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### MigrantLife

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# Work-migration-life balance: Patterns of immigrant labor market engagement by family status

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## 1 ABSTRACT

Labor market activities among immigrants are often diverse and highly gendered with women less attached to market work. Family and refugee migrants are less likely to participate in the labor market compared to those who specifically arrived for work. Selection of migrants by sex and gender norms on the division of work can exacerbate gender gaps among groups. Few studies have attempted to disentangle the roles parity, origin, and legal pathway play on the gender gap of employment among immigrants. Using retrospective and prospective biography from the German Socio-Economic Panel (GSOEP), we examine the immigrants' timing and level of participation in training and the labor market by gender and parity, using competing-risks event-history models. We further view movements in and out of the labor market as a multi-state process, depicting labor market attachment. Our models reveal that immigrant women are less likely to work full-time than men overall but having children significantly reduces their probability to do so. Motherhood is also linked to a higher probability of leaving the labor market, and among those who have left, a lower probability of returning. Immigrants from Europe, Ex-Yugoslavia, and Former Soviet Union show higher levels of attachment to the labor market than other migrant groups, regardless of parity. This work significantly contributes to the understanding of the complexity behind family and work for immigrants in a Western European context, particularly shedding light on the multi-state processes of labor market engagement.

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## 2 INTRODUCTION

Public debates surrounding migration often point to a single source of contention: the labor market integration of immigrants. The topic has become increasingly important in the diversifying landscape of Europe, with voluntary and involuntary movement of individuals due to push (e.g., war and insecurity) and pull (e.g., family reunification and economic opportunities) factors. Population aging in Germany has led some to view immigration as an opportunity to tap into the human resources of the new arrivals. This vision comes with challenges such as proper matching of labor supply to labor demand, need for language and integration classes, and necessary policies designed to facilitate speedy integration of immigrants into the labor market. The gender disparity of immigrant labor force participation (LFP) in many European countries, in which immigrant men are far more likely to participate in the labor market compared to their female counterparts particularly suggests an urgent need to examine its underlying causes. Europe's top destination country for migration, Germany, is often the subject of such study due to its relatively long immigrant-receiving history and partially, as a result, diverse immigrant pool.

The group differences in the extent of human capital development and labor market participation after arrival reflects the variety of circumstances under which immigrants arrived (T. Cooke, 2001; Duleep, 2015; Münz, 2007). Most studies on the gender gap of immigrant labor force participation attribute group differences to the uniqueness of cultural values without explicitly addressing legal pathway to employment upon entry (Kanas & Müller, 2021; Khoudja & Fleischmann, 2017). Due to legal restrictions barring immediate access to the labor market, on top of complexity pertaining to the recognition of qualifications from abroad, refugee immigrants fare substantially worse than other types of immigrants in Germany (Salikutluk et al., 2016; Zwysen, 2019). Those who migrated for family reasons also face additional legal hurdles to take up employment upon arrival (Kontos & Shinozaki, 2010).

Labor migration in Germany has historically been predominantly male-led, with females migrating as accompanying family members (Krieger, 2020), resulting in gender disparity in market work. Family situations, especially the presence of dependent children, have been largely identified as the leading causes of lower immigrant women's labor force participation in Germany (Afonso, 2019; Boeckmann et al., 2015; T. Cooke, 2001; Gangl & Ziefle, 2009; Samper & Kreyenfeld, 2021). A substantial number of immigrant women in Germany arrived as family or marriage migrants, especially most non-EU country nationals. Those who arrive as marriage migrants are particularly at high first birth risk upon arrival (Krapf & Wolf, 2016; Milewski, 2010). As family or marriage migrants, women often face additional obstacles to obtain permission to work, leading to gender disparity in the rights to work among couples (Kofman, 1999, 2000; Kofman & Raghuram, 2015).

This explanation, however, does not shed light on the LFP gap between refugee men and women (Salikutluk et al., 2016) despite women having entered Germany outside of the trailing family member context. Possible explanations might lie in that many sending countries of refugee migrants tend to hold less favorable view toward women's employment (Selwaness & Krafft, 2021), and the unavailability of childcare (Worbs & Baraulina, 2017) in combination with possibly

larger family size (Newsham & Rowe, 2021) exacerbate gender differences among refugees in the labor market commonly found in other groups for similar reasons.

Studies on labor force integration of immigrants often focus on the single-step process of labor market entrance (Krieger, 2020; Salikutluk et al., 2016; Samper & Kreyenfeld, 2021). Literature based in the U.S. has shown that immigrants are often at high risk of moving in and out of similarly positioned jobs in the secondary sectors, or less favorable jobs, with limited upward mobility (Hall et al., 2018). Therefore, exiting a first job in the destination country can be plausibly interpreted as precarity rather than upgrade. It is thus important to consider labor force activities in terms of attachment, expressed as multi-step processes (Corcoran & Duncan, 1979). Women who worked before having children often drop out or scale back on work after childbearing (Lu et al., 2017). Although those with more pre-birth work experiences are more likely to return to work, especially in the event of the male partner's job insecurity, motherhood has been widely linked to women exiting the labor market altogether (T. Cooke, 2001; Gutiérrez-Domènech, 2005). Immigrants' entrance and exit of labor market post childbearing is far less understood.

This paper investigates immigrant labor market engagement in Germany as a multi-state process using the German-Socioeconomic Panel (GSOEP v36). The study investigates individuals' probability of entering work or training upon arrival by sex, country of origin, entrance type (those from European Union member states, non-EU member states, ethnic Germans, and refugee migrants), the number of children born to the individual, and other relevant socio-demographic characteristics. Human capital including education and pre-migration work experience, along with migration cohort and age of entrance are considered to pin down the heterogeneity among migrant groups and the effects of parity. The novelties of the study are as follows. First, we investigate immigrant labor market participation by migrant origin, gender and family size. To our knowledge, no existing study has examined the effect of birth parity by migrant group to pinpoint the intersection between migration background and gender division of family and market work holding the mode of entry equal to rule out legal barriers to employment. Although several studies have focused on immigrants' labor market gender disparity by migrant origin (e.g. Dumont et al., 2016; Worbs & Baraulina, 2017; Guveli & Spierings, 2022), none has attempted to determine the role migrant origin plays in this gap. Second, we study entrance into activity, including training such as schooling or apprenticeship, as competing pathways along with part- and full-time labor market work. Engagement in training, such as taking language classes or enrolling in education, reveals anticipatory labor market behavior. Third, beyond the first step into activity, we further examine labor market exits and reentries to gain a holistic view of migrant labor market attachment along with changes in family size. Our study significantly contributes to the discussion of immigrant labor market integration, which influences other aspects of social integration pivotal to the success of migrant individuals and the destination of settlement.

### 3 BACKGROUND

#### 1. The German context

Over one quarter of the population of Germany is comprised of individuals with migrant background (Destatis, 2021). Individuals entering Germany can be documented as a citizen of a country in the European Union, an ethnic German (also known as *Aussiedler*), a non-EU immigrant

(sometimes referred to as “third country national”, or TCN), or as a refugee/asylum seeker. The former two groups are endowed with legal pathway toward citizenship and easy if not immediate access to the labor market, whereas the latter two groups enjoy fewer benefits to facilitate integration. Moreover, entry type can promote or reveal the intention of long-term stay, which heavily influences one’s labor market behavior (Damelang & Kosyakova, 2021; Dustmann, 1997). In other words, both the selection of incoming migrants and the pathway layed out for them from policymakers influence their labor market engagement.

Germany has been one of the most important migration destinations in Europe since the 1950s, starting with the arrival of refugees and expellees from Central and Eastern Europe. Immigrants with German heritage are given a clear path toward German citizenship, promoting and motivating individuals’ immediate integration into the labor market. After World War II, West Germany’s rebuilding effort and economic upswing urgently called for bilateral agreements with governments across countries such as Spain, Italy, and Turkey to bring in large numbers of unskilled labor migrants, commonly referred to as “guest workers” (*Gastarbeiter*) to compensate for Germany’s labor shortage in sectors such as construction and industry. Since the mid-1990s, citizens of countries that have since joined the European Union are entitled to free movement and almost immediate access to the German labor market, further diversifying Germany’s demography.

As of 2014, four out of five of all refugee migrants or asylum seekers, most of which men, are found in four EU member States: Germany, the United Kingdom, Sweden and France, with Germany leading the intake in absolute terms (Dumont et al., 2016). A plethora of factors influence their lower likelihood to immediately integrate into the local labor market. Due to the unplanned nature of refugee migration, new arrivals often have poorer language skills compared to economic migrants. Most importantly, legal restrictions pertaining to refugees entail long waiting periods and prohibition from work upon arrival (Salikutluk et al., 2016).

In the refugee crisis of 2015, Germany imposed a three month ban on labor market activities after receiving individuals’ application for protection (Dustmann et al., 2017). Even upon labor market entry, refugee migrants often remain in the low-wage sector, suffer poor job prospects, with uncertainty surrounding employment duration. Asylum seekers from Iraq and Syria have been found to be positively selected on education compared to stayers in their respective countries (Guichard, 2020), though they tend to be less educated than native Germans (Worbs & Baraulina, 2017).

Origin and sex disparity in LFP are often due to both pre-migration endowment and post-migration behavior differences among groups. Compared to women from countries with higher female LFP and higher educational attainment such as former socialist states, women from Turkey on average are less endowed with skills pertaining to employment (Salikutluk et al., 2020). Compared to men, refugee women are often less confident in their German skills, and are less likely to attend integration courses (Brücker et al., 2019; Worbs & Baraulina, 2017). Post migration engagement in the public life can be potentially due to family circumstances that impose time constraints. The notable difference in linguistic proficiency between refugee women with and without children (Brücker et al., 2019) plausibly suggests that the anticipation of taking on a carer role rather than earner role within one’s family affects one’s motivation to accumulate human capital upon arrival

(Duleep, 1998). Although several studies have focused on immigrants' labor market gender disparity by origin, which tend to emphasize the role origin country culture plays (e.g. Guveli & Spierings, 2022; Liamputtong, 2006), or highlight the role of legal pathway to employment (e.g. Dumont et al., 2016; Worbs & Baraulina, 2017), to our knowledge none have attempted to disentangle these effects.

## **2. Household and labor force participation**

Globally, women's labor force participation tend to be more influenced by family obligations than men (Besamusca et al., 2015; L. Cooke, 2014), under what is commonly described as the male-breadwinner or female-carer model (Gottschall & Bird, 2003). The observation of gender separation of the public ("professional") and private ("family care") spheres not only find women (particularly those partnered and with children) in precarious financial situations upon union dissolution or widowhood, men's unemployment also carries deleterious consequences for family stability (Gonalons-Pons & Gangl, 2021). Although this phenomenon is universal across societies to a varying degree of severity (Kowalewska & Vitali, 2021), the mechanism of within-family negotiation of role assignment is often accentuated due to the selection process of immigrants by sex. This complex process is determined by selection mechanism in migration and household-level bargaining, and then lastly cemented or exentuated by parenthood, with significant cross group differences.

Macroeconomic conditions, such as the need for male-dominant construction work or female-dominant domestic service industry, influence the sex selection of the leader and the follower in family migration. However, within the family, human capital theories stipulate that migration as a household level decision, like many other lifestyle choices, are often led by the person who receives higher income in the relationship (Mincer, 1978). Intra-family bargaining under the migration context often demarcates stricter gender role prescription than otherwise since the move is designed to enhance one person's earning or expand their opportunities. Tied migrants are less likely to participate in the labor market compared to lead migrants under Mincer's tied migration theory. In fact, migration as an event has been shown to have a detrimental effect on immigrant women's employment in various institutional contexts (Boyle et al., 2001). Although male tied migrants also have shown disadvantage in the labor market, due to the higher composition of females following males into Germany, the tied migrant phenomenon disproportionately affect women (Krieger, 2020).

The motherhood penalty differential between Western natives and non-Western immigrant women might reflect a higher intensity of cultural expectations of some ethnic minority groups that view motherhood as women's "moral career" in which the wellbeing of children should be prioritized over all other endeavors (Liamputtong, 2006). He and Gerber (2019) further showed that the migration sequence of the couple influences women's level of observance of gender prescription of the sending country. Female lead and single migrants are more likely to work compared to female concurrent or tied migrant, not only due to the disparity in endowment, but also due to intergroup differences in observable measures of traditionalism.

Previous work has shown that the depiction of female migrants with lower LFP as "trailing wives" is less accurate than the reality of them being "trailing mothers" (Cooke, 2001). The impact of

marital status on migrant women tends to be short-lived while the effects of motherhood long-lasting, consistent with the theoretical framework of the motherhood penalty which is widely used in broader contexts (Gangl & Ziefle, 2009). The motherhood penalty points to childbearing and rearing as the primary cause for gender disparity in the workplace (Correll et al., 2007). Although the lowest earning men also suffer from a small but significant “fatherhood penalty” compared to their childless counterparts, higher earning men tend to enjoy a fatherhood premium, under the expectations of a providing father in male breadwinner societies (L. Cooke, 2014; Correll et al., 2007). Such differences in wage have been attributed to both discrimination and gendered economic behaviors (Budig et al., 2012). From a human capital standpoint, women with higher education or stronger labor force market attachment are likely to prefer to work shorter hours and/or at a lower intensity upon parenthood than to discontinue working altogether (Mincer & Polacheck, 1974). Thus, LFP of immigrant woman should be examined by all human capital accumulating activities, such as schooling, language classes, or apprenticeship, as anticipatory for future usage in the labor market, in combination with full- and part-time work. Second, an individual’s movement in and out of the labor market in the destination country is highly telling of labor force attachment, but often neglected in the literature.

Migrant group level differences are likely to be significant in women’s participation in the labor market, regardless of fertility, due to the diversity of attitude toward women’s employment from different regions. Although women’s labor force participation can be a function of economic needs rather than the reflection of a sending country’s egalitarian attitude, conversely, it can be said that gender role attitude is deep-seated in socio-cultural factors such as religious heritage (Haller & Hoellinger, 1994; Kanas & Müller, 2021). Therefore, economic needs might not definitively propel women with children into the labor market. Some level of within-family intergenerational reproduction of female labor force participation also suggests that values pertaining to gender role can be transmitted from parents to children (Vidal et al., 2020), or even from in-law parents to in-law children (Arcarons, 2020). If a host society’s tax policy alleviates the tax burden of a single-earner family versus a higher tax rate for dual earner families such as the case of Germany (Knauth et al., 2021), it is possible that gender ideologies can be even further realized for transnational individuals in the host country compared to non-migrants in the sending country.

Many studies focused on the single step process of entrance into employment after migration (e.g. Khoudja & Fleischmann, 2017; Salikutluk et al., 2016; Samper & Kreyenfeld, 2021) while some others tackled the disparity of work-leaving upon parenthood by migrant background (Vidal-Coso, 2019). To the authors’ knowledge, no study has taken a multi-state event history view to treat the complex picture of parenthood and work for immigrants who entered the destination country under different schemes.

Taken together, a plethora of variables in immigrant’s lives contribute to differential in LFP across groups and gender after migration. Under the German context, we formulate the following hypotheses. First, we expect that immigrant men will enter employment at a higher rate than women (*H1*) due to the nature of Germany’s past guest worker programs which attracted predominantly male laborers. Second, we hypothesize that women’s labor force presence, inclusive of first entrance upon arrival, and subsequent exit and re-entry into the labor market, will



be heavily influenced by their family size compared to men across all groups, due to the pervasiveness of the male breadwinner model (*H2*). Although parity and legal pathway into Germany will likely play a vital role on female labor force participation, we expect group differences to persist even after controlling for legal entry type and family size (*H3*). Those from socialist regimes such as Ex-Yugoslavia and former Soviet Union should have more gender-egalitarian view in market work compared to those from Turkey or West Asia. Moreover, the sex selection mechanism of migration will stipulate that the motivation toward training and job acquisition behavior will vary among women of different groups.

#### 4 DATA

The German Socio-Economic Panel (GSOEP) is a longitudinal survey that began in 1984. GSOEP boasts a large, representative data of over 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 interviews on work and fertility history which captures retrospective and prospective data on individuals since birth, enabling researchers to simultaneously observe changes in one's work and fertility (Samper & Kreyenfeld, 2021).

Most recently, GSOEP incorporated data from a survey of refugees collected in collaboration with the Institute for Employment Research (IAB) and Asylum Research Center at the Federal Office for Migration and Refugees (BAMF-FZ) to facilitate policy and administration related research (Kühne et al., 2019). This enables us to examine the refugee migrant population in Germany, who arrived under circumstances unique to their predecessors.

Since we aim to measure time-to-activity post migration, we use only immigrant individuals in GSOEP who migrated at age 16 or older, excluding those who are German-born or migrated as children, between the ages 16 and 48. Since the majority of immigrants reside in West Germany, we exclude individuals from East Germany, which for many years had distinct policies regarding family and work (Goldstein & Kreyenfeld, 2011). Due to the yearly format of the data, we consider the year of work that coincides with the year of migration to have occurred at an ambiguous location (origin or destination), hence we capture the entrance of study or work with data from the year after migration, consistent with prior work using the same dataset (Samper & Kreyenfeld, 2021). When three events occur in the same year, we assume the order of training, part-time, and full-time work.

We construct educational level of individuals using a variable defined by the International Standard Classification of Education of 1997 and 2011. We further simplified educational groups into low, medium, and high according to the specifications outlined by Eurostat (Eurostat, 2020). Fertility history is captured for both men and women by the year of birth of children up to two children, forming the following categories: no child, one child, two or more children. If a birth takes place in the same year as migration, six months are added the date of birth. The ordered of same year events are thus by design migration, training, part-time work, full-time work, then birth. Preliminary analyses revealed little changes occur in higher order births.

Origin countries are grouped in order to create categories with robust sample size. We categorize immigrant (foreign-born) individuals as being from: Africa, Asia, Ex-Yugoslavia, Former Soviet

Union, Southern Europe, Non-Southern Europe, Turkey, West Asia. The grouping scheme is shown in Appendix A.3.

One of the unique contribution of this study is that we take into account the mode of entry, which can be defined as migration from an EU country, under refugee or asylum seeker scheme, as an Ethnic German, and all other migrants (non-EU migrants), using the response to the survey question, “*To which of the following immigrant categories did you belong to when you first moved to Germany?*” The small number of Germans who lived abroad (1.5% of all valid responses) is collapsed with “persons of German descent.” The distribution of entry type by survey year and origin are shown in Appendix A.4. The question was not asked prior to the formation of the European Union in 1993. Most Africans and West Asians entered as asylum seekers, while those from Non-Southern Europe are a heterogeneous group.

In order to consider pre-migration work history, which broadly encapsulates labor market endowment, we constructed a measure of proportion of years of life in the labor market by dividing the years of work experience before migration by the age at migration. The percentage of years of life working before migration is then broken down into tertiles, defined as low, medium, high level of pre-migration work experience. Preliminary analysis shows that men have more pre-migration work experience than women across all groups, except for “Others”, which is comprised of mainly individuals from Latin America and the United States.

## 5 METHODS

We focus on three different processes: entrance into work or training (hereon “activity”) upon arrival to Germany; exiting the labor market after having obtained a job in Germany; and re-entering work in Germany after exiting the labor market. We treat first entrance into activity as a single event. We then create two other outcomes which could be repeated states: subsequent jobloss and subsequent job reentry. Job loss, or more accurately, exit from the labor market, are observed by voluntary (homemaking) or involuntary (unemployment) episodes of non-market work status in the subsequent year following an employment episode. Job entry is captured by episodes of part- or full-time work in the subsequent year following labor market inactivity. We use an event history design to fully take advantage of the longitudinal measurements of individuals in GSOEP. States and events are nested within individuals in the models and the number of states is controlled.

The study population of the second process, exiting the labor market in Germany, is comprised of all individuals who entered either full-time or part-time work in Germany within the first ten years. The third process, re-entrance to work, is a subsample of the previous process. We account for episodes up to the fourth exit and re-entry. We separate male and female samples due to their highly different propensities in engaging in the labor market. We use Non-Southern Europeans as the reference group for both sexes.

To fully take advantage of the longitudinal nature of the data, we use event history techniques to first estimate the propensity of (“survival” to) entering part-time work, full-time work, or training (including education and apprenticeship). Individuals are first observed at age of arrival in Germany. Those who migrated to Germany before age 16 are excluded. Observations are

censored at ten years after entry, age 48, or exit from the survey, whichever came first. Our analysis consists of fitting a series of competing risks event-history models. The transition-specific hazard function,  $h_k(t)$ , is defined as follows:

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

where  $E$  denotes the transition from out of employment (entry), employment (exit) or out of employment (re-entry) with  $k$  as the number of different transitions (e.g. part-time work, full-time work, or training for the entry after arrival) and  $T$  represents time since arrival in Germany. We define a proportional hazards regression model:

$$\ln h_k(t) = \ln h_0(t) + \sum_l \beta_l x_l(t) + \delta w(t) + \gamma_k z, \quad (2)$$

where  $h_k(t)$  denotes an individual's hazard of entry or exit and  $h_0(t)$  is the baseline hazard at duration  $t$ ; which we define as piecewise constant and is common to all transitions;  $x(t)$  is a variable measuring individual demographic and socioeconomic characteristics (e.g. age at migration, education) and  $\beta$  is the parameter estimate for this variable, with  $l$  variables;  $\delta$  measures the effect of  $w(t)$ , the individual's parity;  $\gamma_k$  represents the effect of variable  $z$  (migrant status) on transition  $k$ . The advantage of such a competing-risks model over a conventional model is that all transition rates by migrant status can be easily compared as they have a common reference point. Such a model is estimated using an extended data-set where all records of an individual are combined (Putter et al. 2007). We use competing-risks models to study the first entry to labour market, whereas models for exit and re-entry are fitted with one outcome only.

### *Modelling strategy*

First, we take a non-parametric approach by estimating the likelihood of entering work (full-time or part-time) or training by sex, migrant origin, and the number of children under 5 years old at the time of migration (time-constant) using Kaplan-Meier estimators. Next, we show the three types of activities as competing events by plotting cumulative incidence function by sex and parity.

We fit piecewise constant hazards exponential models separately for men and women (as specified in equation 2) to compare the hazard of participating in part-time, full-time work or training using Non-Southern Europeans as the baseline group to facilitate cross-group comparisons. We control for legal status using a binary variable constructed with type of entry ("European Union migrants" and "Ethnic Germans" are coded as having a legal pathway toward citizenship, and "Non-EU migrants", "Refugees", and "Unknown" otherwise). We then interact origin with parity. Lastly, we examine both exiting the labor force for those who have entered (part- or full-time), and re-entering the labor force among those who have exited, in the final models. In all models we control for the following variables: age at migration (16-24, 25-34, 35+); migration cohort (1950-59, 1960-69, 1970-79, 1980-89, 1990+); pre-migration work experience (low, medium, high); education (low, medium, high).

All analyses are performed in R version 4.1.2 using survival (Therneau et al., 2022), cmprsk (Gray, 2022), and eha (Broström & Jin, 2021) packages.

## 6 RESULTS

Our sample description is shown in Table 1. Exposure risk time is expressed in months. Overall, men and EU Europeans have a higher rate of working full time. Women are less likely to work full time or enter training than men. Refugees and Ethnic Germans are more likely to enter training than all other groups.

Figure 1 presents the survival curves of entering into activities such as work (full-time or part-time) or training by sex, migrant origin, and the number of children under 5 years old by the time since migration. Individuals are censored at year ten after arrival. Overall, men are more likely to quickly enter training or employment upon arrival than women. We identify a gendered pattern by parity (measured at the time of migration). Women with no small children at the time of arrival are most likely to enter work or study, with those with two or more small children least likely. Men's participation is far less differentiated by their number of small children at the time of migration. Our further analysis by origin shows that both women of Turkish and Western Asian background are significantly less likely to enter training or work regardless of number of children. Western Asian men, most of whom are refugees from Afghanistan, Iraq, and Syria, are the least likely among all men in the study to enter any activity (see Appendix A1).

Figure 2 shows the cumulative incidence curves of the competing risks of entrance into training, part-time, or full-time work by sex and parity. Women without young children at the time of arrival are equally likely to engage in full-time work or training. Those with young children, on the other hand, experience a lower risk for full-time work, to a level on par with part-time work. The risk of work, especially part-time, rises with time, as children presumably require less intensive care. In contrast, men are significantly more likely to enter full-time work overall and are little affected by their number of small children. Those without children or with one child are similarly likely to enter full-time work, while those with two or more young children have a slightly lower risk of full-time work compared to their non-parental male counterparts. However, regardless of the number of young children, men's likelihood of entering full-time work is significantly higher compared to women.

Figure 3 shows the coefficients of piecewise constant hazard models (by point) with confidence intervals (by line), of the competing risks of entering training, part-time, or full-time work, by sex and parity. Male and female samples are analyzed separately, with the hazard of those without children working full-time as the reference group for the respective sexes. Parity is time-varying in all regression models. Other covariates such as pre-migration work experience, entry type, migrant origin, age at migration, migrant cohort have also been included in the models (results not shown). Propensities of engaging in part-time work and training are compared to that of full-time work.

Among those with no children, men and women are both more likely to work full-time than part-time (although their baseline risks of full-time work differ substantially as shown in the previous steps). However, once there is one child in the household, a significant gap emerges between immigrant men and women's propensity to work full-time versus part-time. Women's hazard of working full-time drops to a lower level compared to part-time work if they have any child at all. Having more children additionally decreases women's propensity to work. Men's hazard for full-

time work drops modestly per child, but to a far lesser extent than their female counterparts, for whom having one child alone significantly changes their labor market participation.

In Figure 4, we further disaggregate the effect of parity (here simplified as 0 to 1+) by origin. The hazards of full-time work for Non-Southern Europeans with no children serve as the baseline hazard for both sexes respectively. Among non-mothers, the hazard of full-time work is similar for Europeans, followed by individuals from Ex-Yugoslavia and Former Soviet Union. Although Southern European women are more likely than other groups of women to engage in the labor market, their propensity for working full-time is influenced by parenthood far more than other groups. Women from Turkey, Asia, Africa, and West Asia are the least likely to enter the labor market with or without children. For men, Europeans are most likely to work full-time followed by those from Turkey. Their entrance into work post-migration is generally less affected by the presence of children compared to women. Only those from Ex-Yugoslavia, Asia, and Turkey show some differences in their propensity to work full-time, while all other groups do not reflect the importance of parenthood status on full-time employment. The coefficients shown in Figure 4 already take into the account of different types of legal entry for immigrants, thus highlighting disparity in the rate of labor market entrance post-migration by origin.

Lastly, we examine the likelihood of leaving employment after employment in Germany, and re-entrance into the labor market after leaving employment. We allow repeated events in these steps, and consider clustering of observations/states within individuals. Due to sample size constraints, we are unable to disaggregate these steps by both origin and parity. Coefficients for men and women are once again calculated separately and all relevant covariates including region of origin are adjusted for. Figure 5 shows that compared to the reference risk of women without children, women with children are significantly more likely to exit the labor market. Among those who leave the labor market, those with children are similarly likely to return (“regain job”) compared to those without. Men’s exit from the labor market is little influenced, while their risk of return to work upon exit is slightly elevated, by their parous status.

Next, we show differences among immigrant groups with parity and other relevant covariates adjusted in the models, separately for men and women in Figure 6. Those from Europe (“OEU”, “SEU”), Ex-Yugoslavia (“EXY”), and Former Soviet Union (“FSU”) are less likely to leave their job and more likely to regain a job than all other groups. Compared to women, job leaving disparity is clearer among men, with non-European men suffering higher risks of exit from the labor market. West Asian men in particular show the highest rate of job-leaving, followed by Africans. Women’s risk of job leaving are less differentiated by origin group compared to their risk of job regaining. West Asian, African, and Turkish women are the least likely to reintegrate into the labor market upon exit. Since we have controlled for legal status to work in the models, we interpret the finding as constraints or behavior outside of right-to-work legal limitations.

We thus observe that immigrant women’s labor market engagement is more affected by parenthood than their male counterparts. This includes lower probabilities of entering the labor market after migration and substantially higher risks of exiting the labor market. This is true for all immigrant groups, but for those of particularly higher participation, such as European women, the effects of parenthood is even clearer. Among men, despite being comparatively less affected

by their parous status, the labor market disadvantage is observable for Turkish and Asian men. These findings are consistent with prior studies that found that fatherhood does not necessarily impede career progress for the more advantaged groups, but can worsen the prospects for those in the less advantaged groups (L. Cooke, 2014).

## 7 DISCUSSION

Public debates surrounding immigration have intensified in countries that received large numbers of immigrants under humanitarian circumstances in the recent years including Germany. Factors such as legal pathway to work, transferability of qualifications, and access to public funded programs such as childcare heavily influence that process. Our study is the first to investigate the labor market integration of male and female immigrants by country of origin and parity from a longitudinal perspective while adjusting both for migrant selectivity and the type of entry.

We contributed to the existing literature in several ways. First, we consider a wide range of activities such as training, part-time and full-time work as competing for those who enter Germany. Second, we pin down differences among origin group by controlling for legal entry type, namely EU, non-EU, Ethnic German, and refugee schemes. Third, we consider the multi-state processes of labor market engagement, which takes into account first entry into employment after arrival in Germany, subsequent exit from employment, and subsequent re-entry into the labor market. Lastly, we incorporate the measurement of pre-migration work experience, rarely considered in previous studies on immigrant labor market engagement.

We expected that immigrant women, despite being a heterogeneous group, would have significantly lower labor force participation and attachment upon parenthood compared to their male counterparts due to the pervasiveness of the male breadwinner model (H1). Our analysis supported that immigrant women were less likely to enter to labour market than men independent of whether they had children or not, but upon parenthood, the gap is further widened. Second, we expected a heavier parenthood (in effect, motherhood) labor market disadvantage for women than for men (H2). We showed that first, women who arrived in Germany with young children were less likely than their childless counterparts to work full-time, whereas men were similarly likely to engage in full-time work regardless of parenthood status, although immigrant women as a group overall never exceeded the employment rate of their male counterparts. Women's probability of engaging in full-time work is negatively correlated with the presence of children, but their probability of part-time work is little-affected. This is consistent with prior research that found evidence of the prevalence of the "one and a half earner" model among couples (Vidal-Coso, 2019) where women's employment is seen as supplementary rather than essential within the household.

Although we were unable to include in models the partnership status of immigrants (partnership histories are missing for refugee migrants), prior studies indicate that since single-parent families are rare among the immigrant groups in question, and marriage or stable partnership also reliably predict childbearing, the presence of children serves as an acceptable proxy for union status. For partnered women, other social influences, such as that exerted by her in-laws (Arcarons, 2020) may also impact the decision to participate in the labor market. We observe relatively small changes to men's labor market status.

We expected that the group differences remain when legal entry type and qualifications are controlled for (H3). We observe substantial heterogeneity among groups. Childless European women are similarly likely to work full-time as childless European men, but women from Turkey or West Asia do not share similar labor market patterns with men from the same countries regardless of parous status. This is true even after controlling for all other relevant socio-demographic characteristics, further confirming prior research on the gender gap of refugee labor market integration, and as an extension, overall integration in Germany.

We believe that some of the gender gap might be explained by the values of individual sending countries pertaining to female labor force participation and gender division of work. First, in the case of Turkish immigrants, the selection of labor migrants from rural areas of Anatolia (Baykara-Krumme & Milewski, 2017; Ersanilli & Koopmans, 2010) might indicate more conservative views on gender roles. Second, Turkish immigrant women are more likely than some other groups to be tied movers in Germany (Krieger, 2020). In the view of tied migration theory (Mincer, 1978), one person within a couple is more likely to gain from the migration, and traditional gender roles are likely to reproduce in the migration process (Bielby & Bielby, 1992), with women less likely to initiate migration, nor prevent it from happening even at the cost of her own economic opportunities. The cultural norm explanation may also apply to West Asian migrants. In contrast, the tied mover hypothesis does not explain their lower institutional engagement upon arrival since most of them in the sample entered as refugee migrants.

We showed that both EU and ethnic German immigrants, consistent with patterns expected from economic or labor migrants, rapidly enter employment upon arrival compared to non-EU and refugee immigrants. In line with findings on refugee migrants in Germany (Salikutluk et al., 2016), we found that refugee migrants are more likely to immediately enter training than work. These differences are reflective of diverse structural opportunities offered to those who arrived as labor migrants and/or from EU countries versus those who migrated for humanitarian reasons and/or outside of the European Union.

In line with previous studies (Brücker et al., 2019; Worbs & Baraulina, 2017), we find that mothers are less likely to enter training or integration courses upon arrival compared to their non-mother and male counterparts. This is likely due to childcare related time-constraint, but decisions to invest in one person's human capital over another's will likely foreshadow the gender division of care work or paid work among couples. Refugee women's lower likelihood to participate in state-sponsored training will likely have a negative impact on their transition into the labor market in the future.

This study does not distinguish among tied, lead, and equal movers, but our findings reveal a clear gender divide between the propensity to enter any activity, may it be training or work, upon arriving in a new country. Women of European, ethnic German and Ex-Yugoslavian background are more likely than women in all other groups to work full-time, even accounting for the number of children and legal status. Our findings suggest that cultural background likely exerts some influence in determining the division of within-household and market work among immigrant families, as shown in previous studies (Kanas & Müller, 2021; Khoudja & Fleischmann, 2017). Gender culture continues to exert strong influences over the economic characteristics of men and

women across societies with little signs of abating (Gonalons-Pons & Gangl, 2021). In this regard, the imbalance between male and female labor force attachment in question here is a comparison of magnitude, as we have shown, not a matter of equality among European couples versus inequality among non-European couples.

It is essential to note that women's invisibility in the labor market does not equate to non-participation (Kofman, 1999). Immigrant women often work informally for family members in small businesses where no real contract exists (Hillman, 1999). The informality of employment often complements family responsibilities but carries the downside of instability and the lack of social protection and later state pension.

Future work should actively test the influence of cultural effects using designs such as incorporating exogamous unions. The story of labor market integration in Germany can also benefit from analyses focused on job quality and skill-match (De Jong & Madamba, 2001) by gender, entrance type, and parity, which are beyond the scope of this study. Most quantitative work focus on the presence of individuals in the formal market due to data availability. We highlight the different labor market pathways of immigrant men and women by parity, origin, legal entrance type, and migration cohort, to shed light on the unique attributes regarding the presence of children and labor market attachment among the foreign-born population in Germany.



## 8 TABLES AND FIGURES

Table 1. Sample description by sex and migration type.

Sex	First entry to full-time work			First entry to part-time work		First entry to training		Job to exit			Exit to re-entry		
	Exposure	Events	Rate	Events	Rate	Events	Rate	Exposure	Events	Rate	Exposure	Events	Rate
Female	282262	1632	0.006	1463	0.005	1380	0.005	333680	3146	0.009	118270	2460	0.021
Male	121816	3477	0.029	737	0.006	1759	0.014	412523	2075	0.005	66101	1689	0.026
Type of entry													
EU	19653	760	0.039	279	0.014	127	0.006	76500	645	0.008	17943	447	0.025
Ethnic German	35575	719	0.020	246	0.007	494	0.014	150779	1080	0.007	38715	956	0.025
Non-EU	97784	1302	0.013	710	0.007	650	0.007	231091	1573	0.007	58983	1225	0.021
Refugee	185771	1075	0.006	750	0.004	1726	0.009	96916	872	0.009	23653	465	0.020
Unknown	65295	1253	0.019	215	0.003	142	0.002	190917	1051	0.006	45077	1056	0.023
Region of origin													
Africa	26643	260	0.010	131	0.005	269	0.010	28963	242	0.008	8320	148	0.018
Asia	15169	127	0.008	102	0.007	92	0.006	20854	138	0.007	4785	103	0.022
Ex-Yugoslavia	16318	347	0.021	105	0.006	51	0.003	54989	274	0.005	10339	272	0.026
Former Soviet	42066	669	0.016	324	0.008	575	0.014	146094	1090	0.007	39805	908	0.023
Southern													
Europe	24564	803	0.033	171	0.007	93	0.004	113734	595	0.005	23935	566	0.024
Elsewhere													
Europe	62423	1460	0.023	553	0.009	381	0.006	210849	1519	0.007	51124	1241	0.024
Turkey	67279	612	0.009	221	0.003	117	0.002	99623	666	0.007	27861	581	0.021
Western Asia	144165	732	0.005	535	0.004	1495	0.010	53207	556	0.010	12850	222	0.017
Other	5451	99	0.018	58	0.011	66	0.012	17890	141	0.008	5352	108	0.020
Migration cohort													
50-60s	8286	384	0.046	27	0.003	16	0.002	58710	216	0.004	13802	258	0.019
70-80s	75851	1167	0.015	267	0.004	264	0.003	199743	1227	0.006	49020	1169	0.024
90-00s	151089	2007	0.013	996	0.007	972	0.006	385439	2693	0.007	98432	2278	0.023
2010+	168852	1551	0.009	910	0.005	1887	0.011	102311	1085	0.011	23117	444	0.019
Age at migration													
16-24	174980	2085	0.012	843	0.005	1823	0.010	379932	2634	0.007	102302	2294	0.022
25-34	163515	2278	0.014	941	0.006	851	0.005	299593	2057	0.007	70136	1572	0.022
35-50	65583	746	0.011	416	0.006	465	0.007	66678	530	0.008	11933	283	0.024
Pre-migration work experience													
None	208179	971	0.005	659	0.003	1616	0.008	216809	1613	0.007	60467	1331	0.022
Low	72320	1322	0.018	562	0.008	606	0.008	201902	1437	0.007	53228	1176	0.022

Medium	62854	1532	0.024	520	0.008	434	0.007	199368	1293	0.006	46767	1064	0.023
High	60725	1284	0.021	459	0.008	483	0.008	128124	878	0.007	23909	578	0.024
Parity													
No children	207170	4663	0.023	1426	0.007	2953	0.014	298832	1425	0.005	43095	898	0.021
1 child	31410	112	0.004	156	0.005	57	0.002	156896	1281	0.008	42632	951	0.022
2+ children	165498	334	0.002	618	0.004	129	0.001	290475	2515	0.009	98644	2300	0.023
Education													
Low	310256	3927	0.013	1576	0.005	2152	0.007	490669	3060	0.006	109311	2150	0.020
Medium	75120	1128	0.015	520	0.007	942	0.013	190302	1352	0.007	50975	1284	0.025
High	18702	54	0.003	104	0.006	45	0.002	65232	809	0.012	24085	715	0.030

Note: Exposure time in person-months

Figure 1. Survival function of entrance into any activity (training, part-time, or full-time work) by sex and number of young children (<=5 years old) at the time of arrival in Germany

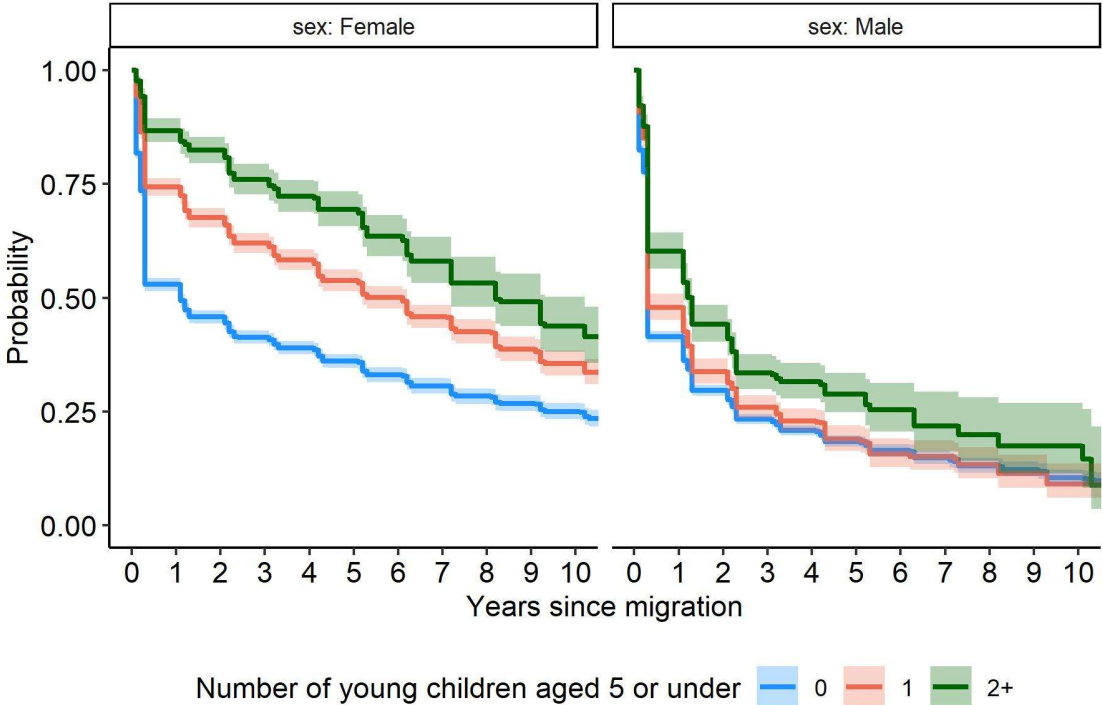
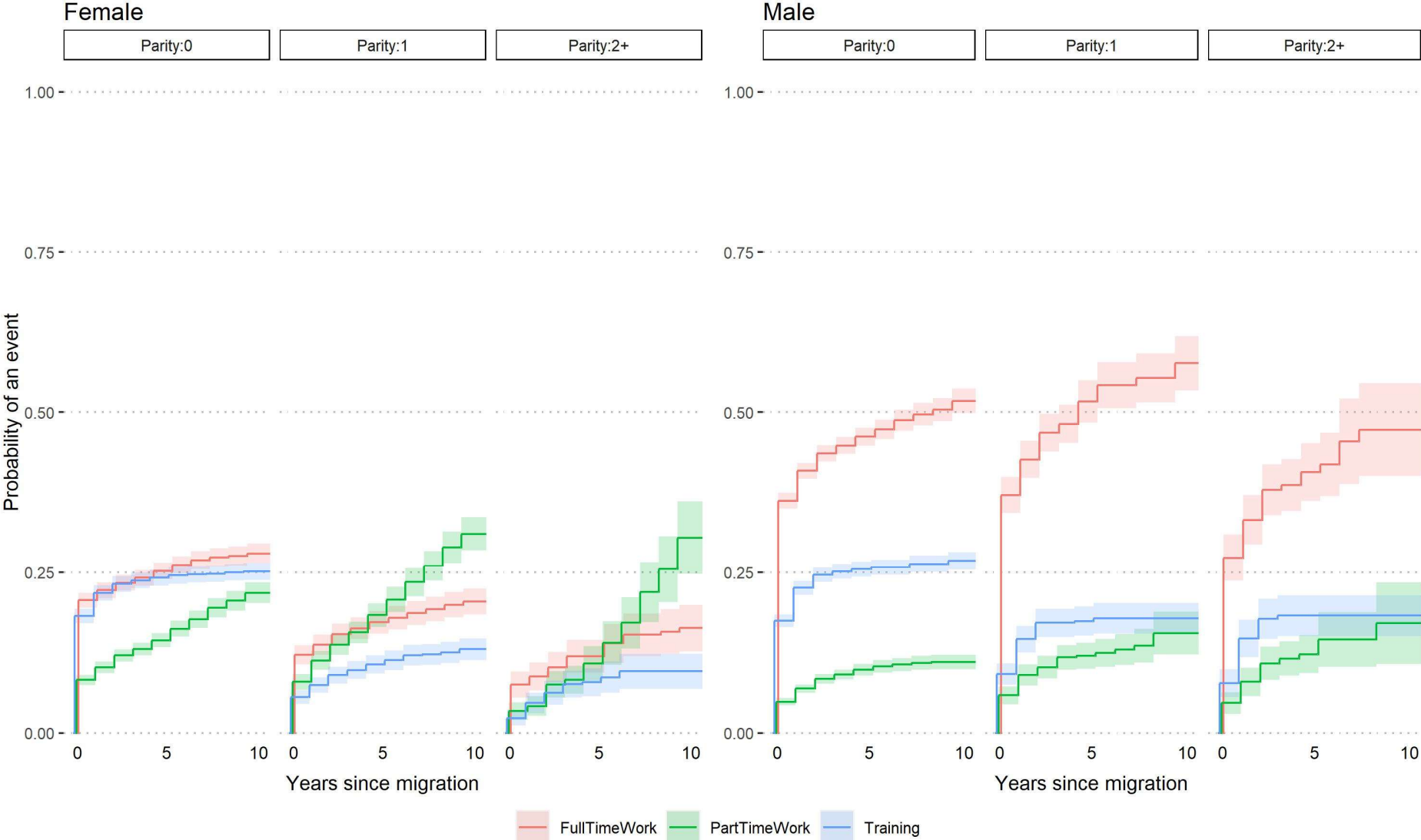
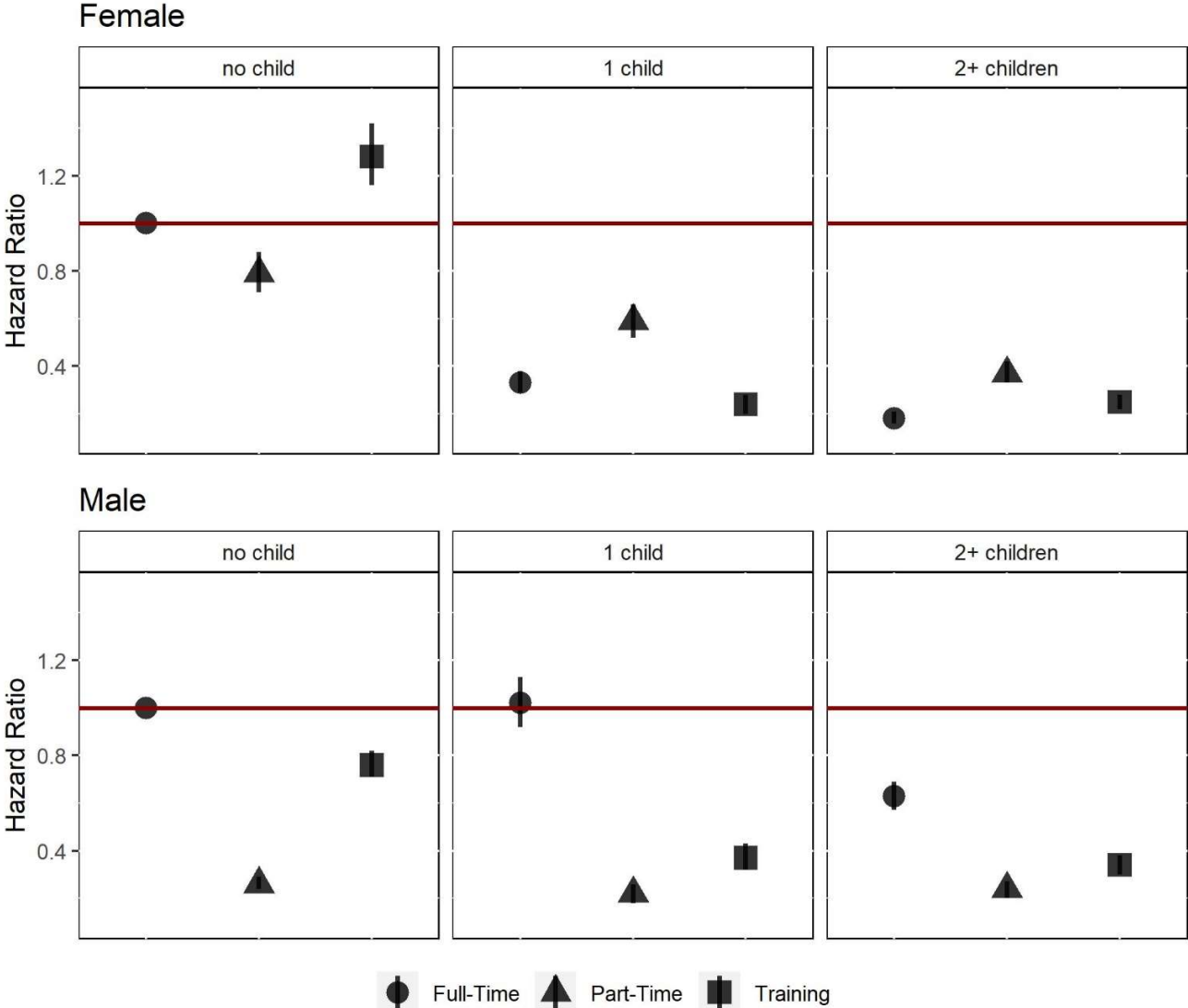


Figure 2. Cumulative incidence of entrance into full-time work, part-time work, and training, by sex and parity.



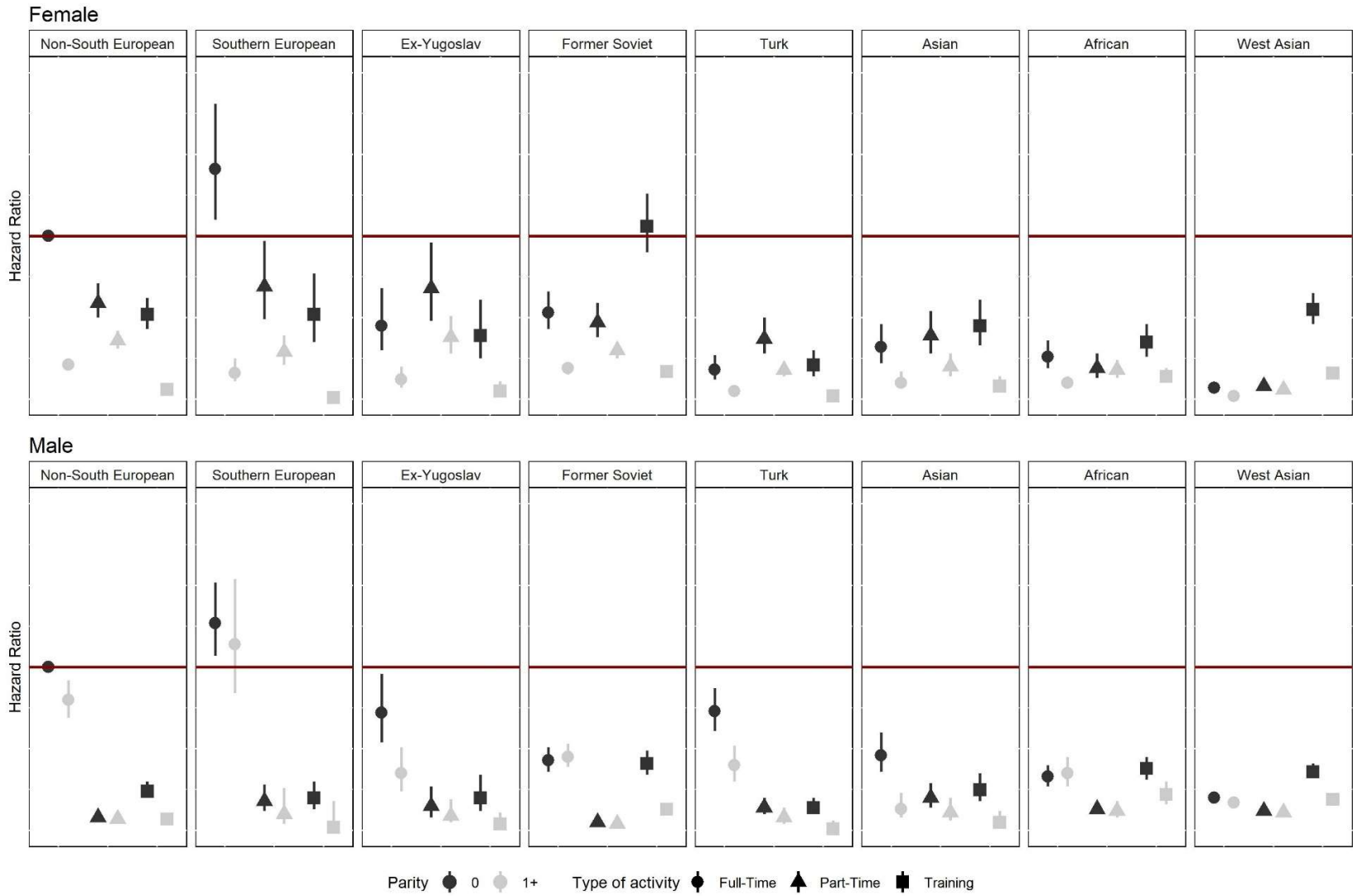
Note: Parity defined as number of children aged 5 or under at the time of entrance

Figure 3. Hazard ratio of competing risks of entering training, part-time work, and full-time work, by parity, sex, with individuals with no child as the reference group.



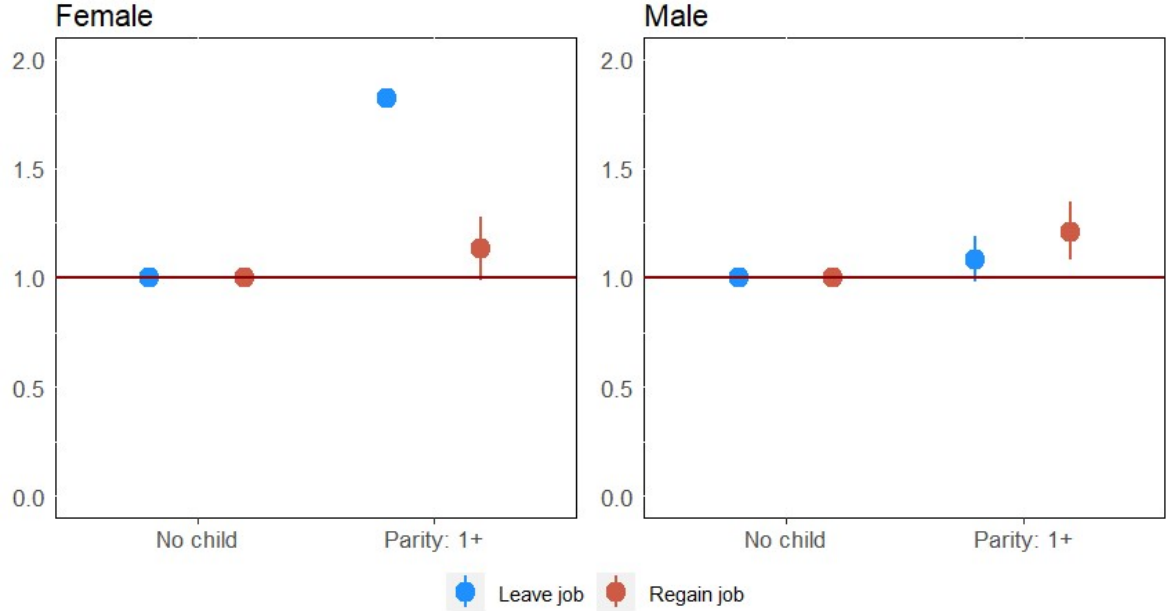
Note: Adjusted for origin, legal status, education level, pre-migration work experience, migration cohort, and age at migration.

Figure 4. Hazard ratio of competing risks of entering training, part-time work, and full-time work by sex, with Non-Southern Europeans with no children ('parity 0') as the reference group.



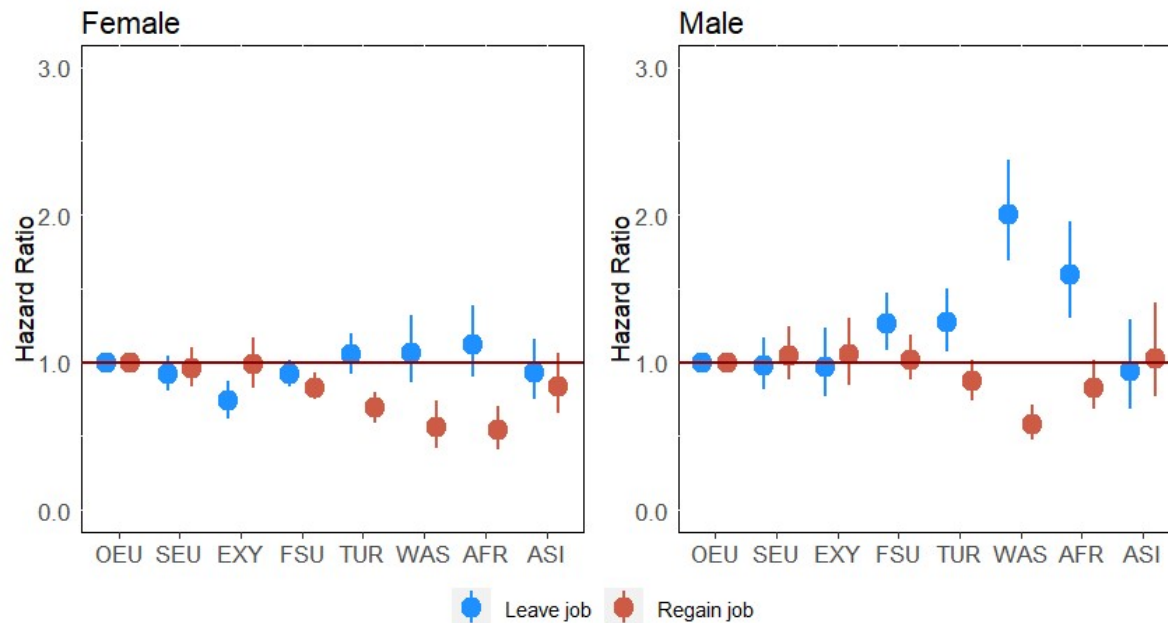
Note: Adjusted for parity, legal status, education level, pre-migration work experience, migration cohort, and age at migration.

Figure 5. Hazard ratio of leaving job and regaining job, by sex and parity, with no child as the reference group



Note: Adjusted for origin, legal status, education level, pre-migration work experience, migration cohort, and age at migration.

Figure 6. Hazard ratio of leaving job and regaining job, by sex and origin, with Non-Southern Europeans (OEU) as the reference group



Note: Adjusted for parity, legal status, education level, pre-migration work experience, migration cohort, and age at migration; OEU=non-Southern Europe, SEU=Southern Europe, EXY=Ex-Yugoslavia, FSU=Former Soviet Union, TUR=Turkey, WAS=West Asia, AFR=Africa, ASI=non-West Asia



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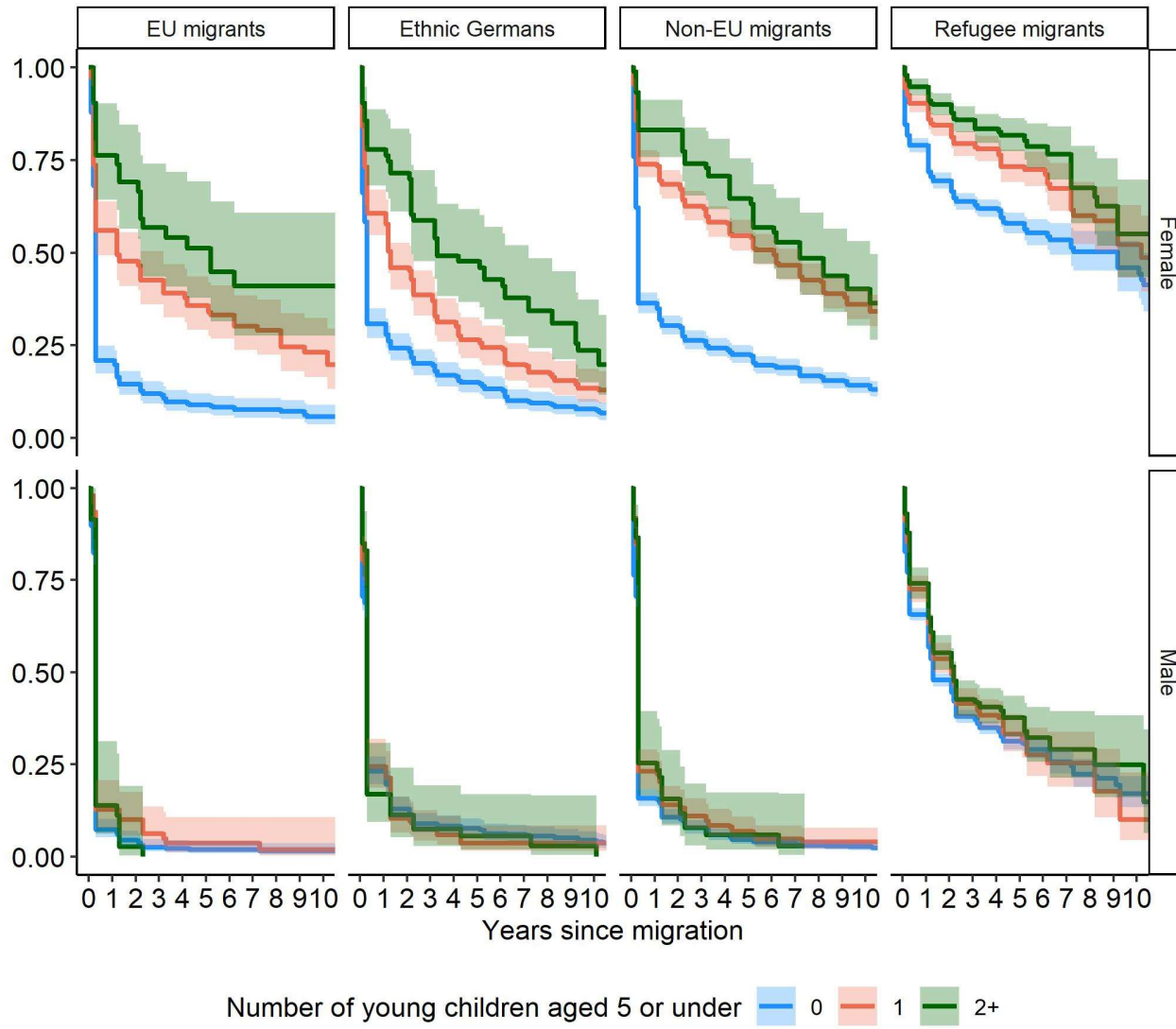
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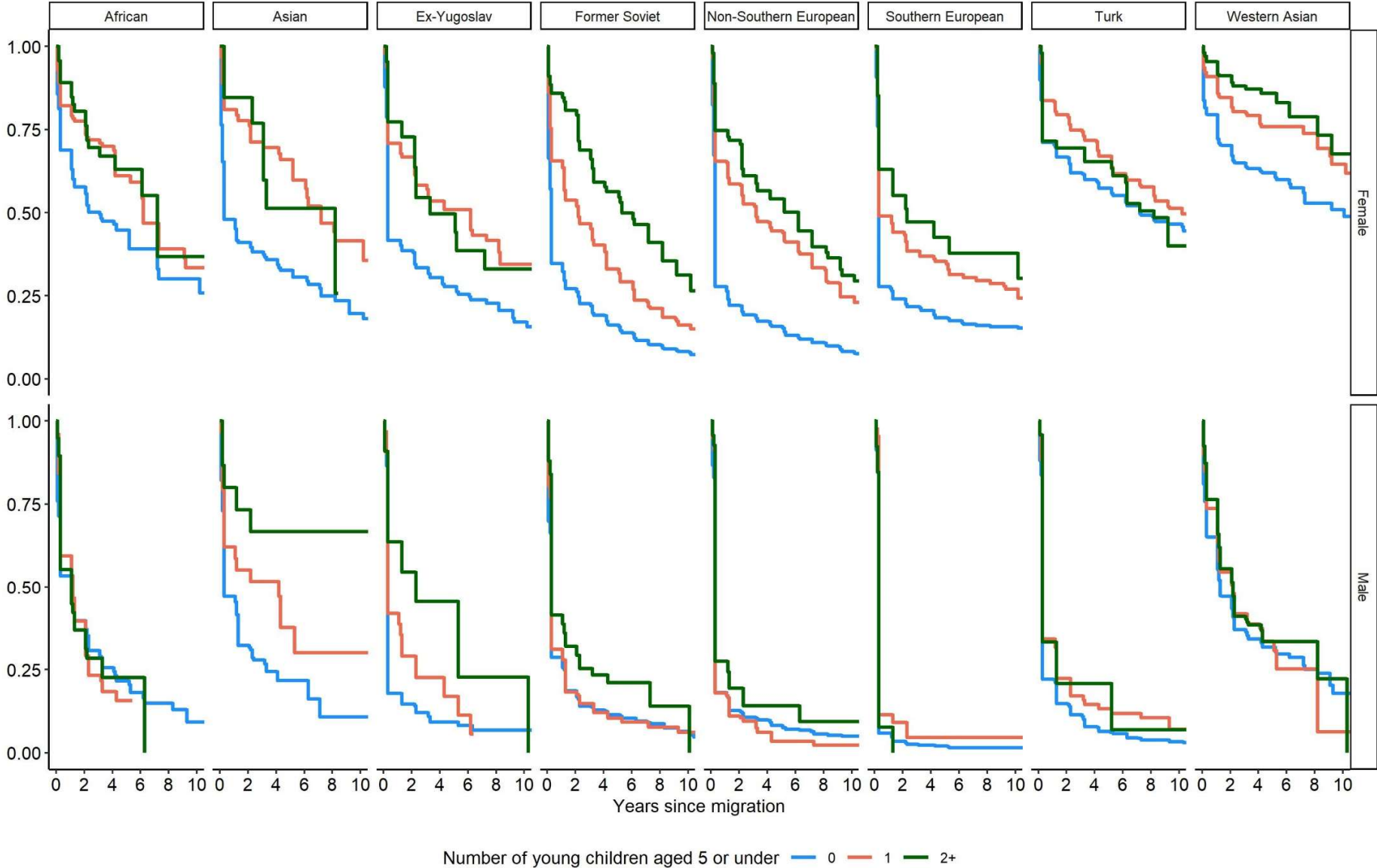
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**A.1 Survival function of entrance into activity (training, part-time, or full-time work) by migrant entrance type, sex, and parity.**





A.2 Survival function of entrance into activity (training, part-time, or full-time work) by migrant origin, sex, and parity.



### A.3 Origin grouping scheme

New grouping	Country of origin ('origin') with label			
	[37] Benin	[23] Korea	[10] Austria	[18] USA
	[47] Ethiopia	[25] Indonesia	[11] France	[20] Chile
	[49] Ghana	[38] Philippines	[12] Benelux	[27] Bolivia
	[52] Tunisia	[40] Japan	[13] Denmark	[34] Mexico
	[53] Mauritius	[42] India	[14] Great Britain	[35] Argentina
	[54] Nigeria	[44] Thailand	[15] Sweden	[41] Australia
	[57] Tanzania	[50] Bangladesh	[16] Norway	[45] Jamaica
	[67] Morocco	[63] Hong Kong	[17] Finland	[48] Columbia
	[79] Algeria	[65] Sri Lanka	[19] Switzerland	[51] Venezuela
	[80] Mozambique	[66] Nepal	[21] Romania	[55] Canada
	[81] Egypt	[68] China	[22] Poland	[56] New Zealand
	[84] Somalia	[83] Vietnam	[26] Hungary	[59] Cuba
	[86] South Africa	[85] Pakistan	[29] Bulgaria	[61] Brazil
	[89] Eritrea	[100] Laos	[31] Czech Republic	[64] Peru
	[90] Jordan	[128] Malaysia	[71] Ireland	[88] El Salvador
	[94] Burkina Faso	[145] Mongolia	[75] Albania	[92] Costa Rica
	[95] Zambia	[154] Taiwan	[116] Luxembourg	[96] Ecuador
	[102] Angola	[169] Cambodia	[117] Belgium	[98] No Nationality
	[105] Namibia	[181] Myanmar	[118] The Netherlands	[108] Dominican Republic
Africa	[110] Kenya	[3] Ex-Yugoslavia	[119] Croatia	[109] Nicaragua
	[111] Libya	[120] Bosnia-Herzegovina	[121] Macedonia	[114] Haiti
	[113] Botswana	[165] Serbia	[122] Slovenia	[124] Paraguay
	[125] Guinea	[168] Montenegro	[123] Slovakia	[129] Samoa
	[127] Ivory Coast	[32] Russia	[140] Kosovo-Albania	[133] Uruguay
	[135] Uganda	[73] Moldavia	[196] Kosovo	[167] Honduras
	[138] Mali	[74] Kazakhstan	[222] Eastern Europe	
	[139] Cameroon	[77] Kyrgyzstan	[4] Greece	
	[142] Sudan	[78] Ukraine	[5] Italy	
	[143] Congo	[82] Tajikistan	[6] Spain	
	[144] Togo	[97] Uzbekistan	[28] Portugal	
	[147] Chad	[101] Estonia	[2] Turkey	
	[151] Yemen	[103] Latvia	[24] Iran	
	[156] Africa	[130] Azerbaijan	[30] Syria	
	[158] Sierra Leone (West Africa)	[132] Belarus	[39] Israel	
	[162] Senegal	[141] Georgia	[43] Afghanistan	
	[166] Gambia	[146] Lithuania	[46] Saudi Arabia	
	[173] Zimbabwe	[148] Armenia	[60] Iraq	
	[174] Madagascar	[155] Turkmenistan	[76] Lebanon	
	[178] Rwanda		[87] UAE	
	[183] Niger		[126] Kuwait	
			[149] Kurdistan	
			[152] Palestine	

#### A.4 Entrance type by survey year and origin group

Survey year	Ethnic				
	EU	German	Non-EU	Refugees	Unknown
1985	0	0	0	0	156
1986	0	0	0	0	124
1987	0	0	0	0	64
1988	0	0	0	0	83
1989	0	1	0	0	160
1990	0	1	0	0	85
1991	0	4	0	0	86
1992	0	4	0	0	76
1993	0	2	0	0	99
1994	0	4	0	0	87
1995	1	16	0	1	90
1996	5	34	11	7	87
1997	11	20	13	7	83
1998	6	31	19	12	95
1999	4	46	11	8	55
2000	7	38	17	8	49
2001	5	46	20	10	33
2002	9	49	35	7	35
2003	20	50	32	9	27
2004	9	32	19	7	22
2005	5	38	17	3	25
2006	8	51	37	8	26
2007	8	42	16	9	18
2008	7	28	22	10	15
2009	7	38	29	5	18
2010	31	63	78	21	15
2011	20	73	69	32	21
2012	22	71	73	29	14
2013	22	80	139	41	8
2014	24	92	299	62	11
2015	39	90	298	45	13
2016	123	75	326	140	26
2017	198	63	285	628	95
2018	111	58	209	842	79
2019	580	290	984	5003	501
Origin					
Africa	16	8	262	710	30
Asia	2	1	258	187	11
Ex-Yugoslavia	14	4	129	172	308
Former Soviet Union	50	1023	465	237	33

Non-Southern Europe	882	483	902	302	204
Southern Europe	273	3	228	3	663
Turkey	16	3	486	85	629
West Asia	3	2	134	5253	580
Other	26	3	194	5	23

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