generation, or those born in the destination to migrant parents, are in theory entirely socialized by the institutions of the newly adopted country. However, research has shown that tight-knit migrant communities in the destination often serve to preserve cultural values more in line with one's heritage (Crul & Vermeulen, 2003).

Of the various studies on immigrant's family processes, union formation is often treated as a preceding step to childbearing (Baizán et al., 2004). Techniques such as sequence analyses are instrumental in identifying unique family trajectories of individuals from a life course perspective (e. g. Castro Torres, 2020; Delaporte & Kulu, 2021; Raab & Struffolino, 2020). However, with growing prevalence of single parenthood and cohabitation accompanied by the decline of marriage in the recent decades (Lesthaeghe, 2010; Perelli-Harris et al., 2010), we propose a view of entrance

into parenthood without a partner, into cohabitation, and into marriage from singlehood as competing rather than sequential events. This perspective clearly distinguishes “conservative” (marriage first) and “liberal” (cohabitation or parenthood first) pathways.

For migrant family research, Germany distinguishes itself from other European countries in several ways. Its unique composition of individuals of migrant family background includes large volumes of those from culturally distant countries such as Turkey, and ethnic Germans who migrated to Germany post World War II and the Cold War from countries such as Poland and the former Soviet Union. The latter despite ancestral links to Germany, often arrived without language proficiency (Dietz, 1999) and were given favorable conditions for integration into German society (Kreyenfeld and Konietzka, 2002). Moreover, due to historical separation of East and West Germany, social policies developed in distinct directions leading to a traditional family-oriented West and a work-oriented East. Under these circumstances, important differences in family trajectories remain visible decades after the unification of Germany. Bearing the above, the conceptual framework surrounding migrant versus native comparisons becomes additionally nuanced.

In this study, we use the German Socio-economic Panel data to examine the partnership and fertility transitions of individuals born between 1970 to 1999 of Southern European, Polish, Turkish, Russian, and Kazakhstan background in Germany, compared to both East and West Germans without a migration family background. We investigate transitions into parenthood, cohabitation, or marriage for migrant groups and natives in a competing risk framework. This is a first novelty of the study. Most research to date on migrants has analyzed partnership and fertility changes separately; to the best of our knowledge no study in Germany has investigated partnership and childbearing changes simultaneously. We distinguish between immigrants who arrived as adults (1st generation), as children (1.5), and descendants of immigrants (2nd). This is a second novelty of this study. While there is an increasing literature on the descendant of migrants, very few (if any) have investigated family patterns among the 1.5 generation. Comparing individuals who moved as adults, as children and the descendant of immigrants is critical to improve our understanding of the factors shaping family behavior of migrant populations.

Background

Heterogeneity among immigrant groups

Historically, distinct waves of international migrations brought diverse groups of immigrants to Germany. Since the 1950s, West Germany has been one of the most significant migration destinations in Europe, receiving millions of refugees and expellees from Central and Eastern Europe, known as *Aussiedler* (Bade et al., 1997; Milewski, 2009). After World War II, waves of individuals of German ancestry moved from the former Reich and countries such as Russia, Poland, Hungary, and the former Yugoslavia into modern-day Germany. These immigrants often had German ancestry, entitling them to legal claim to German citizenship, and pathway to labor market integration in Germany.

The second wave of postwar migration to Germany began in the early 1960s as a result of Germany’s rebuilding effort and economic boom (*Wirtschaftswunder*) which led to large-scale foreign labor recruitment. West Germany proceeded to sign bilateral agreements with countries such as Portugal, Greece, Italy, Spain, and Turkey, as a remedy to labor shortages in lower prestige occupations. Immigrants who arrived under this context were known as guest workers. Other channels of immigration, such as a family reunification and asylum, dominated migration in the 1970s and 80s, as foreign recruitment halted. Since 1994, citizens of countries within the European Economic Area were allowed to work and live in Germany, further diversifying its demographic landscape.

Guest workers, their family members, and asylum seekers, are offered less favorable conditions for integration compared to *Aussiedlers* due to the original intention of the recruitment effort to lead to only temporary stay. Many of these individuals, most notably, Turkish, settled permanently in Germany. The descendants of immigrants from Turkey have since been the main subject of migration studies on the adaptation and integration process of immigrant families in Germany.

Under family reunification schemes, many Turkish women immigrated to Germany through their marriage with Turkish guest workers who arrived earlier (Baykara-Krumme & Milewski, 2017; Wolf, 2016). This fact, in combination with the high tendency of Turkish guest workers to migrate from rural Anatolia in Turkey (Mueller, 2006), where fertility can

be twice as high as urban areas (Yüceşahin & Özgür, 2008), serve as the underlying factors behind the fertility and union formation differential between German natives and those with Turkish background.

Similarly, most guest workers from Southern Europe originated from poorer regions such as Northern Portugal, Western Spain, Southern Italy and Northern Greece (Van Mol & De Valk, 2016). However, unlike the Turks and despite regional variation in fertility and marriage rates, Spain and Italy have long experienced marriage and fertility postponement. In 1960, mean age at first marriage was 24.8 in Italy, 26.1 in Spain, and 23.7 in West Germany, and the mean age at first birth was generally comparable among the three countries (Perez & Livi-Bacci, 1992).

Ethnic Germans from the former Soviet Union, such as from Russia or Kazakhstan, have a distinct identity that sets them apart from both ethnic Germans in Germany and those in the former Soviet Union. They are mostly the descendants of Germans who settled in the Russian empire in the Volga region in the eighteenth and nineteenth centuries. Although historically known for high levels of fertility, studies have found that those who migrated to Germany rapidly adapted to local fertility rate (Dinkel & Lebok, 1997).

Migration from Eastern European states, such as Poland, are particularly complex and multi-faceted. Immigrants from Poland range from ethnic Germans who moved to Germany following the fall of the Berlin wall, to Poles who arrived more recently following the accession of Poland into the European Union in the early 2000s. The different ethnic backgrounds and legal pathways of immigrants from the same sending country are likely to influence cultural norms which underpins family behavior (Wolf & Kreyenfeld, 2020). Although a substantial amount of knowledge has been accumulated from the earlier cohorts of immigrants in Germany, the coming of age of those who migrated as young children and the inclusion of those who migrated in the more recent years under different migration schemes, such as those who moved to study in Germany, etc. may influence the relationship between immigration status and family behavior.

Due to sample size restrictions, migration literature using panel studies on first and second-generation individuals in Germany often focuses on people of Turkish origin and *Aussiedlers* (e.g. Milewski, 2009; Wolf, 2016; Wolf & Kreyenfeld, 2020). The latter, or ethnic Germans from other countries, are not only culturally similar to German-born Germans, but they were also given a legal framework which facilitates faster and smoother integration into the German society. Turkish immigrants not only show fewer signs of assimilation to natives when compared to other immigrant groups in Germany (Mueller, 2006), they also exhibit high levels of socio-cultural differences than natives in other countries, such as France (Ersanilli & Koopmans, 2010). Most foreigners in Germany reside in the old states of (West) Germany, with Berlin and Bremen seeing the highest share of foreigners in total population (BPB, 2018).

Migrant generations

Some studies examine the adaptation or assimilation of migrants or aggregate groups focusing on a single cohort. In this view, the timeline of a person begins upon arrival, and the extent to which individuals change with elapsed time in the destination country is in question. This approach is common in labor economics where income or earning might be of interest (e.g. Borjas et al., 1992). From a longer-term perspective, changes across generations from those who first migrated to their descendants can often pinpoint ideological shifts. Those who migrated as adults, as children, or those who are the descendants of migrants despite being parts of the same story, require separate theoretical frameworks (Alejandro Portes & Rivas, 2011).

Individuals who migrated as adults, commonly known as the first generation, are those who initiated the move for reasons including but not limited to pursuing better economic opportunity, family reunification, or avoiding crises in the origin. Depending on the cultural distance between destination and origin, first generation often exhibit the most distinct characteristics from the natives due to reasons such as socialization and selection (Kulu, 2005). Immigrants who have spent the entirety of their impressionable years in a different cultural setting are likely to hold values, such as gender norms, and characteristics that resemble those from their origin. They may not fully resemble the stayers in their home country because immigrants tend to be a select group of people, such as lower skilled laborers in some cases, or women who migrated to join their husband. Not only are the latter's characteristics latently selected through their husband's characteristics due to the probability of homogamy (Kalmijn, 1998), but their partnership status also precedes migration status, leading to an over-representation of first generation wives and mothers. Similarly, the

challenges of settling in a new destination, such as housing and income instability, brings the possibility of disruption to one's fertility or partnership plans.

Those who migrated as children, or the 1.5 generation, tend to have accompanied parents who migrated. These individuals undergo an acculturation process and face challenges that are entirely unique to that of their parents'. Their attachment to the values of their family's heritage, their peers in the new country, and self-identity vary significantly depending on their age of arrival (Rumbaut, 2012). Although those who arrived as very young children are theoretically indistinguishable from the second-generation, individuals who arrived as school age children are often partially socialized in the origin and partially in the destination, rendering their process of socialization and adaptation particularly informative.

The children of immigrants, or the second-generation, unlike their 1.5 generation counterparts, are entirely socialized in the destination country's institutional setting. While American literature has placed great emphasis on second-generation-specific social barriers such as the propensity to downward assimilate into the native underclass due to some groups' tendency to concentrate in urban ghettos (Portes et al., 2009), the European view often focuses on the speculation that tight social cohesion among migrant groups appears to preserve cultural values of their origin country (Crul & Vermeulen, 2003). In other words, an individual fully socialized in the destination country (or rather, the country of birth, for second-generation) could be either heavily influenced by the majority population or minority subculture if one exists (Kulu et al., 2019). The latter is referred to as the subculture hypothesis, which stipulates that the existence of cohesive immigrant communities can serve to preserve cultural values for immigrant descendants.

Marriage, cohabitation, and non-marital childbearing

Of the various outcomes associated with the studies of immigrants and their descendants, migration and family researchers often target processes associated with family formation and reproduction. This is particularly complex in the setting of Germany, due to its unique political set-up in the mid-twentieth century, which created two types of institutional arrangement: pronatalistic state-socialist in the East and the male bread-winner model in the West (Baizán et al., 2004; Hank & Kreyenfeld, 2003; Milewski, 2010). Total fertility rate was near 2.0 in East Germany in the 1980s compared to less than 1.5 in West Germany, then sank lower than West Germany immediately following the unification of Germany. The total fertility rate (TFR) of the two sides converged around 2010 (Goldstein & Kreyenfeld, 2011). Although the disparity in fertility behavior between the East and the West diminished in recent years, substantial differences persist, such as entrance into motherhood at younger ages and higher tendency to bear children out wedlock in the East (Goldstein & Kreyenfeld, 2011; Hank & Kreyenfeld, 2003; Klärner & Knabe, 2017).

Similarly, the lower propensity and later entrance into marriage has been observed in Germany over the past few decades (Sassler & Lichter, 2020). Compared to other European countries, Germany is characterized by a middle-level of prevalence in cohabitation, with lower levels than Nordic countries such as Sweden and Norway, but higher levels than Mediterranean or some Eastern European countries such as Greece or Romania (Noack et al., 2013). Previous studies have found that in East Germany, cohabitation is viewed as a marriage replacement with marriage an unnecessary precondition to have children, whereas in West Germany, it continues to be seen as a prelude to marriage (Klärner & Knabe, 2017).

Historically, childbearing outside of marriage had been uncommon and generally linked to disadvantaged groups in Europe (Perelli-Harris et al., 2010). In the late 20th century, the proportion of first births outside of marriage increased substantially, from 10% in the 1970s to over 50% in the early 2000s in France, for example (ibid). Although the Second Demographic Transition theory (Lesthaeghe, 2010; Van De Kaa, 1987) posits that non-marital childbearing is a manifestation of rising individualism and progressiveness in developed societies, recent studies have pointed to an educational gradient in the differences in the propensity of out-of-wedlock childbearing (Perelli-Harris et al., 2010; Stone et al., 2011) and its relationship with negative social outcomes such as poverty (Hübgen, 2020).

Literature on the propensity of nonmarital childbearing for immigrants and their descendants is by comparison much thinner. It is known that German natives are more likely to be in cohabitation (Kuhnt & Krapf, 2020) and significantly more likely to have a first child prior to marriage compared to Turkish immigrants (Windzio & Aybek, 2015). Studies based on other countries, such as the Netherlands (Kalmijn & Kraaykamp, 2018), Norway (Wiik et al., 2020) and

Sweden (Bernhardt et al., 2007), also revealed that children of immigrants are more likely to come from families with more conservative values toward marriage, where direct marriage is seen more favorably than cohabitation.

Hypotheses

Bearing the above, we expect that in a competing framework, Turkish individuals are most likely to follow conservative order of family formation sequence, e.g. marriage preceding cohabitation and childbirth; or that cohabitation, and especially direct entrance into parenthood should be rare, especially for those who migrated to Germany as adults (H1a). Extending this to individuals who migrated as children, who were exposed to the destination environment where both non-marital cohabitation and childbearing are commonplace, we expect a lower propensity of following conservative family path for the 1.5 generation, and to a comparatively more pronounced extent, the second-generation (H1b). However, we do not expect the Turkish individuals to resemble the family patterns of natives, and especially East Germans, due to evidence of their high tendency to directly enter marriage in other institutional settings such as France (Hannemann et al., 2020), possibly due to heavy socialization within migrant communities (Naderi, 2008).

Following findings from prior studies that examine European migrants that migrated within Europe, we predict that Southern European and Polish immigrants will likely resemble German natives' partnership and fertility pattern, due to closer cultural distance between the two origins compared to other groups (H2). Those from the former Soviet Union, such as those from Russia and Kazakhstan, are likely to fall between those with Turkish and Polish backgrounds.

We expect a convergence among immigrant groups and natives by birth cohort, considering that migration flows have changed significantly in nature in the recent years. With increasing numbers of individuals arriving to Germany to study or to work as professionals, we expect that younger cohort members will share more similar family processes than older cohort members (H3).

Data

German Socio-economic Panel (GSOEP)

This study uses the German Socio-Economic Panel, a longitudinal survey that began in 1984. GSOEP boasts a large, representative data of 15,000 households in Germany with periodic over-sampling of immigrant families. Its panel design is ideal for life-course research. GSOEP contains various survey instruments, one of which is biographic interview. These interviews capture retrospective history of individuals from birth, which holds an advantage over register data for migration research because they capture life events that took place prior to migration.

To fully take advantage of the panel structure of the data, we use event history techniques to first estimate the probability of ("survival" to) experiencing marriage, cohabitation and a first birth for all men and women 16 years or older. These three events are highly related and can occur in any order, repeatedly. We explore the timing and level of these three events by cohort and migrant background. Next, we shift our focus to the competing types of first entrance into family life. In this part, we focus on the order by which the three events occur, rather than solely on whether individuals cohabit, marry, and/or have children. Specifically, we extend the analysis by examining the competing risks of these three events: first entrance into a cohabiting union, first marriage, or parenthood outside of cohabitation and marriage.

Prospective and retrospective monthly partnership data are available in GSOEP's BIOCOUPLM file. However, information on individuals of migrant background is largely missing due to attempts to minimize response fatigue, therefore cannot serve the purpose of this study. We use SOEP's BIOCOUPLY yearly data, which contains complete retrospective history. To apply a continuous-time model, we impute monthly data with annual data. Below, we describe the outcome variables (partnership and fertility) and independent variables of interest.

Partnership and fertility

To extract cohabitation and marital history, we used the BIOCOUPLY file of SOEP which contains various types of partnership events such as non-cohabiting union, cohabiting union, marriage etc. The age by which the partnership event commenced and ended are documented. Non-cohabiting marriage is rare; hence we grouped non-cohabiting

and cohabiting marriages under the same category for marriage, and use cohabiting non-marital union as entrance to cohabitation. Duration is converted to months by multiplying the age in which an individual experienced the event by 12.

We constructed retrospective fertility history of individuals using the BIOBIRTH file in SOEP by converting the difference between the respondent's birth year and the birth year of one's first child, if they have any, into months. It is important to note that the yearly data provided in SOEP's BIOCOPPLY does not allow us to distinguish the order of the occurrence of conception or intention to cohabit or marry if these events occur in the same year. Preliminary analyses reveal that a larger proportion of Turkish population in the sample experience first cohabitation and first marriage in the same year. We interpret this as cohabitation under marital context. Therefore, we consider those who cohabited in the same year as marriage as having experienced marriage as a first event. To check the robustness of this assumption, we performed data quality checks with prior studies using different data sources, which supported our decision to consider same year cohabitation and marriage as marriage (see supplementary material).

We prioritize same year events in the order of marriage, cohabitation (or coresidence), then birth, by randomly assigning 3 to 5 months to the year of marriage, 6 to 8 months to the year of cohabitation, and 9 to 11 months to the year of the birth of a first child¹. Sensitivity analyses have been conducted by simply adding 4, 5, 6 months respectively to marriage, cohabitation, and birth of a child (results available upon request). This does not change the results. Individuals are censored at the last observation or at age 40. Marriage prior to the age of 16 is rendered impossible within the GSOEP universe. All those who experienced cohabitation prior to the age of 16 (51 cases) or first birth (15 cases) are deleted.

Origin and background

Individuals are classified as German natives if they were born in Germany and have no detectable migration background (not migrants themselves nor descendants of migrants). We focus our attention on migrants from Spain, Italy, Greece, Portugal, Poland, Russia, Kazakhstan, and Turkey due to their sample sizes in GSOEP. Individuals from Poland, Russia and Kazakhstan are likely to be ethnic Germans, or *Aussiedlers*, who migrated to West Germany in large numbers in the late 1980s. For those in the 70s or 80s birth cohort, they would have been child migrants during this wave. Russia and Kazakhstan are coded as one group, as origin countries within the former Soviet Union. Those with Spanish, Italian, Greek and Portuguese background are coded as one group as Southern Europeans.

Among the immigrants, those who migrated at age 16 or older are defined as first generation, and those who migrated younger than 16 are considered 1.5 generation. We identify second-generation individuals using several variables from the biography questionnaire, including the birthplace of one's mother and father, respondent's current and former citizenship, and respondent's mother's and father's citizenship, for those who self-identify as German-born native or German-born descendant of migrants. Using this method, we are able to identify 194, 295, 69, 25 individuals with Southern European, Turkish, Polish and Russian or Kazak descent respectively. Detailed classification scheme for origin and background is shown in Appendix 1a.

Following previous studies, we separate East and West Germans as distinct native groups, due to their long-standing differences in family norms (Hank & Kreyenfeld, 2003; Milewski, 2010). The variable for identifying East and West Germans is available for 99.6% of cases. The location of the remaining individuals is identified by an additional variable which pinpoints their residence in 1989, or before the unification of Germany. We do not make East and West distinctions for individuals of migrant background as they historically reside in the West.

¹ Out of 20,187 cases, 3,505 (17% experienced two joint events, mostly marriage and cohabitation in the same year, followed by marriage and birth in the same year) and 337 experienced all three events in the same year (1.7%). Attempt to matching cases to monthly prospective data in BIOCOPLM was successful for 212 cases, as most events recorded in the prospective monthly data are not first lifetime events, out of which 79 indicated that cohabitation occurred first and the others occurred in the same month. Due to the majority (71/79) are of German natives, mixing yearly and monthly data does not enhance our analyses. For the cases in which births occurred in the same year as cohabitation or marriage, if the child's birth month is within the first four months of the year, birth is assigned priority.

Covariates

Preliminary analyses show that when comparing immigrant groups with native Germans of the same sex, the differences among the groups are similar for both men and women. In the descriptive part of the analyses, we do not separate observations by sex nor migrant generation for the visual clarity of general patterns. In the final model the effects of sex, birth cohort, and migrant generation are controlled.

Employment and education are both time-variant variables in our analyses. Employment is inferred from the biographical history of activities, which include categories such as schooling, full time, and part time work, of individuals. Observations at 15, the youngest age recorded in the file, is recoded to 16 to enhance comparability with our analyses. If multiple activities occurred in the same time frame, e.g. schooling at age 17, part-time work at 18, then full-time work at 19, we capture the final activity of the episode. Missing episodes are imputed with the assumption that the individual continued the same activity from the previous episode. Employment statuses are grouped into: Still in school (apprenticeship included), Full-time employment (military included), Part-time employment, Not working (housewife/husband included), and Other (maternity leave, etc.) (see Schmelzer et al., 2018). Missing is assigned when no information on employment can be inferred at all, affecting 12 cases.

We construct educational level of individuals using a variable defined by the International Standard Classification of Education of 2011 whenever possible. For those with missing ISCED11 information (around 15% of cases), we imputed education by the number of years of schooling, and the age of individuals with missing education. We further simplified educational groups into low, medium, and high according to the specifications outlined by Eurostat (Eurostat, 2020). Detailed grouping for education is shown in Appendix 1b.

Methods

We focus both on the timing and level of first birth and union formation. Given the panel design of the German Socioeconomic Panel of which individuals can enter and exit at different points in their lives, we use an event history design to fully take advantage of all available information on individuals' propensity of experiencing the event of interest. We first use the Kaplan-Meier method to investigate separately the formation of union, marriage and family. We then analyze the likelihood of entering a marital or non-marital union or having a child out of union by using the cumulative incidence function (Austin et al., 2016). Entering a non-marital cohabitation or having a first child outside of marriage does not preclude the propensity of entering marriage subsequently (with the same or a different partner), but we are interested in the *first* type of family process of the individuals, rendering these partnership and fertility events competing rather than sequential. The three competing events that can occur from singlehood are: direct entrance into marriage, direct entrance into cohabitation (without a child nor under the context of marriage), or direct entrance into parenthood (outside of the context of cohabitation or marriage).

Finally, we use competing risks event-history analysis to also adjust transition rates for covariates (Putter et al. 2007). The transition-specific hazard function, $h_k(\mathbf{t})$, is defined as follows:

$$h_k(t) = \lim_{\Delta t \rightarrow 0} \frac{\Pr(t \leq T < t + \Delta t, S = k | T \geq t)}{\Delta t}, k = 1, 2, \dots, K, \quad (1)$$

where S denotes the transition out of singlehood with k as the number of different transitions and T represents an individual's age. We define a transition-specific proportional hazards regression model as follows:

$$\ln h_k(t) = \ln h_{k,0}(t) + \sum_l \beta_{kl} x_l(t) + \gamma_k z, \quad (2)$$

where $h_k(\mathbf{t})$ denotes an individual's hazard of leaving singlehood and $h_{k,0}(\mathbf{t})$ is the baseline hazard for transition k at age \mathbf{t} ; which we define as piecewise constant; $\mathbf{x}(\mathbf{t})$ is a variable measuring individual socioeconomic characteristics (education or employment) and $\boldsymbol{\beta}$ is the parameter estimate for this variable, with l variables; $\boldsymbol{\gamma}_k$ represents the effect of variable \mathbf{z} (migrant status) on transition k .

The advantage of the model defined in equation 2 is that the effect of age and other variables can vary by transition; however, it is not easy to determine the relative importance of each transition by migrant status from separate models. Therefore, we extend this model to also measure the relative importance of each transition by migrant status:

$$\ln h_k(t) = \ln h_0(t) + \sum_l \beta_l x_l(t) + \gamma_k z, \quad (3)$$

The model in equation 3 is similar to the one defined in 2 but assumes common age-patterns for all transitions and the same effect of other covariates across the outcomes. However, the effect of migrant status is allowed to vary by transition; γ_k is a transition-specific parameter for variable z , migrants status. All transition rates by migrant status can be now easily compared as they have one anchor or reference point.

All analyses are conducted in R using the *survival* (Therneau et al., 2021), *eha* (Broström & Jin, 2021) and *cmprsk* (Gray, 2020) packages. The *phreg* function in *eha* is used to perform piecewise constant exponential regression.

Findings

Out of the 20,187 persons born between 1970 and 1999 observed from the age of 16 until their last survey year or 40 years of age, totaling 1,985,572 person months, 8,956 individuals experienced a first cohabitation, 8,946 experienced a first marriage, and 9,965 individuals had a first child within the observation window. The above figures are non-competing, or that individuals can experience these events sequentially or simultaneously. Figure 1 shows the Kaplan-Meier curves of all three events by migrant background and birth cohort. This allows us to show the overall propensity and timing of family formation for all groups. Sex and migrant generation are collapsed in this figure, to highlight migrant group differences.

We observe clear postponement of entrance into marriage and parenthood for native and all migrant groups. Those born in the 90s are less likely than their counterparts born in the 70s and 80s to have children or get married at young ages. Cohabitation, on the other hand, shows a different picture. Younger cohorts with immigrant family background exhibit higher level of and earlier entrance into cohabitation. The cohort differences are particularly pronounced for those of Polish, Russian, and Kazakhstani descent. Taken together, young adults are not necessarily delaying their timing in forming union, but marriage has been replaced by cohabitation in younger individuals. They are also not having children as early on as those of previous birth cohorts. Turkish Germans are marked by their high levels of marriage and lower levels of cohabitation, with modest level of cohort changes. Southern Europeans, and to a lesser degree, Polish immigrants and descendants, display patterns more akin to native Germans.

Next, we extend our analysis to create a competing framework of the first instance of cohabitation, marriage, and parenthood. Figure 2 depicts the conceptualization of three possible states following singlehood at 16 years old. In our sample, 8,122 entered cohabitation, 3,737 married, and 1,385 had a first child before entering cohabitation or marriage. Individuals who experienced multiple events in the same year are assigned priority of marriage, then cohabitation, then birth as their sequence (see section 4.2).

Table 1 describes the sample by sex, cohort, origin, education, and employment status in person months. The rates of those who enter first cohabitation, first marriage, and first parenthood show that women and older cohorts have higher rates of experiencing family events. Education and employment are both time varying. Individuals are least likely to experience partnership or fertility events when they are in school.

To pinpoint the first emancipation of family formation, we show the cumulative incidence function (CIF) of cohabitation, marriage and having a first child as competing events in Figure 3. The CIF is calculated by modeling the transition-specific hazard of the three events. For both East and West Germans, cohabitation has been clearly the preferred type of first union across all cohorts, with younger cohorts increasingly likely to cohabit rather than marry. This is especially evident for East Germans, for whom marriage as a first union has played limited role even for the earliest cohort in the study. West Germans born in the 70s are more likely to marry as a first union than East Germans, but convergence with the East is clear among the younger cohorts. Similarly, although childbearing outside of cohabiting and marital relationship was more common for the older cohorts in the East, we observe a decline or convergence with the West.

Polish migrants and their descendants born in the 70s are equally likely to cohabit or marry, but those born in the 80s and 90s show a clear preference for cohabitation. The pattern of change from the 70s to 80s cohort for the Polish is comparable to the changes of 80s to 90s Russian and Kazakhstanis. Cohabitation overtakes marriage for those with Polish background born in the 80s, and those with Russian and Kazakhstani background born in the 90s. Southern

Europeans follow a similar pattern of cohort change as West Germans, for whom marriage as a first entry into family was significant for those born in the 70s but never preferred over cohabitation. Its importance has fallen across cohorts. Distinct from the rest, marriage is the preferred choice for Turkish individuals across all cohorts with very limited change, especially between those born in the 70s and 80s. For the youngest individuals of Turkish origin, we see an increase in the likelihood of cohabitation and a decrease in the propensity of marriage compared to their predecessors. Compared to the natives, parenthood outside of union is uncommon for all migrant groups across all three birth cohorts.

We fit stepwise piecewise constant hazard exponential models on the competing risk of cohabitation, marriage, and having a first child, on all origin groups separated by first, 1.5 and second-generation, controlling for demographic and social characteristics associated with family processes. We split the age of individuals into a four-year episode from 16 to 19, then in five years subsequently until censor time at 40. Our baseline model, or model 1, controls for sex and birth cohort. Model 2 also includes education. Lastly, model 3 additionally controls for employment status. The coefficients with confidence intervals for all variables in the three models are shown in Appendix 2. Figure 4 presents the adjusted model coefficients (model 3) in points, and the confidence intervals in accompanying lines. A hazard ratio of above one signifies a higher likelihood, while a hazard ratio of under one expresses a lower propensity of experiencing an event compared to the reference category. We take the hazard of West Germans to enter cohabitation as the reference point (see the same model using marriage of West Germans as the baseline in Appendix 3).

From the cohort perspective shown in Figure 3, younger Polish Germans are increasingly showing preference toward cohabitation over marriage. Although Polish Germans born in the 70s were equally likely to enter cohabitation or marriage, cohabitation is becoming the more probable choice for those born in the 80s and 90s. The same is observed for their Russian and Kazakh counterparts with a 10-year difference. Changes are also observed for the Polish, Southern European and Russian/Kazakh groups across migrant generations (Figure 4): marriage rates are higher among immigrants than their descendants (even after controlling for birth cohort), although the confidence intervals are large due to small sample size of the second-generation. Further, immigrants from Russia and Kazakhstan are less likely than Germans to cohabit, but 1.5 generation shows similar propensity to cohabit as natives. Most remarkably, Turkish individuals show sharp distinction from German natives across all migrant generations and birth cohorts. They are far more likely to marry and far less likely to cohabit than Germans. Although changes across birth cohorts and migrant generations can be observed, those with Turkish background have distinguished high levels of marriage and low levels of cohabitation compared to Germans and other migrant and their descendant groups.

Discussion

Family ideologies, such as whether and when to have a child and under which circumstances, change across time. The pathway through which one enters family life (if at all) or transitions into adulthood signal one's values and norms. In this study, we compared the partnership and fertility transitions for individuals with a migration family background with those without in Germany. We investigated the likelihood to enter cohabitation, marriage, or parenthood in a competing-risks framework. To adequately address the changing composition of immigrants and distinguish between changes that occurred with elapsed time in destination and pure ideological shifts that took place with changing times, we draw attention to those born in different decades and migrant generation in our analyses.

We found that consistent with previous studies and in line with our expectation, those with Turkish background exhibit the most distinct family patterns from native Germans and their European counterparts, marked by high levels and early entry into marriage. Despite substantial expansion of cohabitation in the recent years across Europe, Turkish Germans continue to prefer more conservative family trajectories, with direct entrance into marriage as the preferred first type of union formation. The preference is extended from the first into the 1.5 and second-generations with only a modest decline.

Our focus on generations shed light on two aspects of timing of arrival for immigrants. First, we showed that independent from migration circumstances, such as being required to marry to facilitate the international move, those with Turkish background who arrived as children or were born in Germany still adhere to a more conservative family pathway. This corroborates with previous studies that highlight the association between religion and sexual liberalism among those with Turkish or Moroccan background in Europe (Kalmijn & Kraaykamp, 2018), although the relationship

weakens from first to second-generation (Beek & Fleischmann, 2020). Second, we tested both socialization and adaptation hypotheses by examining the 1.5 generation who had the unique experience to both socialize in the sending country and adapt in the destination. Other than for Southern Europeans, whose differ little from natives, all groups show that 1.5 generation are more likely to cohabit than first, but less likely to cohabit than second-generation individuals, effectively “straddling both worlds.” It is important to keep in mind that strong familism in the Turkish community is not only manifested in early and high levels of marriage, but prior research has found that Turkish young adults in Europe are more likely to delay their entrance into adulthood, or prolong their stay in their parental home until they are ready for marriage (Huschek et al., 2010).

Individuals from Poland and Southern Europe share the most similarities with Germans, which corroborates with the concept that migrants of European origin show more similarities in family behavior with European non-migrants, than migrants from non-European origins (Pailhé, 2017). In line with our expectation, Southern Europeans’ propensities to cohabit, marry and have a first child differ little from West Germans. In fact, Southern European countries such as Spain has seen dramatic rise in mean age at first marriage, at 35.3 for men and 33.2 for women in 2017 (Idescat, 2020) compared to 34.2 for men and 31.7 for women in Germany of the same year (Destatis, 2021). Those who migrated might have even assimilated to a more “family-oriented” German level compared to their non-migrant counterparts in the sending country.

We see a growing level of preference for cohabitation across both migrant generation and birth cohorts. Different origin groups are changing at a different pace, with those of Russian and Kazakhstani backgrounds born in the 80s resembling Polish born in the 70s. The debate of migrant’s integration into the host country can benefit from a view of “at what stage” one is starting to resemble destination groups rather than “whether” they do at all. Preference for cohabitation, marriage and having a child are subject to structural and institutional influences. For example, the lack of access to affordable housing may either promote cohabitation by joining households to share resources or discourage cohabitation by delaying one’s departure from parental home. In theory, structural environment should influence individuals’ family pathway similarly, but gaps in information or access to resources may differentially impact non-citizens in practice.

In future research, we suggest the inclusion of second-generation groups with larger sample sizes to facilitate comparison of adaptation toward mainstream view on marriage, cohabitation, and non-marital parenthood. Given a large enough sample, it would be essential to consider the difference in timing and type of entrance into family among endogamous and exogamous unions. In addition, different types of settings such as rural or urban, multi-ethnic, or less diverse neighborhoods, might influence the degree to which individuals are acculturated to the dominant view of the destination. Lastly, GSOEP collected a refugee boost sample as a response to the sharp increase of refugee migrants in 2015. Retrospective biographies have not been widely collected among them and prospective observation window has been too short. In the future, understanding refugee partnership and fertility trajectories will become vital in shedding light on the diversification of European family demography.

We highlight competing pathways in family formation for immigrants and natives in Germany by first, 1.5 and second-migrant generations. From childless singlehood, individuals can experience the birth of a child, cohabitation, or marriage in any order. With the rising importance of cohabitation in family processes, we focus on most recent cohorts or those born between the years 1970 to 1999. Our work additionally distinguishes between non-marital cohabitation and entrance into parenthood outside of the context of a cohabiting or married partner.

References

- Andersson, G. (2004). Childbearing after Migration: Fertility Patterns of Foreign-born Women in Sweden. *International Migration Review*, 38(2), 747–774. <https://doi.org/10.1111/j.1747-7379.2004.tb00216.x>
- Austin, P. C., Lee, D. S., & Fine, J. P. (2016). Introduction to the Analysis of Survival Data in the Presence of Competing Risks. *Circulation*, 133(6), 601–609. <https://doi.org/10.1161/CIRCULATIONAHA.115.017719>
- Bade, K. J., Bade, K. J., Weiner, M., & Weiner, P. of P. S. M. (1997). *Migration Past, Migration Future: Germany and the United States*. Berghahn Books.
- Baizán, P., Aassve, A., & Billari, F. C. (2004). The Interrelations Between Cohabitation, Marriage and First Birth in Germany and Sweden. *Population and Environment*, 25(6), 531–561. <https://doi.org/10.1023/B:POEN.0000039064.65655.3b>
- Baykara-Krumme, H., & Milewski, N. (2017). Fertility Patterns Among Turkish Women in Turkey and Abroad: The Effects of International Mobility, Migrant Generation, and Family Background. *European Journal of Population*, 33(3), 409–436. <https://doi.org/10.1007/s10680-017-9413-9>
- Beek, M., & Fleischmann, F. (2020). Religion and integration: Does immigrant generation matter? The case of Moroccan and Turkish immigrants in the Netherlands. *Journal of Ethnic and Migration Studies*, 46(17), 3655–3676. <https://doi.org/10.1080/1369183X.2019.1620417>
- Bernhardt, E., Goldscheider, F., Goldscheider, C., & Bjerén, G. (2007). *Immigration, Gender and Family Transitions to Adulthood in Sweden*. University Press of America.
- Borjas, G. J., Bronars, S. G., & Trejo, S. J. (1992). Assimilation and the Earnings of Young Internal Migrants. *The Review of Economics and Statistics*, 74(1), 170–175. <https://doi.org/10.2307/2109556>

- BPB, (Bundeszentrale für politische Bildung). (2018). *Ausländische Bevölkerung nach Bundesländern*. Bpb.De. <https://www.bpb.de/nachschlagen/zahlen-und-fakten/soziale-situation-in-deutschland/61625/auslaendische-bevoelkerung-nach-bundeslaendern>
- Broström, G., & Jin, J. (2021). *eha: Event History Analysis* (2.8.5) [Computer software]. <https://CRAN.R-project.org/package=eha>
- Castro Torres, A. F. (2020). *Family formation trajectories and migration status in the United States, 1970-2010* (MPIDR Working Paper WP-2020-008). Max Planck Institute for Demographic Research, Rostock, Germany. <https://econpapers.repec.org/paper/demwpaper/wp-2020-008.htm>
- Crul, M., & Vermeulen, H. (2003). The Second Generation in Europe. *International Migration Review*, 37(4), 965–986. <https://doi.org/10.1111/j.1747-7379.2003.tb00166.x>
- Delaporte, I., & Kulu, H. (2021). *Interaction between Childbearing and Partnership Changes among Immigrants and their Descendants: An Application of Multichannel Sequence Analysis to Longitudinal Data from France* [Working Paper]. [https://risweb.st-andrews.ac.uk/portal/en/researchoutput/interaction-between-childbearing-and-partnership-changes-among-immigrants-and-their-descendants-an-application-of-multichannel-sequence-analysis-to-longitudinal-data-from-france\(5bc2a289-ba9a-4f5b-bbab-ed90222b0620\).html](https://risweb.st-andrews.ac.uk/portal/en/researchoutput/interaction-between-childbearing-and-partnership-changes-among-immigrants-and-their-descendants-an-application-of-multichannel-sequence-analysis-to-longitudinal-data-from-france(5bc2a289-ba9a-4f5b-bbab-ed90222b0620).html)
- Destatis, S. B. (2021). *Marriages and average age at marriage of singles*. Federal Statistical Office. <https://www.destatis.de/EN/Themes/Society-Environment/Population/Marriages-Divorces-Life-Partnerships/Tables/marriages-average-age-marriage.html>
- Dietz, B. (1999). *Ethnic German Immigration from Eastern Europe and the Former Soviet Union to Germany: The Effects of Migrant Network* (IZA Discussion Papers ID 193628). IZA. <https://papers.ssrn.com/abstract=193628>
- Dinkel, R. H., & Lebok, U. H. (1997). The Fertility of Migrants Before and After Crossing the Border: The Ethnic German Population from the Former Soviet Union as a Case Study. *International Migration*, 35(2), 253–270. <https://doi.org/10.1111/1468-2435.00012>

- Ersanilli, E., & Koopmans, R. (2010). Rewarding Integration? Citizenship Regulations and the Socio-Cultural Integration of Immigrants in the Netherlands, France and Germany. *Journal of Ethnic and Migration Studies*, 36(5), 773–791. <https://doi.org/10.1080/13691831003764318>
- Eurostat. (2020). *International Standard Classification of Education (ISCED)*. [https://ec.europa.eu/eurostat/statistics-explained/index.php/International_Standard_Classification_of_Education_\(ISCED\)#ISCE](https://ec.europa.eu/eurostat/statistics-explained/index.php/International_Standard_Classification_of_Education_(ISCED)#ISCE)
- Goldstein, J. R., & Kreyenfeld, M. (2011). Has East Germany Overtaken West Germany? Recent Trends in Order-Specific Fertility. *Population and Development Review*, 37(3), 453–472. <https://doi.org/10.1111/j.1728-4457.2011.00430.x>
- Gray, B. (2020). *cmprsk: Subdistribution Analysis of Competing Risks (2.2-10)* [Computer software]. <https://CRAN.R-project.org/package=cmprsk>
- Hank, K., & Kreyenfeld, M. (2003). A Multilevel Analysis of Child Care and Women's Fertility Decisions in Western Germany. *Journal of Marriage and Family*, 65(3), 584–596.
- Hannemann, T., Kulu, H., González-Ferrer, A., Pailhé, A., Rahnu, L., & Puur, A. (2020). Partnership dynamics among immigrants and their descendants in four European countries. *Population, Space and Place*, 26(5), e2315. <https://doi.org/10.1002/psp.2315>
- Hübgen, S. (2020). Understanding lone mothers' high poverty in Germany: Disentangling composition effects and effects of lone motherhood. *Advances in Life Course Research*, 44, 100327. <https://doi.org/10.1016/j.alcr.2020.100327>
- Huschek, D., de Valk, H. A. G., & Liefbroer, A. C. (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.
- Idescat, S. I. of C. (2020). *Annual indicators. Mean age at first marriage*. <https://www.idescat.cat/indicadors/?id=anuals&n=10340&lang=en>
- Kagitcibasi, C. (2017). *Family, Self, and Human Development Across Cultures: Theory and Applications*. Routledge. <https://doi.org/10.4324/9781315205281>

- Kalmijn, M. (1998). Inter-marriage and Homogamy: Causes, Patterns, Trends. *Annual Review of Sociology*, 24(1), 395–421. <https://doi.org/10.1146/annurev.soc.24.1.395>
- Kalmijn, M., & Kraaykamp, G. (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(5), 697–717. <https://doi.org/10.1080/1369183X.2017.1363644>
- Klärner, A., & Knabe, A. (2017). On the normative foundations of marriage and cohabitation: Results from group discussions in eastern and western Germany. *Demographic Research*, 36, 1637–1666.
- Kreyenfeld, M., & Konietzka, D. (Eds.). (2017). *Childlessness in Europe: Contexts, Causes, and Consequences*. Springer International Publishing. <https://doi.org/10.1007/978-3-319-44667-7>
- Kuhnt, A.-K., & Krapf, S. (2020). Partnership Living Arrangements of Immigrants and Natives in Germany. *Frontiers in Sociology*, 5. <https://doi.org/10.3389/fsoc.2020.538977>
- Kulu, H. (2005). Migration and Fertility: Competing Hypotheses Re-examined. *European Journal of Population / Revue Européenne de Démographie*, 21(1), 51–87. <https://doi.org/10.1007/s10680-005-3581-8>
- Kulu, H., & González-Ferrer, A. (2014). Family Dynamics Among Immigrants and Their Descendants in Europe: Current Research and Opportunities. *European Journal of Population*, 30(4), 411–435. <https://doi.org/10.1007/s10680-014-9322-0>
- Kulu, H., Milewski, N., Hannemann, T., & Mikolaj, J. (2019). A decade of life-course research on fertility of immigrants and their descendants in Europe. *Demographic Research*, 40, 1345–1374.
- Lesthaeghe, R. (2010). The Unfolding Story of the Second Demographic Transition. *Population and Development Review*, 36(2), 211–251.
- Lesthaeghe, R., & Permanyer, I. (2014). *European Sub-Replacement Fertility: Trapped or Recovering?* (No. 14–822; PSC Research Reports, p. 39). https://www.vub.be/demography/wp-content/uploads/2016/02/rr14-822_eu_fert.pdf

- Milewski, N. (2009). *Fertility of Immigrants: A Two-Generational Approach in Germany*. Springer Science & Business Media.
- Milewski, N. (2010). Immigrant fertility in West Germany: Is there a socialization effect in transitions to second and third births? *European Journal of Population / Revue Européenne de Démographie*, 26(3), 297–323. <https://doi.org/10.1007/s10680-010-9211-0>
- Mueller, C. (2006). Integrating Turkish Communities: A German Dilemma. *Population Research and Policy Review*, 25(5/6), 419–441.
- Naderi, R. (2008). Ehen und nichteheliche Lebensgemeinschaften im Lebensverlauf von Deutschen und türkischen Staatsbürgern in Deutschland. *Zeitschrift für Bevölkerungswissenschaft*, 33(3), 433–447. <https://doi.org/10.1007/s12523-009-0023-4>
- Noack, T., Bernhardt, E., & Wiik, K. A. (2013). Cohabitation or Marriage? Contemporary Living Arrangements in the West. In A. Abela & J. Walker (Eds.), *Contemporary Issues in Family Studies* (pp. 16–30). Wiley Online Library. <https://onlinelibrary.wiley.com/doi/pdf/10.1002/9781118320990.ch2>
- 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, 1361–1398.
- Perelli-Harris, B., Sigle-Rushton, W., Kreyenfeld, M., Lappegård, T., Keizer, R., & Berghammer, C. (2010). The Educational Gradient of Childbearing within Cohabitation in Europe. *Population and Development Review*, 36(4), 775–801. <https://doi.org/10.1111/j.1728-4457.2010.00357.x>
- Perez, M. D., & Livi-Bacci, M. (1992). Fertility in Italy and Spain: The Lowest in the World. *Family Planning Perspectives*, 24(4), 162–171. <https://doi.org/10.2307/2136019>
- Portes, A., Fernández-Kelly, P., & Haller, W. (2009). The Adaptation of the Immigrant Second Generation in America: A Theoretical Overview and Recent Evidence. *Journal of Ethnic and Migration Studies*, 35(7), 1077–1104. <https://doi.org/10.1080/13691830903006127>

- Portes, Alejandro, & Rivas, A. (2011). The Adaptation of Migrant Children. *The Future of Children*, 21(1), 219–246.
- Raab, M., & Struffolino, E. (2020). The Heterogeneity of Partnership Trajectories to Childlessness in Germany. *European Journal of Population*, 36(1), 53–70. <https://doi.org/10.1007/s10680-019-09519-y>
- Rahnu, L., Puur, A., Sakkeus, L., & Klesment, M. (2015). Partnership dynamics among migrants and their descendants in Estonia. *Demographic Research*, 32, 1519–1566.
- Rumbaut, R. G. (2012). *Generation 1.5, Educational Experiences Of* (SSRN Scholarly Paper ID 2182167). Social Science Research Network. <https://papers.ssrn.com/abstract=2182167>
- Rumbaut, R., & Ima, K. (1988). *The Adaptation of Southeast Asian Refugee Youth: A Comparative Study*. US Department of Health and Human Services, Family Support Administration, Office of Refugee Resettlement.
- Sassler, S., & Lichter, D. T. (2020). Cohabitation and Marriage: Complexity and Diversity in Union-Formation Patterns. *Journal of Marriage and Family*, 82(1), 35–61. <https://doi.org/10.1111/jomf.12617>
- Schmelzer, P., & Hamjediers, M. (2018). *SOEP-Core v33.1—Activity Biography in the Files PBIOSPE and ARTKALEN* (Survey Papers 581; p. 11).
- Stone, J., Berrington, A., & Falkingham, J. (2011). The changing determinants of UK young adults' living arrangements. *Demographic Research*, 25, 629–666. <https://doi.org/10.4054/DemRes.2011.25.20>
- Therneau, T. M., until 2009), T. L. (original S.->R port and R. maintainer, Elizabeth, A., & Cynthia, C. (2021). *Survival: Survival Analysis* (3.2-11) [Computer software]. <https://CRAN.R-project.org/package=survival>
- Thomson, E. (2014). Family complexity in Europe. *Annals of the American Academy of Political and Social Science* 654: 245-258.
- Van De Kaa, D. J. (1987). Europe's second demographic transition. *Population Bulletin*, 42(1), 1–59.

- Van Mol, C., & De Valk, H. (2016). Migration and Immigrants in Europe: A Historical and Demographic Perspective. In B. Garcés-Mascareñas & R. Penninx (Eds.), *Integration Processes and Policies in Europe*. Springer International Publishing. <https://doi.org/10.1007/978-3-319-21674-4>
- Wiik, K. A., Dommermuth, L., & Holland, J. A. (2020). Partnership transitions among the children of immigrants in Norway: The role of partner choice. *Population Studies*, 0(0), 1–20. <https://doi.org/10.1080/00324728.2020.1851749>
- Windzio, M., & Aybek, C. M. (2015). Marriage, Norm Orientation and Leaving the Parental Home: Turkish Immigrant and Native Families in Germany. *Comparative Population Studies*, 40(2), Article 2. <https://doi.org/10.12765/CPoS-2015-07>
- Wolf, K. (2016). Marriage Migration Versus Family Reunification: How Does the Marriage and Migration History Affect the Timing of First and Second Childbirth Among Turkish Immigrants in Germany? *European Journal of Population*, 32(5), 731–759. <https://doi.org/10.1007/s10680-016-9402-4>
- Wolf, K., & Kreyenfeld, M. (2020). Migrant Fertility in Germany and the Eastern Enlargement of the EU. *SOEP Papers on Multidisciplinary Panel Data Research*, No. 1076, Deutsches Institut Für Wirtschaftsforschung (DIW), Berlin, 42.
- Yüceşahin, M. M., & Özgür, E. M. (2008). Regional fertility differences in Turkey: Persistent high fertility in the southeast. *Population, Space and Place*, 14(2), 135–158. <https://doi.org/10.1002/psp.480>

Results

Figure 1. KM survival curves to having a first child, entering a first cohabitation, and entering a first marriage in non-competing framework (first, 1.5 and second-generations combined).

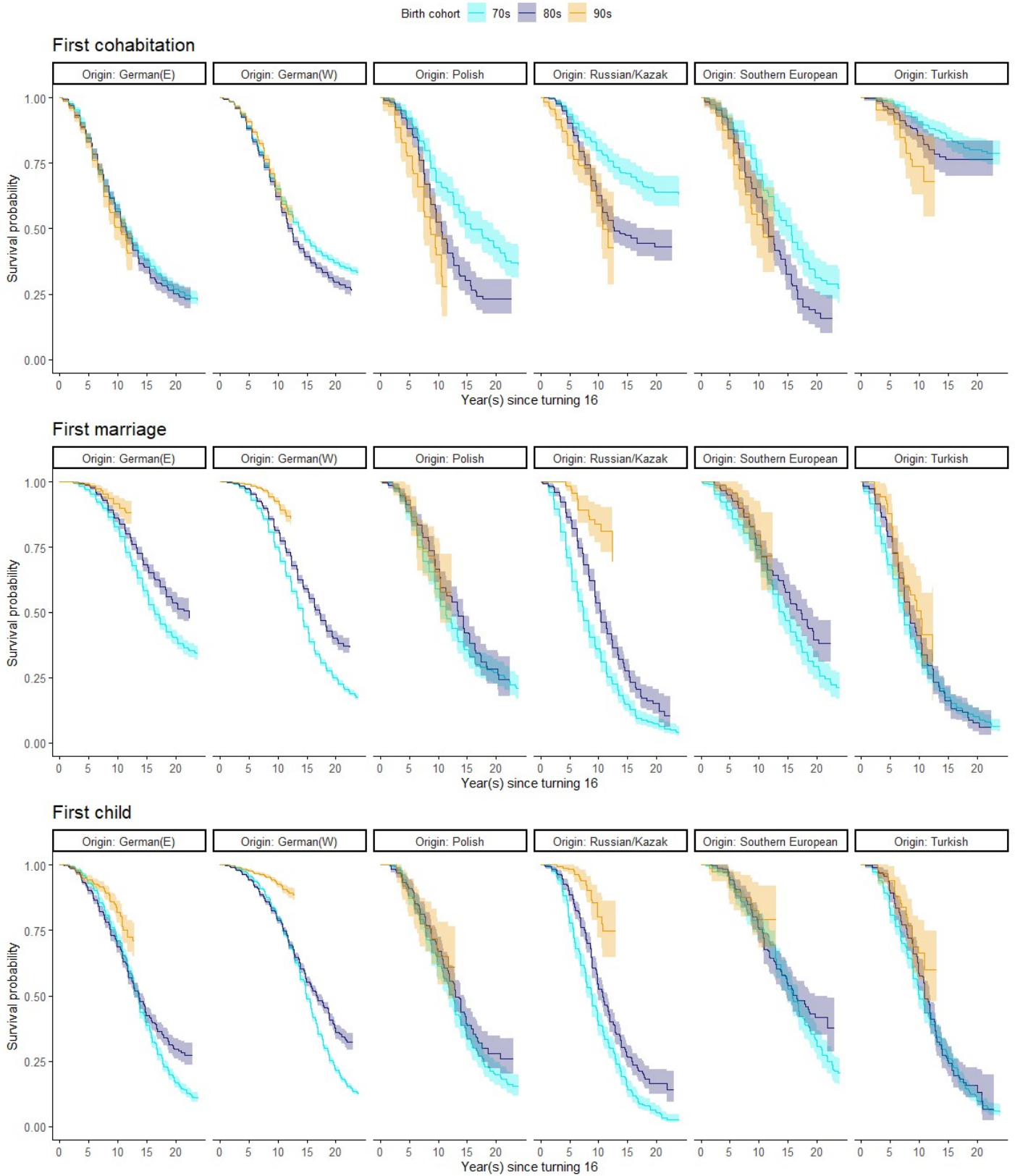
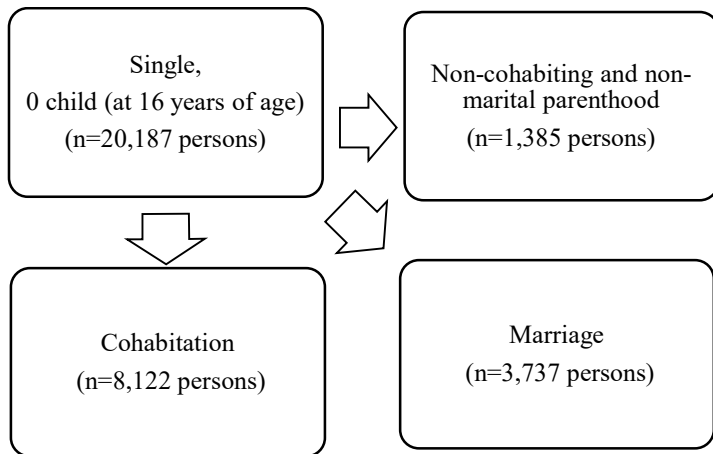


Figure 2. Transition to three competing events in the sample population



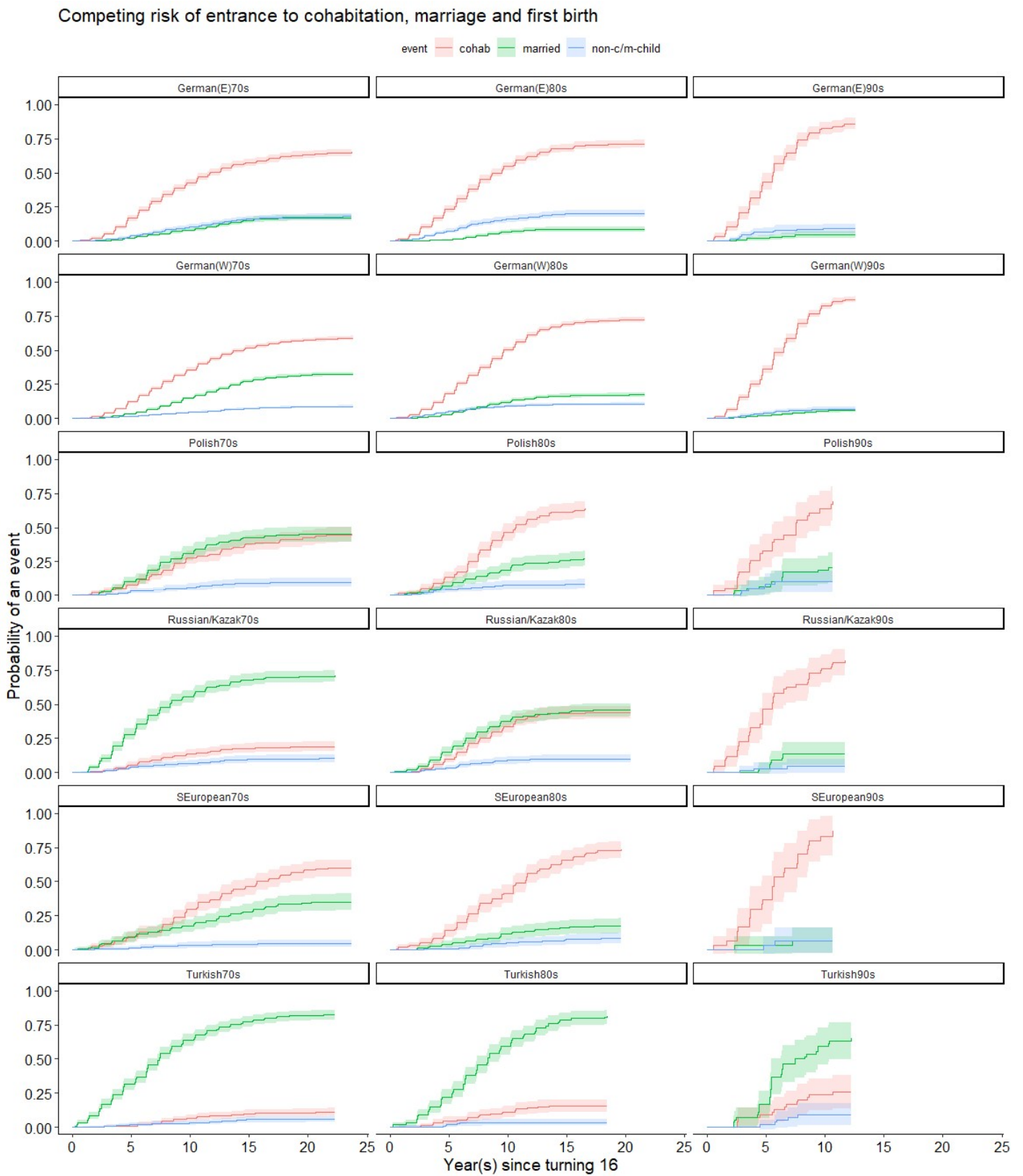
Note: Those who experienced multiple events in the same year are assigned priority by the following order: marriage, cohabitation, parenthood.

Table 1. Sample description of cohabitation, marriage, and having a first child in competing framework

| | Person-months | Cohab (n) | Cohab (rate) | Marry (n) | Marry (rate) | Child (n) | Child (rate) |
|------------------------|---------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|
| Baseline | 1985572 | 8122 | 0.0041 | 3737 | 0.0019 | 1385 | 0.0007 |
| Sex | | | | | | | |
| Male | 1000177 | 3369 | 0.0034 | 1506 | 0.0015 | 446 | 0.0004 |
| Female | 985395 | 4753 | 0.0048 | 2231 | 0.0023 | 939 | 0.0010 |
| Cohort | | | | | | | |
| 70s | 909462 | 3841 | 0.0042 | 2584 | 0.0028 | 719 | 0.0008 |
| 80s | 718773 | 3121 | 0.0043 | 1028 | 0.0014 | 562 | 0.0008 |
| 90s | 357337 | 1160 | 0.0032 | 125 | 0.0003 | 104 | 0.0003 |
| Education | | | | | | | |
| Low | 529245 | 1330 | 0.0025 | 765 | 0.0014 | 425 | 0.0008 |
| Medium | 1005951 | 4626 | 0.0046 | 2076 | 0.0021 | 767 | 0.0008 |
| High | 450376 | 2166 | 0.0048 | 896 | 0.0020 | 193 | 0.0004 |
| Employment | | | | | | | |
| Not Working | 96822 | 665 | 0.0069 | 518 | 0.0054 | 233 | 0.0024 |
| School | 1226919 | 3226 | 0.0026 | 1143 | 0.0009 | 496 | 0.0004 |
| PT | 112642 | 648 | 0.0058 | 336 | 0.0030 | 105 | 0.0009 |
| FT | 485004 | 3142 | 0.0065 | 1398 | 0.0029 | 337 | 0.0007 |
| Other | 63674 | 439 | 0.0069 | 341 | 0.0054 | 214 | 0.0034 |
| Missing | 511 | <5 | - | <5 | - | <5 | - |
| Origin | | | | | | | |
| German(E) | 368426 | 1787 | 0.0049 | 322 | 0.0009 | 454 | 0.0012 |
| German(W) | 1293868 | 5229 | 0.0040 | 1907 | 0.0015 | 701 | 0.0005 |
| Pole 1G | 46370 | 201 | 0.0043 | 184 | 0.0040 | 47 | 0.0010 |
| Pole 1.5G | 20573 | 95 | 0.0046 | 37 | 0.0018 | 10 | 0.0005 |
| Pole 2G | 7915 | 48 | 0.0061 | 5 | 0.0006 | <5 | - |
| Southern European 1G | 37590 | 166 | 0.0044 | 69 | 0.0018 | 14 | 0.0004 |
| Southern European 1.5G | 10223 | 35 | 0.0034 | 25 | 0.0024 | 5 | 0.0005 |
| Southern European 2G | 22729 | 120 | 0.0053 | 31 | 0.0014 | 13 | 0.0006 |
| Russia/Kazakhstan 1G | 48947 | 136 | 0.0028 | 364 | 0.0074 | 57 | 0.0012 |
| Russia/Kazakhstan 1.5G | 51239 | 189 | 0.0037 | 172 | 0.0034 | 38 | 0.0007 |
| Russia/Kazakhstan 2G | 2327 | 12 | 0.0052 | 6 | 0.0026 | <5 | - |
| Turk 1G | 25182 | 24 | 0.0010 | 245 | 0.0097 | 20 | 0.0008 |
| Turk 1.5G | 21260 | 26 | 0.0012 | 164 | 0.0077 | 11 | 0.0005 |
| Turk 2G | 28923 | 54 | 0.0019 | 206 | 0.0071 | 10 | 0.0003 |

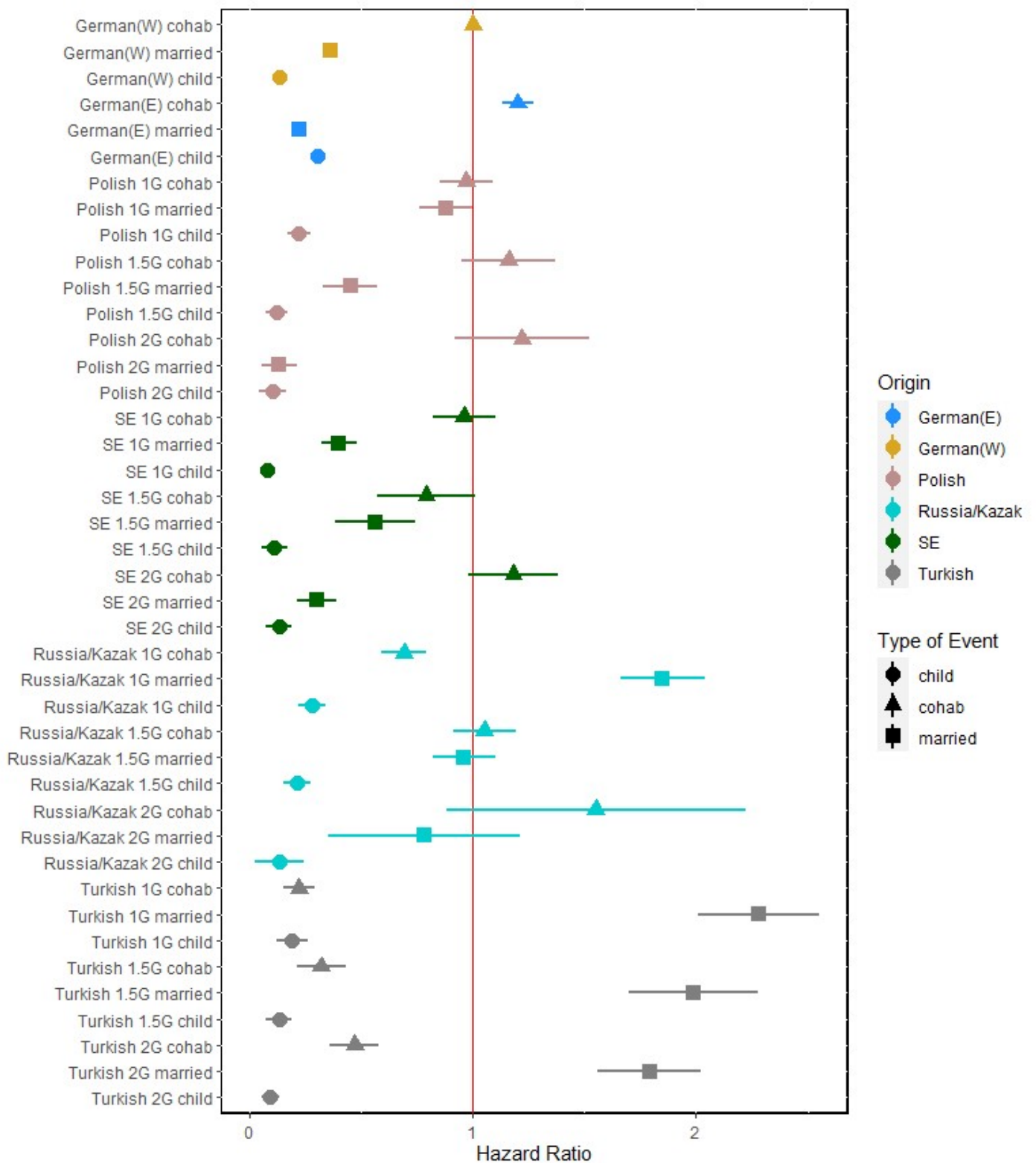
Note: "Other" in employment includes maternity leave.

Figure 3. Cumulative incidence function of entrance into parenthood, cohabitation, and marriage as competing events



Note: SE Southern Europeans

Figure 4. Piecewise constant hazard model (adjusted for sex, cohort, education, employment status, East/West Germany, with West German native in cohabitation as baseline hazard).



Appendix

Appendix 1a. Classification of migrant background, using those from [Turkey] as example

| | | | | |
|---|-----------------|----------------------------|----------------------------|--------------------------------|
| Mother's citizenship Father's citizenship Own's current citizenship Own's former citizenship Mother's birthplace Father's birthplace | | | | At least one variable [Turkey] |
| Age at migration Migration background Place of birth | none Germany | 16+ migrant [Turkey] | <16 migrant [Turkey] | migrant descendent Germany |
| Final classification | Natives | 1st Generation | 1.5 Generation | 2nd Generation |

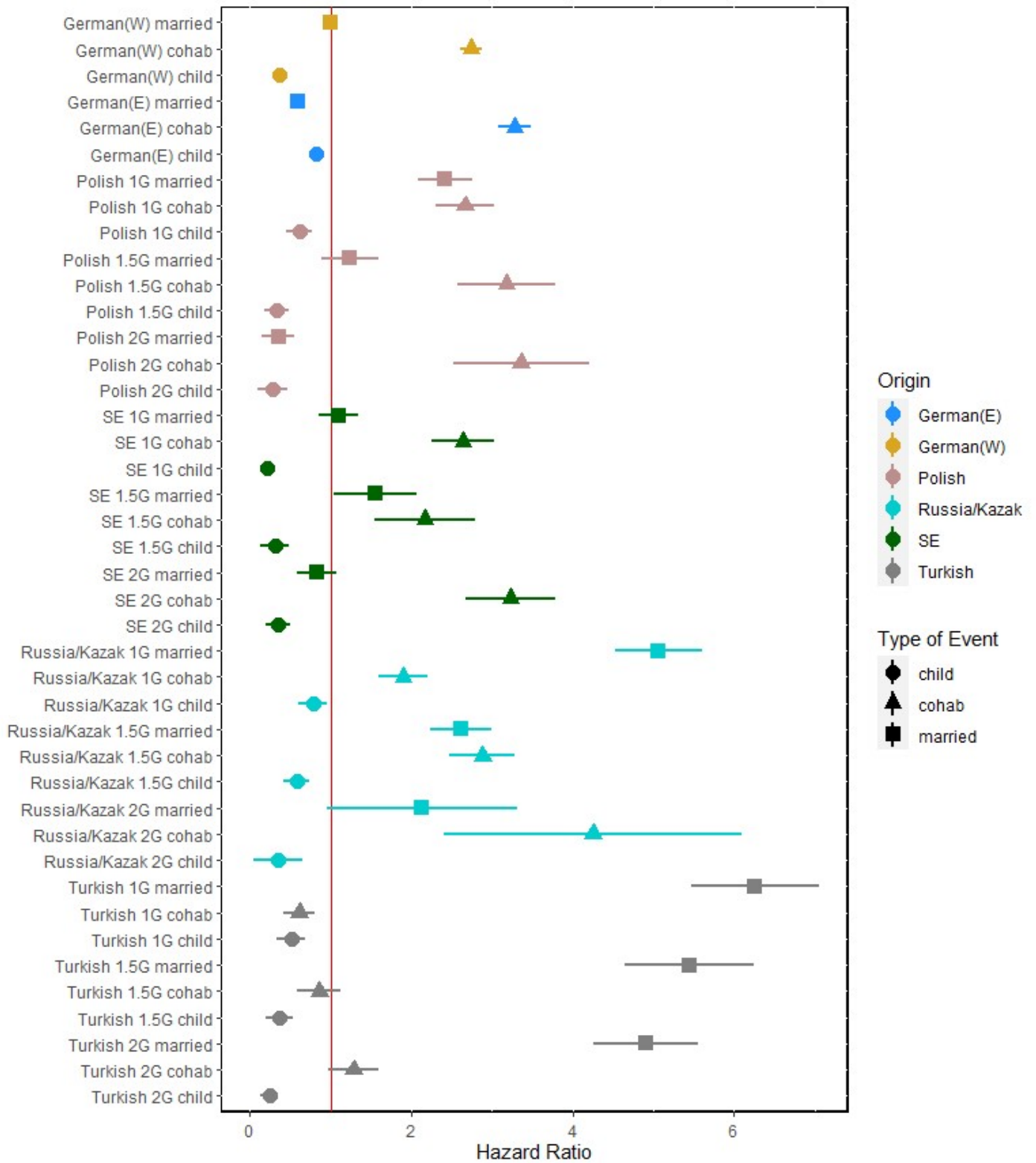
Appendix 1b. Classification of education level

| | | | | | | |
|----------------------------------|------|-------|--------|-------|-------|-----|
| ISCED11 grouping | 1 | 2 | 3 | 4 | 6 | 7 |
| Years of schooling | <8.5 | <10.5 | | <13.5 | <16 | 16+ |
| Age when last observed in school | | | 16-18 | | 19-22 | 22+ |
| Final classification | Low | | Medium | | High | |

Appendix 2. Piecewise constant hazard exponential model on event by type of event origin, with West German natives in cohabitation as baseline hazard.

| | M1 | | | M2 | | | M3 | | |
|--------------------------------|--------|--------|--------|---------|--------|---------|--------|--------|--------|
| | coef | lower | upper | coef | lower | upper | coef | lower | upper |
| Sex: Female | 1.72 | 1.66 | 1.78 | 1.72 | 1.66 | 1.78 | 1.79 | 1.73 | 1.86 |
| Cohort: 80s | 0.97 | 0.93 | 1 | 0.98 | 0.95 | 1.02 | 1.02 | 0.98 | 1.05 |
| Cohort: 90s | 0.81 | 0.76 | 0.86 | 0.81 | 0.76 | 0.86 | 0.95 | 0.89 | 1 |
| Educ: medium | - | - | - | 1.27 | 1.22 | 1.33 | 1.08 | 1.03 | 1.13 |
| Educ: high | - | - | - | 1.02 | 0.97 | 1.08 | 0.88 | 0.84 | 0.93 |
| Employment: Still in school | - | - | - | - | - | - | 0.44 | 0.41 | 0.47 |
| Employment: PT work | - | - | - | - | - | - | 0.76 | 0.7 | 0.82 |
| Employment: FT work | - | - | - | - | - | - | 0.9 | 0.84 | 0.95 |
| Employment: Other | - | - | - | - | - | - | 1.01 | 0.93 | 1.1 |
| German(W) married | 0.36 | 0.35 | 0.38 | 0.37 | 0.35 | 0.38 | 0.37 | 0.35 | 0.38 |
| German(W) child | 0.13 | 0.12 | 0.15 | 0.13 | 0.12 | 0.15 | 0.13 | 0.12 | 0.15 |
| German(E) cohab | 1.23 | 1.17 | 1.3 | 1.21 | 1.15 | 1.28 | 1.2 | 1.13 | 1.26 |
| German(E) married | 0.22 | 0.2 | 0.25 | 0.22 | 0.2 | 0.24 | 0.22 | 0.19 | 0.24 |
| German(E) child | 0.31 | 0.28 | 0.34 | 0.31 | 0.28 | 0.34 | 0.3 | 0.27 | 0.33 |
| Pole 1G cohab | 0.97 | 0.84 | 1.12 | 0.95 | 0.82 | 1.09 | 0.97 | 0.85 | 1.12 |
| Pole 1G married | 0.88 | 0.76 | 1.02 | 0.86 | 0.75 | 1 | 0.88 | 0.76 | 1.02 |
| Pole 1G child | 0.22 | 0.17 | 0.3 | 0.22 | 0.16 | 0.29 | 0.22 | 0.17 | 0.3 |
| Pole 1.5G cohab | 1.18 | 0.96 | 1.44 | 1.17 | 0.95 | 1.43 | 1.16 | 0.95 | 1.42 |
| Pole 1.5G married | 0.46 | 0.33 | 0.63 | 0.45 | 0.33 | 0.63 | 0.45 | 0.33 | 0.62 |
| Pole 1.5G child | 0.12 | 0.07 | 0.23 | 0.12 | 0.07 | 0.23 | 0.12 | 0.07 | 0.23 |
| Pole 2G cohab | 1.2 | 0.9 | 1.59 | 1.14 | 0.86 | 1.52 | 1.23 | 0.92 | 1.63 |
| Pole 2G married | 0.12 | 0.05 | 0.3 | 0.12 | 0.05 | 0.29 | 0.13 | 0.05 | 0.31 |
| Pole 2G child | 0.1 | 0.04 | 0.27 | 0.1 | 0.04 | 0.25 | 0.1 | 0.04 | 0.27 |
| Southern European 1G cohab | 0.92 | 0.79 | 1.07 | 0.96 | 0.82 | 1.12 | 0.96 | 0.83 | 1.13 |
| Southern European 1G married | 0.38 | 0.3 | 0.49 | 0.4 | 0.32 | 0.51 | 0.4 | 0.32 | 0.51 |
| Southern European 1G child | 0.08 | 0.05 | 0.13 | 0.08 | 0.05 | 0.14 | 0.08 | 0.05 | 0.14 |
| Southern European 1.5G cohab | 0.79 | 0.57 | 1.1 | 0.8 | 0.57 | 1.11 | 0.79 | 0.57 | 1.1 |
| Southern European 1.5G married | 0.56 | 0.38 | 0.83 | 0.57 | 0.38 | 0.84 | 0.56 | 0.38 | 0.84 |
| Southern European 1.5G child | 0.11 | 0.05 | 0.27 | 0.11 | 0.05 | 0.27 | 0.11 | 0.05 | 0.27 |
| Southern European 2G cohab | 1.17 | 0.98 | 1.4 | 1.17 | 0.97 | 1.4 | 1.18 | 0.98 | 1.41 |
| Southern European 2G married | 0.3 | 0.21 | 0.43 | 0.3 | 0.21 | 0.43 | 0.3 | 0.21 | 0.43 |
| Southern European 2G child | 0.13 | 0.07 | 0.22 | 0.13 | 0.07 | 0.22 | 0.13 | 0.07 | 0.22 |
| R/K 1G cohab | 0.69 | 0.59 | 0.82 | 0.69 | 0.58 | 0.82 | 0.69 | 0.59 | 0.82 |
| R/K 1G married | 1.84 | 1.66 | 2.05 | 1.83 | 1.65 | 2.04 | 1.85 | 1.66 | 2.05 |
| R/K 1G child | 0.28 | 0.22 | 0.37 | 0.28 | 0.22 | 0.37 | 0.28 | 0.22 | 0.37 |
| R/K 1.5G cohab | 1.06 | 0.92 | 1.23 | 1.03 | 0.89 | 1.19 | 1.05 | 0.91 | 1.22 |
| R/K 1.5G married | 0.97 | 0.83 | 1.13 | 0.94 | 0.81 | 1.09 | 0.96 | 0.82 | 1.11 |
| R/K 1.5G child | 0.21 | 0.16 | 0.29 | 0.21 | 0.15 | 0.29 | 0.21 | 0.15 | 0.29 |
| R/K 2G cohab | 1.5 | 0.85 | 2.64 | 1.44 | 0.82 | 2.55 | 1.55 | 0.88 | 2.72 |
| R/K 2G married | 0.75 | 0.34 | 1.67 | 0.72 | 0.32 | 1.61 | 0.77 | 0.35 | 1.72 |
| R/K 2G child | 0.12 | 0.02 | 0.89 | 0.12 | 0.02 | 0.85 | 0.13 | 0.02 | 0.91 |
| Turk 1G cohab | 0.25 | 0.17 | 0.37 | 0.26 | 0.17 | 0.39 | 0.22 | 0.15 | 0.33 |
| Turk 1G married | 2.53 | 2.23 | 2.88 | 2.66 | 2.33 | 3.02 | 2.29 | 2.01 | 2.6 |
| Turk 1G child | 0.21 | 0.13 | 0.32 | 0.22 | 0.14 | 0.34 | 0.19 | 0.12 | 0.29 |
| Turk 1.5G cohab | 0.32 | 0.21 | 0.46 | 0.32 | 0.22 | 0.47 | 0.32 | 0.21 | 0.46 |
| Turk 1.5G married | 1.99 | 1.71 | 2.33 | 2 | 1.71 | 2.34 | 1.99 | 1.7 | 2.33 |
| Turk 1.5G child | 0.13 | 0.07 | 0.24 | 0.13 | 0.07 | 0.24 | 0.13 | 0.07 | 0.24 |
| Turk 2G cohab | 0.47 | 0.36 | 0.61 | 0.45 | 0.35 | 0.59 | 0.47 | 0.36 | 0.61 |
| Turk 2G married | 1.78 | 1.55 | 2.04 | 1.73 | 1.5 | 1.98 | 1.79 | 1.56 | 2.06 |
| Turk 2G child | 0.09 | 0.05 | 0.16 | 0.08 | 0.05 | 0.16 | 0.09 | 0.05 | 0.16 |
| log(scale) | 890.84 | 857.63 | 925.35 | 1021.59 | 967.79 | 1078.39 | 616.33 | 572.22 | 663.84 |

Appendix 3. Piecewise constant hazard model (adjusted for sex, cohort, education, employment status, with West German native in marriage as baseline hazard).



Data quality check on fertility and partnership data of German Socio-Economic Panel (SOEP v35)

This report documents the consistency checks of partnership and fertility history of the German Socio-Economic Panel against previous studies using other data sources (e.g. German Fertility and Family Survey and German Familiensurvey).

The SOEP files used to produce the partnership and fertility figures are BIOCOUPLY (https://www.diw.de/documents/publikationen/73/diw_01.c.694399.de/diw_ssp0742.pdf) and BIOBIRTH (https://www.diw.de/documents/publikationen/73/diw_01.c.613272.de/diw_ssp0594.pdf). Monthly partnership information is available for prospective history, but not for retrospective history. BIOCOUPLY is more suitable for capturing first lifetime events. Survival curves are smoothed by converting years to months and adding randomly generated months (from 1 to 12) to each duration.

The first comparison excludes migrants, due to SOEP's tendency to over-sample migrants. The second comparison excludes migrants and East Germans.

Code used to reproduce all GSOEP figures in this document is publicly available on GitHub. (https://github.com/konabee/GSOEP_comparisons/blob/main/soep_compare.r)

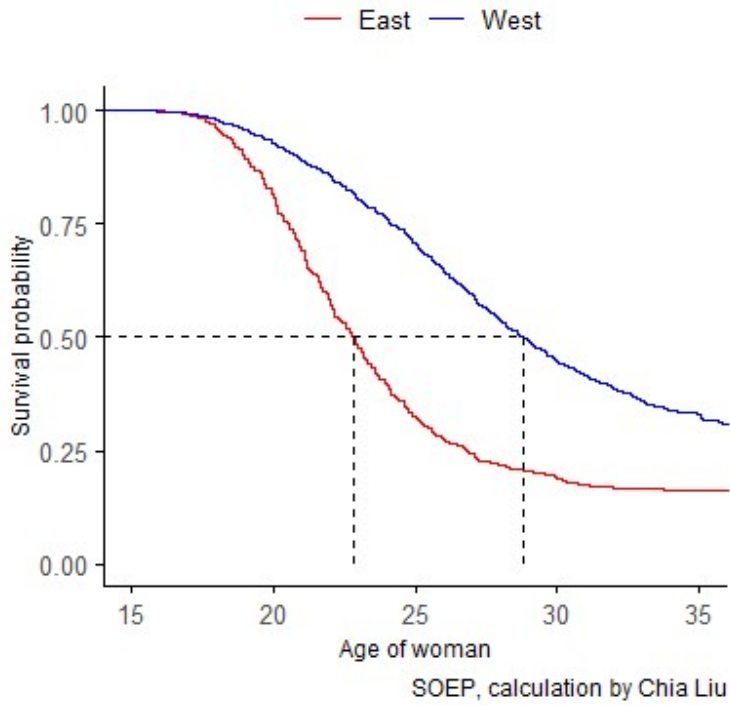
Transition to 1st, 2nd, and 3rd births

Using: "Fertility Decisions in the FRG and GDR: An analysis with Data from the German Fertility and Family Survey" by Michaela Kreyenfeld (2004) (<https://www.demographic-research.org/special/3/11/s3-11.pdf>)

Specifications from Kreyenfeld (2004): The event is first pregnancy (back date birth by 9 months). The population of interest is female respondents born between 1952 to 1972. Duration is months since turning 15. Censor observations at year 1990.

Findings: The two studies yield similar levels and timing for transition into 1st, 2nd and 3rd births. The probability of third birth in SOEP is slightly higher than Kreyenfeld (2004).

Figure S1. Transition to first child in Germany.



From p. 287 “Figure 2a: First child” (Kreyenfeld, 2004)

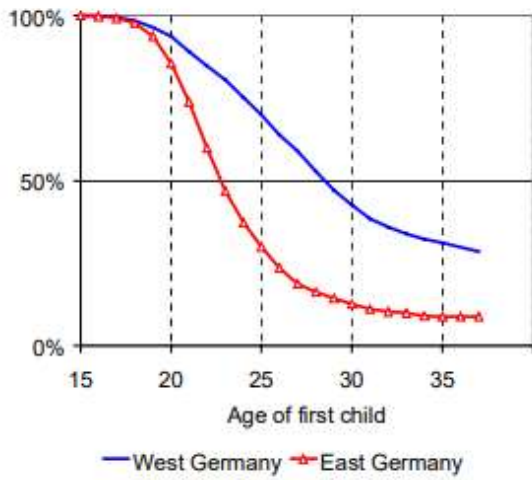
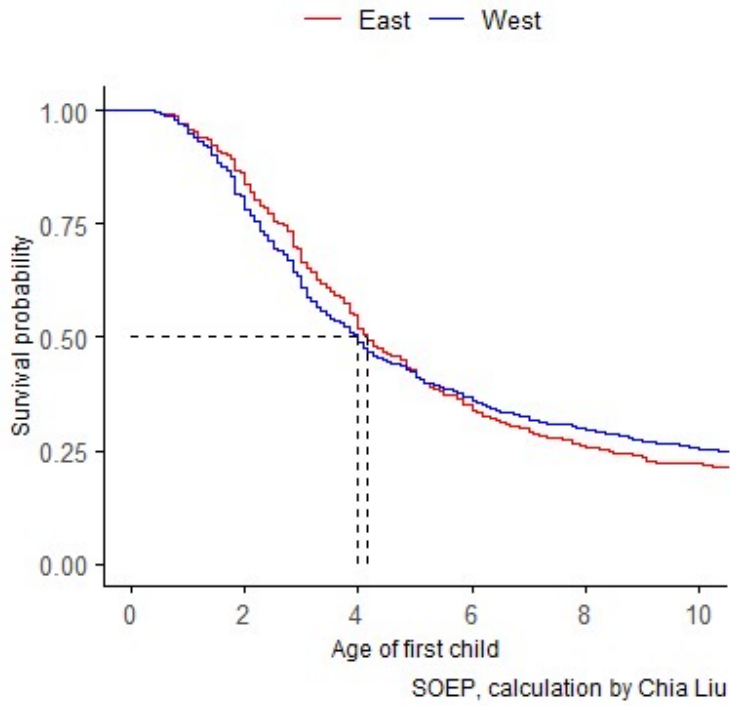


Figure S2. Transition to second child in Germany.



From p. 288 "Figure 2b: Second child." (Kreyenfeld, 2004)

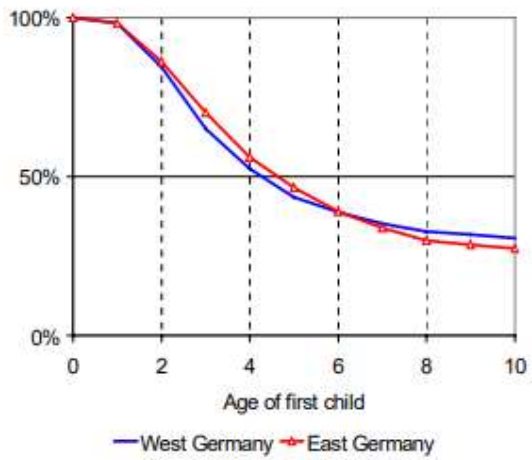
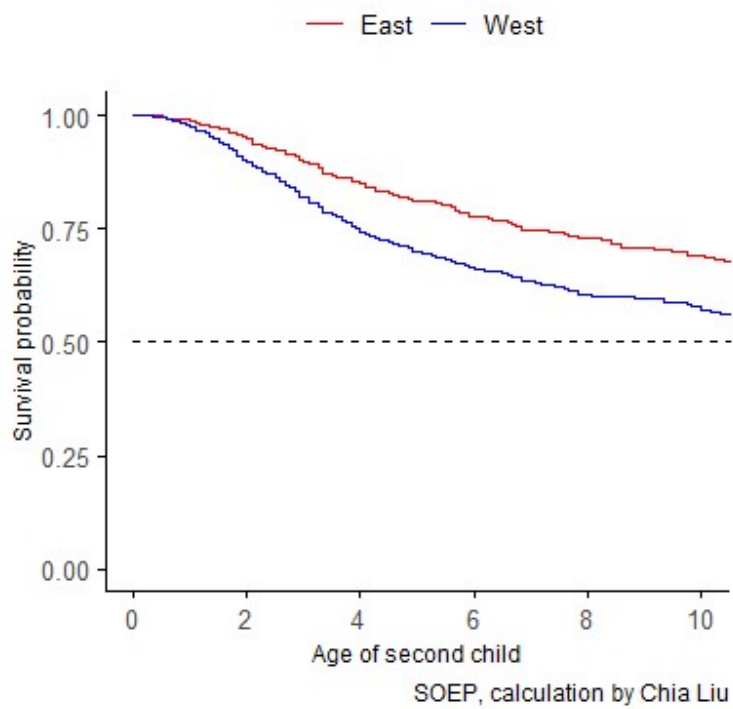
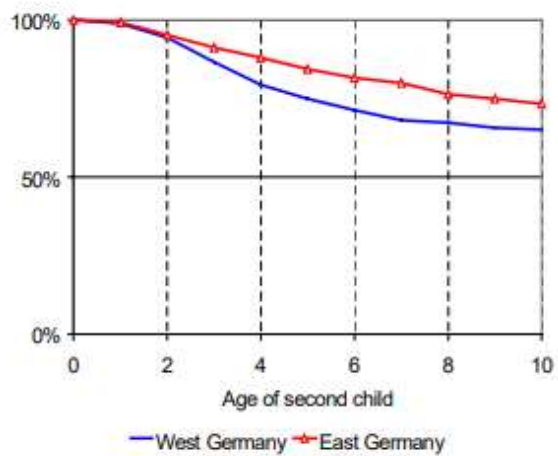


Figure S3. Transition to third child in Germany.



KM curve to third child by East West

From p. 288 “Figure 2c: Third child.” (Kreyenfeld, 2004)



Second comparison: Transition to first cohabitation or marriage

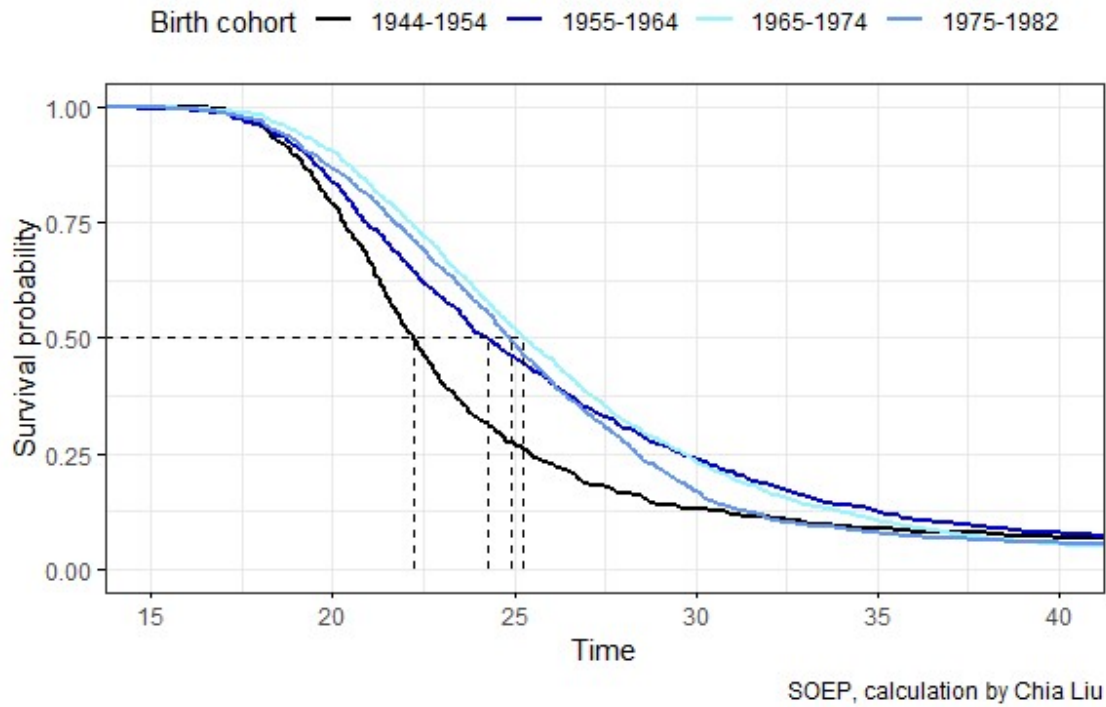
Using: Marriage and Cohabitation in western Germany and France. Katja Koppen. (2010)

(https://www.demogr.mpg.de/publications/files/4277_1318519041_1_Full%20Text.pdf)

Specifications: Koppen (2010) uses German Familiensurvey 2000. The population of interest is West German women born in 1944-1982 separated into 10-year cohorts except for last group (1975-1982). Event is first union (either cohabitation or marriage).

Findings: Consistent with SOEP's practice of adding cohabitation spells to the same year of marriage (see Figure 2 on page 7 of SOEP Survey Papers 742), when including cohabitation episodes that took place in the same year as marriage, immediate transition to marriage is over-estimated. When joint events (cohabitation and marriage) are excluded, the survival curves resemble more closely to Koppen's figure (2010).

Figure S4. Entrance into first union in Germany.



From p. 140 “Figure 7.5: Kaplan-Meier estimation for the transition to first union by birth year of the women, western Germany.” (Koppen, 2010)

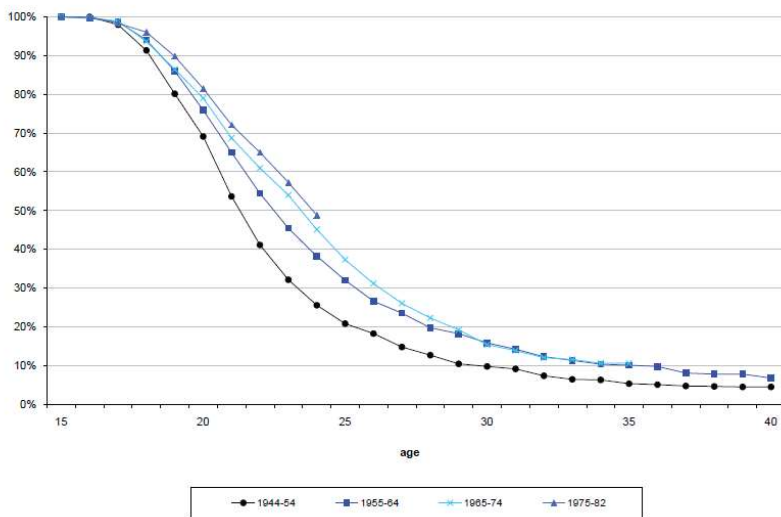
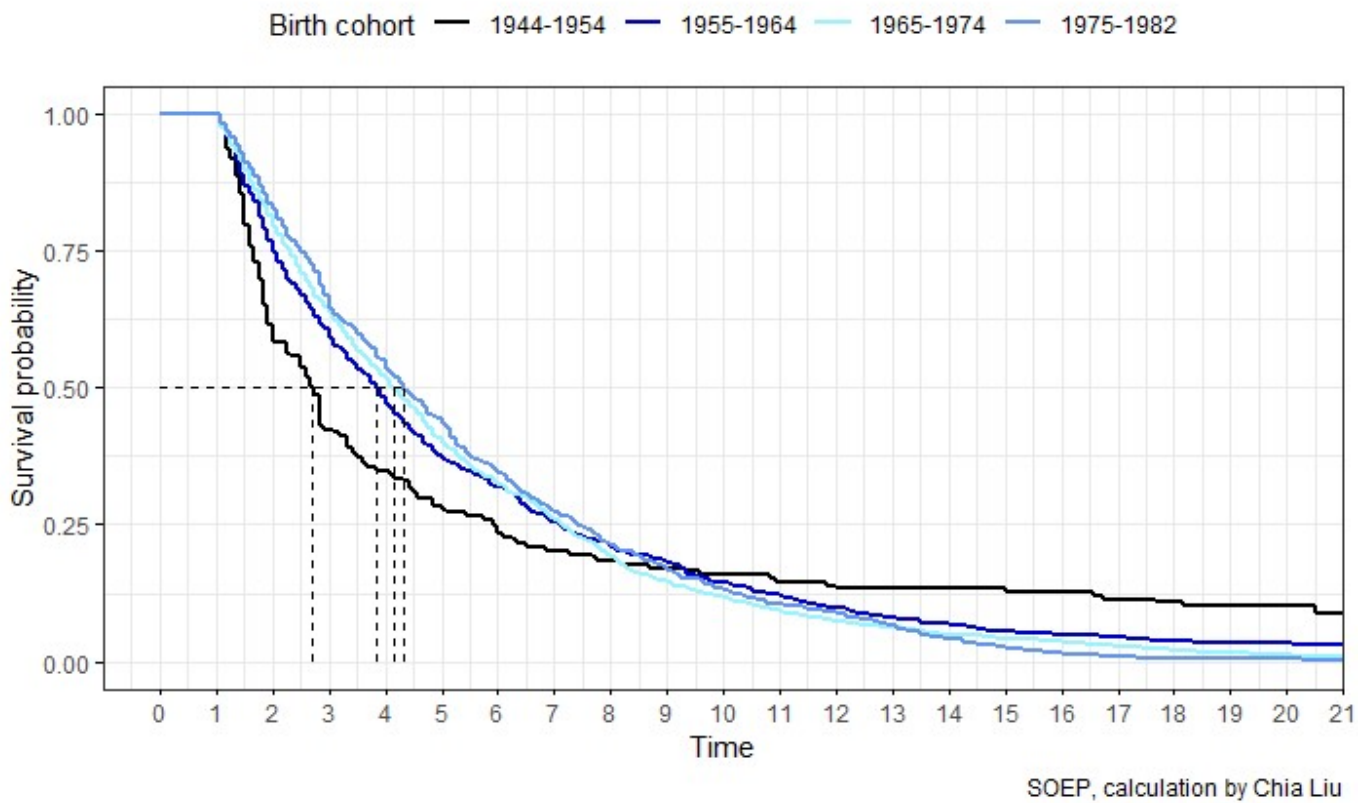
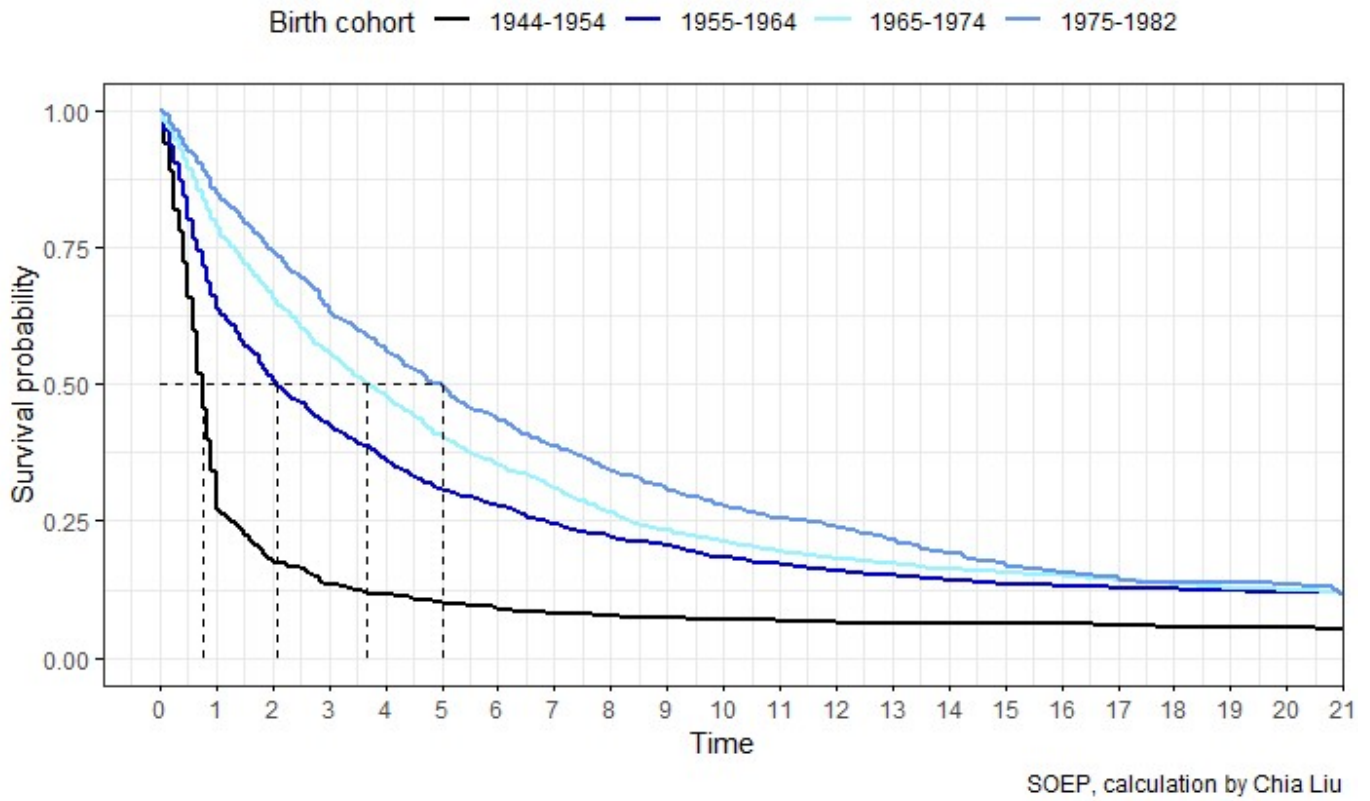


Figure S5. Transition from cohabitation to marriage in Germany.



From p. 142 “Figure 7.8: Kaplan-Meier estimation for the transition to subsequent marriage by birth year of the women, western Germany.” (Koppen, 2010)

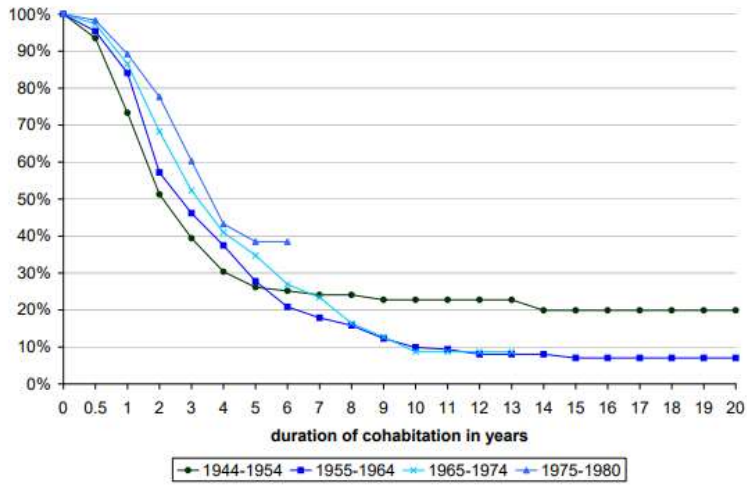
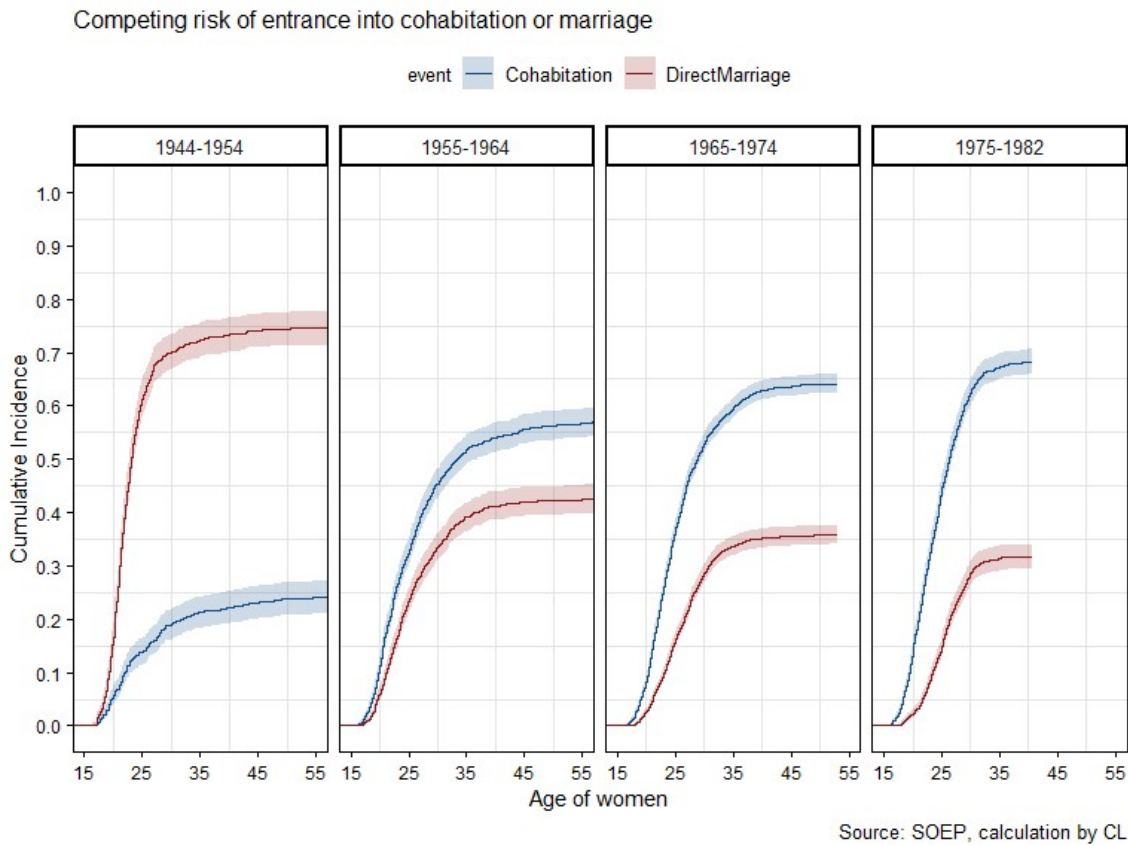


Figure S6. Cumulative incidence of cohabitation and direct marriage in Germany.



From p. 147 “Figure 7.13: Cumulative incidence of cohabitation and direct marriage for grouped birth cohorts, western Germany.” Koppen (2010)

