Ekonomi-tek, Volume 14, Issue 1, 2025, 132-153

*Received: November 8, 2024* *Accepted: February 26, 2025* *Research Paper*

# Labour Market Aspirations of Ukrainian Refugees: Determinants and Challenges*

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## Abstract

This study analyses factors influencing Ukrainian refugees' migration for work, using household-level data from the UNHCR Survey of Intentions and Perspectives of Refugees from Ukraine. Applying logistic regression and propensity score matching (PSM), it examines key determinants, including gender, age, education, residence status, and planned return duration. Results show men are more likely than women to migrate for work (odds ratio: 2.01), highlighting gender-specific barriers. Older individuals and those with higher education levels exhibit lower migration likelihoods. Refugees in private accommodations are less likely to migrate, suggesting housing stability affects mobility. Longer planned return durations increase work-related migration (odds ratio: 1.25), while travelling with a larger family reduces it. These findings highlight the complexity of refugee labour market integration and the need for policies addressing gender disparities, housing stability, and long-term employment prospects to support refugees' economic inclusion.

**JEL Codes:** C81, D04, F22, J61

**Keywords:** migration, refugees, Ukraine, household level analysis, labour market

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* A part of this study was presented at the 31st Turkish Economic Association (TEA) Conference on Economics (TEA2024), held in-person at the Fethiye Faculty of Business Administration in Fethiye, Muğla, Türkiye, from October 31 to November 2, 2024.

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# Ukraynalı Mültecilerin İşgücü Piyasası Beklentileri: Belirleyiciler ve Zorluklar

## Öz

Bu çalışma, Ukraynalı mültecilerin iş amaçlı göç kararlarını etkileyen faktörleri, UNHCR Ukraynalı Mültecilerin Niyetleri ve Perspektifleri Anketi'nin hanehalkı düzeyindeki verilerini kullanarak analiz etmektedir. Lojistik regresyon ve olasılık eşleştirme (PSM) yöntemlerini uygulayarak cinsiyet, yaş, eğitim, ikamet durumu ve planlanan dönüş süresi gibi temel belirleyicileri incelemektedir. Sonuçlar, erkeklerin kadınlara kıyasla iş amaçlı göç etme olasılığının daha yüksek olduğunu (olasılık oranı: 2,01) göstermekte ve toplumsal cinsiyete dayalı işgücü piyasası engellerine işaret etmektedir. Yaşlı bireyler ve yüksek eğitim seviyesine sahip olanlar daha düşük göç eğilimi göstermektedir. Özel konutlarda yaşayan mültecilerin göç etme olasılığı daha düşüktür, bu da barınma istikrarının hareketlilik kararlarını etkilediğini düşündürmektedir. Daha uzun planlanan dönüş süreleri iş amaçlı göçü artırırken (olasılık oranı: 1,25), daha büyük ailelerle seyahat etmek bu olasılığı azaltmaktadır. Bulgular, mültecilerin işgücü piyasasına entegrasyonunun karmaşıklığını vurgulayarak toplumsal cinsiyet eşitsizlikleri, barınma istikrarı ve uzun vadeli istihdam olanaklarına yönelik politika gerekliliğini ortaya koymaktadır.

**JEL Kodları:** C81, D04, F22, J61

**Anahtar Kelimeler:** göç, mülteciler, Ukrayna, hane düzeyinde analiz, işgücü piyasası

# 1. Introduction

The ongoing war in Ukraine, triggered by Russia's invasion in February 2022, has resulted in one of the largest refugee crises in Europe since World War II. According to the United Nations High Commissioner for Refugees (UNHCR), nearly 7 million people have been displaced from Ukraine, with most seeking refuge in neighbouring European countries, as well as in North America, Australia, and other regions. Additionally, over 3.5 million people have been internally displaced within Ukraine (UNHCR, 2024). This mass displacement has created not only humanitarian challenges but also significant economic and labour market implications for both refugees and host countries. Refugees, unlike economic immigrants, tend to have a longer-term outlook in their host country and are more likely to invest in country-specific human capital, such as language skills and education, leading them to assimilate into the earnings growth path of the native-born population (Cortes, 2004). Understanding the perspectives of Ukrainian refugees—particularly their demographic composition, skills, aspirations, and the challenges they face in host countries—is essential for crafting effective integration policies and assessing potential labour market impacts.

The distribution of Ukrainian refugees has varied by region, with Poland, Germany, Romania, and the Czech Republic receiving the largest numbers due to their geographical proximity to Ukraine. Host countries have responded with an unprecedented level of openness and solidarity, offering temporary protection measures that provide access to housing, healthcare, and, crucially, the labour market (European Commission, 2022). However, this openness presents the challenge of ensuring that refugees can integrate into labour markets swiftly and effectively, with minimal disruption to local economies.

This study examines the perspectives of Ukrainian refugees. The first section of the introduction outlines the demographic profile and skills of the refugees. The second section analyses the challenges they face in labour market integration, followed by an overview of the responses from host countries. Finally, the introduction discusses the theoretical framework underpinning the analysis of the labour market impacts of refugee inflows, focusing on both short- and long-term consequences.

One of the defining characteristics of the Ukrainian refugee crisis is its demographic composition. Unlike other refugee crises, where men and families often flee together, the majority of Ukrainian refugees are women, children, and the elderly, as martial law in Ukraine prevents most men aged 18 to 60 from leaving the country (UNHCR, 2024). This unique gender composition presents both challenges and opportunities for labour market integration, particularly in countries facing demographic challenges such as ageing populations and sector-specific labour shortages.

Women comprise approximately 70% of Ukrainian refugees, many of whom have high levels of education and professional experience, particularly in fields such as

healthcare, education, and administration (OECD, 2022). A study by the Organisation for Economic Co-operation and Development (OECD) found that nearly half of Ukrainian women refugees have tertiary education, making them a valuable human resource in countries with skilled labour shortages (OECD, 2022). However, research by the Institute for Employment Research (IAB) highlights various barriers to labour market integration, particularly in Germany. These include language difficulties, challenges in recognising foreign qualifications, and limited access to childcare, which particularly affects female refugees (IAB, 2022). Despite these challenges, programmes that facilitate qualification recognition and provide language and integration courses can improve labour market participation among Ukrainian refugees (Kosyakova et al., 2024).

According to the UNHCR Education Report (2023), over 7 million school-aged refugee children remain out of school, placing significant pressure on host countries' educational systems. The challenges of integrating such a large number of children into national education systems are immense, requiring substantial financial and infrastructural resources. Additionally, many Ukrainian refugees have limited knowledge of the language spoken in their host country, particularly in Central and Eastern Europe. This language barrier makes it difficult for refugees to secure suitable employment and access essential services that could ease their integration (Skrypchenko, 2024).

Many Western economies, particularly in Europe, impose temporary employment bans on asylum seekers during the application process, with exceptions depending on the country. While such restrictions have loosened over time, most European nations continue to enforce some form of ban. In 2015, only four countries (Greece, Norway, Portugal, and Sweden) granted immediate access to asylum seekers' labour markets, while others imposed waiting periods ranging from 2 to 12 months or even indefinite bans in countries like Ireland and Lithuania. Similarly, the United States requires a 6-month waiting period before asylum seekers can work, with proposals to extend this to one year (Fasani, Frattini, & Minale, 2021).

Asylum seekers, once able to enter the labour market, often face lower employment, participation, and salary rates compared to native-born individuals. These disparities are particularly pronounced in the early years following immigration but tend to close over time as immigrants acquire language proficiency or relevant work experience. The labour market outcomes for immigrants are also highly variable, with those from developed economies or with better language skills performing better. However, the labour market challenges remain particularly severe for female migrants and refugees, who face significantly worse outcomes, especially in the short term (Aiyar et al., 2016).

The successful integration of refugees into host-country labour markets depends on multiple factors, including legal frameworks, social policies, and the structure of local

labour markets. The Temporary Protection Directive enacted by the European Union in 2022 grants Ukrainian refugees' access to employment, education, healthcare, and social welfare systems without requiring them to go through the lengthy asylum process (European Commission, 2022). While this legal framework is an important step toward enabling labour market participation, several practical barriers remain.

One of the most significant challenges is the recognition of professional qualifications and skills. Many Ukrainian refugees possess skills in high-demand sectors such as healthcare, IT, and education. To address this, the European Commission has issued recommendations to streamline the recognition of academic and professional qualifications, particularly in regulated professions such as medicine and law. The Commission has also established resource centres and fast-track procedures to facilitate qualification recognition, even in cases where documentation is missing, using tools such as *eTranslation*[1] to mitigate language barriers (European Commission, 2022). These efforts are critical, as many Ukrainian refugees are highly skilled but face obstacles in accessing jobs that match their qualifications due to complex recognition procedures.

A mismatch between refugee skills and available job opportunities often results in "brain waste," where highly educated individuals are forced into low-skilled or informal jobs that do not align with their qualifications (OECD, 2022). A 2023 study by Brücker et al. highlights the role of language proficiency in employment integration. In Germany, for example, limited German language skills present a substantial barrier, despite high participation in language courses. Many refugees with only basic language proficiency struggle to find jobs that match their qualifications, often being confined to low-wage or informal sectors such as domestic work or agriculture (Dustmann & Fabbri, 2003; OECD, 2016). Language barriers and difficulties in recognising foreign qualifications significantly affect refugees' labour market integration, pushing many into positions that underutilise their skills (Bloch, 2008; Bevelander & Pendakur, 2014). Studies indicate that refugees who improve their language skills experience better employment prospects. Over 70% of those proficient in the host country's language have found jobs, particularly in healthcare and IT, but overcoming language barriers remains a challenge (Brücker et al., 2023).

Social and cultural factors also shape labour market outcomes for refugees. Ukrainian women, in particular, face difficulties balancing childcare and employment, especially in countries with limited access to affordable childcare (European Commission, 2023). Additionally, the psychological trauma of displacement and the uncertainty surrounding Ukraine's future make it difficult for many refugees to commit to long-term employment in host countries.

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[1] eTranslation (The European Commission's Machine Translation system) can be accessed from the following link: https://commission.europa.eu/resources-partners/etranslation_en

Host countries have largely responded to the Ukrainian refugee crisis with strong policy measures to support integration into labour markets. Poland, which has received the largest number of Ukrainian refugees, has implemented policies facilitating rapid labour market access, particularly in sectors with labour shortages such as construction, agriculture, and services (World Bank, 2023). Similarly, Romania has introduced initiatives to integrate refugees into key economic sectors, although the country faces challenges due to a shrinking workforce caused by emigration (European Commission, 2023). Germany has focused on long-term integration through language courses, professional training, and family reunification support (Brücker et al., 2019). Despite these efforts, further policy adjustments are needed to address issues such as qualification recognition and childcare provision.

The impact of Ukrainian refugee inflows on labour markets can be assessed using both short- and long-term perspectives. In the short term, a sudden increase in labour supply may lead to competition for low-wage jobs and downward wage pressure in certain sectors (Dustmann et al., 2016). However, in the long run, successful refugee integration can contribute to economic growth, particularly in ageing societies facing labour shortages (World Bank, 2023).

Labour market segmentation theory suggests that refugee inflows predominantly affect low-skill sectors, where newcomers are often absorbed due to immediate employment needs. However, Ukrainian refugees present a distinct case, as many are highly educated and possess diverse skill sets. If appropriately integrated, they could contribute to skilled sectors such as healthcare, IT, and education. Host countries that invest in qualification recognition, language training, and social integration are more likely to benefit economically, whereas failure to address these challenges could lead to higher unemployment and social tensions (OECD, 2023).

The sections of the paper are structured as follows: Section 2 presents the data and methodology, with Subsection 2.1 detailing the data used in the analysis and Subsection 2.2 outlining the methodology employed. Section 3 discusses the findings derived from the analysis, followed by Section 4, which concludes with a discussion of the results and their implications.

# 2. Data and Methodology

## 2.1. Data

This study utilizes data from UNHCR, which is Survey of Intentions and Perspectives of Refugees from Ukraine. This data focuses on the characteristics of Ukrainian refugees, their current living conditions, future plans, and the various factors that shape their decision-making processes. There are 3 waves of survey conducted in September 2022 (Wave 1), February 2023 (Wave 2), and June 2023 (Wave 3) though only Wave 1 (UNHCR, 2022a) and Wave 2 (UNHCR, 2022b) were used for this study. At the household level data, Wave 1 consists of 4811 cases, while Wave 2 is with 3896 cases. These surveys cover refugees hosted in countries in Europe. Some households participated in all waves, and some others participated only in particular waves. Therefore, it is not an overall panel structure.

This study aims to identify the factors influencing Ukrainian refugees' motivation to migrate based on labour market opportunities. The analysis is based on the survey question, "What motivated you to come to this country? / Due to work opportunities," which captures whether employment prospects influenced their choice of destination. Since this question existed only in Wave 1 and 2, those waves were considered in the empirical investigation. The response to this question is binary, with "0" indicating that the respondent was not motivated by work opportunities and "1" indicating that they were. About 12% of respondents indicated that work opportunities were a key motivation for migration, suggesting a substantial portion of refugees are seeking labour market integration despite the challenges of displacement.

The analysis includes a set of independent variables that may influence the likelihood of being motivated by work opportunities. These variables include hope to return home (whether the respondent hopes to return to Ukraine), age group, gender, citizenship (Ukrainian or other), education level, number of individuals left together, main activity (current employment status), residence country, home region in Ukraine, and survey wave. Descriptive statistics of these variables are provided in Table 1.

Table 1 presents descriptive statistics from a survey of 3,781 respondents, summarizing key variables relevant to the analysis of Ukrainian refugees. The table includes information on motivations for migration, with 11.8% of respondents citing work opportunities as a reason for moving to their host country—representing a considerable number of individuals interested in integrating into the labour market despite the challenges of displacement. Additionally, 78.4% of respondents expressed a desire to return to Ukraine permanently. The majority of respondents are female (89.4%), between 35-59 years old (58.9%), and Ukrainian nationals (99.4%). In terms of education, 40.9% hold a master’s degree, while 39.3% are employed. The data also details respondents' current residence countries, with the largest proportions living in Poland (16.6%), Slovakia (13.0%), and Romania (12.8%), and regions of origin in

Ukraine, with notable representation from Kyiv city (14.1%) and Odesa oblast (14.0%). Lastly, the data covers two survey waves, with 57.7% from wave 2. The table offers a comprehensive overview of demographic and socio-economic characteristics crucial for analysing refugee motivations and labour market outcomes.

The data used in this study come from the UNHCR Survey of Intentions and Perspectives of Refugees from Ukraine, which provides household-level information on refugees' migration motivations, demographic characteristics, and labour market activities. The survey was conducted across multiple host countries and includes individuals who self-identified as Ukrainian refugees. While this dataset offers valuable insights into refugees' decision-making processes, it is important to acknowledge certain sampling and demographic constraints that may affect the interpretation of the findings.

A key characteristic of the dataset is the gender imbalance among respondents, with 89.4% of the sample being female. This distribution is largely attributable to martial law in Ukraine, which restricts men aged 18-60 from leaving the country, except under specific circumstances. As a result, the refugee population captured in the survey is predominantly composed of women, children, and elderly individuals, which has significant implications for understanding labour market integration. For instance, women in the sample may face additional childcare responsibilities, social support challenges, and sectoral employment barriers, which could shape their motivations for migration and employment prospects differently from men.

**Table 1. Descriptive statistics**

| Variable | Obs | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| **Motivation work (What motivated you to come to this country? Due to work opportunities)** | | | | | |
| No | 3781 | 0.882 | 0.323 | 0 | 1 |
| Yes | 3781 | 0.118 | 0.323 | 0 | 1 |
| **Hope back (Do you hope to return permanently to Ukraine one day?)** | | | | | |
| I do not know/ I am undecided | 3781 | 0.165 | 0.371 | 0 | 1 |
| No | 3781 | 0.051 | 0.221 | 0 | 1 |
| Yes | 3781 | 0.784 | 0.412 | 0 | 1 |
| **Age group (What is your age?)** | | | | | |
| 18-34 yrs | 3781 | 0.295 | 0.456 | 0 | 1 |
| 35-59 yrs | 3781 | 0.589 | 0.492 | 0 | 1 |
| 60+ yrs | 3781 | 0.116 | 0.320 | 0 | 1 |
| **Gender (What gender do you identify yourself with?)** | | | | | |
| Female | 3781 | 0.894 | 0.308 | 0 | 1 |
| Male | 3781 | 0.106 | 0.308 | 0 | 1 |
| **Nationality (What is your nationality?)** | | | | | |
| Other | 3781 | 0.006 | 0.078 | 0 | 1 |
| Ukrainian | 3781 | 0.994 | 0.078 | 0 | 1 |
| **Education (Respondent education level)** | | | | | |
| No education | 3781 | 0.006 | 0.079 | 0 | 1 |
| Primary | 3781 | 0.005 | 0.073 | 0 | 1 |
| Secondary | 3781 | 0.162 | 0.369 | 0 | 1 |
| Technical or Vocational School | 3781 | 0.239 | 0.426 | 0 | 1 |
| Bachelor | 3781 | 0.153 | 0.360 | 0 | 1 |
| Master | 3781 | 0.409 | 0.492 | 0 | 1 |
| Doctorate | 3781 | 0.025 | 0.157 | 0 | 1 |
| **Persons left together (How many persons (including yourself) who left Ukraine after 23rd February of 2022 are there in your household currently living together and sharing expenses?)** | 3781 | 2.850 | 1.452 | 1 | 8 |
| **Main Activity (What is your current main activity (in this country)?)** | | | | | |
| Employed | 3781 | 0.393 | 0.489 | 0 | 1 |
| Unemployed | 3781 | 0.261 | 0.439 | 0 | 1 |
| Retired | 3781 | 0.085 | 0.278 | 0 | 1 |
| Student | 3781 | 0.057 | 0.233 | 0 | 1 |
| Caregiver | 3781 | 0.204 | 0.403 | 0 | 1 |
| **Residence country (In which country are you currently?)** | | | | | |
| Belgium | 3781 | 0.003 | 0.059 | 0 | 1 |
| Bulgaria | 3781 | 0.013 | 0.114 | 0 | 1 |
| Czech Republic | 3781 | 0.108 | 0.310 | 0 | 1 |
| France | 3781 | 0.013 | 0.114 | 0 | 1 |
| Georgia | 3781 | 0.015 | 0.120 | 0 | 1 |
| Germany | 3781 | 0.068 | 0.252 | 0 | 1 |
| Italy | 3781 | 0.027 | 0.161 | 0 | 1 |
| Lithuania | 3781 | 0.013 | 0.112 | 0 | 1 |
| Other | 3781 | 0.179 | 0.383 | 0 | 1 |
| Poland | 3781 | 0.166 | 0.372 | 0 | 1 |
| Republic of Moldova | 3781 | 0.105 | 0.307 | 0 | 1 |
| Romania | 3781 | 0.128 | 0.334 | 0 | 1 |
| Slovakia | 3781 | 0.130 | 0.337 | 0 | 1 |
| Spain | 3781 | 0.019 | 0.138 | 0 | 1 |
| Turkey | 3781 | 0.012 | 0.111 | 0 | 1 |

Source: Author's own illustration based on UNHCR data

**Table 2. Cont.**

| Variable | Obs | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| **Region in Ukraine (In which Oblast and settlement of Ukraine were you, personally?)** | | | | | |
| Cherkasy oblast | 3781 | 0.013 | 0.114 | 0 | 1 |
| Chernihiv oblast | 3781 | 0.016 | 0.127 | 0 | 1 |
| Chernivtsi oblast | 3781 | 0.007 | 0.081 | 0 | 1 |
| Dnipropetrovsk oblast | 3781 | 0.072 | 0.259 | 0 | 1 |
| Donetsk oblast | 3781 | 0.076 | 0.265 | 0 | 1 |
| Ivano-Frankivsk oblast | 3781 | 0.012 | 0.111 | 0 | 1 |
| Kharkiv oblast | 3781 | 0.131 | 0.338 | 0 | 1 |
| KhersonÂ oblast | 3781 | 0.053 | 0.223 | 0 | 1 |
| Khmelnytskiy oblast | 3781 | 0.008 | 0.087 | 0 | 1 |
| Kirovohrad oblast | 3781 | 0.007 | 0.083 | 0 | 1 |
| Kyiv city | 3781 | 0.141 | 0.348 | 0 | 1 |
| Kyiv oblast | 3781 | 0.049 | 0.216 | 0 | 1 |
| Luhansk oblast | 3781 | 0.020 | 0.139 | 0 | 1 |
| Lviv oblast | 3781 | 0.026 | 0.160 | 0 | 1 |
| Mykolayiv oblast | 3781 | 0.061 | 0.240 | 0 | 1 |
| Odesa oblast | 3781 | 0.140 | 0.347 | 0 | 1 |
| Poltava oblast | 3781 | 0.015 | 0.120 | 0 | 1 |
| Rivne oblast | 3781 | 0.004 | 0.061 | 0 | 1 |
| Sumy oblast | 3781 | 0.018 | 0.133 | 0 | 1 |
| Ternopil oblast | 3781 | 0.007 | 0.083 | 0 | 1 |
| Vinnytsya oblast | 3781 | 0.030 | 0.170 | 0 | 1 |
| Volyn oblast | 3781 | 0.004 | 0.061 | 0 | 1 |
| Zakarpattya oblast | 3781 | 0.020 | 0.139 | 0 | 1 |
| Zaporizhzhya oblast | 3781 | 0.050 | 0.218 | 0 | 1 |
| Zhytomyr oblast | 3781 | 0.020 | 0.141 | 0 | 1 |
| **Wave** | | | | | |
| Wave 1 | 3781 | 0.423 | 0.494 | 0 | 1 |
| Wave 2 | 3781 | 0.577 | 0.494 | 0 | 1 |

Source: Author's own illustration based on UNHCR data

## 2.2. Methodology

In this analysis, I employ a logistic regression model to examine the factors influencing migration decisions related to work opportunities using the equation below. Specifically, I aim to explore how various demographic, socio-economic, and contextual variables—such as age, gender, education, current main activity, and country of residence—affect the likelihood of individuals migrating to a particular destination country due to work opportunities. This model allows for a detailed understanding of the key drivers behind migration for employment purposes among the surveyed population.

**Motivation to Work** = $\beta_0 + \beta_1$*(Hope to Return to Ukraine) + $\beta_2$*(Age Group) + $\beta_3$*(Gender) + $\beta_4$*(Nationality) + $\beta_5$*(Education) + $\beta_6$*(Persons Left Together) + $\beta_7$*(Main Activity) + $\beta_8$*(Residence Country) + $\beta_9$*(Region in Ukraine) + $\beta_{10}$*(Wave) + $\epsilon_i$

Where:

- $\beta_0$ is the intercept,
- $\beta_1, \beta_2, ..., \beta_{10}$ are the coefficients for each independent variable,
- **i** represents individual respondents,
- $\epsilon_i$ is the error term.

A logistic regression model is an appropriate choice for this study because the dependent variable—migration motivated by work opportunities—is binary (i.e., respondents either migrated for work or did not). Logistic regression is well-suited to model the probability of binary outcomes and allows for the estimation of relationships between multiple independent variables (such as age, gender, education, and current activity) and the likelihood of the event occurring (Peng et al., 2002). Additionally, logistic regression is robust in handling both categorical and continuous predictors, making it flexible for exploring a wide range of socio-economic and demographic factors (Hosmer et al., 2013). It also avoids some of the assumptions required by linear regression, such as the need for a normally distributed dependent variable, making it ideal for studies where the outcome is a dichotomous decision (Field, 2018). Thus, this model offers a rigorous way to investigate how these factors collectively influence migration decisions related to work opportunities.

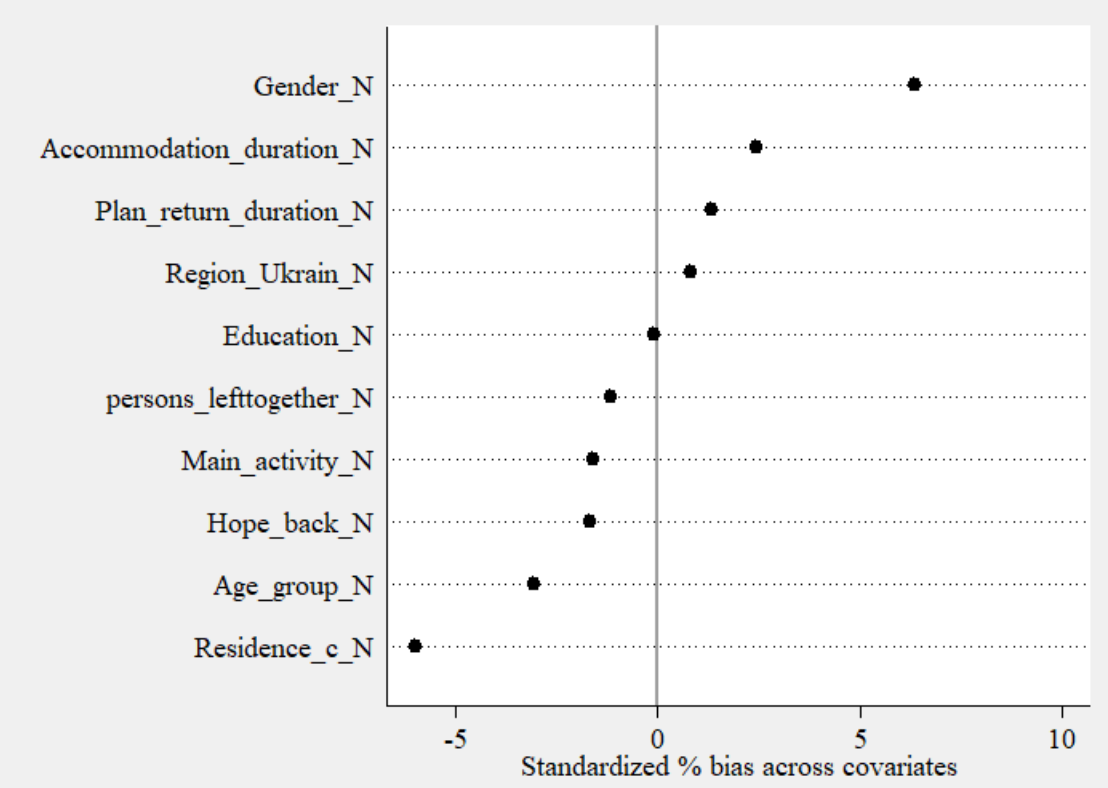
While a logistic regression model was initially employed to examine the relationship between these factors and the likelihood of migrating for work opportunities, considering about the evolving nature of refugee motivations under war conditions is noted. Refugee motivations are indeed dynamic and can change in response to both shifting conditions in the home country (e.g., safety concerns) and the realities of long-term displacement in host countries. Given this, logistic regression alone, which assumes stable, observable factors influencing migration decisions, may not adequately capture the full complexity of refugee motivations.

To address these limitations, Propensity Score Matching (PSM) was implemented as an additional methodological approach. PSM is particularly useful in situations like this, where it is crucial to account for selection bias and unobserved heterogeneity that may influence migration decisions. By matching refugees motivated by work opportunities with similar individuals who were not motivated by work, PSM creates a more balanced comparison between these groups, helping to reduce biases that may arise from differences in observable characteristics.

This method allows for a more robust estimation of the causal effect of migration motivated by work opportunities, addressing concerns of endogeneity and unobservable factors that might affect migration decisions. The results from both the logistic regression model and the PSM analysis will be compared to ensure the robustness and validity of the findings. Through this combined methodological approach, the study aims

to provide a more comprehensive understanding of the factors driving migration decisions in the context of ongoing conflict and displacement.

**Figure 1. Standardised percentage bias across covariates after propensity score matching**




Source: Author's own illustration based on UNHCR data

The graph illustrates the standardised percentage bias across covariates used in the propensity score matching (PSM) analysis. Each dot represents a covariate, with its position on the x-axis indicating the extent of bias after matching. The x-axis measures the standardised percentage bias, where values closer to zero suggest a reduction in imbalance between the treatment and control groups for the corresponding covariate.

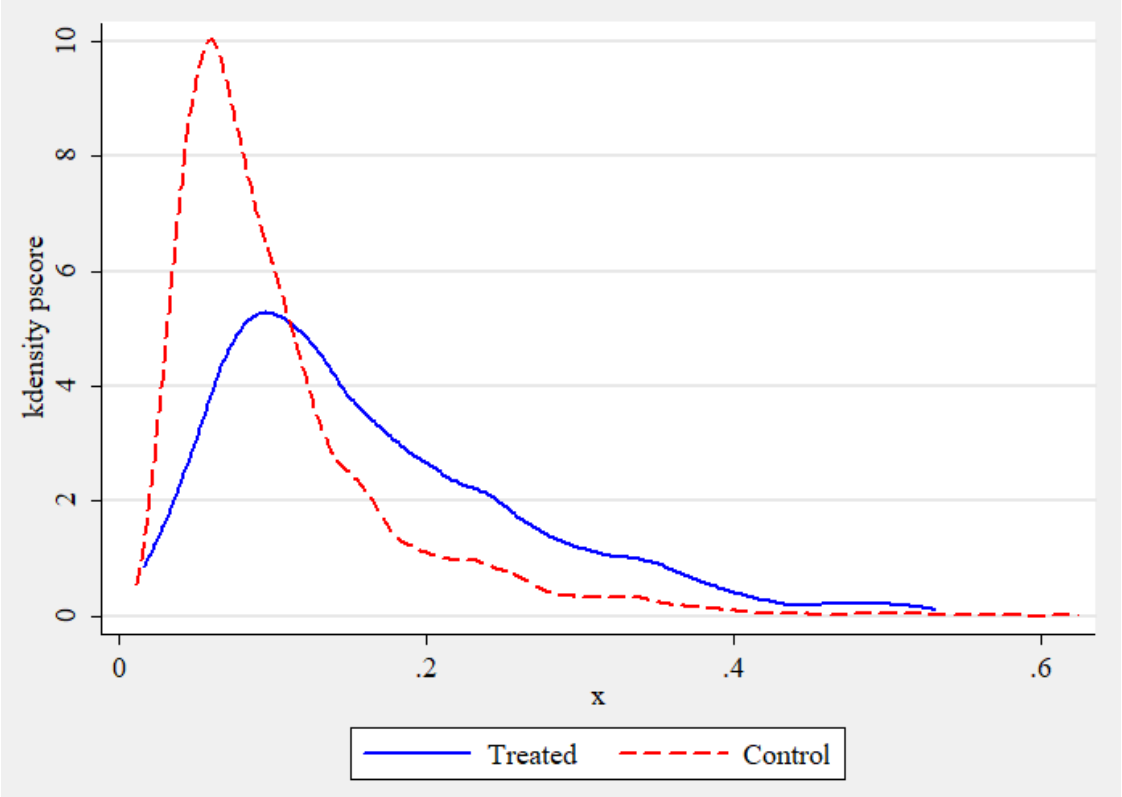
Key covariates included in the analysis are listed on the y-axis, such as **Gender, Accommodation_duration**, and **Age_group**. The vertical line at zero represents the ideal scenario where there is no residual bias for a covariate.

For the covariates displayed in this graph, the results demonstrate that the matching procedure was effective in reducing bias, as most covariates exhibit a standardised percentage bias close to zero. A few covariates, such as **Accommodation_duration**, show slightly higher residual bias, indicating that balance

was not entirely achieved. However, the overall proximity of the covariates to the zero line reflects an improvement in balance post-matching.

This visualisation is a crucial diagnostic tool to assess the success of the PSM in addressing initial imbalances in the covariates and ensuring comparability between the treated and control groups.

**Figure 2. Kernel Density Plot of Propensity Scores for Treated and Control Groups**




Source: Author's own illustration based on UNHCR data

The kernel density plot presented above illustrates the distribution of propensity scores for two groups of refugees: those motivated by work opportunities (Motivation_work == 1) and those not motivated by work (Motivation_work == 0). The purpose of this plot is to visually assess the overlap between the two groups' propensity scores prior to the implementation of Propensity Score Matching (PSM). The blue solid line represents the density of propensity scores for individuals motivated by work, while the red dashed line depicts the density for individuals not motivated.

This visualisation highlights the extent to which the two groups can be matched based on observable characteristics, such as age, education, and other covariates included in the logistic regression model used to estimate the propensity scores. The overlap between the two distributions is critical, as it determines the feasibility of constructing a balanced comparison between the groups.

The plot reveals areas of overlap, particularly in the mid-range of propensity scores, indicating that PSM can be used to reduce bias and improve comparability. However, a noticeable separation is also observed, with the treated group (blue line) concentrated at higher propensity scores and the control group (red line) concentrated at lower scores. This separation at the extremes suggests potential challenges in achieving full balance during the matching process and underscores the importance of careful evaluation after matching.

The degree of overlap between the distributions is a key determinant of the effectiveness of PSM in reducing bias and enabling accurate estimation of the causal effect of migration motivated by work. Sufficient overlap allows for the creation of a balanced comparison, minimising residual imbalances between the groups. However, the observed separation highlights the need for refinement in the matching process to address imbalances at the extremes.

This kernel density plot serves as a crucial diagnostic tool, offering insights into the robustness of the matching procedure and the adequacy of common support between the two groups. Its interpretation is essential for ensuring that the subsequent analysis reliably captures the factors influencing migration decisions motivated by work opportunities.

**Table 2. Covariate balance before and after matching**

| Variable | Mean (Treated) | Mean (Control) | % Bias | t-test (p value) | Variance Ratio (V(T)/V(C)) |
|---|---|---|---|---|---|
| **Age Group (N)** | 1.697 | 1.715 | -3.0% | -0.65 (0.519) | **0.81** ✗ |
| **Persons Left Together (N)** | 2.7125 | 2.7299 | -1.1% | -0.24 (0.807) | **1.22** ✗ |
| **Residence (C)** | 7.0411 | 7.2525 | -6.0% | -1.19 (0.234) | **0.85** ✗ |
| **Region in Ukraine (N)** | 11.938 | 11.886 | 0.8% | 0.17 (0.863) | **1.14** ✓ |
| **Main Activity (N)** | 5.0178 | 5.0605 | -1.6% | -0.34 (0.736) | **0.99** ✓ |
| **Education (N)** | 1.8757 | 1.8765 | -0.1% | -0.01 (0.989) | **1.02** ✓ |
| **Gender (N)** | 1.202 | 1.1787 | 6.4% | 1.23 (0.220) | **1.07** ✓ |
| **Hope to Return (N)** | 2.99 | 3.0063 | -1.6% | -0.35 (0.729) | **0.98** ✓ |
| **Planned Return Duration (N)** | 2.7847 | 2.7761 | 1.3% | 0.31 (0.758) | **0.95** ✓ |
| **Accommodation Duration (N)** | 2.5483 | 2.5203 | 2.4% | 0.49 (0.624) | **0.91** ✓ |

**Table 3. Overall matching quality metrics**

| Statistic | Value | Interpretation |
|---|---|---|
| **Pseudo $R^2$ (Ps R2)** | **0.002** | Very low = good balance |
| **LR $chi^2$ test** | **3.98** | Insignificant (p = 0.948), meaning good balance |
| **Mean Bias** | **2.4%** | Well below the **10% threshold** (good) |
| **Median Bias** | **1.6%** | Well balanced |
| **B (Standardised Bias Reduction)** | **9.4** | **Below 25% → Acceptable** |
| **R (Rubin's R metric)** | **1.03** | Close to 1 = Well-matched sample |
| **% Variance Reduction** | **40%** | Some covariates improved, but not perfect |

The balance diagnostics presented above evaluate the comparability of the treated and control groups following propensity score matching (PSM). The key criteria for assessing balance include the standardised percentage bias, t-tests for mean differences, variance ratios, and overall matching quality metrics such as Pseudo $R^2$ and the likelihood ratio chi-square test.

The results indicate that the covariate balance is generally satisfactory. The standardised percentage bias for all covariates is below the commonly accepted threshold of 10%, suggesting that the differences between the treated and control groups have been minimised. Furthermore, the p-values from the t-tests exceed 0.05 for all variables, confirming that none of the covariates exhibit statistically significant differences between the matched groups. These findings indicate that the matching procedure has successfully improved comparability between the two groups, reducing the risk of selection bias in the estimation of treatment effects.

In terms of variance ratios, most variables fall within the recommended range of [0.88, 1.14], indicating that the distributions of covariates are similar between the treated and control groups. However, three variables—Age Group, Persons Left Together, and Residence—show slight deviations from this range, suggesting minor residual imbalances. While these discrepancies are relatively small, they may still influence the robustness of the treatment effect estimates.

The overall quality metrics reinforce the conclusion that balance has been adequately achieved. The low Pseudo $R^2$ value (0.002) and the non-significant likelihood ratio chi-square test (p = 0.948) indicate that there is no systematic difference in covariate distributions between the matched treated and control groups. Additionally, the mean and median bias values (2.4% and 1.6%, respectively) are well below the commonly accepted threshold of 10%, further confirming the success of the matching process. The Rubin's B statistic (9.4) is below the 25% threshold, suggesting that the

matched sample is sufficiently balanced, while Rubin's R (1.03) is close to 1, indicating that the variance of propensity scores between the groups is well controlled.

In conclusion, the results suggest that the PSM approach has successfully improved balance between the treated and control groups, thereby enhancing the validity of causal inferences. While minor imbalances persist in a few covariates, the overall matching quality is strong, and the remaining differences are unlikely to introduce significant bias in the estimation of treatment effects.

# 3. Findings

The findings of this study offer valuable insights into the determinants of migration decisions, particularly in relation to work opportunities. Using a logistic regression model, the analysis examines how key demographic and socio-economic factors—including age, gender, education level, employment status, and country of residence—shape the likelihood of migrating for employment. The results highlight the relative importance of these factors, reinforcing the robustness of the analytical approach. While the model provides a strong empirical foundation, potential limitations such as multicollinearity and the sensitivity of certain estimates should be considered. This section presents a detailed breakdown of the findings, offering a comprehensive understanding of the drivers of labour migration.

**Table 3. Results of logistic regression, odds ratios**

| Variable | Odds Ratio | Std. Error | z-score | p-value | 95% Confidence Interval |
|---|---|---|---|---|---|
| Age Group | 0.643 | 0.0387 | -7.33 | 0.000 | [0.571, 0.724] |
| Persons Left Together | 0.953 | 0.0241 | -1.92 | 0.054 | [0.906, 1.001] |
| Residence | 0.861 | 0.0088 | -14.77 | 0.000 | [0.844, 0.878] |
| Region in Ukraine | 1.001 | 0.0059 | 0.14 | 0.891 | [0.989, 1.012] |
| Main Activity | 0.904 | 0.0129 | -7.07 | 0.000 | [0.879, 0.929] |
| Education Level | 0.922 | 0.0292 | -2.58 | 0.010 | [0.866, 0.981] |
| Gender | 2.010 | 0.1892 | 7.41 | 0.000 | [1.671, 2.417] |
| Hope to Return | 0.931 | 0.0353 | -1.87 | 0.061 | [0.865, 1.003] |
| Planned Return Duration | 1.251 | 0.0791 | 3.53 | 0.000 | [1.105, 1.416] |
| Accommodation Duration | 1.076 | 0.0339 | 2.32 | 0.020 | [1.012, 1.145] |
| Constant | 0.531 | 0.1610 | -2.09 | 0.037 | [0.293, 0.962] |

**Model Fit Statistics:**

- Number of Observations: **8,050**
- Log Likelihood: **-2603.19**
- LR Chi-square (10 df): **437.03** ($p < 0.000$)
- Pseudo R-squared: **0.0774**

The logistic regression analysis was conducted to examine the factors influencing the likelihood of being motivated by work when migrating. The model was estimated using 8,050 observations, with a log likelihood of -2603.19 and a pseudo $R^2$ of 0.0774, indicating a modest explanatory power.

The results demonstrate several significant relationships. Age is negatively associated with work motivation ($\beta = -0.443$, $p < 0.001$), suggesting that younger individuals are more likely to migrate for work. Similarly, individuals with higher residence duration ($\beta = -0.150$, $p < 0.001$) and those engaged in certain main activities ($\beta = -0.102$, $p < 0.001$) exhibit lower likelihoods of work-motivated migration. In contrast, gender is a strong predictor ($\beta = 0.697$, $p < 0.001$), indicating that males are significantly more likely to migrate for employment opportunities. Additionally, planning a return within a short duration ($\beta = 0.223$, $p < 0.001$) and longer accommodation duration ($\beta = 0.073$, $p = 0.020$) positively influence work-driven migration.

The goodness-of-fit test ($\chi^2 = 7557.11$, $p = 0.4683$) indicates an adequate model fit. The classification table shows that the model correctly classifies 88.68% of observations, though sensitivity remains low at 0.55%, meaning it struggles to identify those who are truly motivated by work. Specificity, however, is high at 99.79%, indicating strong performance in correctly identifying non-work-motivated migrants.

Multicollinearity diagnostics reveal a mean VIF of 7.65, with some variables exceeding the commonly accepted threshold of 10, suggesting moderate multicollinearity concerns. Although this does not invalidate the findings, it highlights potential interdependencies among predictors that should be considered in future research.

Overall, our analysis provides valuable insights into the determinants of work-motivated migration, demonstrating robust statistical significance for key variables. While the model exhibits strong specificity and overall accuracy, its relatively low pseudo $R^2$ and sensitivity suggest that additional explanatory factors may improve predictive power. Addressing potential multicollinearity and incorporating additional covariates could further enhance the reliability of the findings.

## 4. Conclusion and Discussion

This study examines the factors influencing migration for work opportunities among Ukrainian refugees, using data from the UNHCR Survey of Intentions and Perspectives of Refugees from Ukraine. By applying a logistic regression model, the analysis explores how demographic and socio-economic characteristics—including gender, citizenship, family composition, and current economic activity—shape refugees' likelihood of migrating due to employment prospects. The findings provide valuable insights into the complexity of refugee labour market integration, highlighting both expected and nuanced patterns.

A key finding is the significant role of gender in shaping migration motivations. Men are more likely than women to report work opportunities as a primary driver of migration, suggesting potential disparities in labour market access or differing economic priorities between genders. This aligns with broader research showing that women often face additional barriers to entering the workforce, such as caregiving responsibilities, societal norms, or limited employment opportunities in host countries. However, further research is needed to fully understand how these barriers influence migration decisions.

Family composition also emerges as an important factor, with larger households being less likely to migrate primarily for work. This suggests that economic motivations may not be as pressing for those travelling with family members, who may prioritise social stability and collective well-being over immediate labour market participation. Migration theories emphasise the role of family cohesion in shaping migration decisions, particularly in contexts of forced displacement, reinforcing the relevance of this finding.

Citizenship status is another significant determinant of migration motivations. Non-Ukrainian citizens within the refugee population exhibit distinct migration patterns, indicating that legal status and long-term residency prospects influence work-related migration incentives. This finding aligns with previous studies showing that access to legal employment is a key determinant of labour market outcomes. Beyond formal rights, perceptions of long-term stability and integration prospects also appear to shape migration choices.

Current economic activity is also a significant predictor, with individuals already engaged in work or education being more likely to migrate due to employment opportunities. This supports theories of economic assimilation, which suggest that prior labour market experience enhances job-seeking behaviour in new destinations. However, transitioning into host-country labour markets remains challenging due to factors such as skill mismatches and non-recognition of qualifications.

From a policy perspective, these findings underscore the need for targeted interventions to improve refugee labour market integration. Addressing gender disparities in employment, recognising foreign qualifications, and supporting refugees

migrating with families could enhance labour market outcomes. Additionally, policies that account for legal status constraints and provide clear pathways to employment may facilitate better economic participation among refugees. Given the heterogeneity in host-country responses, policy recommendations should be tailored to specific national contexts. For instance, Poland has absorbed the largest share of Ukrainian refugees and prioritised rapid labour market access, whereas Germany offers structured integration pathways, including language training and vocational support. Romania, on the other hand, has faced capacity constraints in formal employment integration. Recognising these differences is crucial for developing effective policies.

While this study offers valuable insights, several limitations must be acknowledged. First, the analysis relies on self-reported survey data, which can introduce response biases. Given the conflict setting, refugees' motivations for migration may be influenced by psychological distress, legal uncertainties, or social desirability bias. Some respondents may underreport economic motivations due to concerns about their legal status, while others may overstate employment-related reasons to align with perceived host-country expectations. Although the use of propensity score matching (PSM) helps mitigate bias from observable factors, unobservable influences remain a challenge. Future research could strengthen validity by cross-referencing self-reported motivations with external indicators, such as actual employment status or length of stay in the host country.

Another limitation is the lack of direct measures for unobservable factors such as psychological trauma, mental health status, and informal social networks. These factors can significantly shape migration decisions but are not captured in the dataset. While current economic activity serves as a proxy for economic readiness, the absence of more detailed indicators—such as mental health assessments or long-term employment trajectories—is a constraint. Future studies could incorporate psychosocial indicators or longitudinal data to track how refugees' motivations evolve over time.

A further limitation is the absence of macroeconomic and policy-related variables that could affect refugees' labour market motivations. Differences in host-country policies, such as temporary protection measures, employment restrictions, and welfare provisions, may create heterogeneous effects that are not fully captured in the current analysis. Future research should explore the role of these factors, potentially using interaction terms between individual characteristics and host-country conditions to better understand their influence on migration decisions. Integrating policy-level indicators, such as variations in work authorisation rules, employment support programmes, and social welfare access, could provide a more comprehensive understanding of how host-country policies interact with individual refugee characteristics.

Moreover, this study does not explicitly account for the gender imbalance in the dataset. The high proportion of female respondents (89.4%) reflects Ukraine's martial

law, which restricts men aged 18-60 from leaving the country. This limits the generalisability of the findings, particularly regarding male refugees, who may have different labour market motivations and integration patterns. Future research could benefit from complementary data sources that include more male refugees or adopt longitudinal approaches to track changes in migration motivations as policies evolve.

This study contributes to the broader discourse on refugee labour market integration by providing empirical evidence on the factors shaping migration motivations among Ukrainian refugees. The findings highlight both structural and individual determinants of work-related migration, reinforcing the need for comprehensive, context-sensitive policies to support the economic integration of displaced populations. While the analysis provides important insights, addressing the identified limitations through future research will be crucial for developing a more holistic understanding of refugee labour market integration in different host-country contexts.

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**DISCLOSURE STATEMENTS:**
**Research and Publication Ethics Statement:** This study has been prepared in accordance with the rules of scientific research and publication ethics.
**Contribution rates of the authors:** Only author (100%).
**Conflicts of Interest:** Author states that there is no conflict of interest.
**Research Support and Acknowledgements:** This research was not supported by any institution. I sincerely appreciate the valuable comments and suggestions provided by the two anonymous reviewers and Professor Fatma Doğruel.
**Ethics Committee Approval:** Ethics committee approval was not obtained because human subjects were not used in the research described in the paper.