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German Socio-Economic Panel (SOEP)
DIW Berlin
Mohrenstrasse 58
10117 Berlin, Germany
Contact: soeppapers@diw.de

Gendered Implications of Restricted Residence Obligation Policies on Refugees' Employment in Germany

Adriana R. Cardozo Silva[1], Yuliya Kosyakova[2], Aslıhan Yurdakul[3]

Abstract

This paper investigates the gender-specific impact of settlement policies on the labor market integration of refugees in Germany, utilizing a gender-specific approach. Analyzing data from the IAB- BAMF-SOEP Refugees Survey (2016-2020) through a pooled logit model with an intention-to-treat design, we explore how restrictive residency obligation policies, in conjunction with local conditions in the assigned county—such as local labor market conditions and ethnic enclaves – influence outcomes. Results reveal that female refugees experience reduced employment prospects, independent of mobility restrictions, while the residency obligation policy bears a significant negative impact on employed male refugees. In turn, the impact of analyzed local labor market characteristics and linguistic enclaves on employment probability remains consistent across gender and residency obligation. Our results highlight the multidimensional nature of refugees' labor market integration and underscore the significance of gender-sensitive approaches.

[1] Researcher at the Socio-Economic Panel (SOEP). German Institute for Economic Research, DIW Berlin.

[2] Associate professor at the University of Bamberg and a head of the research department at the Institute for Employment Research (IAB), Nuremberg, Germany.

3 Ph.D. at Demo&Soc Research Group, Pompeu Fabra University, Barcelona, Spain, and Visiting Researcher at the Socio-Economic Panel (SOEP). German Institute for Economic Research, DIW Berlin.

Introduction

With the rising global population of forcibly displaced individuals, it becomes increasingly crucial to comprehensively investigate the mechanisms underlying the socio-economic integration of refugees into host societies. Extensive research has consistently revealed the existence of employment and income disparities between refugees and other immigrant groups in European countries, pointing to a slow and inefficient integration process (Brell, et al., 2020; Dustmann, et al., 2017; Kanas & Steinmetz, 2020). These gaps can be attributed to, among other things, the implementation of restrictive policies imposed on refugees, including employment bans, settlement dispersal policies, and severe restrictions on their residential mobility after arrival (Kosyakova & Kogan, 2022; Marbach, et al., 2018). Specifically, previous research has consistently identified the negative and persistent impact of dispersal and restricted residential policies on refugees' labor market outcomes integration in European countries (Fasani, et al., 2021; Edin, et al., 2003).

Despite the existing literature on settlement policies, there is a research gap on the gendered impact of these policies on refugees' access to paid work. [4] Examining the impact of settlement policies by gender is however important for several reasons. First, studies demonstrate that refugee women experience lower employment rates compared to refugee men and other immigrant women, highlighting the need for a gender-focused approach to understand and address these disparities (Salikutluk & Menke, 2021; Kosyakova, et al., 2023). Second, access to paid work is crucial for the economic empowerment and independence of refugee women.

[4] A study by Bevelander, Mata, and Pendakur (2019) compared male and female refugees in Canada and Sweden. They found that male refugees who chose their own housing had higher employment rates than those who accepted government-subsidized accommodation in smaller municipalities with few immigrants. However, no significant differences were observed for female refugees in terms of employment rates and housing choices.

It not only improves their financial well-being, but also enhances their overall integration into host societies, including social, political and cultural empowerment (Yalim & Critelli, 2023). Third, settlement policies significantly restrict refugees' autonomy by imposing predetermined locations on them, limiting their ability to self-select into a particular location based on their human capital and personal preferences (Brell, et al., 2020), thus further compounding the gender-specific challenges already faced by refugee women in accessing employment opportunities. Additionally, refugees often prioritize migrating with their immediate family members or arranging for subsequent reunification if they cannot travel together initially. In line with the tied migration theory, this implies that in contexts where traditional gender roles prevail, men tend to be the 'lead' migrants and women the 'tied' migrants who follow for the sake of their partner's work. Women may thus face greater losses than men and be less likely to initiate migration or anticipate potential losses out of it (Krieger, 2020). This dynamic also applies to migration decisions made after settling in the host country, potentially increasing the adverse effect of the residential polices on women.

The aim of this paper is to examine the gendered effects of the residency requirement policy and its interaction with two moderating variables: local labour market conditions and the proportion of co-ethnics in the refugees' first settlement. On the one hand, existing research highlights the importance of the ethnic composition in the initial settlement for refugees' subsequent economic prospects, as co-ethnic networks can serve as valuable sources of labour market information, but can also hinder integration by limiting the acquisition of host country-specific skills (Andersson, et al., 2019). On the other hand, local labour market conditions and economic circumstances in the first place of residence shape refugees' employment outcomes in the long run (Aksoy, et al., 2023; Åslund & Rooth, 2007)Thus, understanding the interplay between co-ethnics and local labour market conditions with restrictive residency requirement policies is crucial for identifying compounding effects by gender.

Using the IAB-BAMF-SOEP Refugees Survey for the years 2016-2020, we empirically investigate by means of a Logit model the probability of being in paid work. Leveraging the richness of the survey, which allows us to identify the district of residence for individuals, we use regional data to estimate labor market conditions as well as the presence of ethnic networks in the county of first arrival. To construct our focal variable of interest – being subject to restrictive residency obligation policies – we adopt an intention-to-treat design. Our findings uncover noteworthy gender disparities regarding the policy effects on securing gainful employment. While we observe an overall negative effect of residency obligation policies on the probability of being in paid work, this is only true for men's employment. However, for women, the effect is non-robust and not statistically significant. Moreover, when considering refugee women with a residency obligation, the local contextual factors of the assigned regions – such as overall unemployment rate, the unemployment rate among foreigners and share of coethnics – do not exhibit a strong association with the employment probability.

In the following section, we present the theoretical framework, outlining specific hypotheses that serve as the foundation of this paper. This will be succeeded by a brief discussion of the institutional context surrounding Germany's restrictive residence policy, along with an explanation of the dependent variable's definition and intention to treat design. Subsequently, we will provide an account of the data and empirical study, leading us to the presentation of the results and conclusions.

Theoretical Framework

Effect of restrictive residential restrictions on human capital mobility and regional convergence

The application of residency requirements in many European countries serves three main purposes: First to distribute the financial and social costs of newcomers across regions and

pressure on regions with high population density and limited housing possibilities.[5] Second to avoid potential negative effect on wages and employment due to a large and unexpected labour supply offer (Borjas, 2003) and third to prevent ethnic enclaves formation and its potential negative impact on integration (Bevelander, et al., 2019; Edin, et al., 2004; Fasani, et al., 2021; Damm & Rosholm, 2010).

Despite the clear goals the residential policy pursues, residency obligation may impose negative effects on refugees' labour market integration through at least three main mechanisms (Edin, et al., 2003; Brücker, et al., 2019). First, by restricting individual mobility, residency obligation may increase job search costs and reduce matching efficiency, affecting the efficient allocation of human capital and the contribution of migration to economic growth (Borjas, 2014; Card, 2001). Second, spatial mismatch is likely to increase if the initial dispersal of refugees is inefficient, hindering access to suitable job opportunities. Labour mobility, together with capital mobility, is a prerequisite for economic convergence between regions and a mechanism for economies to benefit from migration in the long run (Ozgen, et al., 2010). Any restriction on mobility therefore has the potential to widen existing gaps in human capital between natives and immigrants, including refugees, thereby hindering convergence over time (Kogan, 2004). Third, residency obligation may influence access to co-ethnic networks, which can provide valuable resources for job seeking but can also discourage the acquisition of host country-specific human capital (Kanas, et al., 2022).

Research has proven the adverse effects of residential policies in two strands of the literature. The first one place an emphasis on researching the impact of settlement policies (e.g.,

[5] Since refugee dispersal policies are often based on housing availability, refugees are likely to end up in regions with available housing but limited opportunities.

Bevelander, et al., 2019; Edin, et al., 2003; Fasani, et al., 2021), while the second one use these policies as a quasi-experimental tool to analyse the causal effect of specific variables on the integration into labour markets (e.g., Damm 2009; Kanas and Kosyakova 2022; Kristiansen, et al., 2022) Empirical studies in the former one have consistently found substantial employment gaps between refugees and other types of migrants, as well as longer periods of time for refugees finding their first job in the country of destiny (Fasani, et al., 2021). Even though results show that regional migration is limited after settling in the host country, there is evidence that once refugees, are no longer subject to dispersal policies, they tend to relocate to economically stronger regions which positively affects their labor market prospects (Haberfeld, et al., 2019; Rashid, 2009). Upon this evidence, we expect that:

> *H1*: Refugees subject to restrictive residency obligation policies have a lower employment probability.

Regional conditions in the first place of residence matter

Since the residence policy establishes a strict ban on geographic mobility, the initial labor market conditions in the allocated regions that refugees encounter upon arrival become crucial. Analyzing the impact on refugees in Norway, Godøy (2017) demonstrate that it is the combination of a persistence effect of the local labor market conditions in the initial municipality combined with limited geographical mobility, that explains labor market outcomes of refugees, rather than individual characteristics. In the same line Åslund & Rooth (2007) using Swedish data demonstrate that overall labour market conditions at the time of entry into the country but mostly conditions at the first location, have long-term impact effects on employment and earnings. Those that start out in economically disadvantaged regions tend to also experience high local unemployment in the future, considering that the costs and uncertainty associated with geographical mobility deter refugees to move to economically stronger locations. In this line, studying the Dutch policy of exogenous placement of refugees

in their first regular housing, Kristiansen, et al. (2022) find that refugees are more likely to enter the labour market when the neighborhood's employment share among natives is higher. Hence, we expect also in Germany that:

> *H2:* Refugees subject to restrictive residency obligation policies have a lower employment probability if they are allocated to regions with unfavorable labor market conditions.

Gender-based constraints

The effect of local labor market conditions differs for men and women due to gender-based constraints following the distribution of unpaid domestic work and traditional gender roles. Evidence shows that upon traditional roles, whenever the migration process is a family decision, women are more likely to leave the labor market after migration, if they were working before (Krieger, 2020). If traditional roles prevail, the decision to move to another county with better labor market options after migration is less likely to be driven by better job prospects and higher incomes of refugee women (Hendrick, 2006). The primary economic motivation for seeking relocation, driven by a desire for a higher familiar income, is more likely to apply to men due to their more favorable starting conditions compared to women. These conditions include higher human capital and larger labor market experience before migration.

Prior to migration, women's investment in household labor and childcare might limit their human capital development. In fact, hitherto evidence from the German context supports this notion. Coming from countries with more traditional division of labor at home and work compared to the destination countries (Kosyakova & Kulic, 2022), refugee women arriving in Germany between the years 2013 and 2016 exhibit lower levels of schooling and vocational training than their male counterparts. (Brücker, et al., 2020). Consequently, the employment prospects of refugee women are influenced not only by specific disadvantages that all refugees

start with but also by gender-based constraints (Salikutluk & Menke, 2021; Kosyakova, et al., 2023)

Moreover, gender-based constraints persist among refugees even after arrival in destination countries. Studies have shown that refugee women, particularly those with young children, have lower participation in language courses (Brücker, et al., 2020) and reduced access to training opportunities (Cheung & Phillimore, 2016), resulting in even lower human capital accumulation compared to male refugees (Kosyakova, et al., 2023). Additionally, gender-based disadvantages influence women's social networking practices, which can play a significant role in socioeconomic integration. Traditional gender values within refugee couples limit women's social networks and reduce their contact with both native and fellow country-of-origin individuals (Hartmann & Steinmann, 2020). Drawing on these arguments, we expect that:

> *H3:* Compared to men, female refugees subject to restrictive residency obligation policies have a lower employment probability.

> *H4:* Female refugees subject to restrictive residency obligation policies have a lower employment probability if they are allocated to regions with unfavorable labor market conditions.

The role of ethnicity

Residential policies seek to avoid the formation of ethnic enclaves, which are perceived as hindering the integration of refugees. However, the effect of ethnic enclaves on integration is not solely negative. On the one hand, ethnic clustering facilitates access to information about employment opportunities (Edin, et al., 2003; Stips & Kis-Katos, 2020) and can create distinct labor markets for immigrants with limited language skills and human capital. In this context, Andersson, 2021 explores the relationship between ethnic enclaves and the likelihood of immigrants entering self-employment. Their findings suggest that it is not the size of the

enclave itself, but rather the proportion of self-employed co-ethnics within the enclave that increases the probability of low-skilled immigrants engaging in self-employment.

Additionally, ethnic networks comprised of close family members and relatives can alleviate care responsibilities and household chores for women, potentially reducing their time spent at home (Kosyakova & Kulic, 2022). Therefore, refugee women may benefit more than men from the valuable information provided by ethnic networks.

However, these networks also serve as conduits for transmitting social norms, influencing individuals' decisions to engage in employment through peer pressure, stigma, and social approval (Bertrand et al., 2000). Consequently, in the absence of ethnic networks, women's roles within the family are more likely to adapt and align with the social norms of the host country, leading to a relaxation of the restrictive norms prevalent in ethnic communities (Kosyakova & Kulic, 2022). In such cases, residency obligation policies could encourage the employment of refugee women in regions with fewer co-ethnics.

On the other hand, native networks provide more effective and comprehensive job search opportunities for economic integration and promote investment in host-country-specific human capital, including language acquisition (van Tubergen, 2011; Battu et al., 2011; Gërxhani & Kosyakova, 2022). In contrast, large ethnic networks reduce the necessity to use the host country's language and may hinder such investment (Kanas et al., 2022).

Research conducted by Andersson et al. (2019) demonstrates the inconclusive nature of the role of existing ethnic networks in the neighborhoods in which refugees initially settled. They found notable gender disparities in the impact of ethnic group composition on employment prospects. Female refugees experience a negative effect on their future employment prospects when residing in areas with high concentrations of co-ethnics, unless those areas have high

employment rates. In contrast, male refugees do not appear to be influenced by co-ethnic concentrations, regardless of the context.

Given the detrimental effect of ethnic networks on contacts with natives, but at the same time the potentially positive effects for job search and support for family care, we formulate two divergent hypotheses postulating that:

> *H5a*: Female refugees subject to restrictive residency obligation policies have a lower employment probability if they are allocated to regions with greater share of co-ethnic's conditions.
>
> *H5b:* Female refugees subject to restrictive residency obligation policies have a higher employment probability if they are allocated to regions with greater share of co-ethnic's conditions.

Who has a residence obligation? Institutional background and definition of the treatment group.

Settlement and employment policies for refugees in Germany

Dispersal policies are a central aspect of European refugee policy and have been implemented to varying extents in many European countries.[6] The specific approaches to dispersal vary between countries, but basically take into account factors such as the availability of housing, access to essential services, employment opportunities, and the capacity of local communities.

In Germany, upon their arrival and following registration by authorities, refugees are assigned to federal states and accommodated in the initial reception facilities (Kosyakova & Brücker,

[6] Finland, Ireland, Germany, France, Sweden, the Netherlands, Norway, Denmark, Switzerland, Italy and Greece

2020). This allocation process is based on the *Königstein Key*, an official annually updated quota system that considers population size and tax revenues (Bartl, 2021). Subsequently, refugees are distributed within federal states to specific counties or municipalities. This secondary allocation process is similarly regulated by state law and primarily considers the local population size (Kanas & Kosyakova, 2022). Once allocated to the initial reception facilities, refugees can proceed to file their asylum application and are typically required to remain there until a decision is reached.[7]

Enforced in August 2016, the current residency obligation policy, with retroactive validity from January 1, 2016, mandates that approved refugees must stay in the states they were initially allocated for a period of three years (§12a, Residence Act). Moreover, the federal states have the autonomy to implement further restrictions such as the mobility restriction within county (Kreis) or municipality (Gemeinde). Exceptions to this rule allow approved refugees to move to other states if they meet certain conditions such as (a) having close family members residing in another state, or (b) taking up or having a family member taking up an employment for a minimum of 15 hours per week, earning at least 712 Euro (gross) and paying social security taxes in another state, or (c) pursuing or having a family member pursuing (vocational) training or studies in another state (§12a, Residence Act).

Refugees awaiting asylum application decision and those with rejected applications face stringent residency obligations, including travel bans as stipulated in the Residence Act

[7] The average waiting time for a positive decision is approximately six months, while it is nearly twice as long for a negative decision (Kosyakova & Brenzel, 2020, p. 136). In 2017, the average duration was higher, due to the backlog of cases during the peak of refugee arrivals in 2015 and 2016. In 2020, the average duration increased as a consequence of the pandemic (Federal Government, 2023).

(Residenzpflicht, §56). In comparison, the rules governing refugees' employment are relatively less strict. Unless they come from safe origin countries[8] have applied for asylum before August 31, 2015, refugees may be employed following a three-month employment ban after their arrival in Germany (§ 61 Asylum Act) with the approval of both the Immigration Offices and the Federal Employment Agency. Approval is granted based on three criteria: (1) a test of the local labor market conditions; (2) a comparability test of work and remuneration circumstances; and (3) a priority check to ensure that individuals with priority status, such as German citizens or nationals of a European Union member state, are not available for the position (Brücker, et al., 2019). Refugees with approved asylum applications, on the other hand, have the full rights to be employed.

Intention-to-treat design and definition of the explanatory variable

In the context of the above-mentioned legislation, we construct *restrictive residency obligation* as our main explanatory variable. Due to the lack of detailed information regarding the extent and restrictiveness of the residence obligation imposed on refugees, the analysis adopts an Intention-to-Treat Framework (ITT) approach. The ITT framework ensures that participants are analyzed based on their original treatment assignment, rather than the treatment they actually received or adhered to. By including all participants as originally allocated, regardless of noncompliance or dropout, the ITT approach provides a conservative estimate of treatment effects and enables unbiased comparisons between groups, thus facilitating a robust assessment of treatment effectiveness in real-world scenarios (Gupta, 2011)

[8] In addition to the member states of the European Union, Albania, Bosnia and Herzegovina, Ghana, Kosovo, Macedonia (former Yugoslavia), Montenegro, Senegal, and Serbia (§29a, Asylum Act)

Following this logic, refugees are considered to be "treated" or subject to a restrictive residence requirement if they meet any of the following conditions: (1) their asylum application is still awaiting approval, (2) they have received a negative decision on their application, or (3) their asylum application has been approved in one of the more restrictive federal states, namely Baden-Württemberg, Bavaria, North Rhine-Westphalia, Saarland, Saxony-Anhalt, Hesse, and Saxony. These states implemented the residency requirement in a stricter manner, mandating approved refugees to reside in assigned counties (Kanas et al., 2022). Furthermore, given that certain federal states – Berlin, Bremen, and Hamburg – represent one county each, these states can be seen as more restrictive in terms of the residential mobility and we take as treated those refugees living there (Kanas & Kosyakova, 2022).

Further, the restriction covers the respondents whose asylum application was approved as of January 2016 when the residency obligation policy was enacted (August 2016 for North Rheine-Westphalia and Saarland as these two states did not implement the policy retroactively) on the condition that three years have not passed since the approval of their application at the time of the interview. The rest of the respondents are considered not subject to the residency obligation.

Data and Empirical Strategy

The IAB-BAMF-SOEP Refugee Survey

The primary data source of our analysis is the IAB-BAMF-SOEP Refugee Survey (Brücker, et al., 2018) which is an annual longitudinal household survey, representative of asylum seekers and refugees arrived since 2013 in Germany. Launched in 2016, the survey participants were drawn from the Central Register of Foreign Nationals (*Ausländerzentralregister*, AZR), an administrative data keeping record of foreigners living in Germany (Brücker, et al., 2018; Kühne, et al., 2019). The first wave in 2016 consisted of those who arrived and applied for

asylum in Germany between January 2013 and January 2016 (Kroh, et al., 2017). The two enlargement samples in 2017 and 2020 aimed to refresh previous samples and to integrate more recent arrivals (Steinhauer, et al., 2022). The IAB-BAMF-SOEP Refugee Survey provides detailed information on individual and household characteristics of the asylum seekers -irrespective of their legal status-, which renders it a novel source for the analytical purposes of this research paper.

We retrieve county-level characteristics from the Federal Institute for Building, Urban Affairs and Spatial Research (INKAR)[9] dataset and from the Federal Statistical Office of Germany (DESTATIS). Both INKAR and DESTATIS offer information on a wide range of topics including demographical and labor market characteristics on various geographic levels in Germany. County-level geographic identifiers included in the IAB-BAMF-SOEP refugee survey allows us to link the datasets to obtain information on the regional characteristics of the counties where asylum-seekers first resided. In this way, we can link individual characteristics with macroeconomic conditions including unemployment rates and share of co-ethnics at county-level.

To create our analytical sample, we exclude those persons with missing information on the date of the asylum decision and the federal state of residence, since this information is crucial to differentiate the respondents who are subject to the residency obligation from those who are not. We further restrict our sample to those who applied for asylum for the first time (due to the uncertainty in the application of residential obligation in cases of several applications) and those who were interviewed for the first time during the first three years of their residence in

[9] Indicators and maps for spatial and urban development *(Indikatoren und Karten zur Raum- und Stadtentwicklung)* available on https://www.inkar.de/

Germany (to eliminate the possibility of recall memory bias). Then, we restrict the sample to those who are aged between 18-64 at the time of the interview which is the age group we expect to be active in the labor market. Our final sample includes 5.800 persons consisting of 2.330 female and 3.470 male respondents adding up to a total of 15.460 observation-years nested in 354 counties (See Appendix 1).

Empirical Strategy

To assess labor market integration, we create *paid employment* as the outcome variable in our analysis. This variable is derived from the respondents' self-reported information regarding their participation in the labor force during the time of the interview. Our criteria for categorizing an individual as being in paid work include those who are (1) part- or full-time employed, (2) undergoing vocational training, or (3) are marginally employed.

The baseline model to be estimated is as follows:

$$\Pr(y_{ict} = 1) = \omega(\beta_0 + \beta_1 \text{Female}_{it} + \beta_2\, Restrictive\ residence\ obligation_{it} + \beta_3 Labor\ Market\ Proxy_{c_{first}} + \beta_4 Ethnic\ Networks_{c_{first}} + \sum_{k=1}^{k} \beta_k X_i + \sum_{j=1}^{j} \beta_j K_{it} + \delta_t + \varepsilon_{ict})$$

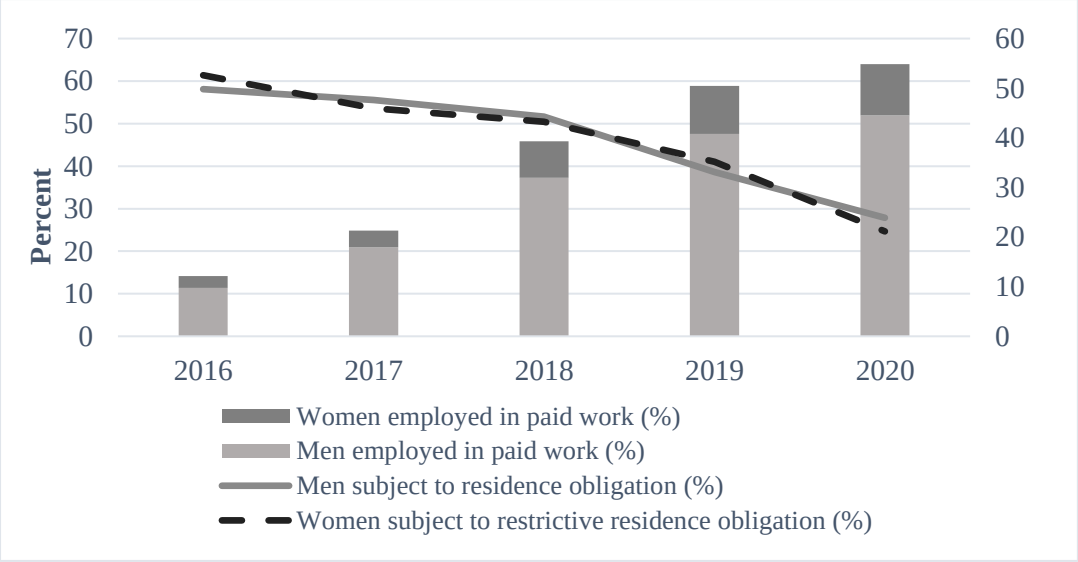
In a second step, we consider the interaction of the residence obligation and gender as follows:

$$\Pr(y_{ict} = 1) = \omega(\beta_0 + \beta_1 \text{Female}_{it} + \beta_2(\text{Female}_{it} * Restrictive\ residence\ obligation_{it}) + \beta_3 Labor\ Market\ Proxy_{c_{first}} + \beta_4 Ethnic\ Networks_{c_{first}} + \sum_{k=1}^{k} \beta_k \boldsymbol{X}_i + \sum_{j=1}^{j} \beta_j \boldsymbol{K}_{it} + \delta_t + \varepsilon_{ict})$$

Where y is the probability of individual i assigned to the first county of residence *c_first* of being in paid work in year t. ω is modeled by a standard logistic distribution.

Panel summary statistics show that the key time variant variable of interest, $restrictive\ residence\ obligation_{it}$, has a low within variation, due to the fact that the time period considered is short (5 years) and the restrictive residency obligation usually affects individuals for about 3 years. Over time, however, one can observe a shift from having a restrictive residency obligation to not having it, as the share of persons with restrictions diminishes from 60.9 percent in 2016 to 30.9 percent in 2020, while the share of employed women and men in paid work increases (see Figure 1).

Figure 1: Restrictive residency obligation and employment in paid work, in percent



Data source: IAB-BAMF-SOEP- Sample of Refugees 2016-2020 (DOI: 10.5684/soep.iab-bamf-soep-mig.2021), weighted.

Of those individuals who were in paid work in t-1, about 75% remain in paid work at time t. On the other hand, about 80% of individuals not employed in t-1, remain as such in period t. This points to a certain stability over time in the data. However, some unobserved heterogeneity remains. We can see an even higher stability in the variable residence obligation. The low within variation in the target variable, residence obligation, together with high attrition in the

sample deters us to use individual fixed effects.[10] Moreover, using individual fixed effects regression would undermine estimation of the focal variables related to the characteristics of the initial residence place, since they are time-invariant. At the same time, the percentage of refugee men and women employed in paid work increases across the years, despite the evident gender gap: While the percentage of employed refugee men increases from 13.5 percent in 2016 to 51.4 percent in 2020, for employed women it increases from 3 percent to 14.1 percent in 2016 and 2020, respectively.

We operationalize the effect of local labor market conditions in the first county of residence using two alternative variables: *unemployment rate* and the *share of foreigners employed* in this county. The presence of ethnic enclaves in the first county of residence is operationalized either via the *proportion of co-ethnics* (i.e., persons from the same country of origin), the *share of migrants* or the *size of initial linguistic enclaves* following the approach by (Kanas, et al., 2022).[11] The share of migrants is a proxy for extended networks of foreigners, not limited only to the country of origin. Unemployment rate, share of foreigners employed, the proportion of co-ethnics, the share of migrants and the size of initial linguistic enclaves, which are at the county level, are included in the analysis lagged by one year and are standardized. We lagged

[10] For robustness we implemented also fixed effect and random effect logit models. Results are available upon request.

[11] Kanas et al. (2022) used a measure of linguistic proximity developed by ethnolinguistics and ethnobiologists to assess similarities between words in different languages. Enclaves were determined by summing linguistic proximities between survey respondents and immigrants in the same county, which was then divided by the local population size to account for potential diffusion.

these variables since it is likely that the prevailing conditions at the time of arrival affect employment probabilities and policies, rather than those that are ongoing.

Our empirical analysis accounts for various confounding factors (vectors $\boldsymbol{X_i}$ and $\boldsymbol{K_{it}}$) that could impact the relationship between the gender effect of residency obligation and the employment prospects of refugees. Unweighted descriptive statistics for the selected model covariates are presented in Appendix Table A.1.

The $\boldsymbol{X_i}$ vector includes time invariant individual variables such as total years of education prior to migration, age at arrival, period of arrival, country of origin, premigration work experience, and population density (lagged) in the first county. Years of education prior to migration represent the total years of schooling before arriving in Germany, serving as a measure of the human capital that refugees brought with them upon their arrival. Age at arrival is included to capture the impact of human capital investments after arrival and overall integration in Germany, as younger adults are more likely to engage in formal education (Damelang & Kosyakova, 2021). Period of arrival captures whether the respondents arrived in Germany before, in, or after 2015, the year when Germany followed an open-door policy which led to a mass refugee inflow (Futák-Campbell & Pütz, 2021). We further control for the origin countries of the respondents due to the heterogeneity in employment traditions among women coming from different countries.

The $\boldsymbol{K_{it}}$ vector includes the time variant variables: *German language skills*, having a *partner living in the same household* and *children*. Additionally, we include a binary variable for *urban* region to measure the effect of infrastructural traits of the resided municipalities. The variable German language skills is computed by averaging self-reported reading, writing, and speaking abilities. The outcome variable encompasses three distinct categories: low, middle, and high. As household-level variables that could impact the employment chances of refugee women,

we consider whether they have a partner living in the same household and whether they have children. We split this variable into three age groups based on the German childcare system: age 6 for primary school, 3-5 for kindergarten, and 0-2 years old who are potentially taken care of by nurseries. We finally include time effects δ_t through the variable *survey year*.

Results

In this section, we present empirical evidence on the factors influencing paid work participation using a pooled logit model. We begin by showing the results of equation 1, exploring various combinations of labor market conditions and ethnicity, illustrated as average marginal effects in percentage points (see Table 1). As a robustness check in Appendix 2, we narrow the sample to individuals who have been in Germany for at least 2 years, as we assume that within the first two years of arrival, refugees are primarily settling in and attending language classes, resulting in a lower likelihood of being in paid work.

For models 1 to 3, we use the local unemployment rate as a labor market proxy, while models 4 to 6 consider the foreigners' employment rate in the arrival county. A higher rate of foreigners employed reflects labor demand for skills that migrants can provide. Areas with favorable labor market conditions for foreigners, can also attract those that are free to move and self-select into certain markets also fostering the settlement of further migrants through migrant networks and information sharing (Jaeger, 2018), which, in turn, can also go hand in hand with larger ethnic enclaves. For both labor market proxies, we test three alternative specifications for local ethnic enclaves, such as the share of migrants (Models 1 and 4), the size of linguistic enclaves (Models 2 and 5), and the share of co-ethnics (Models 3 and 6).

Consistently, our results demonstrate that women have a significantly lower employment probability across all specifications. With otherwise identical observables, a woman would have in average 19 percentage points lower employment probability than a man. Furthermore,

being subject to a restrictive residence obligation reduces employment probability by 1.8 to 2.2 percentage points, conforming to *H1*.

Table 1 Logistic regression of the probability of paid work, average marginal effects in percentage points

	Model 1 Coef. (SE)	**Model 2** Coef. (SE)	**Model 3** Coef. (SE)	**Model 4** Coef. (SE)	**Model 5** Coef. (SE)	**Model 6** Coef. (SE)
Women	-18.63*	-18.64*	-18.61*	-18.58*	-18.59*	-18.54*
	(0.81)	(0.81)	(0.81)	(0.81)	(0.81)	(0.82)
Restrictive residence obligation	-2.11*	-2.23*	-2.11*	-1.84*	-1.99*	-1.81*
	(0.81)	(0.80)	(0.80)	(0.81)	(0.81)	(0.81)
Initial unemployment rates, standardized	-3.06*	-3.00*	-3.12*			
	(0.43)	(0.40)	(0.39)			
Initial foreigners' employment rates, standardized				1.55*	1.79*	1.89*
				(0.43)	(0.35)	(0.35)
Initial share of migrants, standardized	0.27			0.97		
	(0.63)			(0.71)		
Initial linguistic network, standardized		-0.91			-1.34*	
		(0.48)			(0.47)	
Initial share of co-ethnics, standardized			-0.45			-0.70
			(0.42)			(0.43)
Fixed effects						
Survey year	YES	YES	YES	YES	YES	YES
Country of origin (aggregated)	YES	YES	YES	YES	YES	YES
N	16551	16551	16551	16551	16551	16551

Data source: IAB-BAMF-SOEP- Sample of Refugees 2016-2020 (DOI: 10.5684/soep.iab-bamf-soep-mig.2021), weighted.
Notes: * $p<0.05$ (two-tailed test). Robust standard errors clustered at the person-level are in parentheses.

We further observe that the labor market situation in the arrival county may significantly shape refugees' labor market integration. For instance, higher local unemployment rates are associated with a reduced probability of refugees engaging in paid work (Models 1 to 3). The standardized variables are to be interpreted as the effect of one standard deviation changes on the outcome variable. A one standard deviation increase in the unemployment rate (Models 1 to 3) is associated with a three-percentage-points lower employment probability. In turn, a one standard deviation increase in the foreigners' employment rate is linked to an increased employment probability by 1.6–1.9 percentage points (Models 4 to 6). These results are congruent with the *H2* that unfavorable labor market conditions in the initial county adversely affect gainful employment.

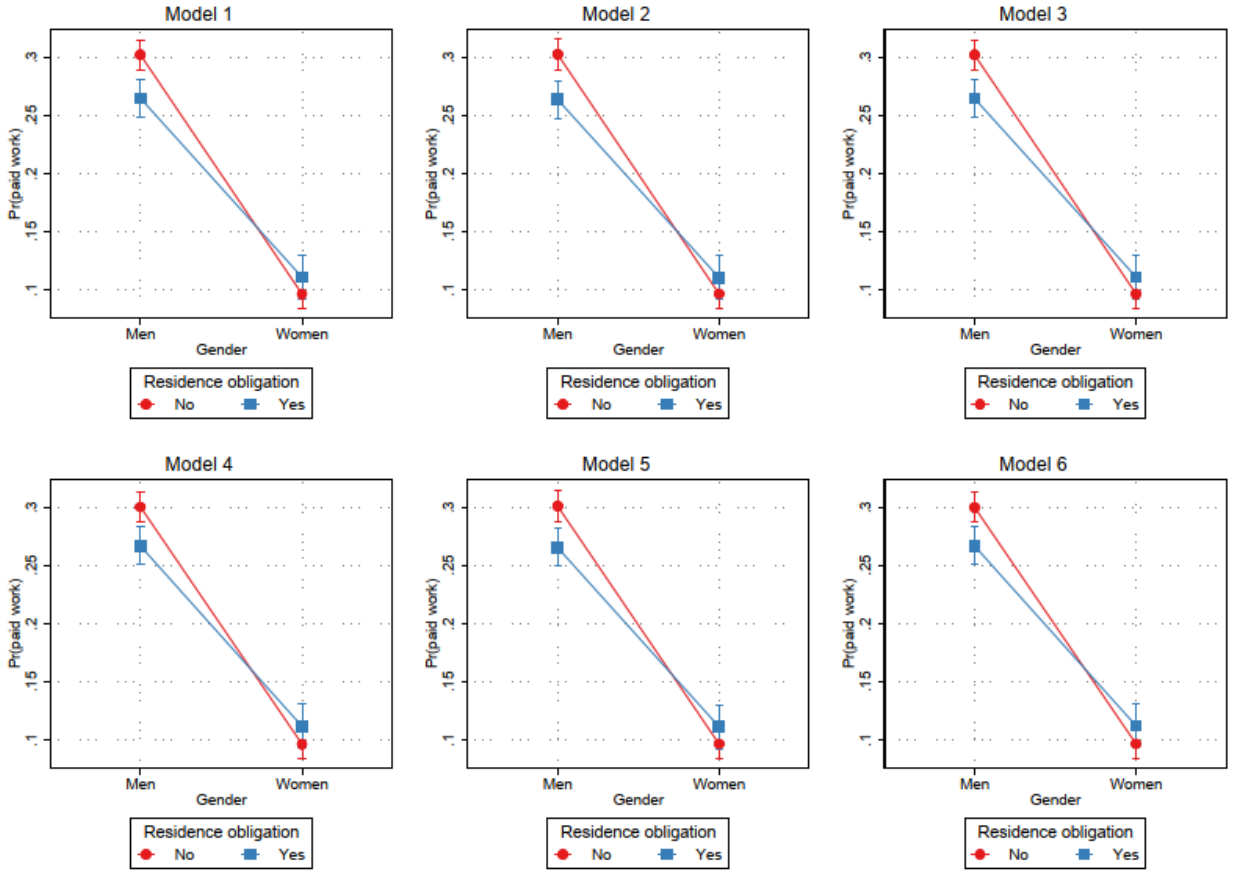
Neither local migrants' share nor share of co-ethnics are significantly related to the employment probability (Models 1 and 4 and Models 3 and 6, respectively). In turn, linguistic enclaves seem to be negatively associated with refugees' employment prospects, though only in the specification where we consider foreigners' employment rates as a labor market quality indicator (Models 5).[12] This means that the negative effect of linguistic enclaves is suppressed if local economic conditions foreigners face are not accounted for. The size of the linguistic network is lower in regions with better foreigners' employment rates. Consequently, that makes the effect of enclaves to be insignificant in total, whereas it is identified when holding local economic conditions constant. Accordingly, a one standard deviation increase in linguistic enclaves' size has a negative impact of -1.3 percentage points on employment probability (Models 5).

Our results are robust when considering only refugees with at least two years in Germany by the time of the interview (Appendix Table A.2). In this case, linguistic networks are also statistically significant and have a negative impact, regardless of the labor market variable used.

To test hypothesis *H3* whether residency obligation differently affect employment probability of refugee men and women, we respecified Models in Table 1 by adding the interaction between restriction mobility and gender. The results are presented in Figure 2.

[12] We ruled out collinearity between the proportion of migrants and the employment rate of foreigners using a Variance Inflation Factor (VIF) after an ordinary least squares model.

Figure 2: Predicted margins by residency obligation and gender, different model specifications



Data source: IAB-BAMF-SOEP- Sample of Refugees 2016-2020 (DOI: 10.5684/soep.iab-bamf-soep-mig.2021).

The results in Figure 2 suggest three notable conclusions. First, independent on whether refugees are subject to restrictive residency obligation, women face greater challenges in the labor market: in all specifications women have significantly lower employment probability than men. Second, by comparing women with and without residence obligation results suggest no statistically significant effect of residence obligation on refugee women employment probability. Third, men subject to residency obligation exhibited 3.3–3.8 percentage points lower probability of being employed compared to men exempt from such obligations. Correspondingly, *H3* predicting residency obligation to be particularly hurtful for females' employment is not empirically supported.

In the final step, we considered the gendered effects of the local labor market characteristics on refugees' employment probability. We extended our models in Table 1 by adding interaction effects between gender and county-level variables. Neither interaction effects turned out to be statistically significant (Appendix Table A.3). Moreover, three-way interaction effects between gender, residency obligation and county-level variables were not statistically significant (Appendix Table A.4). Hence, we may conclude that the effect of the analyzed local labor market characteristics on the employment probability does not vary by gender or residency obligation. Hence, we deem hypotheses *H4* and *H5* as not empirically supported: albeit facing overall worse employment chances, women do not suffer stronger from local labor market conditions than men.

Discussion and conclusion

This study focuses on the labor market integration of refugees and examines the gender-specific influence of restrictive residency obligation policies on their employment prospects within the German context. Similar to other European countries, Germany implements settlement policies that involve dispersing refugees and mandating residency in specific areas. Introduced in 2016, the residency obligation policy stipulates that refugees with approved asylum applications, along with those whose asylum requests have been rejected or are pending, must reside in assigned regions for a 3-year duration.

This research addresses the labor market effects of settlement policies by adopting a gender-specific approach, a dimension that has been understudied in prior literature. Beyond examining the overall impact of the residency obligation policy on refugees' employment chances, we also investigate how this impact is influenced by local conditions in the assigned regions. Moderator variables are incorporated to delve into how the impact of the residency obligation policy on refugees' labor market integration is influenced by local conditions in their

arrival counties. To this end, we explore the roles of local labor market conditions and ethnic enclaves in the arrival counties.

Our analysis employs a pooled logit model with an intention-to-treat design, utilizing the IAB-BAMF-SOEP Refugees Survey spanning 2016 to 2020. By leveraging county-level identifiers from the IAB-BAMF-SOEP Refugees Survey, we link individual- and household-level data with macro-variables including county-level unemployment rates and the rate of employed foreigners. Additionally, we connect individual data with variables indicating the share of individuals from the same country of origin (initial share of co-ethnics), the share of migrants, and linguistic enclaves in each county. These variables serve as approximations for ethnic enclaves, allowing us to explore whether larger enclaves hinder the likelihood of refugees being employed, given the residency obligation.

Our findings indicate that, in general, female refugees are less likely to secure paid employment, regardless of whether they are subject to residency restrictions. This outcome aligns with prior research (Salikutluk & Menke, 2021; Kosyakova, et al., 2023). Results further demonstrate that unfavorable labor market conditions in the initial county detrimentally impact gainful employment. Higher local unemployment rates correlate with a reduced likelihood of refugees participating in paid work, while a greater rate of employed foreigners is associated with an increased likelihood of employment. Contrasting male and female with the residency obligation, we find no statistically significant effect on the employment probability of refugee women, while men subject to this obligation exhibit a lower employment probability compared to those exempted. Consequently and in contrast to our expectations, we lack evidence that the residency obligation particularly hampers female employment. An explanation could be that jobs available for refugee women are of lower quality so that the potential gains would not cover the costs associated with a move (of the whole family).

Moreover, our results emphasize the importance of local labor market conditions for refugees' labor market integration. At the same time, despite women facing overall poorer employment prospects, statistical results do not indicate a greater vulnerability to local labor market conditions than men. We extend our analysis by introducing interaction effects between gender and county-level variables, yet none of these interactions prove statistically significant. Furthermore, three-way interactions involving gender, residency obligation, and county-level variables do not yield statistical significance. Thus, we can conclude that the impact of analyzed local labor market characteristics on employment probability remains consistent across gender and residency obligation.

Regarding the effect of ethnic enclaves on refugees' likelihood of employment, our analysis shows that the proportion of local migrants in the first county of residence and the proportion of individuals from the same ethnic background are not significantly related to the probability of finding employment. In contrast, refugees arriving in counties with larger linguistic enclaves tend to have a lower likelihood of employment. Our results remain robust when considering only refugees with a minimum of two years in Germany at the time of the interview.

In summary, the study's findings highlight the multidimensional nature of labor market integration for refugees, emphasizing the importance of gender-sensitive approaches, and the interplay between local economic conditions and linguistic enclaves. Policymakers can implement these insights to design comprehensive integration strategies that enable refugees to contribute positively to their host countries' economies. In this regard, our study has certain policy implications. First, our research suggests that the residency obligation policy has a statistically significant impact on the employment prospects of male refugees, with those subject to the obligation having lower employment probabilities. Policymakers should thus consider potential revisions to ensure that they do not hinder the labor market integration of male refugees. Second, policymakers should focus on developing gender-sensitive labor

market integration programs that address the unique challenges faced by female refugees. Specialized training, mentorship, and support programs tailored to the needs of refugee women can help improve their employment prospects. Last but not least, our findings regarding the negative impact of linguistic enclaves on employment even after two years of residence suggest that integration efforts need to extend beyond the initial settlement period. Policymakers should design integration programs that provide ongoing language support and opportunities for skill development to ensure constant labor market integration.

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Appendix

Table A.1 Descriptive statistics on model covariates across survey years

	2016 Mean (SD)/ Share	**2017** Mean (SD)/ Share	**2018** Mean (SD)/ Share	**2019** Mean (SD)/ Share	**2020** Mean (SD)/ Share	**Total** Mean (SD)/ Share
Dependent Variable						
Employed in paid work, in %	8.2	14.4	26.3	33.8	37.9	23.2
Independent variables						
Female, in %	37.1	38.6	38.1	38.1	35.2	37.5
Subject to restrictive residency obligation, in %	50.8	47.0	43.9	33.9	22.9	40.4
Initial unemployment rates, standardized	0.00 (1.03)	-0.04 (0.98)	0.00 (0.98)	-0.01 (1.01)	0.05 (1.01)	0.00 (1.00)
Initial share of co-ethnics, standardized	-0.18 (0.78)	-0.03 (0.86)	0.02 (0.99)	0.08 (1.13)	0.13 (1.23)	-0.00 (1.00)
Initial share of migrants, standardized	-0.09 (0.96)	-0.01 (0.99)	-0.01 (1.00)	0.03 (1.02)	0.11 (1.03)	0.00 (1.00)
Initial lingustic network (country of birth-based), standardized	-0.57 (0.50)	-0.14 (0.80)	0.13 (0.99)	0.30 (1.09)	0.39 (1.23)	-0.00 (1.00)
Initial foreigners' employment rates, standardized	-0.02 (1.00)	0.01 (1.00)	-0.02 (0.99)	0.02 (1.03)	-0.00 (0.99)	0.00 (1.00)
Control variables						
Age at arrival, in years	31.65 (10.13)	30.67 (10.25)	31.11 (10.30)	31.24 (10.62)	24.17 (16.16)	29.86 (11.92)
Years of educ before migration, in years	9.13 (5.63)	9.00 (5.47)	9.07 (5.48)	8.85 (5.53)	8.45 (5.72)	8.91 (5.57)
German language skills, in %						
Low	55.0	42.2	30.3	25.5	22.9	36.0
Middle	32.1	33.8	38.5	39.3	38.6	36.2
High	13.0	24.0	31.1	35.2	38.5	27.8
Country or region of origin, in %						
Before 2015	34.4	19.7	20.8	18.9	18.0	22.3
Arrived in 2015	60.6	60.8	61.3	61.5	58.0	60.5
After 2015	5.0	19.5	17.9	19.7	24.0	17.2
Country or region of origin, in %						
Syrien	51.6	52.9	56.1	59.1	56.9	55.1
Irak	13.2	13.6	13.2	14.1	12.4	13.3
Afghanistan	12.7	13.1	12.4	11.0	9.0	11.8
Africa (outside North Africa)	8.0	6.8	7.3	6.3	10.5	7.7
Other	14.5	13.5	10.9	9.5	11.1	12.1
Has children aged 0-3, in %	28.8	29.0	28.1	25.9	22.4	27.0
Has children aged 3-6, in %	28.2	26.0	28.0	28.6	28.8	27.8
Has children aged 6-11, in %	39.8	37.9	39.8	42.7	39.2	39.7
Partner lives in the household, in %	55.9	58.2	61.3	64.8	62.3	60.3
Worked before arrival, in %	67.1	63.3	64.5	65.1	64.8	64.9
Urban place of residence, in %	66.1	70.2	71.9	72.5	77.4	71.5
Log of population density	6.26 (1.30)	6.22 (1.26)	6.25 (1.27)	6.29 (1.27)	6.37 (1.28)	6.27 (1.27)
N	3,257	4,171	3,190	2,900	3,033	16,551

Data source: IAB-BAMF-SOEP- Sample of Refugees 2016-2020 (DOI: 10.5684/soep.iab-bamf-soep-mig.2021). [(1)] Mean. Standard deviation are in parenthesis. For all other variables frequencies and percentages across categories.

Table A.2 Logistic regression of the probability of paid work, average marginal effects in percentage points, refugees with at least two years since migration

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
	Coef. (SE)	Coef. (SE)	Coef. (SE)	Coef. (SE)	Coef. (SE)	Coef. (SE)
Women	-22.00*	-22.01*	-21.98*	-21.95*	-21.95*	-21.91*
	(0.97)	(0.97)	(0.97)	(0.98)	(0.98)	(0.98)
Restrictive residence obligation	-2.53*	-2.71*	-2.54*	-2.23*	-2.44*	-2.18*
	(0.96)	(0.96)	(0.96)	(0.96)	(0.96)	(0.96)
Initial unemployment rates, standardized	-3.55*	-3.43*	-3.61*			
	(0.51)	(0.47)	(0.46)			
Initial foreigners' employment rates, standardized				1.70*	1.98*	2.12*
				(0.52)	(0.42)	(0.42)
Initial share of migrants, standardized	0.25			1.17		
	(0.76)			(0.85)		
Initial linguistic network, standardized		-1.20*			-1.71*	
		(0.55)			(0.55)	
Initial share of co-ethnics, standardized			-0.41			-0.70
			(0.52)			(0.54)
Fixed effects						
Survey year	YES	YES	YES	YES	YES	YES
Country of origin (aggregated)	YES	YES	YES	YES	YES	YES
N	13510	13510	13510	13510	13510	13510

Data source: IAB-BAMF-SOEP- Sample of Refugees 2016-2020 (DOI: 10.5684/soep.iab-bamf-soep-mig.2021).
Notes: * $p<0.05$ (two-tailed test). Robust standard errors clustered at the person-level are in parentheses.

Table A.3 Logistic regression of the probability of paid work, average marginal effects in percentage points, interaction effects between county-level variables and gender

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
	(SE)	(SE)	(SE)	(SE)	(SE)	(SE)
Women	-1.53*	-1.52*	-1.52*	-1.51*	-1.52*	-1.51*
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Restrictive residence obligation	-0.16*	-0.17*	-0.16*	-0.14*	-0.15*	-0.14*
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Initial unemployment rates, standardized	-0.22*	-0.22*	-0.23*			
	(0.03)	(0.03)	(0.03)			
# women	-0.04	-0.01	-0.03			
	(0.07)	(0.07)	(0.07)			
Initial foreigners' employment rates, standardized				0.11*	0.13*	0.13*
				(0.03)	(0.03)	(0.03)
# women				0.03	0.05	0.06
				(0.07)	(0.07)	(0.07)
Initial share of migrants, standardized	0.01			0.06		
	(0.05)			(0.05)		
# women	0.08			0.06		
	(0.07)			(0.07)		
Initial linguistic network, standardized		-0.05			-0.08*	
		(0.04)			(0.04)	
# women		-0.13			-0.13	
		(0.07)			(0.07)	
Initial share of co-ethnics, standardized			-0.03			-0.05
			(0.03)			(0.04)
# women			-0.01			-0.01
			(0.07)			(0.07)
Fixed effects						
Survey year	YES	YES	YES	YES	YES	YES
Country of origin (aggregated)	YES	YES	YES	YES	YES	YES
N	16551	16551	16551	16551	16551	16551

Data source: IAB-BAMF-SOEP- Sample of Refugees 2016-2020 (DOI: 10.5684/soep.iab-bamf-soep-mig.2021).
Notes: * $p<0.05$ (two-tailed test). Robust standard errors clustered at the person-level are in parentheses.

Table A.4 Logistic regression of the probability of paid work, average marginal effects in percentage points, interaction effects between county-level variables, gender and residency obligation

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
	(SE)	(SE)	(SE)	(SE)	(SE)	(SE)
Women	-1.67*	-1.65*	-1.67*	-1.65*	-1.62*	-1.65*
	(0.09)	(0.10)	(0.09)	(0.09)	(0.10)	(0.09)
Restrictive residence obligation	-0.22*	-0.25*	-0.24*	-0.19*	-0.22*	-0.21*
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Initial unemployment rates, standardized	-0.23*	-0.23*	-0.24*			
	(0.04)	(0.04)	(0.04)			
# women	-0.07	-0.05	-0.06			
	(0.09)	(0.09)	(0.09)			
# residency obligation	0.01	0.02	0.01			
	(0.06)	(0.06)	(0.06)			
# women # residency obligation	0.11	0.10	0.11			
	(0.15)	(0.15)	(0.15)			
Initial foreigners' employment rates, standardized				0.10*	0.14*	0.15*
				(0.04)	(0.04)	(0.04)
# women				0.03	0.04	0.04
				(0.10)	(0.09)	(0.09)
# residency obligation				0.02	-0.04	-0.03
				(0.06)	(0.06)	(0.06)
# women # residency obligation				-0.03	-0.01	-0.01
				(0.14)	(0.14)	(0.14)
Initial share of migrants, standardized	0.06			0.13*		
	(0.05)			(0.06)		
# women	0.04			0.02		
	(0.09)			(0.10)		
# residency obligation	-0.12*			-0.13*		
	(0.05)			(0.06)		
# women # residency obligation	0.01			0.05		
	(0.14)			(0.14)		
Initial linguistic network, standardized		-0.04			-0.07	
		(0.04)			(0.04)	
# women		-0.10			-0.11	
		(0.08)			(0.08)	
# residency obligation		-0.11			-0.11	
		(0.07)			(0.06)	
# women # residency obligation		0.08			0.10	
		(0.16)			(0.15)	
Initial share of co-ethnics, standardized			-0.00			-0.02
			(0.04)			(0.04)
# women			0.01			0.01
			(0.08)			(0.08)
# residency obligation			-0.10			-0.09
			(0.06)			(0.06)
# women # residency obligation			-0.01			-0.00
			(0.14)			(0.14)
Fixed effects						
Survey year	YES	YES	YES	YES	YES	YES
Country of origin (aggregated)	YES	YES	YES	YES	YES	YES
N	16551	16551	16551	16551	16551	16551

Data source: IAB-BAMF-SOEP- Sample of Refugees 2016-2020 (DOI: 10.5684/soep.iab-bamf-soep-mig.2021).
Notes: * $p<0.05$ (two-tailed test). Robust standard errors clustered at the person-level are in parentheses.