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Gender gap dynamics among refugees and recent immigrants: Different start, similar patterns?

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IAB-DISCUSSION PAPER

Articles on labour market issues

11|2023 Gender gap dynamics among refugees and recent immigrants: Different start, similar patterns?

Yuliya Kosyakova, Zerrin Salikutluk

Gender gap dynamics among refugees and recent immigrants: Different start, similar patterns?

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Mit der Reihe „IAB-Discussion Paper“ will das Forschungsinstitut der Bundesagentur für Arbeit den Dialog mit der externen Wissenschaft intensivieren. Durch die rasche Verbreitung von Forschungsergebnissen über das Internet soll noch vor Drucklegung Kritik angeregt und Qualität gesichert werden.

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Abstract

In the last years, the labor market integration of immigrant women has received much attention in the migration literature. We examine gender differences in labor market integration among refugees and other new immigrants who came to Germany during a similar period from a dynamic perspective. We compare their pathways throughout the early period after arrival and study a range of conditions suggested to be relevant for gendered labor market outcomes. Using two panel data sources, which include recently arrived refugees (the IAB-BAMF-SOEP Sample of Refugees) and other immigrants (the IAB-SOEP Migration Sample) in Germany, we compare the dynamics and sources of employment gender gap among refugees and other immigrants. The results uncover narrow initial gender differences among refugees that grow over time and a reversed pattern among other immigrants. However, female refugees' initial disadvantaged starting position maintains five years after arrival. Furthermore, our findings indicate that the explanations offered in the literature cannot fully explain the hurdles female refugees and other immigrants face when entering the labor market.

Zusammenfassung

In den letzten Jahren hat die Arbeitsmarktintegration von Migrantinnen in der Migrationsliteratur viel Aufmerksamkeit erfahren. Wir betrachten geschlechtsspezifische Unterschiede bei der Arbeitsmarktintegration von Geflüchteten und anderen neuzugewanderten Personen, die innerhalb eines ähnlichen Zeitraums nach Deutschland gekommen sind, aus einer dynamischen Perspektive. Wir vergleichen ihre Verläufe in der frühen Phase nach ihrer Ankunft und untersuchen eine Reihe von Bedingungen, von denen angenommen wird, dass sie für geschlechtsspezifische Arbeitsmarktergebnisse relevant sind. Unter Verwendung von zwei Panel-Datenquellen, die kürzlich angekommene Geflüchtete (die IAB-BAMF-SOEP-Flüchtlingsstichprobe) und andere Zuwandernde (die IAB-SOEP-Migrationsstichprobe) in Deutschland umfassen, stellen wir die Dynamik und Ursachen der geschlechtsspezifischen Unterschiede in der Beschäftigung von Geflüchteten und anderen Zugewanderten gegenüber. Die Ergebnisse zeigen, dass anfängliche geschlechtsspezifische Unterschiede bei Geflüchteten gering sind und sich im Laufe der Zeit vergrößern, während sich das Muster bei anderen Zugewanderten umkehrt. Die anfänglich benachteiligte Position von weiblichen Geflüchteten bleibt jedoch auch fünf Jahre nach ihrer Ankunft bestehen. Darüber hinaus deuten unsere Ergebnisse darauf hin, dass die in der Literatur vorgeschlagenen Erklärungen die Herausforderungen, denen weibliche Geflüchtete und andere Zuwandernde beim Einstieg in den Arbeitsmarkt gegenüberstehen, nicht vollständig erklären können.

JEL

F22, J2, J16, J61, Z13

Keywords

Refugees, immigrants, gender gap, labor market integration, Oaxaca-Blinder decomposition

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1 Introduction

With the ongoing political crisis in Syria, Afghanistan, and other conflict areas, many OECD countries have hosted men, women, and children searching for shelter since 2013 (Hatton, 2020). The large influx of refugees¹ posed several challenges for the receiving countries, particularly the labor market integration of those planning to remain permanently. Several studies revealed the so-called refugee gap referring to the disadvantages in labor market outcomes that refugees' experiences compared to other immigrants (e.g., Bakker/Dagevos/ Engbersen, 2017; Brell/Dustmann/Preston, 2020; Kosyakova/Kogan, 2022). At the same time, migration literature demonstrated that the integration of female immigrants (Donato/Piya/Jacobs, 2014) and female refugees (Cheung/Phillimore, 2017) falls far behind their male counterparts. Some studies term this as a double disadvantage, i.e., the disadvantage of being attributed to immigrant status and gender (Donato/Piya/Jacobs, 2014). Recently, the concept of double disadvantage was extended, pointing to a triple disadvantage for women who arrived as refugees (Liebig/Tronstad, 2018). In other words, when competing for jobs, female refugees face disadvantages attributed to gender, immigrant status and forced migration simultaneously. This situation results in lower employment levels among refugee women in comparison to refugee men, other immigrants and native-born women.

Following a growing body of literature integrating an intersectional perspective in quantitative research (e.g., Cheng, 2016; Mandel/Semyonov, 2016), we analyze the disadvantage patterns evolving by the intersection of immigrant status, refugee status, and gender. Approaching labor market inequalities through intersectional lenses contributes to the literature in several ways. First, most previous studies on labor market integration in Western countries have focused on the labor market situation of immigrant men (Fleischmann/Höhne, 2013). Second, it is still little known whether and to which extent refugee and other immigrant women face distinct challenges in labor market integration. There seem to be specific hurdles to labor market integration for immigrant women, particularly for refugee women (e.g., Cheung/Phillimore, 2017). For instance, Brell/Dustmann/Preston (2020, sec. Appendix Table A1) revealed the female–male employment ratio for natives to be 92 percent in the USA, while it reduces to 62 and 58 percent for refugees and other immigrants, respectively. Similar patterns are reported for other Western countries, with Germany showing the greatest female refugees' labor market disadvantage (Brell/Dustmann/Preston, 2020, sec. Appendix Table A1). Third, although migrating to the same country during a similar period, laws and legal conditions create different realities and living conditions for refugees and other immigrants with implications for their work life. The institutional setup can also be decisive for gender gaps in labor force participation. Hence, analyzing the labor market situation of immigrant women calls for a differentiated discussion of possible resources of migration-related and gender-specific patterns of labor market integration beyond a simple addition of disadvantages.

¹ Henceforth, the term 'refugees' is used colloquially and concerns all persons who move to another country on humanitarian grounds, irrespective of their legal status (e.g., refugee, asylum-seeker). The term 'other immigrants' captures all persons who move to another country for non-humanitarian reasons (e.g., labor immigrants, family immigrants). Note that when we use the term 'immigrants', we refer to all immigrants, including refugees and other immigrants.

Upon this background, we examine gender differences in labor market integration among recent refugees and other immigrants in Germany and study whether the same mechanisms are responsible for the gender gap in both groups. More specifically, we seek to answer what explains the additional disadvantage of refugee women among immigrants. Previous research has argued that a large part of these disadvantages can be explained by pre-migration investments in human capital, family structure, and traditional gender values in the country of origin (Polavieja, 2015). This research suggests that gender and nativity gaps in economic outcomes are already large at the time of arrival, making it difficult for policymakers to address these gaps. However, most previous research has observed immigrants after they have been already in the receiving country for some time, thus providing limited evidence about the extent of the initial disadvantage of immigrants and its development over time. Our two panel data sources – the IAB-BAMF-SOEP Sample of Refugees in Germany and the IAB-SOEP Migration Sample – allow capturing refugees and other immigrants in the early periods since their arrival in Germany, enabling thus following their life trajectories throughout their stay. Accordingly, we further ask how the gender gaps among both groups evolve over time and compare the dynamics and sources of the employment gender gap among refugees and other immigrants in Germany in the initial periods of their duration of stay.

To this end, we analyze the gender gap among refugees and other migrants in the German labor market separately, testing general mechanisms that affect the gender gap in the labor market integration of immigrants as well as refugee-specific mechanisms. Our approach allows us to analyze to what extent differences in compositions, mechanisms, and institutional framework contribute to the gender gap among refugees and other immigrants and the additional disadvantage of refugee women. Thus, we provide a broad spectrum of explanations for group differences in gender gaps among immigrants. By analyzing the specific situation and hurdles to labor market integration of two different groups, we contribute to the growing literature on multidimensional inequalities (e.g., Cheng, 2016; Scarborough et al. 2021). Furthermore, in contrast to many other studies on gender-specific inequalities among immigrants, we go beyond a cross-sectional snapshot with a longitudinal design of our study. We decompose gender gaps in labor market participation and employment probabilities across groups and changes over time.

2 Social Context: Recent Refugees and Other Immigrants in the German Labor Market (2010-2020)

Germany has been one of the top destinations for migrants among the OECD countries (Organisation for Economic Co-operation and Development, 2021). Until the war in Ukraine in February 2022, the migration inflow was largely dominated by two main sources.

2.1 Migration inflows in Germany in the recent decades

The first significant source of immigration to Germany is comprised of immigrants from the European Union (EU) countries, particularly those from new EU members and Eastern Europe, who enjoy the freedom of movement and the opportunity to work across all European countries. Since the introduction of the free movement of workers for the eight states of the first eastern enlargement round in 2011, followed by Bulgaria and Romania in 2014 and Croatia in 2015, migration from EU member states to Germany has been on a continuous rise (Adunts et al., 2022; Graf, 2021). This trend has been further amplified by the redirection of migration flows from new EU member states to Germany in the aftermath of the financial crisis (Bertoli/Brücker/Fernández-Huertas Moraga, 2016). In 2015, immigration from EU member states peaked with net migration of 341,000 persons. Since then, it has steadily declined to 110,000 persons in 2020. In relative terms, immigrants from the current EU and the United Kingdom accounted for 50 percent of the net migration of foreign nationals between 2010 and 2020 (own calculation based on data provided by Adunts et al., 2022). The majority of these immigrants are men, with women constituting only about a third of this groups (Graf, 2021). Compared to previous waves of migration to Germany, these immigrants possess higher levels of education and occupational qualifications, which has led to a greater representation of highly skilled immigrant women in Germany (Kogan, 2011). Nevertheless, despite this advantage, female immigrants from Central and Eastern Europe continue to experience lower long-term employment rates than their male counterparts (Sprengholz/Diehl/Giesecke/Kreyenfeld, 2021).

The second significant source of the immigration to Germany are non-EU nationals, which peaked between 2015 and 2016, mainly driven by refugees from Syria, Iraq and Afghanistan (Brücker/Kosyakova/Vallizadeh, 2020). Specifically, between 2015 and 2016, Germany received around 1.2 million first-time asylum applications (corresponds to 46 percent of those submitted the EU Eurostat, 2020). Out of the 5.5 million immigrants from the non-EU in Germany arrived between 2010 and 2020, refugees accounted for 27 percent, 15 percent were immigrants for family reasons, 10 percent for education and training purposes, and 8 percent for employment purposes (Adunts et al., 2022). The major origin countries among the third country nationals who arrived for other reasons than humanitarian varied over last years: while China, the USA, Turkey, Russia, and India made top five arrival countries in 2013, this changed to Turkey, India, Serbia, Bosnia and Herzegovina, and Ukraine in 2020. The share of female arrivals among third-country nationals fluctuated around 42 percent except for 2015, where the share of women was the lowest due to high influx of refugees (own calculation based on Bundesamt für Migration und Flüchtlinge, 2023). Nevertheless, the number of female refugees of working age has increased continuously in Germany, reaching 435,000 in 2020, making up one-third of the refugee population of working age (own calculation based on the Statistisches Bundesamt, 2020).

2.2 Labor market access of refugees and other immigrants in Germany

While the labor market access of the EU citizens in Germany is unrestricted, for third-country nationals, it depends on their admission category at arrival (Bundesministerium für Arbeit und Soziales, 2014). For instance, immigrants with a residence title without limitations in time,

settlement permit and the EU long-term residence permit, enjoy unrestricted access to the German labor market (Tangermann/Grote, 2018). Among immigrants with a temporary residence permit, those arrived explicitly for economic activity² and for the purpose of family reunification are also allowed to work, whereas third-country nationals arrived for education purposes have somewhat restricted labor market access (Förderprogramm „Integration durch Qualifizierung (IQ)“, 2018). Despite some legal restrictions, third-country nationals face much more favorable labor market access as compared to those arrived as refugees in Germany.

With a growing influx of refugees in 2015-2016, German policymakers and society faced challenges of creating opportunities for refugees to integrate into the labor market and society promptly. To this end, several measures were introduced, including, acceleration of asylum procedures, facilitating access to language courses, and the reducing employment barriers such as the priority check to ensure that no German or EU citizen can fill a specific job position (Kosyakova/Brenzel, 2020). However, refugees with unclarified asylum status or those with a negative asylum decision but whose stay in Germany is tolerated still faced some obstacles in the employment access. For instance, those waiting for decision face a three-month blocking period following their arrival in Germany (§ 61 AsylG), in case of residence in reception facilities, this period is extended to 9 months. Both groups also must fulfill specific conditions to access employment such as approval from the relevant immigration office, and a comparability test regarding the conditions of work and remuneration (Vergleichbarkeitsprüfung) conducted by the Federal Employment Agency (BA). Refugees from the so-called secure countries (Ghana, Senegal and West Balkan) faced general employment ban if they applied for asylum after August 31, 2015.

2.3 Employment rates of refugees and other immigrants in Germany

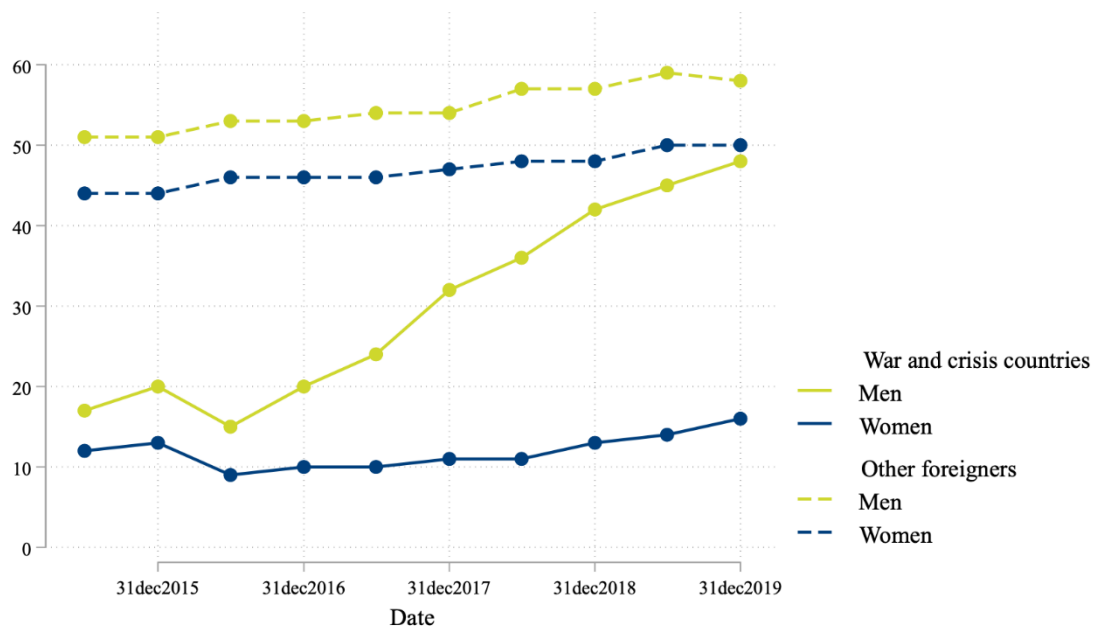
The outlined differences between refugees and other immigrants generate compositional disparities that significantly shape the labor market integration prospects in the receiving countries. Paired with policy measures that target immigrant men and women differently, gendered patterns of labor market access are likely to emerge, as evidenced by descriptive data presented in Figure 1. This figure depicts the employment rates of non-German nationals in Germany by gender over a five-year period from 2015 to 2019, using on the official statistics of the German Federal Employment Agency (BA). While the official statistics do not provide direct information on the employment of refugees due to the lack of data on legal status, the employment rates of refugees can be inferred based on the eight key countries of refugees' origin (namely, Afghanistan, Eritrea, Iraq, Iran, Nigeria, Pakistan, Somalia, and Syria).

The findings in Figure 1 illustrate that female immigrants both refugees and other immigrants face lower employment rates compared to their male counterparts. Nonetheless, the gender gap in employment rates varied substantially over time. While the employment gender gap among other immigrants remained relatively constant over the years (at approximately eight percentage points), it increased among refugees from around five to 30 percentage points. The greater disadvantage experienced by refugee women implies that different patterns of integration and access to labor market-relevant resources exist by country of origin.

² Third-country nationals arriving for a purpose of an economic activity often already have a job commitment before their factual arrival in Germany.

Figure 1: Employment of foreigners in Germany by gender

Share in percent



Note: Proportion of employees (subject to social security contributions and only marginally employed; at place of residence) aged 15-64 in relation to the population of the same age. War and crisis countries: Afghanistan, Eritrea, Iraq, Iran, Nigeria, Pakistan, Somalia and Syria.

Data source: Statistics from the Federal Employment Agency, the Central Register of Foreigners and the Federal Statistical Office.

Refugee women have been shown to struggle in entering the labor market in various contexts. Particularly during their initial periods after arrival, refugee women are less likely to be employed than male refugees and other immigrants with the same duration of stay. For instance, two years after arrival, employment rates of refugee women only reach 11 percent of the employment rate of refugee men in Germany. This stands in sharp contrast to the female–male employment ratio among immigrants (40 percent) or native-born majority (88 percent) (Brell/Dustmann/Preston, 2020, sec. Appendix Table A1). Similar results have been reported for other countries such as Australia, Finland, and the UK, albeit with less pronounced employment gender gaps. Over time, across various refugee arrival cohorts and across various receiving countries, the female refugees' labor market disadvantage decreases but never fully vanishes (e.g., Bakker/Dagevos/Engbersen, 2017; Brell/Dustmann/Preston, 2020; Kanas/Steinmetz, 2021).

3 The Intersection between Immigrant Status, Refugee Status, and Gender

Compared to the native population, immigrants usually take up unfavorable labor market positions in Western countries (e.g., Alba/Foner, 2015; Mandel/Semyonov, 2016). Migration research has identified different explanations for immigrants' labor market disadvantage in the

US and European countries. It has been argued that immigrants lack labor market-relevant resources – especially human capital, cultural capital, and social capital.

3.1 Human Capital and Transferability Issues

Immigrants are less likely to possess immediately transferable resources, partly due to the migration experience itself and partly, but not necessarily, due to (self-)selection processes in migration decision-making (Kogan/Kalter, 2020; Kosyakova/Kogan, 2022). Correspondingly, they enter the receiving country's lower labor market segment (Friedberg, 2000). Although the gap between immigrants and natives does not close completely, the gap shrinks with the residence duration and the accumulation of labor market-relevant resources (Bakker/Dagevos/Engbersen, 2017; Brell/Dustmann/Preston, 2020).

Most importantly, immigrants have acquired their educational and vocational qualifications and work experiences in their country of origin. Immigrants, particularly from non-Western countries, are argued to bring on average lower levels of qualifications, though educational composition can vary by the region of origin and the motive for migration (Kanas/Steinmetz, 2021; Spörlein/Kristen, 2019). Moreover, the educational systems and also the professions between the countries – especially concerning the vocational education system as in Germany – are very different, leading to a (partial) devaluation of the acquired skills after migration (Dustmann/Frattini/Preston, 2013). This devaluation relates to educational qualifications, work experience, job- and country-specific knowledge or skills, and also to an understanding of the prevailing systems in society, the educational system, and the labor market.

The standard explanation for gender differences in labor market outcomes among immigrants is derived from the human capital theory (Becker, 1985), according to which women anticipate future family obligations and invest less in their human capital than men, resulting in lower work experiences and opportunities. Structural differences in educational attainment by gender in the country of origin are likely to be reflected in the qualifications of male and female immigrants (Fleischmann et al., 2014). Correspondingly, the household specialization perspective (Becker, 1985) stresses that partners with lower labor market resources – primarily women – specialize in domestic work, while men focus on labor market activities resulting in lower labor market experience among female immigrants. Correspondingly, the level of human capital is likely to drive immigrants' gendered labor market outcomes.

The type of human capital immigrants bring with them can vary by gender as well. Owing to socialization processes shaping traditional gender roles over the life course and prevailing gender expectations in society, women tend to choose jobs that are close to their tasks in the family, such as service work, education, caring jobs, and nursing (Blossfeld, 1987). These professions in knowledge-intensive services (teaching or education) require country-specific knowledge and skills, opposing to jobs in the agricultural or industrial sector. Exploiting these skills in the receiving country could be a challenge for immigrant women implying the necessity of higher investments to acquire the appropriate target-specific knowledge. These higher costs may further explain females' lower human capital investment, which in turn can reduce their labor market participation.

Due to the circumstances of their flights from war or conflict or the escape of political, religious, or ethnic persecution, refugees possess fewer directly transferable skills. In particular, refugees cannot prepare for their change of country and thus the system in the long term, for example, by looking for a job there in advance (Brücker/Kosyakova/Vallizadeh, 2020). There is also a lack of material resources or networks that can facilitate the start in the receiving country, especially among refugees. An investment in receiving country-specific skills is, therefore, of great importance because these are used directly in destination labor markets, and employers can better assess certified knowledge (Damelang/Kosyakova, 2021). Understanding the receiving country's education system and labor market also increases employment opportunities because suitable search strategies can be developed. Still, refugees are more likely to invest in receiving country-specific resources due to lower return orientation. This could explain why refugees make up for their missing resources over time and catch up with other immigrants despite starting at unfavorable positions (Cortes, 2004). Given that refugees often arrive from more culturally distant countries, the transferability of their country-specific human capital might be more challenging. This should particularly apply to women.

Language proficiency can be a means to transfer human capital acquired abroad to the labor market of the receiving country (e.g., Zwysen, 2019). Language skills can help signal a willingness to adapt to the new country, enabling communication with potential employers and colleagues and in the job searching and application process as well. At the same time, the improvement of the labor market opportunities for immigrants through language training and certification in the receiving country can be perceived differently by men and women. In immigrant families, men are often given preference when making investment decisions: compared to women, men attend language or integration courses more often and earlier (Bernhard/Bernhard, 2021). Correspondingly, immigrant men acquire skills and knowledge that are specific to the receiving country, which makes it easier for them to take up employment. Women, in turn, are increasingly taking on care work (childcare and housework).

3.2 Family Roles and Care Responsibilities

Generally, the labor force participation of immigrant women corresponds to the female labor force participation in the country of origin (Blau/Kahn, 2015; Fleischmann/Höhne, 2013). In this sense, traditional family roles and care responsibilities can constrain women's labor market attachment; such roles and responsibilities seem to be more pronounced among immigrants from predominantly Muslim countries (e.g., Khoudja/Fleischmann, 2015). In this regard, fewer opportunities to rely on extended family members or lower social embeddedness in the earlier periods of stay contribute to fewer opportunities to outsource care responsibilities.

Likewise, if traditional family models are put into practice, a double effect on the employment opportunities of refugee women can be expected: Firstly, their chances of gainful employment can be reduced if there is no or delayed investment in Germany-specific human capital. Second, care work can limit or completely exclude availability for the labor market. The labor force participation of women, especially with children or in traditional family contexts, should therefore be lower in the medium term than that of men because they invest later or less often in target country-specific human capital. Third, institutionalized expectations of traditional family models may further contribute to females' lower labor market participation. In Germany, women

with children aged below three years are automatically exempted from the persons “capable of working” and are not subject to labor market activation policies (Eichhorst/Grienberger-Zingerle/Konle-Seidl, 2010, p. 81).

Beyond actual gender roles, traditional concepts of gender roles could negatively impact women’s willingness to be active in the labor market, regardless of the presence of children (e.g., Corrigall/Konrad, 2007). However, the empirical evidence speaks against this explanatory model (Salikutluk/Menke, 2021). Finally, migration literature has attributed female immigrants’ economic disadvantages with the fact that women are more likely to be tied movers (Bielby/Bielby, 1992; Krieger, 2020; Mincer, 1978; Shauman/Noonan, 2007). The main argument of this literature is that women most often have a secondary role in family migration decisions, resulting in their lower human capital and earning potential in the destination country (e.g., Cooke et al., 2009).

3.3 Social Networks and Embeddedness

While a certain level of language skills is necessary in order to communicate with non-immigrants (e.g., Martinovic/van Tubergen/Maas, 2011), having contact with natives can be itself an opportunity for immigrants to improve their language skills (e.g., Kosyakova/Kristen/Spörlein, 2022). Non-immigrant friends and acquaintances, also defined as bridging ties, can also provide information on open labor market positions and informal knowledge about the fundamental structure of the labor market (Lancee, 2012). Although the concrete mechanisms are not investigated yet, the literature consistently proves positive effects of having non-immigrant members in the social network compared to members from the same origin (e.g., DiMaggio/Garip, 2012; Lancee, 2012). For refugees, social networks are regarded as particularly essential due to their lack of destination language skills and less informed migration decisions (van Tubergen, 2011). Likewise, refugees are likely to possess fewer pre-migration social contacts in the receiving countries than economic or family immigrants. As refugees are placed in collective centers, they have limited opportunities to interact with individuals outside these centers.

Previous research further stressed that the network composition of immigrant men and women has different features. For instance, while immigrant men’s networks are stronger linked to work and include more persons beyond kinship boundaries, immigrant women’s social networks consist predominantly of family and relatives (Schrover/van der Leun/Quispel, 2007). Furthermore, refugee women, like other female immigrants, mainly stay in a family context and spend less time than men with non-immigrants or people living in Germany for a longer period (Hartmann/Steinmann, 2021; Kosyakova/Kulic, 2022). Thus, they miss the opportunity to build up a broad social network that can support them, for example, looking for work or looking after children.

3.4 Health and Traumatic Experiences

As a result of wars, violence, and persecution in countries of origin and transit countries, refugees are often exposed to traumatic events. These experiences can harm refugees’ mental and physical health, which has also been empirically confirmed (e.g., Ambrosetti et al., 2021).

Suffering from pre- and post-migration stress and health problems affects refugees' integration chances (e.g., Walther et al., 2020).

Refugee women display a stronger prevalence of such health-related risks than men, which is often attributed to women's increased risk of being exposed to gender-specific and sexual violence before or during their flight (Axinn et al., 2013). Women are additionally burdened by pronounced stress factors, for example, due to less social participation after arrival (Beiser/Hou, 2017). Since health is an important factor in individual labor market opportunities and social inclusion, women's worse health can contribute to gender differences in employment.

3.5 Legal and Labor Market Constraints

Special features of refugee migration include the context of refugee admission and special programs for settlement and integration. Overall, the duration and the smooth processing of the asylum procedure, the organization of the asylum accommodation, the granting of extended residence status, and the provision of integration courses are essential elements for refugees' sustainable integration (Kogan/Kalter, 2020; Kosyakova/Kogan, 2022). However, previous research pointed to various barriers female refugees experience, such as fewer chances for protection status (e.g., Bloch/Galvin/Harrell-Bond, 2000) or (delayed) access to language courses and education (Brücker/Kosyakova/Vallizadeh, 2020; Cheung/Phillimore, 2017).

In most receiving countries, refugees face labor market constraints during specific procedures that verify their asylum applications (e.g., Hainmueller/Hangartner/Lawrence, 2016; Kosyakova/Brenzel, 2020). This limitation also applies in the case of rejected applications. The legal status can also indirectly affect labor market integration, for example, by impairing refugees' investment into country-specific human capital, such as education and training (Damelang/Kosyakova, 2021), as well as destination language skills (Kosyakova/Kristen/Spörlein, 2022). Accordingly, if female refugees face fewer chances for protection status, this may seriously impair their integration chances.

Finally, refugees' difficulties in the labor markets might also be related to the hostility and prejudice of the majority population (Esses/Hamilton/Gaucher, 2017). Discrimination refugees might experience in access to employment, housing, and everyday interaction might slow down their economic progress in the receiving country (Montgomery/Foldspang, 2008). The survey-based research and in-depth interviews capture self-reports of refugees' experiences with racism and labor market discrimination, with refugee women reporting additional challenges related to stereotyping and discrimination by potential employers and governmental agencies (Senthanar et al., 2021). However, experimental research using correspondence tests is not clear-cut. For instance, Arai/Bursell/Nekby (2016) uncover discrimination against job applicants with Arabic-sounding names in the Swedish context, with men being particularly affected. Dahl/Krog (2018) also report lower call-back rates for male applicants in correspondence studies in Denmark when applicants have a Middle-Eastern sounding name. In turn, Di Stasio/Larsen (2020) report pronounced ethnic and racial discrimination against minority women in female-dominated occupations. A few studies focusing on women demonstrate that female Muslim immigrants face discrimination in the labor market in Western countries, particularly when they wear a headscarf (e.g., Fernández-Reino/Di Stasio/Veit, 2022; Weichselbaumer, 2020).

3.6 Dynamic Perspective on Labor Market Disadvantage of Female Immigrants

While the duration of stay is an important predictor of employment chances of refugees (Bakker/Dagevos/Engbersen, 2017) and other immigrants (Read/Cohen, 2007), few studies examined the intersection of gender and immigrant status from a dynamic perspective. For instance, Raijman/Semyonov (1997) revealed that the economic gap between immigrants and natives lessens over the duration of their stay, whereas the female labor market disadvantages remain stable.

Several theoretical ideas could be used to infer the dynamic development of gender differences among immigrants and refugees. First, following the cumulative (dis)advantage thesis (DiPrete/Eirich, 2006), the socioeconomic attainment process is socially structured by earlier experiences and inequalities, which are reproduced and amplified over the career. In other words, “the advantage of one individual or group over another grows (i.e., accumulates) over time, which is often taken to mean that the inequality of this advantage grows over time” (DiPrete/Eirich, 2006). This notion is also in line with the so-called “resource multiplication perspective”, following which relevant resources may multiply one another’s impact, while individuals with only one of those resources face lower benefits (Ross/Mirowsky, 2006). In the context of immigrants’ integration, the cumulative (dis)advantage thesis would predict that those holding initial favorable socioeconomic positions would increase their advantages over those less highly placed. Given that male immigrants and refugees possess more resources they gained in their early careers in their origin countries, while women are often challenged on their human capital transferability (see Section 3.1), we may expect initial immigrant women’s disadvantages to flourish over the duration of stay.

At the same time, previous research contends favorable self-selection in the labor market-relevant skills and other abilities among immigrants (Borjas, 1987; Chiswick, 1999) and to a lesser extent among refugees (Spörlein/Kristen, 2019). This positive skills selection may function as an important resource to cushion the cumulative disadvantage process. More importantly, female immigrants display stronger skills-selectivity profiles than males, particularly those arriving from poorer countries compared to men (Dumont/Martin/Spielvogel, 2021). Similar results have been reported for female refugees in Europe (Spörlein/Kristen, 2019). These patterns are explained via gender-specific discrimination risks, which are more pronounced in African and Asian sending countries compared to receiving countries in Europe (Aksoy/Poutvaara, 2021). Skill-selection perspective, therefore, implies a workaround for the cumulative disadvantage process, i.e., that the disadvantages in the initial phases of integration are likely to reduce over time, particularly among refugees.

4 Data and Method

4.1 Data and Sample

The empirical analyses are based on two longitudinal data sources, which include samples of new immigrants in Germany: the IAB-BAMF-SOEP Sample of Refugees in Germany (Brücker/Rother/Schupp, 2017) and the IAB-SOEP Migration Sample (Brücker et al., 2014). Both studies are integrated studies of the German Socioeconomic Panel (SOEP).

The IAB-BAMF-SOEP Sample of Refugees in Germany is a joint project of the Institute for Employment Research (IAB), the Research Centre on Migration, Integration, and Asylum of the Federal Office of Migration and Refugees (BAMF-FZ) and the SOEP. The data was launched in 2016, in the aftermath of the surge of refugee migration to Europe in 2015. The anchor persons in the survey were drawn from the Central Register of Foreigners, the national registry of all foreign citizens in Germany. The data are representative of asylum-seekers and refugees arriving in Germany between 2013 and 2016 (Kroh et al., 2017). The survey is based on a concept of households according to which every adult household member is interviewed. The data collection was based on computer-assisted personal interviews (CAPIs), and questionnaires were provided in seven languages (i.e., Arabic, English, Farsi/Dari, German, Kurmanji, Pashto, and Urdu). The original dataset includes 8,321 individuals who were surveyed at least once.

The IAB-SOEP Migration Sample is a joint project of the IAB and the SOEP (Brücker et al. 2014), and was launched in 2013. The anchor persons in the survey were drawn from the register data derived from social security records of the Federal Employment Agency (BA). The target population consists of individuals who immigrated to Germany between 1995 and 2013 and second-generation individuals born after 1976 (Kroh et al., 2015; Kühne/Kroh, 2017). As for refugees, the survey is based on the same household concept, and CAPIs were used for the survey as well. Questionnaires were available in English, Polish, Russian, Romanian, and Turkish. The original dataset includes 7,641 individuals who were surveyed at least once. Given our interest in the economic integration of immigrants with their own immigration experience, we exclusively focus on sample of individuals not born in Germany (66 percent of the original sample).

All analyses in this study are weighted with the sample weights provided with the survey data to compensate for distortions caused by over-represented groups,³ non-response, and multiple observed persons (Kroh et al., 2015, 2017; Kühne/Kroh, 2017). Supplemental file Table A1 provides further details on the similarities and differences between two data sources.

For our empirical investigation, we restricted the data as follows (for details, see Supplemental file Table A2). To capture the early period of integration and for the sake of comparison, we restrict both datasets to refugees and immigrants with a duration of stay no longer than six years at the time of the first interview. Given our focus on employment integration, we consider only those of working age at arrival to Germany (between 18 and 55). We further exclude cases with invalid weights. Eventually, our analyses cover 7,201 refugees (2,964 women and 4,237 men) and

³ In the IAB-BAMF-SOEP Sample of Refugees, refugees with residence permission, nationals of countries with presumptive eligibility for asylum status, women, and those over 30 years of age were oversampled (Brücker et al., 2017). In the IAB-SOEP Migration Sample, recent arrivals and certain countries (Italy, Greece, Spain, Turkey, Romania, the USSR, Yugoslavia successor states, Arab countries, Bulgaria, Romania, and Southern Europe), and ethnic Germans were oversampled (Brücker et al., 2014).

1,876 other immigrants (1,032 women and 844 men). Supplemental file Table A3 displays how observation are distributed across the years of stay in Germany.

4.2 Measures

Our main outcome of interest is gainful employment measured based on the self-reported employment status. Following the definition of the International Labor Organization (ILO), employment is defined as work performed in return for pay or profit. Accordingly, we count respondents who were full- or part-time employed, in vocational education or internships or apprenticeships, and those marginally employed at the time of the interview as being employed as long as they indicate gross monthly earnings above zero.

To address gender differences in employment among refugees and other immigrant, we rely on a range of indicators, which reflect the discussion in the theory section. We group these indicators according to the defined constructs of demographics, human capital, labor market experience in the country of origin (henceforth, CO), German language skills, care responsibilities, values and motivations, social contacts, health status, and regional and data controls. Supplemental file Table A4 presents the definitions of all variables and indicates whether the measures differ between the two data sources; Table A5 provides information about the distributions of all variables in the two datasets.

In terms of demographics, we consider the respondent's months of stay in Germany, measured in months, and age at immigration.

Regarding human capital, we include several measures: (1) the respondent's cognitive skills measured by the Symbol-Digit Test, a speed-constrained measure of information-processing capacities (Lang et al. 2007); (2) the level of education acquired in the CO, i.e., education in CO (grouped into less than primary, primary, lower secondary, upper secondary/postsecondary nontertiary, and tertiary); (3) the recognition of credentials acquired in CO (grouped into no application, fully/partly recognized, not recognized, and under consideration); and (4) obtainment of an education degree in Germany.

For labor market experience in CO, we consider whether the respondents worked before migration, i.e., with work experience. Finally, for those with work experience, we capture economy sectors (grouped into primary, secondary, tertiary, education, healthcare and social work, and other quaternary) and their work experience in years.

German language skills are addressed via additive indices on premigration and postmigration language proficiency, both comprising information on respondents' self-rated competencies in speaking, reading, and writing in German before arrival in Germany and at the interview on a scale from 0 ("very good") to 4 ("not at all"). We reversed these scales before calculating the index so that a greater value indicates a higher level of proficiency. We further consider whether respondents had attended a language course prior to or after migration.

To approximate care responsibilities, we account for having a partner in the household and children aged below 17 (grouped into no children, children aged between 0–2, children aged between 3–6, and children aged between 6–16). Values are addressed via continuous measure for the country-of-origin-specific ratio of female to male labor activity (female/male labor activity in CO) in the year before arrival in Germany (e.g., Frank/Hou, 2015; Fuwa, 2004). For this purpose,

we enriched our survey data with the country-of-origin-specific female-to-male labor force participation ratio data from World Bank (2021). For refugees, we further account for self-reported traditional gender roles regarding employment and traditional gender roles regarding power (Hartmann/Steinmann, 2021). To address motivation, we include respondents' migration motives where we distinguish between economic orientation and family-/network orientation (may additionally approximate arriving as tied-mover), and we also account for intention to stay in Germany (permanently).

Social contacts are measured via indicators for whether respondents are in contact with Germans or in contact with other immigrants. To measure health status, we consider the sum scales for mental health index and physical health index (Andersen et al., 2007). For refugees, we additionally consider whether they have reported traumatic experiences (during escape). To address residency status of refugees, we consider residence title (grouped into residence permission, no residence permission, temporary residence permission, and others) and the length of asylum procedure (in months). For immigrants, residency status is measured via an indicator of having permanent residency.

To account for the demand-side situation and regional infrastructure, we enriched our survey data with county-level data from INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2021). More specifically, our regional controls include the unemployment rate, the share of foreigners, and the log of population density, all captured in the survey year. As data controls, we also record the sample to which each person belongs and the survey year.

4.3 Methodology

To infer whether and to what extent the mechanisms for the gender gap in labor market integration differ among refugees and other immigrants, we apply the Oaxaca-Blinder decomposition method (Blinder, 1973; Oaxaca, 1973)⁴, which has been widely used in sociological studies to addressing labor-market-related gender (e.g., Combet/Oesch, 2019) or racial inequalities (e.g., Mandel/Semyonov, 2016). Using separate regression models for each group, i.e., men and women, this method breaks down the differences in the employment probability between women and men into individual components. First, the explained part indicates which part of the employment gender gap can be explained by compositional differences in the characteristics from the estimates (the X 's). Here, it is assumed that the characteristics or endowments of women and men lead to the same labor market returns. For instance, good German skills increase employment probability of men and women to the same extent. Second, the unexplained part describes *inter alia* the part of the employment gender gap that is explained by different effects of the same characteristics or endowments in both groups (the β 's). For example, it indicates how the employment probability of women with good German skills differs from that of men with good German skills if the two do not differ in the other characteristics.

Formally, our analyses rely on the following model:

⁴ For the empirical implementation in Stata, we use OAXACA by Jann (2008), and we apply a 2-fold Blinder-Oaxaca decomposition.

$$\bar{Y}_m - \bar{Y}_w = \sum (\bar{X}_m - \bar{X}_w) * \beta_m + \left[\sum \bar{X}_w (\beta_m - \beta_w) + (\alpha_m - \alpha_w) \right],$$

where \bar{Y}_m and \bar{Y}_w are employment status of men and women, respectively. \bar{X}_m and \bar{X}_w are means of all predictors, and β_m and β_w are the coefficients of these predictors for men and women, respectively. $\sum (\bar{X}_m - \bar{X}_w) * \beta_m$ is the portion of the gap explained by gender differences in mean employment-related attributes. $\sum \bar{X}_w (\beta_m - \beta_w) + (\alpha_m - \alpha_w)$ is the portion of the gap attributed to differences in returns to employment-related attributes (on the left side) and differences in intercepts (right side). This portion, which cannot be explained by employment-related attributes, is attributable to either unmeasured characteristics or economic discrimination.

Our decomposition analyses involve three steps. We first compare the explained and unexplained portions of the employment gender gap for refugees and other immigrants separately. Second, we focus on the dynamics of the gender gap for both groups by considering the explained and unexplained portions of the gender gap by the duration of stay. Herewith, we consider the duration of stay of two years or less, three to four years, and five years or more.⁵ Third, compare the contribution of each construct (i.e., demographics, human capital, labor market experience in the country of origin, German language skills, care responsibilities, values and motivations, social contacts, health status, regional and data controls) to explain the gender gap after distinguishing between the explained portion and the unexplained portion, by the duration of stay, for refugees and other immigrants.

Our main analyses rely on linear probability models (LPMs) with robust standard errors clustered at the person level to account for the fact that some respondents are surveyed repeatedly. As Hellevik (2009) shows for cross-sectional regressions, marginal effects and significances from logit models and LPMs are practically indistinguishable. We are not aware of any corresponding comparison of methods for longitudinal regressions.

To deal with item nonresponse, we apply multiple imputation using chained equations (van Buuren, 2012). We estimate 25 imputed datasets with complete information. Following Rubin's (1987) approach, we then combine the results of the analyses performed on each dataset. Supplemental file Table A5 1 illustrates that missing information was present to varying degrees across measures.

⁵ Our classification of years of stay was primarily driven by the lower number of observations for refugees with a duration of stay of more than four years in Germany. An alternative specification for immigrants where we split years of stay in 1) two years or less, 2) three to five years, and 3) six years or more did not alter our conclusions.

5 Results

5.1 Compositional Differences and Endowments of Female and Male Refugees and Other Immigrants

Table 1 illustrates the weighted mean differences in compositional characteristics and endowments according to our defined theoretical constructs among male and female refugees and other immigrants.

Refugees generally display a shorter stay duration than other immigrants, which is driven primarily by survey design and the earlier start of data collection. In terms of age, both groups arrived in Germany at a rather young age, around 30, yet, male refugees are, on average, around two to three years younger compared to other subgroups.

Table 1: Descriptive sample characteristics by gender, for refugees and other immigrants, weighted

	Refugees				Other immigrants			
	Female		Male		Female		Male	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Demographics								
Months of stay	33.39	15.90	34.86	15.80	62.28	29.00	61.19	27.09
Age at immigration	30.47	9.08	27.98	8.39	29.59	8.22	30.84	7.81
Human capital								
Digit-Symbol Test (standardized)	-0.02	1.07	-0.05	1.15	-0.04	1.05	0.09	0.73
Education in CO								
Less than primary	0.23		0.17		0.01		0.00	
Primary	0.17		0.19		0.05		0.03	
Lower secondary	0.21		0.24		0.13		0.16	
Upper secondary/ Postsecondary nontertiary	0.21		0.24		0.13		0.16	
Tertiary	0.13		0.12		0.38		0.37	
Recognition of credentials								
No application	0.89		0.83		0.73		0.71	
Fully/partly recognized	0.04		0.08		0.17		0.18	
Not recognized	0.01		0.01		0.06		0.02	
Under consideration	0.07		0.08		0.04		0.09	
Education degree in Germany	0.01		0.04		0.15		0.16	
Labor market experience in CO								
With work experience	0.42		0.81		0.58		0.78	
Work experience in years	8.25	7.32	9.25	7.74	8.25	7.35	8.71	7.60
Sector of economy								
Primary	0.03		0.09		0.01		0.04	
Secondary	0.09		0.30		0.23		0.40	
Tertiary	0.43		0.44		0.39		0.30	
Education	0.24		0.04		0.11		0.05	
Healthcare and social work	0.11		0.03		0.11		0.04	
Other quaternary	0.11		0.10		0.15		0.18	
German language skills								
Premigration language proficiency	0.29	1.20	0.34	1.40	3.22	3.68	3.04	3.36
Postmigration language proficiency	5.14	2.97	6.42	2.89	7.84	2.93	7.36	2.99
Language course	0.73		0.87		0.71		0.62	
Care responsibilities								
Partner in the household	0.44		0.16		0.24		0.30	
Children < 17								
No children	0.26		0.72		0.50		0.60	
Children aged between 0–2	0.34		0.13		0.20		0.17	
Children aged between 3–6	0.21		0.08		0.18		0.13	
Children aged between 6–16	0.20		0.08		0.12		0.10	
Values and motivations								
Female/male labor activity in CO	34.83	25.20	33.21	24.24	68.78	17.28	67.36	17.62
Traditional gender-role, employment	-0.17	0.91	0.01	0.94	-		-	

	Refugees				Other immigrants			
	Female		Male		Female		Male	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Traditional gender-role, power	-0.13	0.93	0.10	1.06	-		-	
Economic orientation	0.44		0.42		0.24		0.56	
Family-/network orientation	0.22		0.13		0.64		0.30	
Intention to stay (permanently)	0.96		0.96		0.74		0.67	
Social contacts								
Contact with Germans	0.64		0.72		0.86		0.86	
Contact with other immigrants	0.78		0.89		0.94		0.92	
Health status								
Mental health index	46.46	11.65	48.35	11.80	51.37	9.12	52.88	8.06
Physical health index	51.08	10.35	55.79	8.96	53.06	8.54	54.50	8.12
Traumatic experience	0.40		0.60					
Residency status								
Residence title								
Residence permission	0.65		0.60					
Temporary residence permission	0.09		0.11					
Other	0.22		0.26					
No residence permission	0.04		0.03					
Length of asylum procedure	8.38	7.86	8.57	7.33				
Permanent residence					0.76		0.78	
Regional controls								
Unemployment rate, in percent	6.37	2.83	6.26	2.78	6.12	2.76	5.98	2.74
Population density	961	1089	986	1111	1386	1425	1323	1384
Share of foreigners, in percent	11.70	5.33	11.79	5.25	13.42	6.46	13.20	6.44

Notes: CO = Country of origin. Pooled data. Weighted results.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Regarding human capital, we find differences by gender and across groups. While among refugees, men score worse on the digit-symbol test than women, the opposite patterns are true among other immigrants. Refugees possess lower educational credentials than other immigrants. The gaps in educational attainment are most pronounced among those with less than primary education. While almost all other immigrants have at least completed primary education, among refugees, 17 percent of men and 23 percent of women indicate no formal qualification. On the other end of the scale, 37 respectively 38 percent of other male and female immigrants attained tertiary education. Among refugees, the share with tertiary education is almost three times lower, with no pronounced gender gap as well. Beyond the generally lower educational attainment, fewer refugees applied for the recognition of their credentials. Correspondingly, other immigrants' qualification acquired abroad is more often recognized in Germany, at least partly. A stark contrast is also observable in the share of those who acquired an educational degree in Germany: With 16 percent, other immigrant men more frequently acquired educational credentials in Germany than the other groups, the gender disadvantage is observed particularly for refugees.

In both migrant groups, women possess less working experience than men, especially among refugees. Yet, among those with working experience, the gender differences are less striking. Noticeably, we find that all groups except female refugees used to work in the secondary and tertiary sectors. Round a quarter of female refugees worked in the education sector. Since jobs in the education sector are strictly regulated in Germany, the transferability of these qualifications is challenging.

Overall, other immigrant women indicate having the highest German language proficiency before and after migration. The small initial gender gap in language proficiency upon arrival (due to

almost no language skills) among refugees emerges in the post-arrival period. This is probably due to female refugees' lower participation rate in language training than that of males. The opposite gender patterns in language course participation are true for other immigrants.

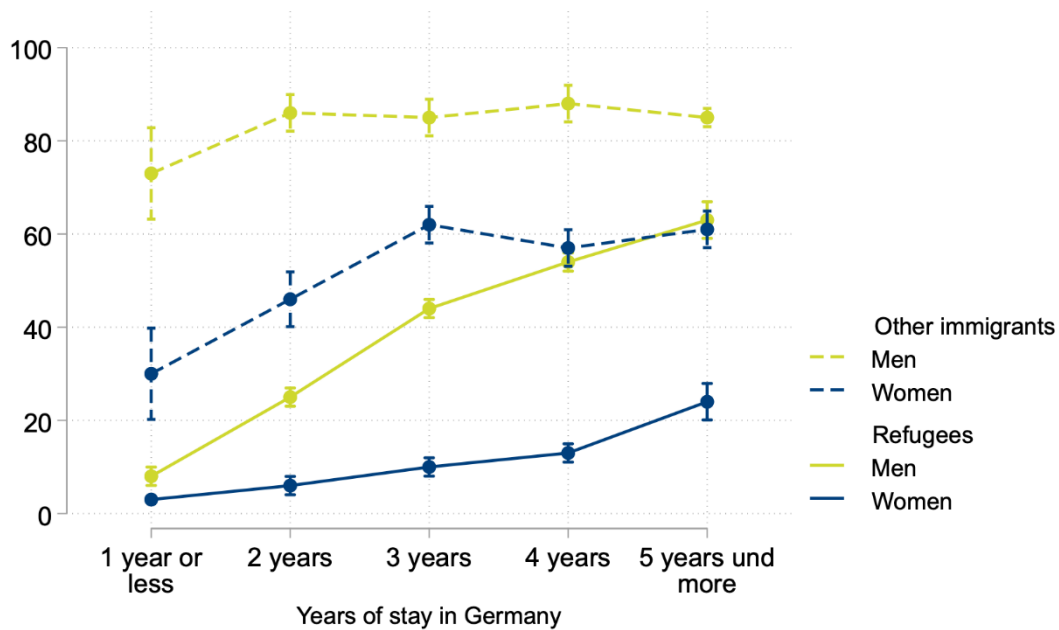
In terms of family structure, female refugees reside more frequently with a partner in the household and have more often children across all age categories than male refugees and other subgroups. Considering the low female-male labor activity in the CO, female refugees might have low motivation to be active in the German labor market. However, compared to male refugees, they report lower traditional gender roles. Compared to other immigrant women, female refugees report more often economic motives for migration, and almost all of them plan to stay permanently in Germany. These differences likely increase refugee women's incentive to invest in Germany-specific human qualifications.

Refugee women have, on average, the least contact with Germans and other immigrants, speaking in favor that they focus their social contacts predominantly on their family. Likewise, female refugees seem to suffer more from mental and physical challenges than the other subgroups. At the same time, female refugees have slightly more often secure residence permits and face shorter asylum procedures than male refugees.

5.2 Employment Gender Gap over the Duration of Stay among Refugees and Other Immigrants

The descriptive overview in the previous subsection supports the notion that refugees start from a less favorable position and are less equipped with labor market-relevant resources compared to other immigrants. This lack of relevant resources is reflected in refugees' lower employment rates at arrival in Germany, particularly for refugee women. As Figure 2 illustrates, in the year of arrival, the employment rate of refugees is below ten percent, with a small gender gap of five percentage points to the advantage of men. These initially modest gender differences widen over the duration of stay and amount to roughly 40 percentage points after five years. In contrast, the initial gender gap among other immigrants is much more pronounced (30 percent vs. 73 percent). Over time, however, this gender gap shrinks from 43 to 24 percentage points. These trends hint at the importance of initial disparities in labor market resources for labor market access.

Figure 2: Employment rate by gender and migration status, by years of stay in Germany
Share in percent



Note: Proportion of gainfully employed aged 15-64 in relation to the population of the same age. Weighted results.
Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

One common argument regarding the triple disadvantage of refugee women is that they are less interested in employment and have lower labor market orientation (Salikutluk/Menke, 2021). By exploring future work aspirations among those non-employed, our data allows testing this assumption, at least to some extent. The weighted mean statistics suggest that the working aspirations are slightly less pronounced among women than among men but are similar within immigrant subgroups: the share of the non-working population surely aspiring for future employment amounts to 64 percent among female refugees, to 68 percent among female immigrants, whereas this share makes 86-87 percent among refugee and immigrant men. These patterns are also stable over the duration of stay.

5.3 Explained and Unexplained Portions of the Employment Gender Gap among Refugees and Other Immigrants

In the next step, we disentangle how much the mechanisms identified in the literature contribute to explaining the employment gender gap among refugees and other immigrants. Table 2 contains the results of Blinder-Oaxaca decompositions of gender differences for both groups (detailed model results are presented in Supplemental files Section B).

Table 2: Explained and unexplained portions of the gender employment gap, by immigrant group and years of stay in Germany (Oaxaca-Blinder decomposition)

	Refugees				
	Gross gap in p.p.	Explained in p.p.	Explained in %	Unexplained in p.p.	Unexplained in %
Average, same mechanisms	26.40	12.29	46.55	14.11	53.45
Average, group-specific mechanisms	26.40	12.26	46.44	14.14	53.56
Years of stay					
2 years or less	13.21	9.01	68.21	4.21	31.87
3–4 years	37.17	13.62	36.64	23.55	63.36
5 years or more	38.41	18.16	47.28	20.26	52.75
Percentage change					
0–2 years to 3–4 years	181%	51%	-46%	459%	99%
0–2 years to 5 years or more	191%	102%	-31%	381%	66%
	Other immigrants				
	Gross gap in p.p.	Explained in p.p.	Explained in %	Unexplained in p.p.	Unexplained in %
Average, same mechanisms	27.37	5.18	18.93	22.19	81.07
Average, group-specific mechanisms	27.37	5.21	19.04	22.16	80.96
Years of stay					
2 years or less	41.55	11.20	26.96	30.34	73.02
3–4 years	27.51	4.73	17.19	22.78	82.81
5 years or more	24.35	4.34	17.82	20.01	82.18
Percentage change					
0–2 years to 3–4 years	-34%	-58%	-36%	-25%	13%
0–2 years to 5 years or more	-41%	-61%	-34%	-34%	13%

Notes: Weighted results.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

The upper part of the table illustrates the total (gross) difference between male and female refugees of 26 percentage points. Around half of this difference can be explained by the compositional differences and endowments in human capital, caring responsibilities, social contact, health status, and demographics. In the lower part of the table, we find a similar total gender difference among immigrants (27 percentage points). However, only one-fifth of this gap seems to be attributable to the considered indicators. Hence, our models seem to be more suitable for explaining the gender gap among refugees. Yet, the pronounced part of the gender differences cannot be explained by the models (refugees: 54%; other immigrants: 81%).

Next, we performed a set of decomposition analyses by the duration of stay in Germany to analyze how the total gender gap and the explained portions change over time in both groups. Conforming to the descriptive results, the gender differences among refugees increase drastically. Among refugees, who lived in Germany for at least five years, we find a total difference of 38 percentage points in employment. At the same time, the share of the explained part is the highest in the first two years after arrival and decreases afterward; the share of the unexplained gender gap correspondingly increases. In the groups of other immigrants, the patterns are somewhat different: while the total gender gap becomes smaller over the years, in general, the relative contribution of the labor market-relevant resources is higher in the first two years of stay in Germany.

All in all, while other immigrant women seem to catch up with their male counterparts over time, the gender gap among refugees rather widens. At the same time, the share of explained gender differences in employment is higher among refugees than among other immigrants. Over duration of stay, this explained share reduces for both groups, particularly for refugees. These results rather speak in favor of the cumulative (dis-)advantage thesis and is more so in regard to unobserved factors that may shape the employment gender gap. These cumulative (dis-)advantage seems to be more pronounced in the case of male and female refugees.

Importantly, given the differences in the timing of arrival between refugees and other immigrants, the observed disparities in the employment gender gap between both groups could be driven by different historical contexts or different group compositions. To rule out these concerns, we modeled employment probability regressed on the interaction effects between gender, months since arrival, and survey year fixed effects, and other model covariates for refugees and other immigrants. The three-way interaction effect is not statistically significant (results are available upon request).

5.4 Differences and Similarities in Sources and Trends in the Employment Gender Gap among Refugees and Other Immigrants

To uncover the mechanisms behind the gender differences over time, Table 3 presents the detailed components by the duration of stay for refugees and other immigrants.

Theoretically, we assumed that compositional differences in educational attainment and the type of acquired human capital before migration play an important role, especially for the gender gap among refugees. Noticeably, the components of educational attainment and the recognition status are small and shrink over time (mainly for refugees), whereas labor market experience and the type of job before migration are relevant for both refugees and other immigrants, particularly in the first two years after arrival. Furthermore, as women tend to have worked in jobs that are less easily transferable to the German labor market, their entrance seems to be more challenging (Kosyakova et al., 2022). Empirical studies so far have reported that refugee men enroll earlier than women in language and integration courses (Kosyakova/Brenzel, 2020). Our findings show that gender differences in destination language attainment are more important to access the labor market in the middle and long run than at the beginning and is more so for refugees than for the other immigrants.

Table 3: Components of the employment gender gap, by immigrant status and years of stay in Germany (Oaxaca-Blinder decomposition)

		Explained part			
		Average	0–2 years	3–4 years	5 years or more
Demographics	Refugees	1.03*	0.20	0.39	0.58
	Other immigrants	0.09	2.01	-0.55	0.12
Human capital	Refugees	0.15	0.25	0.12	-2.77
	Other immigrants	0.35	-0.40	0.46	0.20
Premigration labor market experience	Refugees	2.02*	2.43*	1.27	3.14
	Other immigrants	1.13	6.40	0.70	0.74
German language skills	Refugees	1.20*	0.27	1.99*	1.65
	Other immigrants	-0.06	-1.29	0.04	0.16
Care responsibilities	Refugees	4.92*	3.43*	6.03*	7.92*
	Other immigrants	1.07	1.38	1.17	1.06
Values and motivations	Refugees	0.01	0.07	-0.23	0.10
	Other immigrants	0.95	2.97	0.99	0.54
Social contacts	Refugees	0.78*	0.37	1.10*	3.44*
	Other immigrants	-0.03	-0.41	0.78	-0.33
Health status	Refugees	1.96*	1.53*	2.40*	1.61
	Other immigrants	1.34*	1.75	1.13	1.27*
Residency status	Refugees	-0.13	0.02	-0.16	0.32
	Other immigrants	0.07	0.26	-0.03	0.06
Structure	Refugees	0.14	0.07	0.17	0.40
	Other immigrants	0.26	0.98	-0.54	0.77
Data controls	Refugees	0.17	0.39	0.54*	1.77
	Other immigrants	0.06	-2.44	0.58	-0.25

Notes: * $p < 0.05$. Weighted results. Components of the unexplained part of the employment gender gap are presented in Supplemental files Table B3.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Another difference between both groups is that caring responsibilities seem to be more important for the gender gap among refugees. Against the descriptive findings that refugee women have more children in general and more children younger than two years, this finding is not surprising. However, it is notable that the share of the component for caring responsibilities grows over time. More than general gender role values and motivation to work, factual care responsibilities seem to drive refugee women's lower employment rate from the dynamic perspective.

Regarding other factors, the literature stresses the importance of social networks for immigrants to find a job (Gërxhani/Kosyakova, 2022). We assumed that part of the gender gap is due to the fact that refugee women have fewer contacts beyond their family networks. Indeed, in contrast to other immigrants, social contacts become more and more important for the employment gap between male and female refugees. Moreover, refugee women are more likely to have an impaired health status. While health status is a substantial component in explaining the gender differences in both groups, it is more pronounced among refugees and gains importance over the duration of stay.

6 Discussion and Conclusions

One of the major political and societal challenges accompanying the worldwide increase in migration is the labor market integration of refugees and other immigrants in the receiving countries. Immigrant groups differ by their migration motive in their selectivity and preparedness to take up employment after arriving in the new country. Previous research revealed that among the newcomers, women, especially refugee women, struggle more than their male counterparts in finding a job (see Kosyakova/Kogan, 2022). Hence, we set out empirically to examine what drives the triple disadvantage of refugee women that is observed in many receiving countries. For our empirical inquiry, we relied on highly comparable panel data allowing us to examine the changes in employment trajectories of the recent female and male refugees and other immigrants who entered Germany in a similar period.

The intersection of gender and immigrant group in labor market disparities provides new insight into the mechanisms attached to different resources and endowment the newcomers not only bring but also expand as they progress in receiving countries, particularly when viewed over time and across different groups. Our analyses show a clear refugee gap in employment rates in the first years after arrival in Germany. Within both groups, refugees and other immigrants, women have lower employment rates than their male counterparts, whereby refugee women are on the lowest employment level. Based on the theoretical arguments offered in the literature, we assumed that female refugees particularly start from a disadvantaged position in Germany due to their lower endowment with resources necessary to gain a foothold in the labor market. Our results underline the challenging starting position of refugee women: they have lower educational attainment on average, bring along different types of human capital, have lower German skills, more care responsibilities, fewer contacts beyond family networks, and deal with more health issues than all other subgroups.

Strikingly, the initial employment gender gap among refugees is smaller than among other immigrants, which can be traced back to the overall fewer initial ready-to-use resources refugees possess upon arrival and their correspondingly lower employment levels in the initial periods since arrival. The gender gap among refugees, however, increases drastically over time, owing to the pronounced employment gains of refugee men but not that of women. In turn, the gender gap among other immigrants narrows because immigrant women show more improvements in their employment situation compared to men. Consequently, at the end of our observation period of six years after arrival in Germany, the employment rate of refugee women is substantially lower compared to all other subgroups.

With our data, we had the rare possibility of applying decomposition techniques to disentangle the relevance of these initial differences in resource endowment. Generally, the assumed explanations for the gender gap among both groups seem to be more relevant in the case of refugees. Especially in the first years after arrival, we find evidence for the importance of human capital. Rather than the level of educational attainment, the labor market experience and the type of job before migration seem to play a role in the development of the gender gap among refugees. However, in the middle and long run, it is the language proficiency, caring responsibilities, social contacts outside the family, as well as the physical and mental health

deficiencies that seem to be responsible for female refugees' consistently low employment rates. Overall, our results speak in favor of the cumulative disadvantage thesis, especially in the case of refugees.

One important finding of this paper is that the theoretical arguments based on human capital, gender roles, social capital, health, and legal constraints for the employment gender gap do not fully solve this puzzle. The 'residual employment gap' part can be caused by unobserved differences in characteristics such as productivity, motivation, or preferences but is also often attributed to discrimination. In other words, employers may prefer – whether consciously or not – to hire men instead of women. Women with equal human capital, labor market experience in the country of origin, German language skills, care responsibilities, values and motivations, social contacts and health status have a lower chance to get an employment offer from the same employer than men. While discrimination cannot be proven on the basis of the present analysis, it cannot be ruled out either. Experimental research regularly demonstrates discrimination against migrants and women, individually and in combination (e.g., Di Stasio/Larsen, 2020). Notably, the 'residual employment gap' increases over the duration of stay for both groups, refugees, in particular, suggesting that unobserved resources and preferences or discrimination become even more pronounced after arrival.

Our findings shed light on the intersection of gender and immigrant group labor market disparities in the initial periods since arrival and how these change as immigrants progress in the receiving countries. There are, however, important limitations and unanswered questions that suggest avenues for future research. For instance, the focus on Germany clearly restricts the generalizability of the results for other countries, in part because of Germany's strict labor market boundaries and the role of credentials which are essential to immigrants' labor market opportunities. At the same time, despite the erosion of the male breadwinner model, gendered division of domestic and paid work endures via Germany's social and family policies (Trappe/Pollmann-Schult/Schmitt, 2015). Hence, to obtain a more complete picture of how cultural and institutional structure may shape gender inequalities among immigrants and refugees in the host labor markets, future research should apply the intersectional perspective across countries with various welfare regimes (Sainsbury, 2006). Likewise, considering the role of immigration and integration policies (Kanas/Steinmetz, 2021) may shed more light on the selection processes and, hence, the observed gendered patterns in the newcomers' integration outcomes.

Moreover, as for any empirical study involving different data sources, issues of harmonization are challenging and may impair comparisons of some relevant variables, particularly if those are included in only one dataset (e.g., regarding respondents' gender values orientation) or are measured differently, such as in the case of social contacts or language course participation. The two panels also covered somewhat different periods (2016–2019 for refugees and 2013–2019 for other immigrants). Another shortcoming is that our observation period encompasses immigrants and refugees in their early years since arrival. While this early period is crucial for later attainment processes, future research should examine whether refugee women are able to close the gender gap over a longer time period. Our descriptive accounts point to such a trend. Finally, we considered immigrants and refugees as aggregate groups; correspondingly, we were unable to consider the variation of gender differences within them (e.g., among refugees between mass

refugees and political refugees or internally displaced persons; among immigrants between economic immigrants, family immigrants, or repatriates). Larger sample sizes are required than those currently available to address this issue. Furthermore, the data does not allow to consider if women wear a hijab which is shown to be an important dimension for Muslim women's labor market outcomes (Fernández-Reino et al., 2022; Salikutluk/Menke, 2021).

From the policy perspective, it is important to stress that it is not the lacking motivation that hinders female refugees from taking-up employment – as our results imply, these women display pronounced working aspirations. Therefore, policy-makers should consider the specific situation of refugee women to support their labor market integration, particularly in light of the ongoing conflict in Ukraine and the growing number of refugee women in the Western Hemisphere (United Nations High Commissioner for Refugees, 2022). In particular, female refugees, as well as the receiving countries, would greatly benefit if their qualifications were recognized. Currently, Germany allows the most recent refugees from Ukraine to work as teachers or integration supporters at school. As a substantial part of female refugees from Syria and other countries who arrived between 2013 and 2016 worked as teachers in their home countries, they possess qualifications to assist younger refugees in the new countries' educational system. Furthermore, Germany – like many other European countries – urgently needs caregivers in nursing homes. Again, the pronounced share of female refugees with work experience in the health sector calls for recognizing their qualifications and on-the-job-trainings to boost their employment chances in skilled occupations.

Moreover, female refugees have the lowest language proficiency compared to all other groups. Improving their receiving-country language course opportunities early after arriving would benefit female refugees' labor market integration. Yet, to support language course participation and labor market access, childcare options need to be extended. Rather than gender role orientations, factual care responsibilities seem to be one of the main reasons female refugees stay away from the labor market. Acquiring language skills in earlier integration phases also enables refugee women to develop contacts with other immigrants' and natives' communities. These social contacts beyond kinship serve as important instruments not only for finding jobs but also for informing them on childcare opportunities and the labor market requirements. To reckon, examination of immigrant and refugee disadvantages through the gender lens gives important insights into the deficiencies on multiple fronts, which can and should be addressed via various policies. Only via such concerted effort, the immigrant and particularly refugee gender differences could be reduced.

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Appendix

Section A: Sample and measurements

Table A1 Differences and similarity in the data used

	IAB-BAMF-SOEP Survey of Refugees	IAB- SOEP Migration Sample
Survey information		
Survey years	2016-2019	2013-2019
Sampling source	Central Register of Foreigners	Register data from social security records of the Federal Employment Agency
Persons targeted	Asylum-seekers and refugees arriving in Germany between 2013 and 2016 and their household members (Kroh et al., 2017)	Individuals who immigrated to Germany between 1995 and 2013 and second-generation individuals born after 1976 and their household members (Kroh et al., 2015; Kühne/Kroh, 2017)
Oversampling	Refugees with residence permission, nationals of countries with presumptive eligibility for asylum status, women, and those over 30 years of age were oversampled (Brücker/Rother/Schupp, 2017)	Recent arrivals and certain countries (Italy, Greece, Spain, Turkey, Romania, the USSR, Yugoslavia successor states, Arab countries, Bulgaria, Romania, and Southern Europe), and ethnic Germans were oversampled (Brücker et al., 2014)
Household concept	Yes	Yes
Data collection	Computer-assisted personal interviews	Computer-assisted personal interviews
Languages questionnaires	Arabic, English, Farsi/Dari, German, Kurmanji, Pashto, and Urdu	English, Polish, Russian, Romanian, and Turkish
Sample information		
Immigrants' arrival years	2011-2019	2017-2018
Immigrants' origin countries (citizenship, ISO)	AFG, AGO, ALB, ARM, AZE, BFA, BGD, BIH, CIV, CMR, COG, DZA, EGY, ERI, ETH, GEO, GHA, GIN, GMB, IND, IRN, IRQ, JOR, KEN, KGZ, KOS, LBN, LBY, LKA, MAR, MDA, MKD, MLI, MNE, MNG, NER, NGA, NPL, PAK, PSE, ROU, RUS, RWA, SAU, SDN, SEN, SLE, SOM, SRB, SYR, TCD, TJK, TKM, TUN, TUR, UGA, UKR, UZB, YEM	AFG, AGO, ALB, ARG, ARM, AUS, AUT, AZE, BEL, BEN, BGD, BGR, BIH, BLR, BRA, BWA, CHE, CHL, CHN, CMR, COG, COL, CUB, CZE, DEU, DNK, DOM, DZA, ECU, EGY, ESP, FIN, FRA, GBR, GEO, GHA, GMB, GRC, HRV, HUN, IND, IRL, IRN, IRQ, ISR, ITA, JAM, JOR, JPN, KAZ, KEN, KGZ, KOR, KOS, LBN, LKA, LTU, LUX, LVA, MAR, MEX, MKD, MNE, MNG, MYS, NER, NGA, NLD, NOR, NPL, NZL, PAK, PER, PHL, POL, PRT, PSE, ROU, RUS, SRB, SVK, SVN, SWE, SYR, TGO, THA, TJK, TKM, TUN, TUR, TWN, UKR, URY, USA, UZB, VEN, VNM, ZAF

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Table A2 Analysis samples after cases were excluded from the original samples

	Refugees		Other immigrants	
	Persons	Person-years	Persons	Person-years
Original sample	8321	18342	7641	26203
Cases excluded				
Refugees: respondents who received the non-refugee questionnaire ¹ ; other immigrants: German-born individuals and refugees	81	108	2562	8729
Respondents with non-valid weights (> 0, nonmissing) in the first interview ² or observations with non-valid weights in the follow-up interviews	10	80	2	66
Years of stay at the first interview exceeded 6 years or arrival year is missing	262	397	3080	11344
Age at arrival < 18, age at arrival > 55, age at arrival is missing	767	1455	121	310
= Analysis sample	7201	16302	1876	5756

Notes: 1) Respondents received non-refugee questionnaire might be household members without refugee background. 2) All observations of respondents without valid weight in their first interview are excluded as well.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Table A3 Number of observations per years of stay for refugees and other immigrants

Years of stay	Refugees	Other immigrants
Less than one year	198	30
2 years	3220	147
3 years	4671	440
4 years	3999	747
5 years	3058	926
6 years	853	952
7 years	253	920
8 years	42	626
9 years	8	432
10 years	-	267
11 years	-	156
12 years	-	73

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Table A4 Variable definitions

	Refugees IAB-BAMF-SOEP Survey of Refugees (M3, M4, M5)	Other immigrants IAB-SOEP Migration Sample (M1, M2)
Dependent variable		
Gainful employment (TV)	Self-reported employment status defined as work performed in return for pay or profit. Accordingly, we count respondents who were full- or part-time employed, in vocational education or internships or apprenticeships, and those marginally employed at the time of the interview as being employed as long as they indicate gross monthly earnings above zero.	
Demographics		
Female	Variable indicating whether respondents are female (1) or male (0).	
Months of stay (TV)	Difference in months between the date of the interview and the date of arrival (i.e., the last entry into Germany).	
Age at immigration	Difference between the year of arrival (i.e., the last entry into Germany) and the year of birth.	
Human capital		
Cognitive skills	Digit-Symbol Test Assesses perceptual information-processing speed (Lang et al., 2007). Respondents had to match symbols with numbers using a correspondence table in which nine symbols were assigned to numbers. Within 90 seconds, symbols were randomly shown, and the respondents had to enter the corresponding number (1–9). Test scores denote the share of correctly solved items. Measure is standardized with a mean of zero and a standard deviation of one. Higher values of the measure indicate higher levels of cognitive skills.	
Education in CO	Based on a variant of the International Standard Classification of Education with 0 “less than primary”, 1 “primary”, 2 “lower secondary”, 3 “upper secondary, postsecondary nontertiary”, and 4 “tertiary” (Brücker/Rother/Schupp, 2017, pp. 34–36).	
Recognition of credentials (TV)	Based on the block of questions regarding training and educational qualifications from the biographical questionnaire and the block of questions regarding credentials recognition from the questionnaire for panel respondents with 0 “no application”, 1 “fully/partly recognized”, 3 “not recognized”, and 4 “under consideration”.	
Education degree in Germany (TV)	Variable indicating whether respondents have attained an educational degree in Germany (including school education, vocational training, apprenticeship, higher education and other forms of training). This information was derived either from calendar data of individuals’ life histories or from survey questions.	
Labor market experience in CO		
With work experience	Variable indicating whether respondents worked before migration, with 1 “yes” and 0 “no”.	
Work experience in years	Based on the self-reported information regarding employment before migration and the so-called “calendar block” with annual information about the activities that respondents pursued starting from the age of 15. We code years respondents having been employed in the country of origin or a transit country before arriving in Germany.	
Sector of economy	Derived from the industry of economic activity for all employed persons according to the Statistical Classification of Economic Activities in the European Community (Nomenclature des statistiques des activités économiques de la Communauté européenne - NACE) for the last job before migrating to Germany. NACE scores were aggregated into the following branches of economy: 1 “primary”, 2 “secondary”, 3 “tertiary”, 4 “education”, 5 “healthcare and social work”, 6 “other quaternary”, or 7 “never worked”.	
German language skills		
Premigration language proficiency	Additive index of how well respondents could speak, read, and write German before moving to Germany. Answer categories range from 0 “very well” to 4 “not at all”. Scales were reversed so a higher score indicates a higher level of proficiency.	
Postmigration language proficiency (TV)	Additive index of how well respondents can speak, read, and write German before moving to Germany. Answer categories range from 0 “very well” to 4 “not at all”. Scales were reversed so a higher score indicates a higher level of proficiency.	
Language course (TV for refugees)	Variable indicating whether respondents participated or is participating in a German language course, with 1 “yes” and 0 “no”.	Variable indicating whether respondents took German classes in their country of origin or in Germany with 1 “yes” and 0 “no”.

	Refugees IAB-BAMF-SOEP Survey of Refugees (M3, M4, M5)	Other immigrants IAB-SOEP Migration Sample (M1, M2)
Care responsibilities		
Partner in the household (TV)	Variable indicating whether respondents reside with a partner in household (1), or not (0).	
Children < 17 (TV)	Variable indicating children below the age of 17 living in the household with 0 “no children”, 1 “children aged between 0–2”, 2 “children aged between 3–6”, or 3 “children aged between 6–16”. Information on children and their birth year was derived from the household questionnaire.	
Values and motivations		
Female/male labor activity in CO (TV)	Continuous variable measured as the ratio of female-to-male ratio of labor force participation in the country of origin (current or previous nationality). We consider the survey-year specific female/male labor force participation. Data on year-CO-level female/male labor force participation was downloaded from World Bank (The World Bank, 2021). Higher values of the measure indicate higher levels of female labor force participation relative to that of male.	
Traditional gender-role, employment	Based on self-reported degree of agreement based on participants’ agreement with two items on a 7-point scale from 1 (totally disagree) to 7 (totally agree): 1) Having a job is the best way for a woman to be independent. 2) Even a married woman should have a paid job so that she can be financially independent. The response scale of both items was reversed so that higher values denote higher levels of disagreement. All two items were used to create a mean index. Measure is standardized with a mean of zero and a standard deviation of one. Higher values of the measure indicate higher levels of traditional gender-roles.	
Traditional gender-role, power	Based on self-reported degree of agreement based on participants’ agreement with three items on a 7-point scale from 1 (totally disagree) to 7 (totally agree): 1) If a woman earns more money than her partner, this inevitably leads to problem. 2) For parents, vocational training or higher education for their sons should be more important than vocational training or higher education for their daughters. 3) At home, the husband should have the final say. All three items were used to create a mean index. Measure is standardized with a mean of zero and a standard deviation of one. Higher values of the measure indicate higher levels of traditional gender-roles.	
Economic orientation	Variable indicating whether respondents’ main reasons for leaving the origin country was economic, with 1 “yes” and 0 “no” (not mentioned).	Variable indicating whether respondents’ main reasons for migrating to Germany was economic, with 1 “yes” and 0 “no” (other).
Family-/network orientation	Variable indicating whether respondents’ main reasons for leaving the origin country was family- or network-related, with 1 “yes” and 0 “no” (not mentioned).	Variable indicating whether respondents’ main reasons for migrating to Germany was family-related, with 1 “yes” and 0 “no” (other).
Intention to stay (TV)	Dummy variable indicating whether respondents intend to stay in Germany permanently with 1 “permanently” and 0 “return within a year/stay for several years”.	

	Refugees IAB-BAMF-SOEP Survey of Refugees (M3, M4, M5)	Other immigrants IAB-SOEP Migration Sample (M1, M2)
Social contacts		
Contact with Germans (TV)	Variable indicating how often respondents spend time with German people, with 1 “every day/several times per week/every week” and 0 “every month/less often/never”.	Variable indicating whether respondents visited Germans in the last year or whether respondents were visited by Germans in last year, with 1 if they answered “yes” to either one of the two questions and 0 if they answered “no” to both questions.
Contact with other immigrants (TV)	Variable indicating how often respondents spend time with people from their country of origin who are not related to them or people from other countries with 1 “every day/several times per week/every week” and 0 “every month/less often/never”.	Variable indicating whether respondents visited non-Germans or persons with non-German parents in the last year or whether respondents were visited by non-Germans or persons with non-German parents in last year, with 1 if they answered “yes” to either one of the two questions and 0 if they answered “no” to both questions.
Health status		
Mental health index (TV)	Mental health scores are calculated based on four subscales: mental health, role emotional, social functioning and vitality (Andersen et al., 2007). Index can take values between 0 and 100, with higher values indicating better health.	
Physical health index (TV)	Physical health scores are calculated based on four subscales: general health, role physical, physical functioning and bodily pain (Andersen et al., 2007). Index can take values between 0 and 100, with higher values indicating better health.	
Traumatic experience	A dummy variable based on the question regarding experience of one or more traumatic experience (financial fraud or financial exploitation; sexual harassment; physical attacks; shipwreck; robbery; blackmail; imprisonment) during the journey or escape. The question was asked only if the respondent agreed to report his or her experiences connected with the escape. The dummy refers to 1 “with traumatic experience” if the respondents reported at least one such experience” versus 0 “not traumatic experience”.	
Residency status		
Status of asylum request (TV)	Status of asylum request Status of the asylum application and, if applicable, type of decision. Missing values were replaced with respondents’ legal status. Variable can take the following values: 1 “pending”, 2 “approved”, 3 “rejected”, and 4 “resettlement (including entry on humanitarian grounds)”.	
Length of pending asylum procedure (TV)	For respondents whose application is still pending, the length is calculated as the difference between the date of the asylum request and the date of the interview. Individuals who have received a decision about their asylum request are assigned a value of 0.	
Permanent residency (TV)	Permanent residency Respondents were asked about their current legal residency status, which can be 1 “permanent” or 0 “temporary”. Nationality information was used as secondary information for respondents with missing values for residency status. Individuals with an EU nationality are assumed to have permanent residency status.	

	Refugees IAB-BAMF-SOEP Survey of Refugees (M3, M4, M5)	Other immigrants IAB-SOEP Migration Sample (M1, M2)
Regional controls		
Unemployment rate	Continuous variable measured as the percentage of all civilian labor force (employed + unemployed) registered with the Federal Employment Agency as unemployed. We consider the survey-year specific unemployment rate in the district of respondents' residence in Germany. Data on year-district-level unemployment rate was downloaded from INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2021). Measure is standardized with a mean of zero and a standard deviation of one. Higher values of the measure indicate higher levels of unemployment.	
Share of foreigners	Continuous variable capturing the survey-year specific number of foreigners as a share of the total population in the district of respondents' residence in Germany. Data on year-district-level share of foreigners was downloaded from INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2021). Measure is standardized with a mean of zero and a standard deviation of one. Higher values of the measure indicate higher levels of foreigners share.	
Population density	Continuous variable measuring the average number of people living per km2 for each German district. We consider the survey-year specific population density in the district of respondents' residence in Germany in 2017. Data on year-district-level population density was downloaded from INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2021). Measure is standardized with a mean of zero and a standard deviation of one. Higher values of the measure indicate higher levels of population density.	
Data controls		
Survey year (TV)	Variable indicating survey year with 1 "2016", 2 "2017", 3 "2018" or 4 "2019".	Variable indicating survey year with 1 "2013", 2 "2014", 3 "2015", 4 "2016", 5 "2017", 6 "2018", or 7 "2019".
Sample	Variable indicating whether respondents belong to 1 "M3", 2 "M4" or 3 "M5".	Variable indicating whether respondents belong to 1 "M1" or 0 "M2".

Notes: TV indicates "time varying"; variables without this addition refer to time-invariant measures.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Table A5 Descriptive statistics for refugee and other immigrants

	Refugees			Other immigrants			
	N	Mean	SD	N	Mean	SD	Range
Demographics							
Female	16302	0.39		5756	0.56		0/1
Months of stay	16302	34.44	15.83	5756	62.89	27.15	0–150
Age at immigration	16302	31.76	9.22	5756	31.37	8.29	18–55
Human capital							
Digit-Symbol Test (standardized)	7762	0.00	1.00	4030	0.00	1.00	-11–0.4
Education in CO	15239			5578			
Less than primary		0.19			0.01		0/1
Primary		0.20			0.04		0/1
Lower secondary		0.23			0.17		0/1
Upper secondary/ Postsecondary nontertiary		0.23			0.17		0/1
Tertiary		0.13			0.35		0/1
Recognition of credentials	7937			3360			
No application		0.84			0.70		0/1
Fully/partly recognized		0.07			0.19		0/1
Not recognized		0.01			0.04		0/1
Under consideration		0.08			0.06		0/1
Education degree in Germany	16302	0.02		5756	0.12		0/1
Labor market experience in CO							
With work experience	15932	0.67		5293	0.71		0/1
Work experience in years	9000	11.51	8.48	3182	9.53	7.89	0.5–40
Sector of economy	9817			3620			
Primary		0.08			0.02		0/1
Secondary		0.26			0.35		0/1
Tertiary		0.42			0.33		0/1
Education		0.10			0.06		0/1
Healthcare and social work		0.05			0.08		0/1
Other quaternary		0.10			0.15		0/1
German language skills							
Premigration language proficiency	16253	0.27	1.24	5608	3.01	3.61	1–12
Postmigration language proficiency	16288	5.72	2.96	3927	7.41	2.94	1–12
Language course	16288	0.82		5618	0.65		0/1
Care responsibilities							
Partner in the household	16146	0.41		5432	0.39		0/1
Children < 17	16073			5754			
No children		0.31			0.42		0/1
Children aged between 0–2		0.28			0.22		0/1
Children aged between 3–6		0.19			0.20		0/1
Children aged between 6–16		0.21			0.16		0/1
Values and motivations							
Female/male labor activity in CO	16299	27.73	20.08	5756	70.38	14.54	8.7–101.7
Traditional gender-role, employment	15005	0.00	1.00	-	-	-	-0.7–3.2
Traditional gender-role, power	14466	0.00	1.00	-	-	-	-1.0–2.9
Economic orientation	16132	0.43		5519	0.44		0/1
Family-/network orientation	16132	0.18		5519	0.46		0/1
Intention to stay (permanently)	15877	0.96		5539	0.77		0/1
Social contacts							
Contact with Germans	16252	0.69		5672	0.86		0/1
Contact with other immigrants	16262	0.81		5672	0.93		0/1
Health status							

	Refugees			Other immigrants			Range
	N	Mean	SD	N	Mean	SD	
Mental health index	9923	48.32	11.60	2103	52.91	8.48	4.6–79.4
Physical health index	9923	53.03	10.07	2103	53.07	8.86	10.8–77.8
Traumatic experience	9926	0.51		-	-	-	0/1
Residency status							
Residence title	16024						
No residence permission		0.72		-	-	-	0/1
Temporary residence permission		0.06		-	-	-	0/1
Other		0.19		-	-	-	0/1
No residence permission		0.03		-	-	-	0/1
Length of asylum procedure	8797	8.33	7.55	-	-	-	0–67
Permanent residence	-	-	-	5552	0.84	0.36	0/1
Regional controls							
Unemployment rate, in percent	16302	6.23	2.82	5756	6.21	2.80	1.3–16.4
Population density	16302	935	1085	5756	1310	1391	36–4736
Share of foreigners, in percent	16302	11.49	5.13	5756	12.83	6.17	1.0–35.9
Data controls							
Sample	16303			5756			
M1		-	-		0.38	-	0/1
M2		-	-		0.62	-	0/1
M3		0.34			-	-	0/1
M4		0.39			-	-	0/1
M5		0.27			-	-	0/1
Survey year	16303			5756			
2013		-	-		0.09		0/1
2014		-	-		0.07		0/1
2015		-	-		0.27		0/1
2016		0.25			0.18		0/1
2017		0.31			0.15		0/1
2018		0.23			0.13		0/1
2019		0.21			0.11		0/1

Notes: CO = Country of origin.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Section B: Detailed Models

Table B1 Linear regression of probability of paid work, in percentage points, standard errors are clustered at the person level

	Refugees				Other immigrants			
	M1.1 Coef.	SE	M1.2 Coef.	SE	M2.1 Coef.	SE	M2.2 Coef.	SE
Female	-14.11*	(1.51)	-14.14*	(1.53)	-22.19*	(2.38)	-22.16*	(2.38)
Demographics								
Months of stay	0.60*	(0.07)	0.66*	(0.07)	0.09	(0.05)	0.09	(0.05)
Age at immigration	-0.03	(0.10)	-0.02	(0.10)	0.15	(0.18)	0.14	(0.18)
Human capital								
Digit-Symbol Test, std.	0.43	(0.69)	0.46	(0.69)	1.06	(1.10)	1.05	(1.10)
Education in CO (Ref. Primary)								
Less than primary	-0.14	(1.97)	-0.05	(1.97)	3.38	(13.10)	3.47	(13.27)
Lower secondary	2.23	(1.97)	2.23	(1.98)	0.57	(5.99)	0.38	(5.95)
Upper secondary/ Postsecondary nontertiary	3.15	(2.01)	3.28	(2.01)	2.30	(5.47)	2.19	(5.44)
Tertiary	3.25	(2.59)	3.33	(2.63)	-1.55	(5.97)	-1.66	(5.93)
Recognition of credentials (Ref. Fully/partly recognized)								
No application	-1.06	(3.07)	-0.86	(3.07)	-6.84*	(2.83)	-6.85*	(2.83)
Not recognized	4.53	(6.21)	4.58	(6.21)	-11.70	(6.58)	-11.84	(6.58)
Under consideration	-0.02	(3.69)	0.11	(3.67)	-8.99	(5.21)	-9.11	(5.22)
Education degree in Germany	-0.16	(4.64)	-0.25	(4.62)	2.02	(2.94)	2.09	(2.94)
Labor market experience in CO Sector of economy (Ref. Primary)								
Secondary	-3.89	(3.80)	-4.33	(3.79)	5.62	(8.61)	5.85	(8.62)
Tertiary	-2.49	(3.64)	-2.83	(3.63)	10.62	(8.66)	10.82	(8.66)
Education	-5.49	(4.29)	-5.93	(4.28)	14.29	(9.51)	14.71	(9.51)
Healthcare and social work	-10.66*	(4.97)	-10.97*	(4.94)	2.41	(9.59)	2.46	(9.60)
Other quaternary	-2.48	(4.15)	-2.82	(4.15)	7.36	(9.05)	7.62	(9.03)
Never worked	-10.29*	(3.80)	-10.48*	(3.79)	-5.24	(8.66)	-5.04	(8.67)
Work experience in years	-0.27*	(0.12)	-0.28*	(0.13)	-0.38	(0.21)	-0.37	(0.21)
German language skills								
Premigration language proficiency	-0.14	(0.59)	-0.06	(0.59)	1.10*	(0.34)	1.09*	(0.35)
Postmigration language proficiency	1.45*	(0.25)	1.47*	(0.25)	-0.07	(0.50)	-0.10	(0.50)
Language course	-4.70*	(1.53)	-4.99*	(1.57)	-1.70	(2.20)	-1.52	(2.19)
Care responsibilities								
Partner in the household	-1.30	(1.17)	-1.27	(1.17)	-1.66	(2.71)	-1.84	(2.75)
Children < 17 (Ref. no children)								
Children aged between 0–2	-12.98*	(1.50)	-12.88*	(1.49)	-27.87*	(2.78)	-27.69*	(2.81)
Children aged between 3–6	-7.65*	(1.70)	-7.58*	(1.68)	-7.68*	(3.17)	-7.58*	(3.16)
Children aged between 6–16	-7.32*	(1.64)	-7.32*	(1.63)	1.91	(2.96)	1.87	(2.95)
Values and motivations								
Female/male labor activity in the origin country	0.10*	(0.03)	0.12*	(0.03)	0.37*	(0.09)	0.35*	(0.09)
Traditional gender-role, employment, std.			0.20	(0.58)				
Traditional gender-role, power, std.			0.39	(0.65)				
Economic orientation	-1.39	(1.24)	-1.60	(1.25)	1.33	(3.98)	0.97	(4.02)
Family-/network orientation	-0.53	(1.51)	-0.66	(1.51)	-3.61	(3.99)	-3.85	(4.00)
Intention to stay (permanently)	0.21	(2.81)	0.61	(2.81)	1.04	(2.35)	1.02	(2.35)

	Refugees				Other immigrants			
	M1.1		M1.2		M2.1		M2.2	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Social contacts								
Contact with Germans	12.22*	(1.08)	12.24*	(1.08)	8.72*	(3.00)	8.58*	(2.97)
Contact with other immigrants	-2.50	(1.30)	-2.54*	(1.29)	5.15	(4.13)	5.15	(4.13)
Health status								
Mental health index	0.36*	(0.05)	0.35*	(0.05)	0.36*	(0.15)	0.36*	(0.15)
Physical health index	0.26*	(0.08)	0.26*	(0.08)	0.67*	(0.14)	0.67*	(0.14)
Traumatic experience			0.43	(1.28)				
Residency status								
Residence title (Ref. residence permission)								
No residence permission			-3.72	(2.52)				
Temporary residence permission			1.65	(1.52)				
Other			5.13	(2.79)				
Length of asylum procedure			-0.15	(0.08)				
Permanent residency							2.06	(3.00)
Regional controls								
Unemployment rate, std.	-3.12*	(0.68)	-3.08*	(0.67)	-6.30*	(1.34)	-6.28*	(1.34)
Share of foreigners, std.	-0.26	(0.83)	-0.24	(0.83)	-0.12	(1.82)	-0.14	(1.81)
Population density, std.	0.68	(0.95)	0.68	(0.95)	1.18	(1.82)	1.23	(1.82)
_cons	-26.92*	(8.30)	-28.15*	(8.54)	-9.42	(17.58)	-8.98	(17.54)
N observations	16302		16302		5756		5756	
N individuals	7201		7201		1876		1876	
N imputations	25		25		25		25	

Notes: * p<0.05. Additionally, we controlled for year of the survey and sample. Weighted results.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Table B2 Gender-specific linear regression of probability of paid work, in percentage points, standard errors are clustered at the person level

	Refugees				Other immigrants			
	Women		Men		Women		Men	
	M1.3		M1.4		M2.3		M2.4	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Demographics								
Months of stay	0.33*	(0.08)	0.77*	(0.11)	0.12*	(0.06)	0.09	(0.07)
Age at immigration	0.04	(0.09)	-0.21	(0.18)	0.22	(0.23)	-0.17	(0.25)
Human capital								
Digit-Symbol Test (standardized)	0.55	(0.67)	0.40	(0.90)	1.35	(1.37)	1.12	(1.64)
Education in CO (Ref. Primary)								
Less than primary	-2.21	(1.87)	1.25	(2.70)	5.33	(16.54)	-2.75	(25.77)
Lower secondary	-0.14	(2.13)	3.62	(2.55)	1.72	(6.78)	-0.36	(10.43)
Upper secondary/ Postsecondary nontertiary	-0.25	(2.28)	4.96	(2.61)	-9.05	(6.39)	9.57	(9.60)
Tertiary	1.63	(2.80)	5.02	(3.49)	-14.70*	(6.89)	10.08	(10.29)
Recognition of credentials (Ref. Fully/partly recognized)								
No application	-0.39	(4.50)	-0.50	(3.67)	-10.88*	(3.74)	-0.44	(3.98)
Not recognized	4.37	(10.11)	2.78	(7.07)	-8.30	(7.00)	-11.78	(10.16)
Under consideration	3.96	(5.09)	0.09	(4.49)	-7.64	(6.58)	-4.26	(7.63)
Education degree in Germany	7.81	(8.32)	-3.74	(5.03)	-0.37	(3.55)	5.28	(3.82)
Labor market experience in CO								
Sector of economy (Ref. Primary)								
Secondary	-6.10	(9.30)	-3.35	(3.95)	1.90	(13.60)	1.38	(9.60)
Tertiary	-8.17	(8.70)	-1.31	(3.78)	6.30	(13.43)	4.40	(9.68)
Education	-10.36	(8.64)	-4.49	(5.33)	7.12	(13.94)	9.55	(10.34)
Healthcare and social work	-12.59	(9.28)	-10.29	(6.32)	-2.01	(14.38)	-2.08	(10.91)
Other quaternary	-14.71	(8.76)	-0.03	(4.41)	7.53	(13.91)	-2.42	(10.32)
Never worked	-11.89	(8.68)	-10.94*	(4.15)	-9.14	(13.42)	-7.76	(9.88)
Work experience in years	-0.09	(0.17)	-0.08	(0.19)	-0.57	(0.32)	0.06	(0.25)
German language skills								
Premigration language proficiency	0.47	(0.73)	0.04	(0.72)	1.64*	(0.42)	0.72	(0.47)
Postmigration language proficiency	1.14*	(0.25)	1.60*	(0.33)	0.30	(0.75)	-0.59	(0.51)
Language course	-2.11	(1.37)	-5.29*	(2.37)	-1.35	(3.03)	-2.88	(2.73)
Care responsibilities								
Partner in the household	-0.14	(1.25)	-2.15	(1.89)	-5.85	(3.40)	-0.45	(3.54)
Children < 17 (Ref. no children)								
Children aged between 0–2	-12.21*	(1.87)	-10.58*	(2.11)	-50.74*	(3.25)	0.02	(3.34)
Children aged between 3–6	-4.11	(2.28)	-8.95*	(2.33)	-15.53*	(4.34)	0.48	(3.93)
Children aged between 6–16	-1.52	(2.12)	-11.08*	(2.37)	2.73	(3.92)	-1.64	(4.03)
Values and motivations								
Female/male labor activity in CO	0.10*	(0.04)	0.14*	(0.04)	0.51*	(0.11)	0.22	(0.12)
Traditional gender-role, employment	0.22	(0.53)	0.10	(0.78)				
Traditional gender-role, power	0.13	(0.56)	0.58	(0.85)				
Economic orientation	-0.56	(1.22)	-2.07	(1.69)	4.15	(5.43)	3.66	(5.46)
Family-/network orientation	1.07	(1.61)	-2.08	(2.19)	-3.44	(5.38)	1.99	(5.38)
Intention to stay (permanently)	-1.41	(2.40)	1.04	(3.83)	3.23	(3.02)	-1.09	(3.04)
Social contacts								
Contact with Germans	6.63*	(1.04)	14.01*	(1.49)	3.14	(3.88)	10.76*	(4.22)
Contact with other immigrants	-1.06	(1.25)	-2.17	(2.01)	8.97	(5.65)	3.11	(4.57)

	Refugees				Other immigrants			
	Women		Men		Women		Men	
	M1.3		M1.4		M2.3		M2.4	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Health status								
Mental health index	0.14*	(0.06)	0.44*	(0.07)	0.30	(0.17)	0.33	(0.19)
Physical health index	0.17*	(0.07)	0.32*	(0.10)	0.61*	(0.17)	0.65*	(0.19)
Traumatic experience	0.83	(1.49)	0.33	(1.69)				
Residency status								
Residence title (Ref. residence permission)								
No residence permission	5.71	(3.15)	-6.84*	(3.26)				
Temporary residence permission	1.14	(1.61)	1.02	(1.93)				
Other	4.12	(2.60)	3.52	(3.89)				
Length of asylum procedure	-0.09	(0.11)	-0.14	(0.11)				
Permanent residency					1.74	(3.52)	3.77	(4.12)
Regional controls								
Unemployment rate	-1.47*	(0.63)	-3.76*	(0.91)	-6.82*	(1.69)	-5.37*	(1.64)
Share of foreigners	-1.01	(0.81)	0.11	(1.12)	-1.41	(2.28)	2.82	(2.56)
Log of population density	0.41	(0.87)	0.79	(1.24)	2.57	(2.36)	-1.62	(2.28)
_cons	-10.77	(11.85)	-41.70*	(11.43)	-23.49	(23.57)	-4.35	(23.92)
N observations	6418		9884		3235		2521	
N individuals	2964		4237		1032		844	
N imputations	25		25		25		25	

Notes: * p<0.05. Additionally, we controlled for year of the survey and sample. Weighted results.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Table B3 Components of the unexplained part of the employment gender gap, by immigrant status and years of stay in Germany (Oaxaca-Blinder decomposition)

		Unexplained part			
		Average	0–2 years	3–4 years	5 years or more
Demographics	Refugees	7.94	12.37	5.59	-15.25
	Other immigrants	-13.51	20.56	-9.66	8.6
Human capital	Refugees	2.88	3.13	3.1	-0.63
	Other immigrants	15.19	-0.21	11.38	14.84
Premigration labor market experience	Refugees	4.61	-0.67	10.1	10.51
	Other immigrants	2.66	14.03	13.42	-5.59
German language skills	Refugees	0.04	-1.87	-0.62	11.61
	Other immigrants	-10.67	0.87	-6.61	-15.35
Care responsibilities	Refugees	-2.82	-3.44*	-3.22	11.42
	Other immigrants	12.65*	-1.34	14.93*	13.38*
Values and motivations	Refugees	2.49	-4.46	7.57	28.51
	Other immigrants	-20.41	-28.95	-9.06	-22.88
Social contacts	Refugees	4.03	2.44	6.65	1.71
	Other immigrants	1.05	-4.83	4.31	2.84
Health status	Refugees	21.69*	14.32	28.74*	5.94
	Other immigrants	3.76	-4.09	-22.34	17.72
Residency status	Refugees	-1.75	-1.76	-2.39	-2.63
	Other immigrants	1.57	-4.05	4.7	4.44
Structure	Refugees	-0.02	-0.25	0.68*	-0.89
	Other immigrants	0.11	-0.23	-0.01	0.38
Data controls	Refugees	6.14*	1.01	3.42	1.05
	Other immigrants	0.43	-9.12	2.37	6.09
Constant	Refugees	-31.09*	-16.61	-36.06	-31.11
	Other immigrants	29.33	47.71	19.35	-4.47

Notes: * p<0.05. Weighted results.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Section C: Probability of labor force participation

Table C1 Linear regression of probability of labor force participation, in percentage points, standard errors are clustered at the person level

	Refugees				Other immigrants			
	M1.5		M1.6		M2.5		M2.6	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Female	-26.81*	(1.70)	-26.71*	(1.71)	-19.63*	(1.97)	-19.60*	(1.97)
Demographics								
Months of stay	0.66*	(0.06)	0.70*	(0.07)	0.05	(0.05)	0.05	(0.05)
Age at immigration	-0.07	(0.10)	-0.05	(0.10)	0.34*	(0.15)	0.33*	(0.15)
Human capital								
Digit-Symbol Test (standardized)	0.20	(0.70)	0.18	(0.70)	-0.30	(1.07)	-0.31	(1.08)
Education in CO (Ref. Primary)								
Less than primary	-1.97	(1.98)	-2.15	(1.98)	-2.48	(10.04)	-2.38	(10.20)
Lower secondary	1.49	(1.94)	1.27	(1.95)	3.99	(6.09)	3.73	(6.00)
Upper secondary/ Postsecondary nontertiary	-0.01	(2.03)	-0.12	(2.01)	1.99	(5.86)	1.85	(5.79)
Tertiary	2.98	(2.43)	2.87	(2.42)	0.59	(6.17)	0.45	(6.10)
Recognition of credentials (Ref. Fully/partly recognized)								
No application	-5.06	(3.03)	-5.14	(3.05)	-7.11*	(2.76)	-7.14*	(2.75)
Not recognized	2.22	(6.12)	2.30	(6.12)	-5.26	(6.46)	-5.44	(6.42)
Under consideration	0.64	(3.47)	0.60	(3.47)	-5.61	(4.16)	-5.75	(4.16)
Education degree in Germany	9.28*	(3.25)	9.22*	(3.27)	3.15	(2.66)	3.24	(2.66)
Labor market experience in CO Sector of economy (Ref. Primary)								
Secondary	2.00	(3.45)	1.80	(3.47)	8.64	(7.19)	8.95	(7.21)
Tertiary	3.85	(3.29)	3.67	(3.30)	10.97	(7.28)	11.23	(7.30)
Education	-0.86	(3.99)	-0.99	(3.99)	14.60	(8.13)	15.15	(8.09)
Healthcare and social work	-2.65	(4.49)	-2.86	(4.52)	4.71	(7.88)	4.77	(7.90)
Other quaternary	4.65	(3.90)	4.53	(3.91)	9.86	(7.41)	10.20	(7.43)
Never worked	-8.48*	(3.42)	-8.40*	(3.42)	-4.47	(7.23)	-4.21	(7.26)
Work experience in years	-0.17	(0.13)	-0.17	(0.13)	-0.36*	(0.17)	-0.35*	(0.17)
German language skills								
Premigration language proficiency	-0.12	(0.54)	-0.12	(0.53)	0.40	(0.32)	0.39	(0.32)
Postmigration language proficiency	1.70*	(0.26)	1.73*	(0.26)	0.71	(0.48)	0.68	(0.48)
Language course	-1.55	(1.64)	-1.48	(1.68)	-3.04	(1.90)	-2.81	(1.91)
Care responsibilities								
Partner in the household	-1.50	(1.35)	-1.42	(1.35)	-0.50	(2.37)	-0.73	(2.36)
Children < 17 (Ref. no children)								
Children aged between 0–2	-14.33*	(1.62)	-14.15*	(1.61)	-26.97*	(2.58)	-26.73*	(2.56)
Children aged between 3–6	-8.14*	(1.85)	-7.95*	(1.84)	-6.24*	(2.80)	-6.10*	(2.78)
Children aged between 6–16	-6.84*	(1.78)	-6.71*	(1.77)	1.08	(2.44)	1.02	(2.43)
Values and motivations								
Female/male labor activity in CO	0.06*	(0.03)	0.07*	(0.03)	0.26*	(0.07)	0.24*	(0.08)
Traditional gender-role, employment			-0.34	(0.60)				
Traditional gender-role, power			0.21	(0.64)				
Economic orientation	1.37	(1.26)	1.32	(1.28)	3.08	(3.34)	2.61	(3.35)
Family-/network orientation	-1.76	(1.46)	-1.80	(1.46)	0.08	(3.38)	-0.23	(3.38)
Intention to stay (permanently)	1.15	(2.72)	1.17	(2.74)	-0.12	(1.83)	-0.15	(1.83)

	Refugees				Other immigrants			
	M1.5		M1.6		M2.5		M2.6	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Social contacts								
Contact with Germans	11.15*	(1.27)	11.07*	(1.27)	5.06*	(2.49)	4.89*	(2.49)
Contact with other immigrants	-2.59	(1.40)	-2.59	(1.39)	5.39	(3.70)	5.39	(3.70)
Health status								
Mental health index	0.07	(0.06)	0.07	(0.06)	0.24	(0.15)	0.23	(0.15)
Physical health index	0.19*	(0.08)	0.19*	(0.08)	0.74*	(0.13)	0.73*	(0.13)
Traumatic experience			1.22	(1.34)				
Residency status								
Residence title (Ref. residence permission)								
No residence permission			0.32	(2.60)				
Temporary residence permission			2.39	(1.60)				
Other			3.20	(2.77)				
Length of asylum procedure			-0.11	(0.09)				
Permanent residency							2.63	(2.52)
Regional controls								
Unemployment rate	-2.01*	(0.75)	-2.01*	(0.74)	-3.90*	(1.19)	-3.87*	(1.19)
Share of foreigners	2.84*	(0.84)	2.92*	(0.85)	-1.71	(1.50)	-1.73	(1.50)
Log of population density	-1.62	(0.92)	-1.59	(0.91)	2.88	(1.63)	2.94	(1.63)
_cons	13.55	(8.95)	11.23	(9.05)	-0.29	(16.64)	0.27	(16.60)
N observations	16302		16302		5756		5756	
N individuals	7201		7201		1876		1876	
N imputations	25		25		25		25	

Notes: * p<0.05. Additionally, we controlled for year of the survey and sample. Weighted results.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Table C2 Gender-specific linear regression of probability of labor force participation, in percentage points, standard errors are clustered at the person level

	Refugees				Other immigrants			
	Women		Men		Women		Men	
	M1.7		M1.8		M2.7		M2.8	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Demographics								
Months of stay	0.51*	(0.09)	0.74*	(0.09)	0.09	(0.06)	0.02	(0.06)
Age at immigration	-0.13	(0.11)	-0.07	(0.18)	0.33	(0.20)	0.02	(0.19)
Human capital								
Digit-Symbol Test (standardized)	1.11	(0.98)	-0.12	(0.88)	-0.29	(1.48)	0.01	(1.01)
Education in CO (Ref. Primary)								
Less than primary	-4.79*	(2.31)	-0.66	(2.65)	-2.61	(11.08)	-4.81	(21.36)
Lower secondary	1.93	(2.57)	1.11	(2.44)	0.67	(6.24)	4.01	(10.40)
Upper secondary/ Postsecondary nontertiary	-0.60	(2.76)	0.22	(2.52)	-10.07	(6.13)	7.80	(9.83)
Tertiary	2.41	(3.39)	3.60	(3.11)	-11.39	(6.45)	8.19	(10.26)
Recognition of credentials (Ref. Fully/partly recognized)								
No application	-11.24	(6.03)	-3.57	(3.45)	-9.65*	(3.51)	-2.05	(3.22)
Not recognized	2.20	(13.53)	0.76	(6.62)	-1.56	(6.72)	-7.72	(9.65)
Under consideration	1.62	(6.83)	0.25	(4.01)	-2.22	(5.84)	-3.50	(5.85)
Education degree in Germany	16.34	(10.50)	6.16	(3.40)	2.71	(3.45)	4.45	(3.52)
Labor market experience in CO								
Sector of economy (Ref. Primary)								
Secondary	-2.46	(8.76)	2.63	(3.70)	13.31	(12.99)	3.67	(7.75)
Tertiary	-2.88	(8.17)	4.80	(3.55)	13.22	(13.25)	4.61	(7.70)
Education	-7.80	(8.20)	-0.79	(5.07)	16.65	(13.72)	6.76	(8.25)
Healthcare and social work	-13.09	(8.67)	1.23	(5.63)	5.92	(13.93)	2.70	(8.44)
Other quaternary	-9.23	(8.63)	7.24	(4.23)	16.68	(13.35)	0.91	(7.93)
Never worked	-12.24	(7.95)	-7.40	(3.83)	-0.65	(13.26)	-5.06	(8.20)
Work experience in years	-0.01	(0.20)	-0.17	(0.20)	-0.27	(0.25)	-0.15	(0.20)
German language skills								
Premigration language proficiency	-0.01	(0.81)	0.01	(0.66)	0.46	(0.39)	0.54	(0.40)
Postmigration language proficiency	2.07*	(0.34)	1.46*	(0.34)	1.14	(0.73)	-0.21	(0.43)
Language course	-2.10	(1.88)	-1.70	(2.46)	-3.49	(2.62)	-1.99	(2.26)
Care responsibilities								
Partner in the household	-1.38	(1.73)	-0.95	(1.97)	-2.14	(2.94)	-0.95	(2.63)
Children < 17 (Ref. no children)								
Children aged between 0–2	-19.66*	(2.55)	-9.40*	(2.13)	-51.60*	(3.18)	2.96	(2.55)
Children aged between 3–6	-6.87*	(2.91)	-10.10*	(2.37)	-13.70*	(3.96)	1.56	(3.18)
Children aged between 6–16	-0.70	(2.65)	-13.22*	(2.39)	-0.32	(3.50)	0.60	(2.92)
Values and motivations								
Female/male labor activity in CO	0.08	(0.05)	0.07	(0.04)	0.35*	(0.10)	0.11	(0.10)
Traditional gender-role, employment	-0.13	(0.72)	-0.42	(0.80)				
Traditional gender-role, power	0.27	(0.77)	0.33	(0.82)				
Economic orientation	2.69	(1.65)	0.62	(1.65)	2.66	(4.18)	7.82	(4.57)
Family-/network orientation	-0.97	(1.73)	-2.52	(2.04)	-3.22	(4.15)	7.59	(4.62)
Intention to stay (permanently)	-1.17	(3.20)	1.46	(3.50)	0.15	(2.78)	-1.06	(2.14)
Social contacts								
Contact with Germans	6.14*	(1.50)	13.05*	(1.69)	3.30	(3.63)	1.58	(2.72)
Contact with other immigrants	-2.21	(1.71)	-1.92	(2.04)	7.53	(5.37)	4.44	(4.00)

	Refugees				Other immigrants			
	Women		Men		Women		Men	
	M1.7		M1.8		M2.7		M2.8	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Health status								
Mental health index	-0.02	(0.09)	0.12	(0.08)	0.17	(0.17)	0.26	(0.18)
Physical health index	0.22*	(0.09)	0.17	(0.11)	0.74*	(0.16)	0.65*	(0.16)
Traumatic experience	0.49	(1.88)	1.64	(1.72)				
Residency status								
Residence title (Ref. residence permission)								
No residence permission	6.78*	(3.37)	-2.51	(3.30)				
Temporary residence permission	3.82	(2.23)	1.10	(1.99)				
Other	1.76	(3.11)	2.21	(3.86)				
Length of asylum procedure	-0.08	(0.12)	-0.11	(0.10)				
Permanent residency					5.06	(3.41)	0.09	(3.08)
Regional controls								
Unemployment rate	-1.26	(0.95)	-2.33*	(0.95)	-5.04*	(1.59)	-2.51*	(1.26)
Share of foreigners	0.21	(1.12)	4.05*	(1.10)	-2.06	(2.16)	-0.09	(1.59)
Log of population density	-1.10	(1.27)	-1.84	(1.10)	3.60	(2.28)	0.86	(1.76)
_cons	15.36	(14.21)	4.03	(11.91)	-15.02	(22.12)	13.58	(21.59)
N observations	6418		9884		3235		2521	
N individuals	2964		4237		1032		844	
N imputations	25		25		25		25	

Notes: * p<0.05. Additionally, we controlled for year of the survey and sample. Weighted results.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Table C3 Explained and unexplained portions of the gender labor force participation, by immigrant group and years of stay in Germany (Oaxaca-Blinder decomposition)

	Gross gap in p.p.	Explained in p.p.	Refugees		
			Explained in %	Unexplained in p.p.	Unexplained in %
Average, same mechanisms	41.77	14.96	35.82	26.81	64.18
Average, group-specific mechanisms	41.77	15.06	36.05	26.71	63.95
Years of stay					
2 years or less	32.47	13.05	40.19	19.42	59.81
3–4 years	49.88	15.12	30.31	34.76	69.69
5 years or more	42.55	13.14	30.88	29.41	69.12
Percentage change					
0–2 years to 3–4 years	54%	16%	-25%	79%	17%
0–2 years to 5 years or more	31%	1%	-23%	51%	16%

	Gross gap in p.p.	Explained in p.p.	Other immigrants		
			Explained in %	Unexplained in p.p.	Unexplained in %
Average, same mechanisms	24.76	5.12	20.68	19.63	79.28
Average, group-specific mechanisms	24.76	5.16	20.84	19.60	79.16
Years of stay					
2 years or less	41.46	8.42	20.31	33.04	79.69
3–5 years	23.44	5.54	23.63	17.91	76.41
6 years or more	22.01	4.02	18.26	17.99	81.74
Percentage change					
0–2 years to 3–5 years	-43%	-34%	16%	-46%	-4%
0–2 years to 6 years or more	-47%	-52%	-10%	-46%	3%

Notes: Weighted results.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Table C4 Components of the gender labor force participation gap, by immigrant group and years of stay in Germany (Oaxaca-Blinder decomposition)

		Explained part			
		Average	0–2 years	3–4 years	5 years or more
Demographics	Refugees	1.16*	0.24	0.69	-0.28
	Other immigrants	0.37	1.2	0.15	0.3
Human capital	Refugees	0.69*	0.48	0.92*	-0.98
	Other immigrants	0.3	-0.04	0.92	0.1
Premigration labor market experience	Refugees	3.78*	4.17*	3.52*	3.14
	Other immigrants	1.56*	3.72	1.78	0.93
German language skills	Refugees	2.01*	1.27*	2.02*	2.28
	Other immigrants	-0.13	-1.7	-0.08	0.19
Care responsibilities	Refugees	5.21*	4.56*	5.56*	5.55*
	Other immigrants	1.05	1.63	1.22	0.99
Values and motivations	Refugees	0.01	0.53	-0.5	-1.09
	Other immigrants	0.54	3.49*	0.19	0.51
Social contacts	Refugees	0.67*	0.58	0.76*	1.42
	Other immigrants	-0.07	-0.13	0.61	-0.29
Health status	Refugees	1.25*	0.91	1.56*	1.34
	Other immigrants	1.28*	1.44	0.94	1.29*
Residency status	Refugees	0.02	0.25	-0.07	0.22
	Other immigrants	0.09	0.22	-0.06	0.03
Structure	Refugees	0.1	-0.1	0.19	0.28
	Other immigrants	0.12	1.03	-0.42	0.18
Data controls	Refugees	0.17	0.16	0.49*	1.28
	Other immigrants	0.06	-2.43	0.3	-0.21
		Unexplained part			
		Average	0–2 years	3–4 years	5 years or more
Demographics	Refugees	9.66	14.47	1.57	-19.37
	Other immigrants	-14.41	-5.78	-10.53	0.33
Human capital	Refugees	0	0.06	0.16	0.56
	Other immigrants	13.48	-2.08	-0.35	23.82
Premigration labor market experience	Refugees	5.87	7.38	3.83	7.31
	Other immigrants	-7.2	22.95	0.76	-20.61
German language skills	Refugees	-3.2	-4.41	-8.37	19.7
	Other immigrants	-8.98	-9.17	-0.25	-14.72*
Care responsibilities	Refugees	0.49	-1.58	1.75	17.89*
	Other immigrants	12.65*	4.22	16.08*	11.49*
Values and motivations	Refugees	0.91	-5.75	4.26	20.79
	Other immigrants	-9.89	-9.23	8.44	-22.07
Social contacts	Refugees	4.88	5.47	8.53*	-11.13
	Other immigrants	-4.39	-8.58	-4.55	-3.16
Health status	Refugees	4.24	1.54	5.03	9.12
	Other immigrants	-0.17	-1.35	-31.76	11.09
Residency status	Refugees	-1.75	-0.54	-1.85	-8.44
	Other immigrants	-3.8	-2.32	1.3	-4.34
Structure	Refugees	0.11	-0.54*	0.65	-0.75
	Other immigrants	-0.08	-1.03	-0.3	-0.39
Data controls	Refugees	9.15*	4.77	-0.42	-25.6
	Other immigrants	6.28	6.87	4.93	10.41*
Constant	Refugees	-3.64	-1.45	19.61	19.33
	Other immigrants	36.12	38.54	34.14	26.14

Notes: * p<0.05. Weighted results.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Section D: Probability of unemployment

Table D1 Linear regression of probability of unemployment, in percentage points, standard errors are clustered at the person level

	Refugees				Other immigrants			
	M1.9		M1.10		M2.9		M2.10	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Female	5.05	(2.97)	4.72	(3.02)	7.84*	(2.00)	7.84*	(2.00)
Demographics								
Months of stay	-0.54*	(0.11)	-0.60*	(0.12)	-0.07	(0.04)	-0.07	(0.04)
Age at immigration	0.11	(0.22)	0.12	(0.22)	0.15	(0.14)	0.16	(0.14)
Human capital								
Digit-Symbol Test (standardized)	-0.24	(1.10)	-0.30	(1.12)	-1.52	(1.23)	-1.52	(1.23)
Education in CO (Ref. Primary)								
Less than primary	-2.89	(3.39)	-3.08	(3.43)	-9.38	(17.34)	-9.45	(17.44)
Lower secondary	-3.63	(3.25)	-3.91	(3.25)	0.46	(5.08)	0.45	(5.08)
Upper secondary/ Postsecondary nontertiary	-6.97*	(3.12)	-7.32*	(3.15)	-3.71	(4.60)	-3.74	(4.61)
Tertiary	-3.69	(3.88)	-4.06	(3.96)	-0.45	(4.92)	-0.48	(4.92)
Recognition of credentials (Ref. Fully/partly recognized)								
No application	-2.07	(4.07)	-2.45	(4.08)	0.93	(2.37)	0.93	(2.37)
Not recognized	-1.83	(7.41)	-1.91	(7.34)	9.61	(5.61)	9.65	(5.60)
Under consideration	0.63	(4.86)	0.32	(4.86)	5.61	(4.67)	5.63	(4.67)
Education degree in Germany	8.59	(5.68)	8.49	(5.53)	0.17	(2.23)	0.15	(2.23)
Labor market experience in CO								
Sector of economy (Ref. Primary)								
Secondary	6.57	(4.68)	7.22	(4.64)	1.98	(4.86)	1.95	(4.86)
Tertiary	5.74	(4.40)	6.14	(4.35)	-1.84	(4.92)	-1.86	(4.92)
Education	6.33	(5.79)	7.06	(5.75)	-2.15	(5.69)	-2.21	(5.73)
Healthcare and social work	13.26*	(6.59)	13.64*	(6.54)	1.38	(5.75)	1.38	(5.75)
Other quaternary	6.15	(4.97)	6.57	(4.93)	0.83	(5.38)	0.80	(5.34)
Never worked	13.39*	(4.89)	13.54*	(4.86)	2.42	(4.96)	2.39	(4.96)
Work experience in years	0.20	(0.24)	0.21	(0.24)	0.09	(0.18)	0.08	(0.18)
German language skills								
Premigration language proficiency	-0.13	(0.91)	-0.29	(0.88)	-0.90*	(0.26)	-0.89*	(0.26)
Postmigration language proficiency	-1.73*	(0.41)	-1.73*	(0.41)	0.70*	(0.34)	0.71*	(0.35)
Language course	3.27	(3.18)	3.69	(3.15)	-0.68	(1.73)	-0.71	(1.71)
Care responsibilities								
Partner in the household	1.84	(2.34)	1.88	(2.33)	1.02	(2.10)	1.05	(2.16)
Children < 17 (Ref. no children)								
Children aged between 0–2	12.56*	(2.57)	12.41*	(2.58)	8.11*	(2.91)	8.08*	(2.96)
Children aged between 3–6	7.38*	(3.02)	7.34*	(2.99)	2.90	(2.25)	2.89	(2.25)
Children aged between 6–16	7.76*	(3.05)	7.72*	(3.04)	-1.10	(2.16)	-1.08	(2.16)
Values and motivations								
Female/male labor activity in CO	-0.13*	(0.05)	-0.16*	(0.05)	-0.26*	(0.08)	-0.26*	(0.08)
Traditional gender-role, employment			-0.92	(0.93)				
Traditional gender-role, power			-0.80	(1.02)				
Economic orientation	3.35	(1.90)	3.81*	(1.91)	2.40	(2.71)	2.45	(2.76)
Family-/network orientation	1.49	(2.59)	1.44	(2.59)	4.86	(2.88)	4.90	(2.90)
Intention to stay (permanently)	0.96	(4.57)	-0.05	(4.61)	-1.90	(2.00)	-1.90	(1.99)

	Refugees				Other immigrants			
	M1.9		M1.10		M2.9		M2.10	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Social contacts								
Contact with Germans	-16.69*	(2.23)	-16.89*	(2.23)	-7.92*	(3.00)	-7.90*	(2.97)
Contact with other immigrants	1.14	(2.58)	1.20	(2.56)	0.28	(3.18)	0.29	(3.18)
Health status								
Mental health index	-0.59*	(0.10)	-0.58*	(0.10)	-0.19	(0.11)	-0.19	(0.11)
Physical health index	-0.40*	(0.13)	-0.41*	(0.13)	-0.07	(0.12)	-0.07	(0.12)
Traumatic experience			0.59	(2.02)				
Residency status								
Residence title (Ref. residence permission)								
No residence permission			5.85	(3.88)				
Temporary residence permission			-1.16	(2.40)				
Other			-3.09	(4.98)				
Length of asylum procedure			0.14	(0.13)				
Permanent residency							-0.38	(2.61)
Regional controls								
Unemployment rate	4.45*	(1.04)	4.48*	(1.04)	4.21*	(1.04)	4.21*	(1.04)
Share of foreigners	2.78*	(1.32)	2.82*	(1.32)	-1.47	(1.55)	-1.46	(1.55)
Log of population density	-2.28	(1.50)	-2.33	(1.51)	0.95	(1.53)	0.94	(1.53)
_cons	139.56*	(13.91)	140.13*	(14.37)	37.62*	(14.28)	37.62*	(14.27)
N observations	6448		6448		4500		4500	
N individuals	3655		3655		1631		1631	
N imputations	25		25		25		25	

Notes: * p<0.05. Additionally, we controlled for year of the survey and sample. Weighted results.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Table D2 Gender-specific linear regression of probability of unemployment, in percentage points, standard errors are clustered at the person level

	Refugees				Other immigrants			
	Women		Men		Women		Men	
	M1.11		M1.12		M2.11		M2.12	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Demographics								
Months of stay	-0.20	(0.25)	-0.64*	(0.13)	-0.07	(0.06)	-0.09	(0.05)
Age at immigration	-0.42	(0.31)	0.32	(0.26)	0.05	(0.19)	0.21	(0.20)
Human capital								
Digit-Symbol Test (standardized)	-0.14	(2.22)	-0.22	(1.19)	-2.12	(1.85)	-1.11	(1.37)
Education in CO (Ref. Primary)								
Less than primary	-6.96	(8.96)	-3.08	(3.67)	-20.54	(24.79)	-1.78	(18.48)
Lower secondary	2.74	(7.67)	-5.14	(3.50)	-4.31	(7.25)	2.71	(7.76)
Upper secondary/ Postsecondary nontertiary	-4.43	(8.05)	-8.54*	(3.39)	-0.87	(6.94)	-4.69	(6.99)
Tertiary	-5.01	(8.99)	-4.63	(4.34)	4.84	(7.56)	-4.78	(7.17)
Recognition of credentials (Ref. Fully/partly recognized)								
No application	-15.94	(9.78)	-0.54	(4.39)	3.83	(3.70)	-1.42	(2.80)
Not recognized	-24.48	(20.64)	-0.01	(7.69)	9.30	(6.84)	6.02	(6.50)
Under consideration	-8.95	(10.03)	1.46	(5.39)	8.76	(6.99)	1.63	(5.79)
Education degree in Germany	1.12	(11.24)	9.81	(5.75)	1.93	(3.45)	-1.34	(2.55)
Labor market experience in CO								
Sector of economy (Ref. Primary)								
Secondary	20.99	(17.73)	6.99	(4.74)	14.87	(10.31)	2.33	(5.36)
Tertiary	22.68	(16.49)	5.44	(4.44)	9.45	(9.67)	-0.20	(5.50)
Education	20.81	(17.42)	6.36	(6.41)	13.37	(10.52)	-3.44	(5.93)
Healthcare and social work	24.28	(18.18)	13.93*	(6.95)	11.95	(10.53)	5.18	(6.70)
Other quaternary	36.84	(19.47)	4.60	(5.03)	12.45	(10.45)	3.74	(6.05)
Never worked	16.83	(16.48)	14.25*	(5.12)	15.38	(9.74)	3.79	(5.63)
Work experience in years	0.16	(0.48)	0.06	(0.27)	0.45	(0.30)	-0.23	(0.19)
German language skills								
Premigration language proficiency	-2.83	(1.79)	-0.15	(0.93)	-1.58*	(0.38)	-0.32	(0.34)
Postmigration language proficiency	-2.12*	(0.87)	-1.72*	(0.45)	0.62	(0.55)	0.45	(0.39)
Language course	4.06	(6.95)	4.59	(3.43)	-0.65	(2.96)	1.10	(1.92)
Care responsibilities								
Partner in the household	0.51	(4.67)	2.29	(2.65)	4.75	(3.68)	0.12	(2.43)
Children < 17 (Ref. no children)								
Children aged between 0–2	27.51*	(6.65)	10.44*	(2.80)	21.36*	(6.90)	2.39	(2.61)
Children aged between 3–6	8.42	(6.30)	7.66*	(3.39)	3.84	(3.40)	1.07	(2.62)
Children aged between 6–16	7.42	(5.68)	8.56*	(3.53)	-3.37	(2.89)	1.86	(2.85)
Values and motivations								
Female/male labor activity in CO	-0.25*	(0.10)	-0.15*	(0.05)	-0.50*	(0.14)	-0.15	(0.09)
Traditional gender-role, employment	0.24	(2.29)	-0.82	(1.00)				
Traditional gender-role, power	-0.64	(2.17)	-0.67	(1.09)				
Economic orientation	11.81*	(4.42)	3.12	(2.07)	-1.40	(4.52)	3.26	(3.21)
Family-/network orientation	-4.36	(6.05)	2.60	(2.81)	1.38	(4.82)	4.79	(3.21)
Intention to stay (permanently)	-0.48	(9.90)	0.46	(5.07)	-5.04	(3.05)	0.20	(2.35)
Social contacts								
Contact with Germans	-28.92*	(5.25)	-15.15*	(2.42)	-3.02	(4.69)	-10.82*	(3.50)
Contact with other immigrants	1.91	(5.03)	1.49	(2.94)	-2.35	(5.75)	0.45	(3.09)

	Refugees				Other immigrants			
	Women		Men		Women		Men	
	M1.11		M1.12		M2.11		M2.12	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Health status								
Mental health index	-0.57*	(0.23)	-0.60*	(0.10)	-0.21	(0.16)	-0.11	(0.12)
Physical health index	-0.39	(0.27)	-0.41*	(0.14)	-0.07	(0.17)	-0.09	(0.14)
Traumatic experience	-2.95	(5.26)	0.76	(2.18)				
Residency status								
Residence title (Ref. residence permission)								
No residence permission	-4.95	(7.04)	7.44	(4.28)				
Temporary residence permission	-0.12	(6.15)	-1.34	(2.57)				
Other	-17.84	(11.34)	-1.76	(5.29)				
Length of asylum procedure	0.24	(0.28)	0.12	(0.14)				
Permanent residency					0.39	(3.66)	-3.81	(3.01)
Regional controls								
Unemployment rate	5.86*	(2.45)	4.14*	(1.12)	4.69*	(1.41)	3.54*	(1.39)
Share of foreigners	5.76*	(2.81)	2.30	(1.43)	0.04	(2.15)	-3.10	(2.07)
Log of population density	-5.64	(3.20)	-1.82	(1.62)	-0.77	(2.23)	2.36	(1.95)
_cons	162.91*	(31.20)	133.77*	(15.54)	56.81*	(24.33)	33.39	(17.37)
N observations	1020		5428		2171		2329	
N individuals	701		2954		824		807	
N imputations	25		25		25		25	

Notes: * p<0.05. Additionally, we controlled for year of the survey and sample. Weighted results.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Table D3 Explained and unexplained portions of the gender labor force participation, by immigrant group and years of stay in Germany (Oaxaca-Blinder decomposition)

	Gross gap in p.p.	Explained in p.p.	Refugees		
			Explained in %	Unexplained in p.p.	Unexplained in %
Average, same mechanisms	-11.75	-6.70	57.02	-5.05	42.98
Average, group-specific mechanisms	-11.75	-7.02	59.74	-4.72	40.17
Years of stay					
2 years or less	-3.56	-9.32	261.80	5.76	-161.80
3–4 years	-17.46	-7.30	41.81	-10.16	58.19
5 years or more	-13.77	-11.82	85.84	-1.96	14.23
Percentage change					
0–2 years to 3–4 years	390%	-22%	-84%	-276%	-136%
0–2 years to 5 years or more	287%	27%	-67%	-134%	-109%

	Gross gap in p.p.	Explained in p.p.	Other immigrants		
			Explained in %	Unexplained in p.p.	Unexplained in %
Average, same mechanisms	-6.51	1.32	-20.28	-7.84	120.43
Average, group-specific mechanisms	-6.51	1.32	-20.28	-7.84	120.43
Years of stay					
2 years or less	-9.44	-3.85	40.78	-5.59	59.22
3–5 years	-8.04	1.68	-20.90	-9.72	120.90
6 years or more	-5.49	1.38	-25.14	-6.87	125.14
Percentage change					
0–2 years to 3–5 years	-15%	-144%	-151%	74%	104%
0–2 years to 6 years or more	-42%	-136%	-162%	23%	111%

Notes: Weighted results.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

Table D4 Components of the gender unemployment gap, by immigrant group and years of stay in Germany (Oaxaca-Blinder decomposition)

		Explained part			
		Average	0–2 years	3–4 years	5 years or more
Demographics	Refugees	-0.11	-1.01	-0.59	-1.68
	Other immigrants	0.26	-0.53	0.34	0.17
Human capital	Refugees	0.45	-0.34	0.44	3.02
	Other immigrants	-0.31	0.58	-0.05	-0.05
Premigration labor market experience	Refugees	-1.49	-2.34	-0.45	-1.32
	Other immigrants	0.18	-2.90	1.01	-0.03
German language skills	Refugees	0.11	0.31	0.02	-0.45
	Other immigrants	-0.10	-1.32	-0.28	0.14
Care responsibilities	Refugees	-3.11*	-3.35*	-3.04*	-6.69*
	Other immigrants	0.83*	-2.60	0.91*	0.87
Values and motivations	Refugees	0.11	0.76	-0.30	-2.33
	Other immigrants	0.63	2.43	0.61	0.65
Social contacts	Refugees	0.13	1.04	-0.28	0.16
	Other immigrants	0.16	0.34	-0.32	0.32
Health status	Refugees	-2.84*	-3.69*	-2.58*	-1.50
	Other immigrants	-0.29	-0.71	-0.34	-0.21
Residency status	Refugees	-0.16	0.03	0.00	-0.96
	Other immigrants	0.01	-0.23	-0.11	-0.03
Structure	Refugees	0.12	0.20	-0.01	-0.02
	Other immigrants	-0.04	-0.13	0.44	-0.62
Data controls	Refugees	-0.24	-0.93	-0.50	-0.05
	Other immigrants	0.00	1.21	-0.54	0.17

		Unexplained part			
		Average	0–2 years	3–4 years	5 years or more
Demographics	Refugees	5.11	3.34	11.53	17.26
	Other immigrants	4.14	-19.57	-0.37	-4.62
Human capital	Refugees	-3.72	-12.66	-4.28	5.37
	Other immigrants	-3.97	3.17	-5.87	1.98
Premigration labor market experience	Refugees	-11.82	10.54	-19.22	-20.03
	Other immigrants	-15.11	11.51	-16.54	-16.25
German language skills	Refugees	4.24	-4.25	14.87	-39.83
	Other immigrants	4.04	-22.08	5.44	5.21
Care responsibilities	Refugees	-1.80	1.61	-4.25	-0.69
	Other immigrants	-2.84*	6.18	-2.57	-4.08*
Values and motivations	Refugees	2.37	4.89	10.61	-79.30*
	Other immigrants	32.08*	37.50	40.55*	15.44
Social contacts	Refugees	10.61	16.97	14.72	24.87
	Other immigrants	-4.21	3.38	-12.86	-3.20
Health status	Refugees	-0.73	-18.70	8.81	47.64
	Other immigrants	3.99	5.49	2.95	-1.93
Residency status	Refugees	0.30	7.83	-0.42	-15.32
	Other immigrants	-3.33	6.67	-1.15	-7.18
Structure	Refugees	-0.15	0.13	-0.29	-1.12
	Other immigrants	-0.02	-0.14	-0.32	-0.46
Data controls	Refugees	5.04	1.57	6.44	5.25
	Other immigrants	6.04	6.73	-2.40	3.49
Constant	Refugees	-14.18	-5.49	-48.68	53.94
	Other immigrants	-28.64	-44.42	-16.58	4.72

Notes: * $p < 0.05$. Additionally, we controlled for year of the survey and sample. Weighted results.

Data source: Refugees: IAB-BAMF-SOEP Survey of Refugees 2016–2019. Other immigrants: IAB-SOEP Migration Sample 2013–2019.

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