

**Short Abstract (250 words)**

This study explores immigrants' timing and level of participation in education and the labor market upon arrival in Germany by origin, gender and parity. Using retrospective and prospective biography from the German Socio-Economic Panel (GSOEP), we examine the timing and level of participation in education and the labor market after migration. We control for the legal pathway (EU and ethnic German migrants versus non-EU and refugee migrants) by which migrants enter Germany, in addition to their origin country. We take education and pre-migration work history into account. Kaplan-Meier estimations and piecewise constant hazards models reveal that immigrant women are more likely to work part-time than full-time compared to men, and substantial heterogeneity exist among different migration backgrounds, regardless of legal pathway and parity. Having children strongly influence women's propensity to enter the labor market but not men's. Refugees are the least likely to promptly integrate into the labor market, particularly women with children. However, even when parity and migration backgrounds are controlled for, migrant individuals' pathways differ substantially. Larger heterogeneity exists among immigrant men's movement in and out of the labor market, but not women's, pointing to the possibility that working immigrant women are already a group of highly selected individuals. Our work contributes to the understanding the complexity behind family and work for immigrants in a Western European context, particularly shedding light on refugee migrants.

## Extended Abstract

Population aging in Germany have 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, providing language and integration classes, and devising policies designed to facilitate speedy integration into the labor market for immigrants, all of which require substantial planning and resource investment from governing bodies. In addition, labor migration in Germany has historically been predominately male led, with females migrating as accompanying family members, resulting in gender parity in market work.

The speed and degree of immigrants' labor market immersion in the receiving country often hinge on several factors, such as legal limitations surrounding one's type of migration (Münz, 2007) and family situation (Afonso, 2019; Samper & Kreyenfeld, 2021). The type of migration by which one enters the country dictates the level of difficulty in getting one's foot into the labor market door. In the case of Germany, immigrants from other European Union (EU) countries, such as those from Spain or Italy, are legally permitted to immediately engage in the labor market, whereas individuals of refugee migration, such as those who arrived from Syria during the refugee crisis in 2015, are not. Family circumstances, particularly the presence of young children, often influence women's engagement in the labor market. In combination, those who migrate under conditions which hinders one's labor force participation and those with having young dependents may be exposed to a longer spell of economic insecurity if they are ineligible for other forms of financial assistance in the destination society.

To address the linkage between family and work for immigrants, this study uses the German-Socioeconomic Panel (GSOEP v36) to investigate immigrants' probability of entering work or study upon arrival by sex, migration type (those from the European Union, non-EU origin, ethnic Germans also known as *Aussiedlers*, and refugee migrants), the number of children born to the individual.

## Data and Methods

The German Socio-Economic Panel (GSOEP) is a longitudinal survey designed to facilitate social science research 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 individual since birth, enabling researchers to simultaneously observe changes in one's work and fertility (Samper & Kreyenfeld, 2021).

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 in who are German-born or migrated as children. 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 yearly format of the data, we consider the year of work that coincides with 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.

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 three children.

To fully take advantage of the panel structure of the data, we use event history techniques to first estimate the probability of (“survival” to) entering part-time work, full-time work, or training (including education and apprenticeship). We observe individuals from entry into Germany until age 50 or exit from the survey, whichever came first. First, we explore the probability of entering work or training by sex, migration type, and the number of children under 5 years old at the time of migration (time-constant) using Kaplan-Meier estimations. Next, we show training, part-time work, and full-time work as competing events by plotting cumulative incidence function. Lastly, we treat education and parity as time-varying in piecewise constant hazards exponential models separately for men and women to compare the hazard of participating in part-time, full-time work or training compared to EU immigrants.

## Preliminary results

Table 1. Sample description by sex and migration type.

		Full-time			Part-time			Training		
		Person month	Events	Failure rate	Person month	Events	Failure rate	Person month	Events	Failure rate
Sex	Female	271531	2021	0.007	305969	1464	0.005	298206	1487	0.005
	Male	181373	4296	0.024	329418	1174	0.004	289696	1998	0.007
Type of entrance	EU	26290	909	0.035	54327	385	0.007	61083	203	0.003
	Ethnic German	45514	982	0.022	78760	301	0.004	61808	531	0.009
	Non-EU	140834	2910	0.021	245806	930	0.004	239579	873	0.004
	Refugee	240266	1516	0.006	256494	1022	0.004	225432	1878	0.008
Origin	AFR	34162	346	0.010	41285	169	0.004	35582	292	0.008
	ASI	16086	182	0.011	18873	110	0.006	18714	98	0.005
	EUR	89044	2602	0.029	182968	844	0.005	188604	591	0.003
	EXY	15045	374	0.025	30143	92	0.003	31003	52	0.002
	FSU	59552	947	0.016	85526	421	0.005	69217	627	0.009
	OTH	7389	141	0.019	10599	71	0.007	9790	76	0.008
	WAS	231626	1725	0.007	265993	931	0.004	234992	1749	0.007

Our sample description is shown in Table 1. Overall, men and EU Europeans have a far higher probability, expressed as failure rate, in full time work, and women are more likely to work part-time. Men, refugee, and Ethnic Germans are more likely to enter training than other groups.

Figure 1. Entrance into activity by migration type and sex

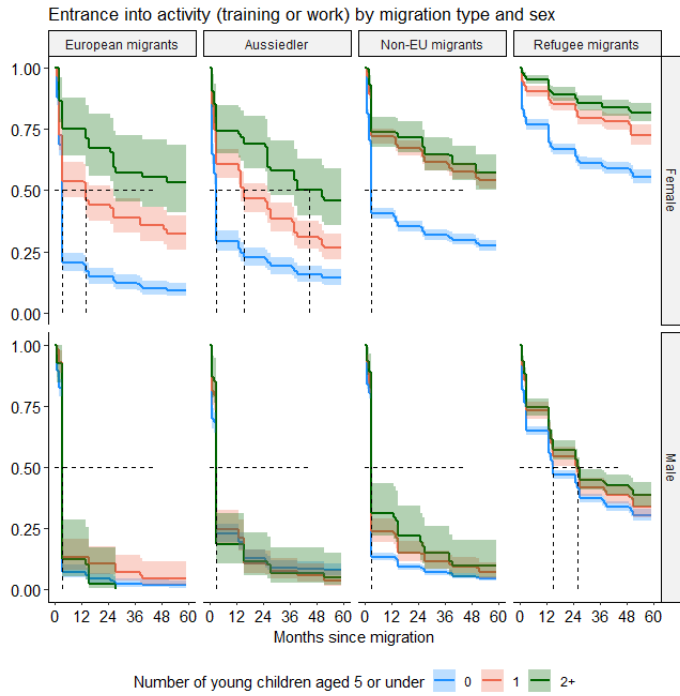
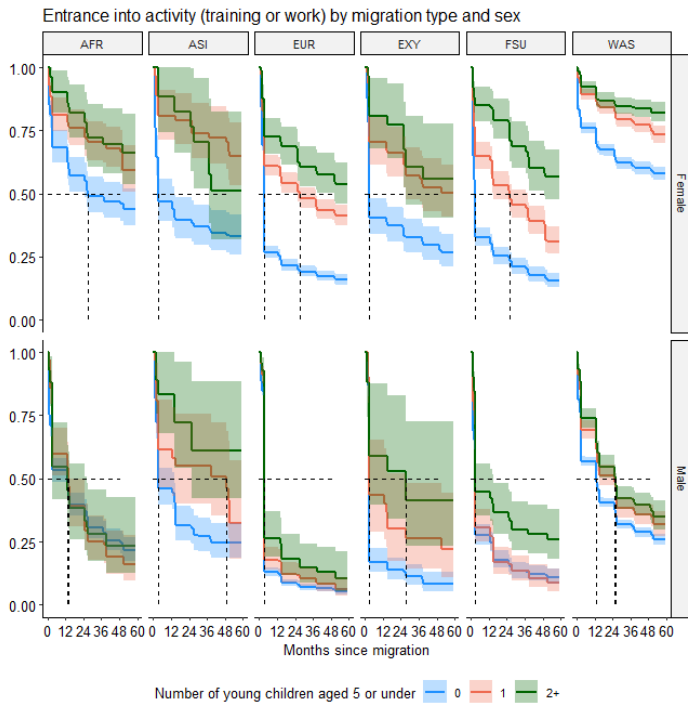


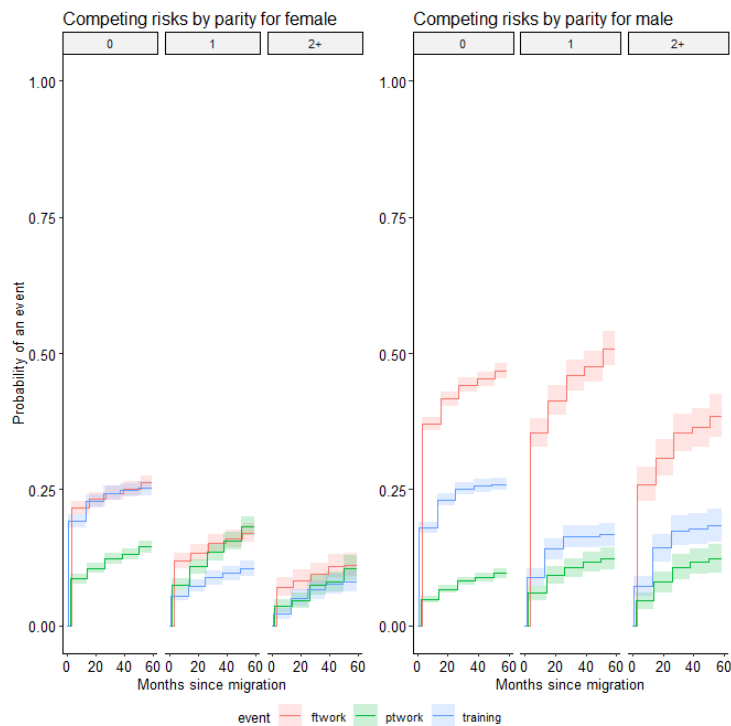
Figure 2. Entrance into activity by region of origin and sex



Note: AFR=Africa (n=993), ASI=Asia (n=449), EUR=Europe (n=3878), EXY=Ex-Yugoslavia (n=609), FSU=Former Soviet Union (n=1785), WAS=Western Asia (e.g. Syria, Iraq, Iran; n=6736). Other (n=248), comprised of small groups from Latin America, Oceania, North America, etc. are excluded from this figure.

In Figure 1, clear patterns of entrance into activity in Germany emerge by sex, parity, and migration type. Women with no children at the time of migration are most likely to enter work or study, with those with two or more small children least likely. Men's participation is far less affected by their number of small children at the time of migration. Those from arrived as EU immigrants are the most likely to quickly enter the labor market or training upon arrival. Figure 2 shows that West Asians (WAS), which tends to be comprised of refugee migrants, show a very similar pattern with refugees in Figure 1. Although the effect of parity is clearer for women across board, survival curves for Asian and Ex-Yugoslavian men show more parity-associated patterns than African and European men.

Figure 3. Competing risks of entering training, part-time work, and full-time work



In the next steps, we will show three piecewise constant hazard exponential models. The first model estimates the probability of entering part-time, full-time work, and training in a competing framework, controlling for past education and parity as time-dependent covariates. The second model estimates the probability of losing one's job in Germany, and the third model estimates the probability of re-entry into the labor market once a job has been lost.

Public debates surrounding immigration have intensified in countries that received large numbers of immigrants under humanitarian circumstances in the recent years, such as 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 sheds light on the labor market integration of male and female immigrants by region of origin, entry type, and parity in Germany through an event history perspective.