

Refugees and labor migrants from Ukraine in Slovakia

One year into the war

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Abstract

We compare the labor market outcomes of Ukrainian migrants in two different classes of admission groups: those who entered the Slovak labor market in the year preceding Russia's invasion of Ukraine holding a work permit (i.e., labor migrants) and those who entered the Slovak labor market in the year following Russia's invasion of Ukraine holding temporary refuge (i.e., refugees). The differences in educational attainment between the two groups were marginal: 22.2% of labor migrants and 23.2% of refugees had attained tertiary education. Nevertheless, refugees experienced a stronger initial education-occupation mismatch in their first job compared to labor migrants (46% vs. 30%). Furthermore, they were more likely to work in elementary occupations compared to labor migrants (38% vs. 14%). However, refugees were more attached to the labor market than labor migrants. Throughout the year, they worked 164.6 days, whereas labor migrants worked only 130.3 days. This suggests that Ukrainians are willing to work in Slovakia longer than the current legislation regulating the employment of third-country citizens allows.

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SUMMARY

During the first year of Russia's aggression against Ukraine, 110,114 refugees from Ukraine registered for temporary protection in Slovakia. As a result, the share of Ukrainians in the non-EU foreign population in Slovakia rose from 50.1% at the end of 2021 to 70.5% at the end of 2022 (Presidium of the Police Force, 2022). Ukrainians fleeing from war are entitled to basic social assistance and subsistence support but their integration in the labor market remains a prerequisite for an independent life in Slovakia.

In March 2022, the first month of the war, 11% of the 18- to 64-year-old refugees found work. One year into the war, the employment rate of Ukrainian refugees in Slovakia reached approximately 34%, a figure almost identical to that in the Czech Republic (Švihel, 2023). However, in some countries, such as Lithuania, Estonia, or the Netherlands, it already exceeded 40%, indicating that the employment rate of Ukrainian refugees in Slovakia still has the potential to grow (Dumont et al., 2023; OECD, 2023: Table 1.9).

Historically, refugees fare worse in the labor market compared to other migrant groups (Åslund et al., 2017; Akresh, 2008; Bakker et al., 2017; Bevelander, 2020; Bratsberg et al., 2017; Dustmann et al., 2017; Fasani et al., 2022; Schultz-Nielsen, 2017). Therefore, we compare the labor market outcomes of Ukrainian refugees who entered the Slovak labor market in the year following Russia's invasion of Ukraine and Ukrainian labor migrants who entered the Slovak labor market in the year preceding Russia's invasion of Ukraine.

There were substantial differences in prior work experience in Slovakia between the two groups. Whereas 60.9% of Ukrainian labor migrants who found employment in Slovakia in the year before Russia's invasion of Ukraine had worked in Slovakia at some point before, only 3.1% of refugees did. To ensure that individuals in both groups have the same starting position, we limited both populations of newly employed migrant workers to those with no prior work experience in Slovakia. The examined population comprises 4,373 newly employed labor migrants and 24,295 refugees.

There were also significant gender differences between the two groups: men filled almost three-quarters of jobs filled by migrant workers. In contrast, women filled almost 79% of jobs filled by temporary refugees.

However, differences in educational attainment were marginal: 22.2% of labor migrants and 23.2% of refugees had attained tertiary education. Nevertheless, labor migrants fared better in the Slovak labor market compared to refugees. Whereas 29.7% of labor migrants were overeducated in their first job in Slovakia, a staggering 46.2% of refugees were.

Overeducated Ukrainians were concentrated in low-skilled jobs but even here, labor migrants fared better. Our results indicate that 27.4% of refugees with secondary education and 7.8% of refugees with tertiary education worked in elementary occupations that can be performed with primary education. In contrast, only 9.1% of labor migrants with secondary education and 4.2% of labor migrants with tertiary education worked in elementary occupations.

Neither refugees nor migrants moved to jobs with a higher occupational status within one year of arrival. Only 1.9% of labor migrants moved to a position with a different socio-economic status, as measured by the ISEI-08 index, which reflects education and income in each occupation. This is hardly surprising because the employment permit is issued for a specific job and is not transferable. Unlike labor migrants, refugees had direct access to the labor market, but although 8.7% of them moved to a job with a different ISEI score, their occupational status improved by less than 1 ISEI point on average.

There were no significant differences in real earnings between labor migrants and refugees. Labor migrants earned, on average, only 2.1% more than refugees. However, for women, who made up the majority of refugees, the gap was slightly higher: female refugees earned 5.5% less than female labor migrants. It should be noted that this comparison does not take into account refugees who were allowed to perform work on the basis of

temporary small job contracts, called work agreements, which are often characterized by a varying income. These work agreements totaled 24.8% of refugee job placements in Slovakia.

In contrast to occupational mobility, changes in earnings were more frequent. Over the course of the year, 57.8% of labor migrants and 53.8% of refugees experienced an increase in wages and 29.3% of labor migrants and 27.9% of refugees experienced a decrease in wages. The highest increase was documented among the tertiary educated: labor migrants saw their real wages rise by 10.5% and refugees by 9.4%.

Refugees were more attached to the labor market than labor migrants. Throughout the year, refugees worked 164.6 days, whereas labor migrants worked only 130.3 days. The difference most likely reflects the simplified hiring of foreign workers for seasonal work, as up to 40.5% of labor migrants worked for a maximum of 3 months but only 32.2% of refugees did. This suggests that Ukrainians are willing to work in Slovakia longer than the current legislation regulating the employment of third-country citizens allows.

In conclusion, there is a large occupation-education mismatch at the start of Ukrainian refugees' working careers, vis-à-vis Ukrainian labor migrants in Slovakia. The underutilization of migrants' human capital is not only detrimental to migrants themselves but also for Slovakia, which faces the challenge of a rapidly aging population, with the share of the working-age population expected to shrink by about a fifth in the next 30 years (Hwang and Roehn, 2022). Future research should, therefore, focus on the study of policies that would speed up the labor market integration of labor migrants and refugees.

1 Introduction

Russia's invasion of Ukraine in February 2022 caused an unprecedented inflow of war refugees to the European Union. Although Ukrainians fleeing from war are entitled to basic social assistance and subsistence support, their integration in the labor market remains a prerequisite for an independent life. Historically, refugees experience lower employment rates and a greater occupation-education mismatch relative to both the native-born population and other migrant groups (Åslund et al., 2017; Akresh, 2008; Bakker et al., 2017; Bevelander, 2020; Bratsberg et al., 2017; Dustmann et al., 2017; Fasani et al., 2022; Schultz-Nielsen, 2017). In contrast to previous refugee cohorts, displaced Ukrainians were quickly absorbed into tight labor markets across the European Union (Dumont and Lauren, 2022). However, the early employment uptake was concentrated in more accessible low-skilled or precarious jobs (Dumont et al., 2023). Yet, little is known about the occupational and earnings mobility of Ukrainian refugees over time. In this paper, we aim to fill this gap and examine how they fared in the Slovak labor market in the first year of the war in Ukraine.

The case of Ukrainian workers in Slovakia offers important insights into the labor market integration of refugees. First, Ukrainians were the largest third-country citizenship group in Slovakia already before the war but following Russia's invasion of Ukraine, their share skyrocketed from 50,1% at the end of 2021 to 70,5% at the end of 2022 (Presidium of the Police Force, 2022). The widespread mobility between Ukraine and Slovakia due to the common border enables us to examine the labor market outcomes of Ukrainian refugees in comparison to their most similar counterparts, i.e. Ukrainian labor migrants. Second, the Slovak labor market is a good proxy for labor markets in other EU countries. Ukrainian refugees entered Slovakia at a time when it was experiencing major labor shortages. During the first year of Russia's aggression against Ukraine, 110,114 refugees from Ukraine registered for temporary protection in Slovakia. The working-age population of 18- to 64-year-olds amounted to 65,714 individuals or roughly 2.6% of the labor force in 2021. However, the continuously declining unemployment rate suggests that Ukrainians did not compete for jobs with Slovak citizens. Finally, we rely on exhaustive administrative data on the employment of foreign citizens in Slovakia, which enable us to examine the education-occupation mismatch in the first job and subsequent occupational and earnings mobility between the first and the last job in the observed period.

We ask three related questions. What is the employment rate of Ukrainian refugees? Do refugees struggle to find jobs that match their education? How do their occupational status and their earnings change over the course of one year?

To answer these questions, we compare the labor market outcomes of Ukrainian migrants in two different classes of admission groups: those who entered the Slovak labor market in the year preceding Russia's invasion of Ukraine holding a work permit (i.e., labor migrants) and those who entered the Slovak labor market in the year following Russia's invasion of Ukraine holding temporary refuge (i.e., refugees). Given the substantial mobility between Slovakia and Ukraine, we limited both populations of newly employed migrant workers to those with no prior work experience in Slovakia. This condition ensures that both groups have the same starting position: migrants most likely do not speak Slovak and employers do not fully understand what particular skills or level of productivity a foreign work experience corresponds to. The examined population comprises 4,373 newly employed labor migrants and 24,295 refugees.

The compared groups share linguistic, cultural and geographic proximity to Slovakia and are very similar in terms of educational attainment. Nevertheless, we document that refugees fare worse in the Slovak labor market: they tend to be more overeducated in their first job and more likely to work in elementary occupations than labor migrants. Neither refugees nor migrants move to jobs with a higher occupational status within one year of arrival. Although refugees fare worse in the labor market, they are more attached to it than labor migrants. Within a span of 12 months, refugees worked, on average, 164,6 days, whereas labor migrants worked only 130,3 days. This implies that Ukrainians are willing to work in Slovakia longer than the current legislation allows.

The rest of the paper is organized as follows. Section 2 provides a brief overview of the labor market outcomes of migrants by admission status. Section 3 presents the data and methodology. The results of the empirical analysis are presented in Section 4. Section 5 offers a summary and conclusion.

2 Labor Market Integration of Migrants

Newly arrived migrants often work in jobs requiring low educational attainment, regardless of the education they obtained in their home countries. Furthermore, they tend to be more overeducated than their native counterparts in similar jobs (for a review of the literature, see Piracha and Vadean, 2013 or Duleep, 2015). Although the education mismatch is quite persistent (Mavromaras et al., 2009; Piracha et al., 2012), migrants manage to gradually move to jobs that match their qualifications (Akresh, 2008; Huber et al., 2010; Leitner and Landesmann, 2020; Piracha et al., 2012; Poot and Stillman, 2010). Labor market integration of migrants thus follows a U-shaped pattern, characterized by a decrease in occupational status from the last job before migration and a subsequent increase in occupational status in the host country.

Occupation is closely linked to earnings. As a result, immigrants start with lower earnings compared to the natives as well, but the earnings gap at least partially closes within a decade or two in the labor market (Borjas, 1985; Borjas, 1995; Lubotsky, 2007; Rho and Sanders, 2021). However, the catchup rates seem to vary by education attainment. For example, low-skilled immigrants are the group with the most substantial earnings catchup (Rho and Sanders, 2021). The inferior earnings growth of immigrants primarily results from their failure to move to higher-paying firms over time (Barth et al., 2012; Damas de Matos, 2017).

2.1 Causes of the education mismatch

Some types of human capital may not be easily transferable across national borders. Immigrants may lack host country-specific human capital, such as language proficiency, familiarity with host country labor regulations or licensing required for some professions. For example, employers typically value proficiency in the language of the migrant's home country less than proficiency in the language of the host country, which makes it more difficult for migrants to acquire jobs fully commensurate with their educational attainment or work experience (Chiswick and Miller, 2010; Dustmann and Van Soest, 2002; Green et al., 2007; Kossoudji, 1998; Mavromaras and McGuinness, 2009; McManus et al., 1983; Sanroma et al., 2008; Tainer, 1988). This view is supported by empirical evidence: immigrants in Australia from English-speaking countries have lower over-education rates compared to immigrants from non-English-speaking countries (Green et al., 2007; Mavromaras and McGuinness, 2009; Chiswick and Miller, 2010). Similarly, immigrants in Spain from Latin America are less overeducated compared to East European, Asian and African immigrants (Sanroma et al., 2008).

The underutilization of migrants' skills may also reflect informational asymmetry: when education is acquired abroad, it works poorly as a productivity signal because host country employers do not fully understand what particular skills the foreign education corresponds to. Risk-averse employers will be, therefore, reluctant to hire applicants with foreign credentials (Chiswick and Miller, 2009). As employers observe migrants' productivity over time, the returns to foreign education increase but the catch-up with native wages can be measured in years (Fasani et al., 2022; Lange, 2007). Formal recognition of foreign education may speed up the catching-up process because it reduces uncertainty by providing credible information about foreign certifications (Pecoraro and Tani, 2023; Tibajev and Hellgren, 2019).

Discrimination is another possible explanation for the higher incidence of overeducation among migrants. If ethnic minorities find it difficult to acquire jobs, they are more likely to accept an offer for a job for which they are over-educated (Battu and Sloane, 2004; Lindley, 2009). For example, a higher over-education of non-whites relative to whites was documented in the United Kingdom (Battu and Sloane, 2004). An important implication of the discrimination hypothesis is that discriminated migrants may be trapped in bad jobs relative to natives, regardless of whether they gain country-specific human capital or not.

The above estimates of over-education implicitly assume no education mismatch in the immigrants' home country. However, a substantial number of employees are mismatched even in their home country (e.g., Leuven and Oosterbeek, 2011). Work experience gained prior to immigration may, therefore, serve as an important signal for employers. If someone with tertiary education worked in the home country in a job that required only secondary education and is employed in a similar job in the host country, it is more likely that the mismatch is due to lower ability rather than imperfect transferability of skills or discrimination (Piracha et al., 2012). For example, being over-educated in the last job held in the home country increases the likelihood of being over-educated in Australia as well (ibid).

2.2 Labor Market Outcomes by Admission Status

There is a large variation in the labor market outcomes of various immigrant groups, such as economic migrants, family reunion migrants or refugees. Economic migrants tend to be favorably "self-selected" for labor market success: they tend to be more able, ambitious, motivated and entrepreneurial than those who choose to remain in their place of origin (Chiswick, 2000).

In contrast to economic migrants, family reunion migrants and refugees do not self-select for the host country's labor market. Family reunion migrants (or tied movers) follow their family who reached the country of the destination first. Because spousal migration is more likely to accommodate the man's career opportunities than the woman's (Cooke 2008), it is mostly women whose careers suffer more as a result of the move. Furthermore, their career often does not recover because women face the pressure to take care of the family or take on "dead-end" jobs to finance their husband's investment in human capital (Duleep and Sanders, 1993; Baker and Benjamin, 1997).

Finally, refugees leave their homes with the least preparation. They do not carefully consider their language and other skills before migration, often lack the necessary certificates and may be traumatized by the events in their home country, during the escape or after their arrival in the destination country (Leitner and Landesmann, 2020; Bevelander, 2020).

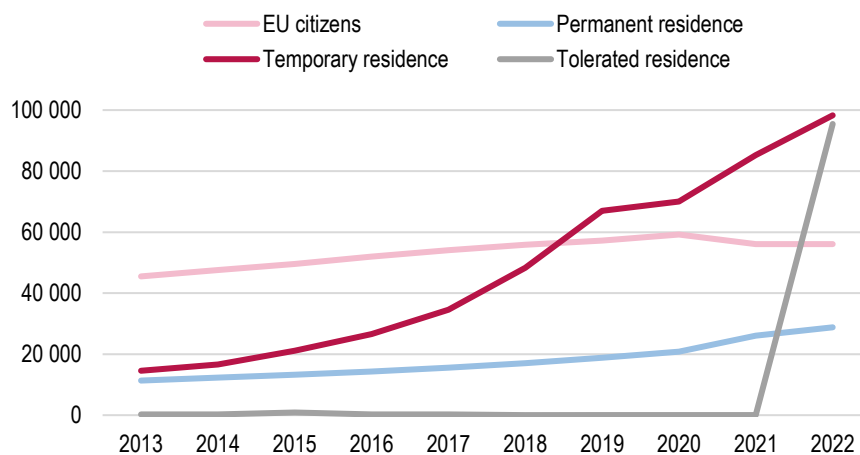
Refugees experience lower employment rates and the greatest occupational downgrading relative to other migrants (Åslund et al., 2017; Akresh, 2008; Bakker et al., 2017; Bevelander, 2020; Bratsberg et al., 2017; Dustmann et al., 2017; Fasani et al., 2022; Schultz-Nielsen, 2017). Although refugees climb back up the occupational ladder most rapidly and catch up to the employment (and income) level of family unification migrants, they continue lagging behind economic migrants (Akresh, 2008; Bevelander, 2020; Fasani et al., 2022). Furthermore, there are considerable differences in labor market integration among subcategories of refugees (Bevelander and Pendakur, 2009).

Differences in labor market integration among various types of migrants may be a product of integration policies that vary by entry category (Bevelander and Pendakur, 2009; Bevelander, 2020). For example, refugees may be subject to spatial dispersal policies. Those who are dispersed to municipalities with available housing but scarce employment opportunities fare worse in the labor market compared to non-dispersed refugees (Bevelander and Pendakur, 2009; Fasani et al., 2022). Mandatory employment bans are another type of policy that may produce negative effects on refugees' labor market performance. The longer refugees have to wait for a decision on their asylum claim, the slower the integration (Åslund et al., 2022; Hainmueller et al., 2016; Hvidtfeldt et al., 2018; Ukrayinchuk and Havrylchuk, 2020). A work-first policy may speed up entry into jobs but these are often precarious jobs with few hours (Arendt, 2022). Furthermore, refugees, who start to work immediately upon arrival, may invest less in language learning and the acquisition of other skills, hampering their future employment chances. A similar trend has been observed in the case of the recent wave of Ukrainian refugees who have been entitled to seek employment immediately. Their labor market inclusion has been faster compared to other refugee groups but they tend to work in low-skilled jobs (Dumont et al., 2023).

3 Migration and labor market integration in Slovakia

Slovakia's EU accession in 2004 triggered a new wave of emigration from the country (Kahanec and Mýtna Kureková 2016; Haluš et al. 2017). Between 2000 and 2015, Slovakia's population declined by approximately 5% as a result of the emigration of mostly highly skilled people (Haluš et al. 2017). Although net emigration from Slovakia stopped in 2019, immigration remains very low in comparison with other OECD countries (OECD, 2022). Before the Russian invasion of Ukraine, Slovakia was the country with the third-lowest population of foreigners in the European Union. According to Eurostat, on January 1, 2022, there were 60,142 foreigners with permanent residence in Slovakia, representing only 1.1% of the population. If we also take into account temporary residents, there were 167,519 foreigners in Slovakia as of December 31, 2021 (Figure 1), of which European Union citizens accounted for 33.5% and third-country nationals for the remaining 66.5% of the foreigners (Police Presidium 2022, Ministry of the Interior of the Slovak Republic). Ukrainians were the largest group, accounting for up to 50.1% of third-country nationals at the end of 2021. Following the Russian aggression against Ukraine, their share increased to 70.5% at the end of 2022.

Figure 1 Valid residence permits of EU citizens and third-country nationals



Source: Presidium of the Police Force, Ministry of Interior of the Slovak Republic.

Employment of foreigners in Slovakia is regulated by Act No. 5/2004 Coll. on Employment Services as amended. Citizens of the European Union, citizens of the European Economic Area parties and Switzerland can be employed in the Slovak Republic without a work or other permit. The conditions of employment of third-country nationals depend on the type of work or other permit on the basis of which the foreigner performs work in Slovakia (see Table 1). Those who are granted temporary refuge can work in Slovakia without any further permits. However, they cannot run a business or be self-employed.

Slovak citizens enjoy a right to preferential access to the national labor market. When deciding whether to grant a work permit or the EU Blue Card or confirm a single permit, the labour office, or in the case of the Blue Card, the Central Office of Labour, Social Affairs and Family (COLAF), takes into account the labor market situation and examines whether the register of job seekers includes a job seeker that would qualify for the job vacancy in question. The labor office does not take the labor market situation into account only in specific circumstances, such as in the case of a job with a labor shortage, renewal of temporary residence for the same job or continuous educational or scientific activity. A work permit or other permit is always issued for specific employment with a specific employer and is non-transferable. An employer may employ third-country nationals without a work permit if they fall under the exemptions specified in Article 23. The most frequently granted exemptions include those for people with temporary refuge status or those employed for the purpose of training.

Table 1 Employment of third-country citizens in Slovakia

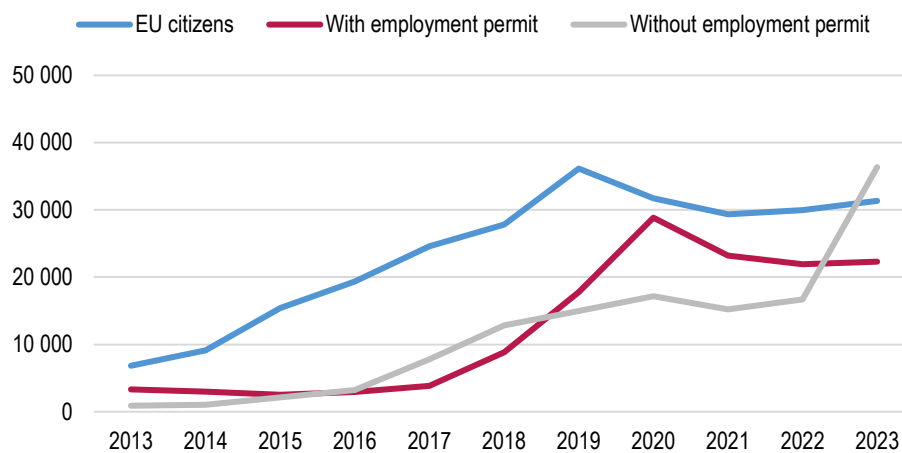
Employment permit	Conditions	Time duration
<i>Single permit</i>	Temporary residence for the purpose of employment issued on the basis of confirmation of the possibility of filling a vacancy. An employer must report a job vacancy to the labour office at least 20 working days before applying for temporary residence for the purpose of employment. The labour office will examine whether the register of job seekers does not include a job seeker who would qualify for the vacancy in question. The labor market situation is not taken into account in the case of occupations with labor shortages. The list of shortage occupations is published by the Central Office of Labour, Social Affairs and Family on a quarterly basis.	2 years; or 180 days over 12 consecutive months in the case of seasonal employment; or 3 to 5 years in the case of the intra-corporate transfer; or 5 years in the case of an international treaty.
<i>Work permit (and temporary residence for the purpose of employment)</i>	The third-country citizen: - holds temporary residence for the purpose of employment; - holds temporary residence for the purpose of family reunion within the first 9 months from being granted the residence; - holds temporary residence for the purpose of a third-country citizen with acknowledged long-term residence in another EU Member State within the first 12 months from being granted the residence; - will be employed for the purpose of seasonal employment for a period no longer than 90 days during 12 consecutive months; - will be employed as a seafarer on a ship registered in Slovakia or on a ship that sails under the flag of the Slovak Republic; - it is stipulated by an international treaty. A work permit is issued for specific employment with a specific employer and is non-transferable. Labour offices do not have to examine the labor market situation in the case of occupations with labor shortages.	Work permits are issued for the duration of employment, up to a maximum of 2 years or 5 years in the case of an international treaty. For seasonal workers, work permits can be issued for up to 90 days over 12 consecutive months.
<i>EU Blue Card</i>	Temporary residence issued to third-country citizens for the purpose of highly qualified employment in Slovakia.	4 years, or if the duration of the employment relationship is shorter than 4 years, for the duration of the employment relationship extended by 90 days.
<i>Employment without a work permit, single permit or EU Blue Card, pursuant to Article 23a of Act No. 5/2004 Coll.</i>	Typically, employment on the basis of an existing residence permit (e.g., permanent residence, temporary residence for the purposes of studies, temporary refuge, etc.) or short-term employment of up to 90 days, for which temporary residence is not required. The labor market situation is not examined. It is possible to perform work under an employment contract as well as on the basis of work agreements outside the employment contract. The employer notifies the labour office about the employment of a third-country national by means of an information card.	Varies depending on the type of exemption.

Source: Act No. 5/2004 Coll. on Employment Services and amending certain acts as amended by later regulations; Act No. 404/2011 on Residence of Foreigners and Amendment and Supplementation of Certain Acts.

The number of working third-country nationals in Slovakia started increasing following a series of legislative changes that simplified the hiring of foreign workers (see Figure 2). The 2017 amendment to the Act No. 404/2011 Coll. on Residence of Foreigners simplified the seasonal employment and intra-corporate transfer of employees; the 2018 amendment to the Act No. 5/2004 Coll. on Employment Services simplified employment without the labor market test. Employers were no longer obliged to notify the labour office of vacancies for

selected professions for which companies were unable to find workers and in districts with an unemployment rate below 5 percent. This simplified regulation applied only to employers whose total staff was made up of less than 30% foreign workers. Following the 2019 amendment to the Act No. 5/2004 Coll. on Employment Services, the list of shortage occupations was updated on a quarterly rather than a yearly basis. Furthermore, the obligation to prove the highest level of education was cancelled for all workers, with the exception of regulated professions and applicants for the EU Blue Card. Since 2023, simplified employment has not been limited to districts with a low unemployment rate. Ukrainians fleeing the war caused another significant jump in the number of working foreigners.

Figure 2 Foreigners working in Slovakia



Source: Employment service information system, COLAF. Note: Data as of January 1 of the particular year. "With employment permit" refers to those employed on the basis of a work permit, single permit or EU Blue Card. "Without employment permit" refers to those employed without a work permit, single permit or EU Blue Card, pursuant to Article 23a of Act No. 5/2004 Coll.

4 Data and methodology

We ask three research questions. What is the employment rate of Ukrainian refugees? Do refugees struggle to find jobs that match their education? How do their occupational status and their earnings change over the course of one year?

To answer these questions, we rely on individual-level administrative data on foreign citizens in Slovakia, which has the advantage of being population data rather than a sample. The data comes from several sources. First, employers are obliged to notify the labour office of the commencement and termination of employment of every foreign citizen. The data collected by labour offices includes the worker's name, date of birth, gender, type of residence, self-reported highest education achievement, starting and ending date of employment, occupation ISCO-08 code, type of contract, as well as the employer's company identification number (IČO) and NACE code. Second, the Social Insurance Agency collects additional data on social insurance contributions, which is equal to a certain percentage of the assessment basis (usually equal to the gross wage). Third, the Ministry of Interior collects data on residence permits granted, including temporary protection status. However, there is no reliable data on how many temporary protection holders have returned home or moved to other countries. Finally, the Ministry of Labour, Social Affairs and Family of the Slovak Republic collected data on UNHCR's temporary short-term cash assistance to those who fled Ukraine to help them with their basic needs and transition to their stay in Slovakia.

The employment rate of Ukrainian refugees is defined as the ratio of the employed to the working-age population, defined as those aged 18 to 64. The data on working refugees is collected by labor offices but there is no reliable data on the number of refugees residing in Slovakia, as some of those who have been granted temporary refuge have already returned home. The number of returnees may not be negligible. For example,

the electronic registration for the purpose of extending temporary protection in the neighboring Czech Republic showed that, as of April 1, 2023, roughly a third of those who were granted temporary refuge status had returned to Ukraine (Ministry of the Interior of the Czech Republic, 2023).

Therefore, we provide two estimates of the working-age population of refugees in Slovakia. First, we approximate the number of the working-age refugee population using the data from UNHCR, labour offices and the Ministry of Interior. We sum the number of working refugees, aged 18 to 64, and the number of those, also aged 18 to 64, who received cash assistance from UNHCR. The overlap between the two groups is negligible. UNHCR provided cash assistance only from June to September 2022 but we assume that the number of refugees not participating in the labor market did not significantly change after that date. We also assume that some refugees may neither work nor receive cash assistance in Slovakia. Therefore, we consider the sum of those working and those receiving cash assistance to be a lower-bound estimate of the working-age refugee population. The upper bound of the working-age refugee population is defined as the number of all temporary refuge holders aged 18 to 64. We also assume that the arithmetic mean of the two is a good proxy of the true working-age refugee population. These assumptions yield an estimate of the employment rate of 34.2%. Second, we assume that the proportion of Ukrainian refugees in Slovakia who have returned home is the same as in the Czech Republic, i.e., we assume that the working-age population of Ukrainian refugees in Slovakia equals two-thirds of those who were granted temporary refuge within one year of the start of the war. This back-of-the-envelope calculation yields a rough estimate of the employment rate of 34.5%, i.e., only 0.3 percentage points higher than the estimate yielded by the previous approach.

In the next step, we examine the labor market outcomes of Ukrainian immigrants across two entry cohorts: those who entered the Slovak labor market in the year preceding Russia's invasion of Ukraine holding an employment permit, the so-called single permit or an EU Blue Card (i.e., labor migrants) and those who entered the Slovak labor market in the year following Russia's invasion of Ukraine holding temporary refuge (i.e., refugees).

We did not take into account other migrant groups, such as working Ukrainian students or family reunion migrants because of their relatively low counts and the possibility to work only part-time for students. We also removed individuals with prior work experience in Slovakia. Thanks to detailed data on working foreigners dating back to 2013, we know that there has been substantial labor mobility between Slovakia and Ukraine. The majority (60.9%) of Ukrainian labor migrants who found employment in Slovakia in the year before Russia's invasion of Ukraine had worked in Slovakia at some point before. In contrast, only 3.1% of refugees did. As prior work experience in the host country affects labor market integration, we restricted both comparison groups to those who had not worked in Slovakia since 2013. Finally, we performed listwise deletion to exclude individuals with missing observations. This amounted to 1.9% of labor migrants and 8% of temporary refugees. The examined population comprises 4,291 newly employed labor migrants and 22,341 refugees.

We do not have data on the migrant's last occupation at home and therefore cannot analyze occupational downgrading directly. Instead, we analyze the vertical educational-occupation mismatch, which occurs when the required level of education for a particular job diverges from the employee's attained level of education (see Piracha and Vadean, 2013). If the level of attained education is higher than needed for the job, we consider the worker to be overeducated, and vice versa, if the level of attained education is lower than needed for the job, we consider the worker to be undereducated.

We use the job analysis method to measure the divergence from the required level of education. Following the International Labour Organization (2012), we map the ISCO-08 major groups to four skill levels and subsequently to the ISCED-97 levels of education. The national Standard Classification of Occupations SK ISCO-08 classifies occupations into 10 major groups, ranging from elementary occupations (ISCO 9) to managers (ISCO 1). Occupations are arranged into groups based on two dimensions: skill level and skill specialization. The relationship between the ten ISCO-08 major groups and the four skill levels is summarized in Table 2.

Table 2 Mapping of ISCO-08 major groups to skill levels based on ILO (2012)

ISCO-08 major group	Skill level
1 Managers	3 + 4
2 Professionals	4
3 Technicians and Associate Professionals	4
4 Clerical Support Workers	2
5 Services and Sales Workers	2
6 Skilled Agricultural, Forestry and Fishery Workers	2
7 Craft and Related Trades Workers	2
8 Plant and Machine Operators, and Assemblers	2
9 Elementary Occupations	1
0 Armed Forces Occupations	1 +2 +4

Source: ILO (2012); Eurostat (2019). Note: Based on a more recent methodology by Eurostat (2019), we assume that the occupation "Technicians and Associate Professionals" requires tertiary education, which corresponds to skill level 4.

A mapping between ISCO skill levels and levels of education in ISCED-97 is provided in Table 3. However, there are minor differences in the education categories used by Slovak labor offices and the ILO. In ILO's (2012) classification, primary education (ISCED 1) corresponds to skill level 1, whereas lower secondary education (ISCED 2) corresponds to skill level 2. In contrast, Slovak labor offices do not gather data separately for ISCED 1 and 2. Instead, they gather data on "basic education", which corresponds to ISCED 1 and 2 in Slovakia, and "incomplete basic education". We assume that the so-called "basic education" (typical ages 6 to 15) corresponds to skill level 1. Furthermore, in ILO's (2012) classification, post-secondary non-tertiary education (ISCED 4) corresponds to skill level 2 and the first stage of tertiary education (ISCED 5B) corresponds to skill level 3. However, in Slovakia, post-secondary non-tertiary education includes both ISCED 4A and ISCED 5B (see Ministry of Education, Science, Research and Sport of the Slovak Republic 2018). We assume that both correspond to skill level 3.

Table 3 Mapping of the four ISCO-08 skill levels to ISCED-97 levels of education

Skill level	Education categories of Slovak labour offices	ISCED-97	Education
4	Third stage of tertiary education	6	Tertiary
	Second stage of tertiary education	5A	
	First stage of tertiary education	5A	
3	Post-secondary non-tertiary education	4A, 5B	Post-secondary non-tertiary
2	Complete secondary education - technical	3A	Secondary
	Complete secondary education - general	3A	
	Secondary vocational education	3C	
	Lower secondary vocational	2C	
1	Basic education	2A, 2B	Basic
	Incomplete basic education	0, 1	Pre-primary, primary

Source: ILO (2012); Ministry of Education, Science, Research and Sport of the Slovak Republic (2018).

In the next step, we examine the occupational trajectories of Ukrainian labor migrants and refugees. Following Leitner and Landesmann (2020), we compare the occupational status of the first and the last job in Slovakia. To measure occupational status, we convert SK ISCO-08 occupation codes into the International Socio-Economic Index (ISEI-08), which is internationally comparable and can be treated as a continuous variable (Ganzeboom et al., 1992; Ganzeboom, 2010). In the examined population of Ukrainian migrants, the ISEI-08 score varies between 10 (e.g., kitchen helpers) and 89 (e.g., medical doctors).

In the final step, we examine the earnings trajectories of Ukrainian labor migrants and refugees. We use the assessment base for social contributions (usually equal to gross wages) collected by the Social Insurance Agency as a proxy for earnings. In this case, however, we have restricted the population to those employed

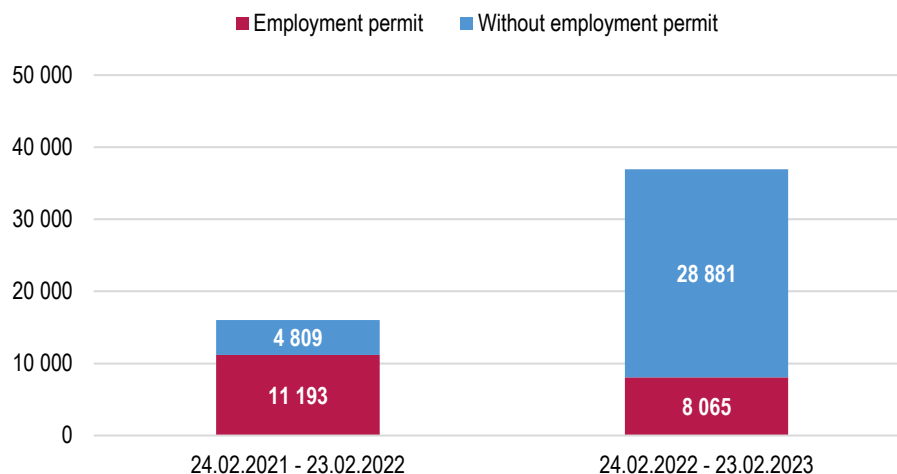
under regular employment contracts and excluded persons employed on the basis of work agreements outside of the employment contracts. This decision was motivated by the fact that, whereas labor migrants may be employed only under regular employment contracts, refugees may also be employed on the basis of flexible work agreements, which are often characterized by a varying income. Furthermore, data on the number of hours worked is not available. Therefore, we excluded all workers who did not work the whole month or whose taxable income was below the minimum wage. Thus, when comparing earnings, the population comprises 2,937 newly employed labor migrants and 13,208 refugees.

5 Integration of Ukrainians in the Slovak Labor Market

During the first year of Russia's aggression against Ukraine, 110,114 refugees from Ukraine registered for temporary protection in Slovakia. The working-age population of 18- to 64-year-olds amounted to 65,714 but we estimate that approximately one-third of them returned home or moved to another country by the end of the first year of war. The employment rate of Ukrainian refugees rose from 11% in March 2022 to 34.2% in February 2023.

The major contribution of this paper is the comparison of labor market outcomes of Ukrainian labor migrants and refugees in Slovakia. In the year before the start of the Russian aggression in Ukraine, 16,002 Ukrainian citizens found a job in Slovakia, filling 18,591 positions (see Figure 3). Most of them were labor migrants, i.e. worked on the basis of a work permit, single permit or EU Blue Card. In the year following the Russian invasion, 36,946 Ukrainian citizens found a job in Slovakia, filling 48,728 positions. Most of them were employed on the basis of their temporary refuge status (for a detailed breakdown of employment by employment permit, see Appendix 1). In the following analysis, we focus on the new entrants, i.e. those with no prior work experience in Slovakia. As already noted above, the examined population comprises 4,373 newly employed labor migrants and 24,295 refugees.

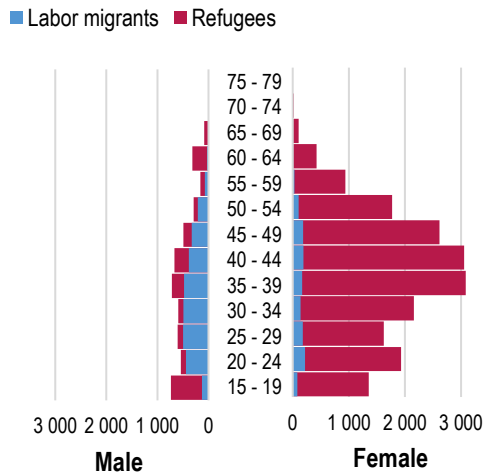
Figure 3 Ukrainians who found employment in Slovakia



Source: COLAF.

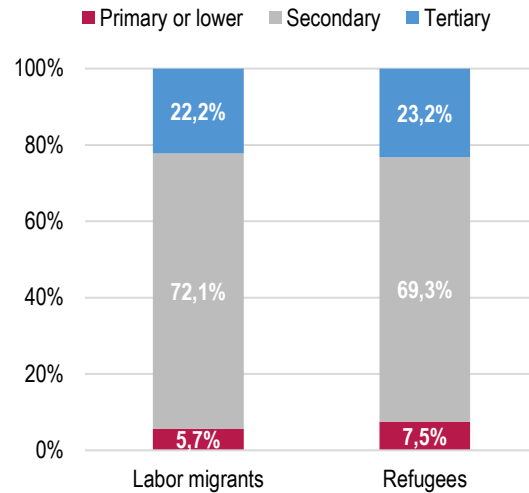
In terms of demographics, employed Ukrainian refugees differ from employed Ukrainian migrants (Figure 4). While men filled almost three-quarters of jobs filled by labor migrants, women filled almost 79% of jobs filled by refugees. In contrast to gender composition, differences in age composition were negligible. Labor migrants were on average 35.1 years old and refugees were 37.5 years old. Differences in the highest educational attainment were marginal as well: 22.2% of newly-employed labor migrants and 23.2% of refugees had attained tertiary education; 72.1% of labor migrants and 69.3% of refugees had attained secondary or post-secondary non-tertiary education (Figure 5).

Figure 4 Age and gender distribution of the newly employed Ukrainians in Slovakia



Source: COLAF.

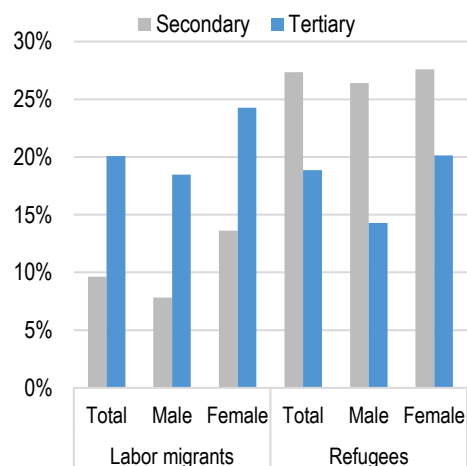
Figure 5 Working Ukrainians by educational attainment



Source: COLAF. Note: Final shares do not take into account persons with missing data on educational attainment or SK ISCO-08.

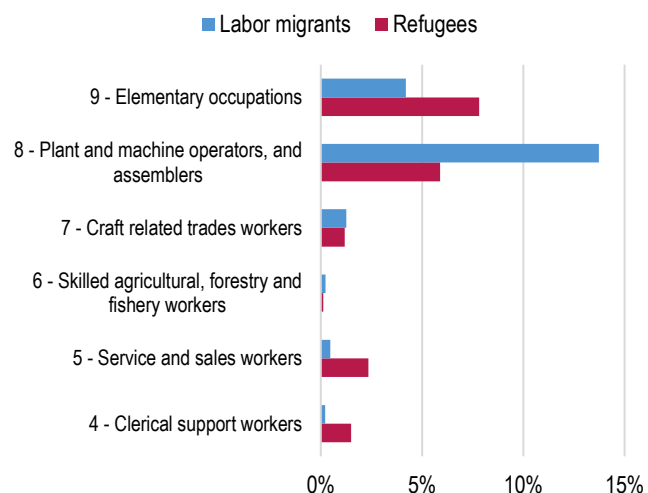
Despite relatively small differences in educational attainment, refugees were more likely to be overeducated than labor migrants for their first job in Slovakia (Figure 6). The incidence of overeducation reached 29.7% among labor migrants but a staggering 46.2% among refugees. Overeducated refugees were concentrated in low-skilled jobs: 27.4 of refugees with secondary education and 7.8% of refugees with tertiary education worked in elementary occupations (ISCO 9); 5.9% of refugees with a university degree worked as plant and machine operators and assemblers (ISCO 8; see Figure 7). On average, women tended to be more overeducated than men, both among labor migrants (37.9% of women vs. 26.3% of men) and among refugees (47.7% of women vs. 40.7% of men). A detailed breakdown of the education-occupation mismatch by admission class status is available in Appendix 2.

Figure 6 Overeducation of Ukrainians in their first job in Slovakia



Source: COLAF.

Figure 7 Overeducation of tertiary-educated Ukrainians in their first job in Slovakia

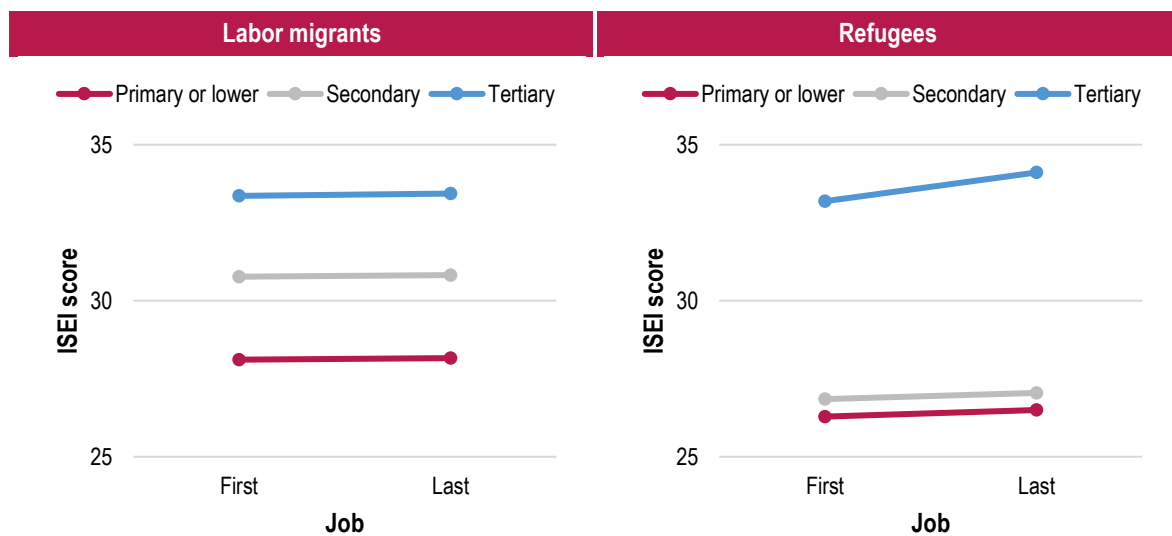


Source: COLAF.

Neither labor migrants nor refugees moved to higher-skilled jobs during the first year of the war in Ukraine. This should not come as a surprise in the case of labor migrants, as work permits are issued for specific employment

with a specific employer and are non-transferable. Therefore, only 1.9% of labor migrants found a position with a higher occupational status (Figure 8). Refugees were more successful in this respect, as up to 8.7% of them managed to climb up the occupational ladder. However, they failed to move to occupations with significantly higher status. Refugees with tertiary education moved from jobs with an average ISEI of 33.2 (e.g., sales workers have an ISEI of 33) to jobs with an average ISEI of 34.1 (e.g., spray painters and varnishers have an ISEI of 34). Refugees with both primary and secondary education worked in jobs with lower average ISEI scores than labor migrants. Similarly, both female labor migrants and refugees lagged behind their male counterparts (see more in Appendix 3).

Figure 8 Occupational trajectories of working Ukrainians by educational attainment



Source: COLAF.

In contrast to the occupation-education mismatch, the differences in earnings between labor migrants and refugees were negligible (see Table 4). The real average monthly wage of labor migrants (1,079 euros) was only 2.1% higher than that of refugees (1,057 euros). These results may reflect the fact that we compare only the earnings of those employed under the employment contract and do not take into account those working on the basis of work agreements, i.e., short-term contracts popular in the gig economy. There were minor gender differences in pay. While female refugees earned 5.5% less than female labor migrants, male refugees earned 4.0% more than male labor migrants (see Appendix 4).

Table 4 Average real gross monthly wage by admission class status (EUR)

	Labor migrants	Refugees
Male	1,070	1,114
Female	1,099	1,042
Total	1,079	1,057

Source: COLAF, Social Insurance Agency, Statistical Office of the Slovak Republic. Note: Includes the wages of regular employees who were insured for a full calendar month and the assessment base for the payment of social contributions was at least the minimum wage. Wages reported in February 2023 prices.

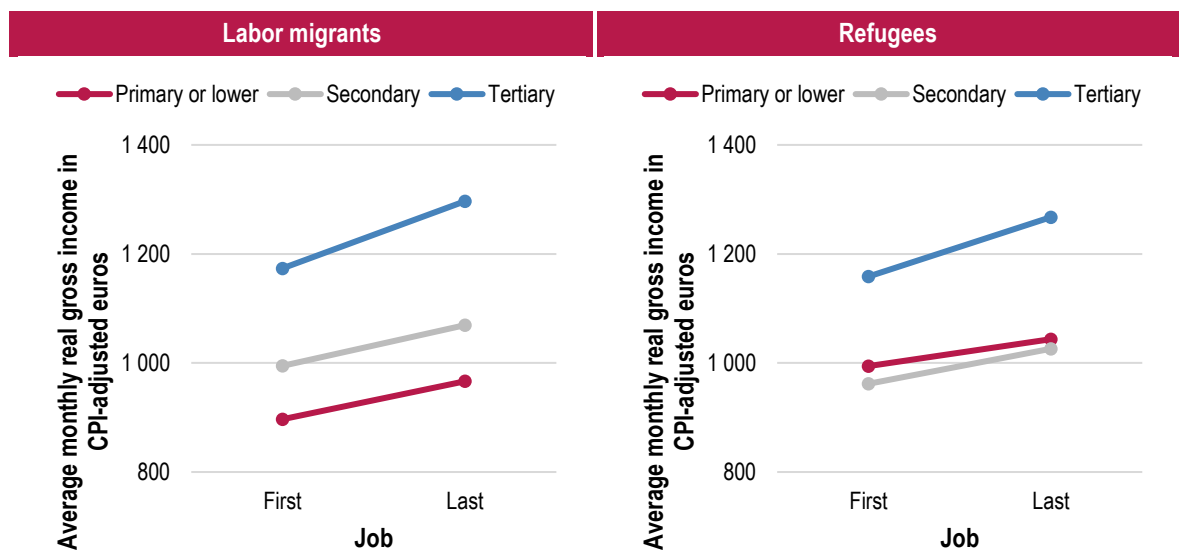
As an average may hide disparities, we also report earnings for the top 20 most numerous occupations of refugees (Table 5). There are no clear wage differences between labor migrants and refugees. Labor migrants out-earned refugees by 16.1% in the most numerous occupation category of mechanical machinery assemblers. In contrast, refugees out-earned labor migrants by 6% in the second most numerous occupation category of electrical equipment assemblers. It is important to note that wage averages may be unreliable due to small counts in some occupation categories.

Table 5 Average monthly real gross wages of labor migrants and refugees, ordered by the top 20 most numerous occupations of refugees

Occupation (SK ISCO-08)	Labor migrants		Refugees	
	Jobs	Average earnings (EUR)	Jobs	Average earnings (EUR)
Mechanical machinery assemblers	642	1,189	2,354	1,024
Electrical equipment assemblers	270	999	1,903	1,062
Manufacturing labourers not elsewhere classified	304	1,424	1,334	1,141
Cleaners and helpers in offices, hotels and other establishments	2	756	737	848
Freight handlers	49	851	731	939
Plastic products machine operators	92	1,248	655	1,178
Food and related products machine operators	97	665	435	823
Kitchen helpers	4	818	403	836
Assemblers not elsewhere classified	14	1,119	327	1,002
Stock clerks	14	1,101	301	973
Stationary plant and machine operators not elsewhere classified	2	1,112	248	1,078
Other elementary service workers not elsewhere classified	2	1,355	218	893
Lifting truck operators	146	978	185	1,168
Shop sales assistants	1	766	178	1,013
Waiters	6	694	152	868
Building construction labourers	10	653	150	714
Butchers, Fishmongers and Related Food Preparers	49	898	131	863
Hand Packers	5	912	129	738
Cooks	7	852	113	949
Bakers, pastry-cooks and confectionery makers	9	792	95	995

Source: COLAF, Social Insurance Agency, Statistical Office of the Slovak Republic. Note: Includes the wages of regular employees who were insured for a full calendar month and the assessment base for the payment of social contributions was at least the minimum wage. Wages reported in February 2023 prices.

Figure 9 Real earnings trajectories of working Ukrainians by educational attainment

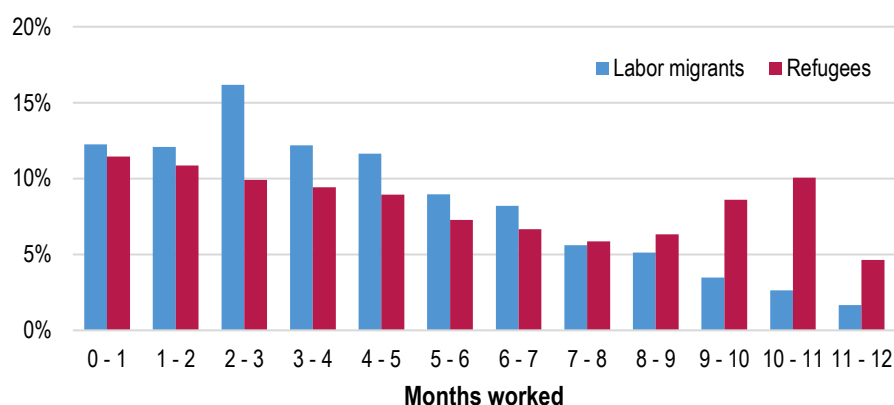


Source: COLAF, Social Insurance Agency, Statistical Office of the Slovak Republic. Note: Average wage was reported only for refugees in employed under regular employment contracts. Wages reported in Feb 2024 CPI adjusted Euros.

Changes in earnings were more frequent than changes in occupational status, as 57.8% of labor migrants and 53.8% of refugees experienced an increase in wages and 29.3% of labor migrants and 27.9% of refugees experienced a decrease in wages. Real wages of the tertiary-educated rose by 10.5% for labor migrants and by 9.4% for refugees; real wages of the secondary-educated rose by 7.5% for labor migrants and by 6.7% for refugees. The real wages of primary- and secondary-educated refugees in their first job were almost identical, reflecting their placement in jobs requiring the lowest level of skills (Figure 9).

Refugees were more attached to the labor market than labor migrants. Whereas refugees worked an average of 164.6 days during a one-year period, labor migrants worked only 130.3 days. The lower number of days worked by labor migrants probably reflects the popularity of seasonal employment (Figure 10). Up to 40.5% of labor migrants worked for a maximum of 3 months but only 32.2% of refugees did. This suggests that Ukrainians are willing to work in Slovakia longer than the current legislation regulating the employment of third-country citizens allows. However, we do not know to what extent this willingness is linked to the war in Ukraine. In the survey conducted by the IOM Migration Information Centre, 67% of refugees indicated they would return to Ukraine once it was safe in the March–May 2022 wave but only 48% did so in the September–October 2022 wave (International Organization for Migration (IOM), Mar 27 2023). However, this drop may reflect the fact that those more likely to return had already selected themselves out of the sample of respondents.

Figure 10 Months worked



Source: COLAF. Note: The number of months worked was approximated based on the days of the job duration.

In contrast to labor migrants, refugees may also work on the basis of short-term work agreements. These flexible forms of employment did not seem to affect the labor market attachment of refugees. Work agreements totaled 24.8% of refugee job placements and 28% of terminated jobs. Contrary to expectations, work agreements did not serve as a stepping stone to regular employment. Only 21.9% of those who worked in their first job in Slovakia on the basis of a work agreement moved to regular employment or a combination of the two (Table 6). A further 47.0% remained working on the basis of the work agreement and 31.3% left the labor market.

Table 6 The type of employment contract following the first work agreement contract

Refugees	Number	Share
- first job only on the basis of a work agreement (total)	5 493	100,0 %
- did not fill another vacancy	3 375	61,4 %
<i>of which continue to work after the reference period</i>	1 666	30,3 %
<i>stopped working</i>	1 709	31,1 %
- filled another vacancy	2 118	38,6 %
<i>of which work on the basis of a work agreement</i>	913	16,6 %
<i>regular employment contract</i>	959	17,5 %
<i>combination of the two</i>	246	4,5 %

Source: COLAF. Note: The statistics include jobs terminated.

6 Conclusions

Russia's unprovoked military aggression against Ukraine on February 24, 2022, triggered an unprecedented inflow of Ukrainians towards the European Union. By December 2023, almost 6 million people had registered for Temporary Protection, which allowed the new arrivals from Ukraine to immediately seek employment (UNHCR, 2023). Thanks to their direct access to the labor markets, the labor market integration of displaced Ukrainians was faster relative to previous waves of refugees, albeit uneven across EU countries (Dumont and Lauren, 2022). We estimate that the employment rate of Ukrainian refugees in Slovakia rose from 11% in March 2022 to 34.2% in February 2023. In the neighboring Czech Republic, it reached approximately 36% (as of April 7, 2023, Švihel, 2023), but in some countries, such as Lithuania, Estonia, or the Netherlands, it had already exceeded 40% (Dumont et al., 2023; OECD, 2023: Table 1.9). The differences in employment rates may be partially explained by the lack of reliable administrative data and reliance on non-representative surveys (ibid). However, they also reflect self-selection, which is more pronounced with increasing distance from the home country. For example, the share of tertiary-educated Ukrainian refugees was much higher in Austria than in Poland (Kohlenberger et al., 2022). The differences in the composition of the refugee population have been further deepening over time, as refugees tended to move from countries bordering Ukraine, which naturally became the first stop for refugee migration, to countries with more attractive social benefits and higher pay (Zymnin et al., 2023). We estimate that approximately a third of those who were granted temporary refuge status left Slovakia during the first year of the war in Ukraine. We lack data on the educational attainment of those who chose to leave but the majority of Ukrainian refugees who left neighboring Poland for Germany had a university degree (ibid).

Lack of language skills was cited as the main barrier to work by both Slovak employers and Ukrainian refugees in Slovakia (Trexima 2022). According to the February–March 2023 survey conducted by the International Organization for Migration, only 31% of Ukrainian refugees declared proficiency in Slovak, 29% in English, and 5% in German (International Organization for Migration (IOM), May 15 2023). Although 22% of respondents identified language courses as their current priority need at the moment of the interview, participation in language training was relatively small. As of February 27, 2023, only 3,443 Ukrainian refugees participated in the government-funded courses that include language training (Central Office of Labour, Social Affairs and Family, 2023). This would account for less than 14% of the refugees who found employment in Slovakia in the year since the beginning of the Russian aggression. The low level of participation may be explained by several factors. First, direct access to the labor market speeds up entry into jobs but crowds out language investments (e.g., Arendt, 2022). Second, uncertainties about the length of stay may reduce the incentives to invest in language learning and other host-country-specific human capital (Brell et al., 2020; Damelang and Kosyakova, 2021). However, integration courses that include language training may be needed to unlock the potential of refugees (e.g., Auer, 2018; Schmid, 2023; Zymnin et al., 2023). Finally, it must be noted that all the Slavic languages are mutually intelligible to a degree and Ukrainian refugees may choose to acquire the Slovak language in an informal setting.

The existing literature suggests that refugees fare worse in the labor market compared to labor migrants (Åslund et al., 2017; Akresh, 2008; Bakker et al., 2017; Bevelander, 2020; Bratsberg et al., 2017; Brell et al., 2020; Dustmann et al., 2017; Fasani et al., 2022; Schultz-Nielsen, 2017). We contribute to this stream of literature by comparing the labor market outcomes of Ukrainian refugees and Ukrainian labor migrants in Slovakia. We show that despite marginal differences in educational attainment, refugees tend to be more overeducated in their first job and more likely to work in elementary occupations than labor migrants.

The differences in labor market integration most likely reflect the differences in motivation for migration and the gender composition of both groups. Whereas working labor migrants were mostly men who specifically sought employment in Slovakia, working refugees were mostly displaced women, often with care responsibilities towards other family members, which may hinder their integration (International Organization for Migration (IOM), May 15 2023; Lauren and Dumont, 2023). The care responsibilities may have also directed some

refugees into precarious jobs. Temporary small job contracts, called work agreements, totaled 24.8% of refugee job placements in Slovakia. These contracts are less secure than regular employment contracts because they provide fewer employee rights (e.g., no holiday or sick pay) but at the same time offer more flexibility, which may be attractive for women with childcare responsibilities (Del Boca, 2002; Mýtna Kureková and Žilinčíková, 2016). Furthermore, although refugees were entitled to basic social assistance, reliance on aid as the only form of income is not sustainable and may increase the pressure to prioritize any job over skill-appropriate employment (Dumont et al., 2023; Lekkerkerker et al., 2023). This view is supported by the non-representative survey, in which up to 43% of 450 Ukrainian job seekers registered on the online job portal ISTP - The Online Job Market Guide, advertising mostly low-skilled jobs, stated that they would accept any job (Trexima, 2022). Our results indicate that 27.4% of refugees with secondary education and 7.8% of refugees with tertiary education worked in elementary occupations that can be performed with primary education.

We observed very little occupational mobility during the first year of the migrants' stay in Slovakia. The occupational status of tertiary-educated Ukrainian refugees in Slovakia recovered by less than 1 ISEI point and remained stagnant in the case of refugees with lower educational attainment. These findings are in line with the existing literature, which documents the persistent nature of overeducation among Ukrainian labor migrants in the Czech Republic (Leontiyeva, 2014), Middle Eastern refugees in Austria (Leitner and Landesmann, 2020), or more generally, among non-EU refugees vis-à-vis comparable migrants across 20 European countries (Fasani et al., 2022). The catch-up with natives is usually measured in years (Lange, 2007), rather than a single year, as was our case.

Finally, it must be noted that we lacked data on the migrants' last job in Ukraine. However, the incidence of overeducation of Ukrainians in Ukraine seems to be higher than the incidence of overeducation of Ukrainian refugees in Slovakia. According to Kupets (2016), 39.7% of all employed people aged 15–70 were overeducated for their jobs in 2013, and this incidence was the highest among older workers and holders of Soviet-type college (“uchilische”) diplomas. In Slovakia, 46.2% of Ukrainian refugees were overeducated in their first job, whereas only 29.7% of labor migrants were.

In conclusion, this paper showed that there is a significant occupation-education mismatch at the beginning of Ukrainian refugees' working careers, compared to Ukrainian labor migrants in Slovakia. The underutilization of migrants' human capital is not only harmful to migrants themselves but also to Slovakia, which is confronted with the challenge of a rapidly aging population, with the share of the working-age population expected to shrink by about a fifth in the next 30 years (Hwang and Roehn 2022). Therefore, future research should focus on studying policies aimed at accelerating the labor market integration of labor migrants and refugees.

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Appendix 1: Type of permit or exemption under which employment in Slovakia was permitted

Table 1.1 Jobs filled on the basis of a work permit, single permit or EU Blue Card.

Permit type	Jobs filled	
	24.2.2021 - 23.2.2022	24.2.2022 - 23.2.2023
Single permit with the labor market test	9,965 (78.2 %)	8,353 (89.2 %)
Single permit with the labor market test - seasonal employment	4 (0.0 %)	0 (0.0 %)
Single permit without the labor market test	2,142 (16.8 %)	890 (9.5 %)
Work permit - seasonal employment	540 (4.2 %)	49 (0.5 %)
Work permit - family reunion	77 (0.6 %)	64 (0.7 %)
Work permit - long-term residence in another EU Member State	2 (0.0 %)	8 (0.1 %)
EU Blue Card	7 (0.1 %)	3 (0.0 %)
Total	12,737 (100.0 %)	9,367 (100.0 %)

Source: COLAF.

Table 1.2 Jobs filled without a work permit, single permit or EU Blue Card, pursuant to Article 23a or § 23b of Act No. 5/2004 Coll. ("information cards")

Exemption	Jobs filled	
	24.2.2021 - 23.2.2022	24.2.2022 - 23.2.2023
§ 23a ods.1 k) - temporary protection (refuge)	17 (0.3 %)	34,055 (86.5 %)
§ 23a ods.1 e) - temporary residence for the purpose of studies	2,086 (35.6 %)	2,988 (7.6 %)
§ 23a ods.1 a) - permanent residence in the territory of the SR	506 (8.6 %)	664 (1.7 %)
§ 23a ods.1 c1) - temporary residence for the purpose of a family reunion	266 (4.5 %)	417 (1.1 %)
§ 23a ods.1 ag3) - a national visa in the interest of the SR approved by the Government of the SR	0 (0.0 %)	252 (0.6 %)
§ 23a ods.1 g) - status of a Slovak Living Abroad	239 (4.1 %)	255 (0.6 %)
§ 23a ods.1 t) - successfully completed secondary school or university studies in SR	222 (3.8 %)	233 (0.6 %)
§ 23a ods.1 u) - employed for the purpose of training	2,003 (34.2 %)	127 (0.3 %)
§ 23a ods.1 b) - long-term residence in another EU Member State	86 (1.5 %)	124 (0.3 %)
§ 23b - EU citizen or a third country citizen	56 (1.0 %)	75 (0.2 %)
§ 23a ods.1 w) - dispatched by an employer in the EU	282 (4.8 %)	37 (0.1 %)
other	91 (1.6 %)	134 (0.3 %)
Total	5,854 (100.0 %)	39,361 (100.0 %)

Source: COLAF.

Appendix 2: Education-occupation mismatch in the first job in Slovakia

Table 2.1 Labor migrants' first job in Slovakia by occupation and education

Skill level	Occupation (SK ISCO-08)	ISCED-97 level of education			Total
		1	2 + 3	4	
		Primary	Secondary	Tertiary	
3 + 4	1 Managers	0.00%	0.00%	0.09%	0.09%
4	2 Professionals	0.00%	0.12%	1.21%	1.33%
3	3 Technicians and Associate Professionals	0.00%	0.86%	0.84%	1.70%
2	4 Clerical Support Workers	0.05%	0.30%	0.21%	0.56%
2	5 Services and Sales Workers	0.02%	0.68%	0.47%	1.17%
2	6 Skilled Agricultural, Forestry and Fishery Workers	0.07%	2.24%	0.23%	2.54%
2	7 Craft and Related Trades Workers	0.65%	11.58%	1.26%	13.49%
2	8 Plant and Machine Operators, and Assemblers	3.92%	47.22%	13.73%	64.86%
1	9 Elementary Occupations	0.96%	9.11%	4.19%	14.26%
Total		5.66%	72.10%	22.23%	100.00%

Source: COLAF. Note: "Primary" refers to incomplete basic education (ISCED 0, 1) and basic education (ISCED 2A, 2B); "secondary" refers to lower secondary vocational education (ISCED 2C), secondary vocational education (ISCED 3C), general or technical complete secondary education (ISCED 3A) and post-secondary, non-tertiary education (ISCED 4A, 5B); "tertiary" refers to the first and second stages of tertiary education (ISCED 5A) and the third stage of tertiary education (ISCED 6).

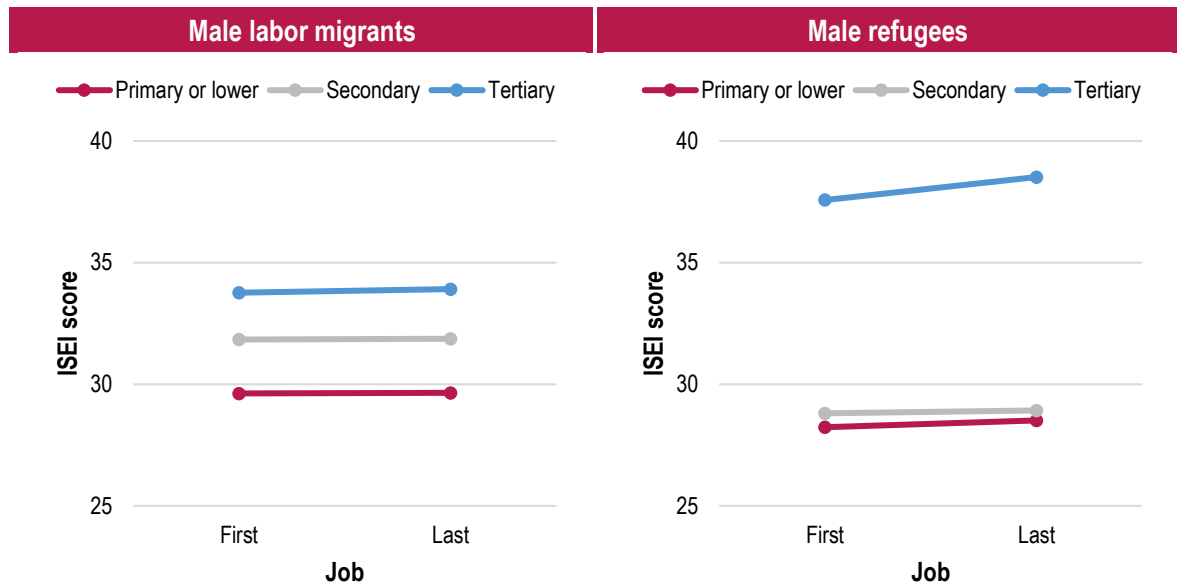
Table 2.2 Refugees' first job in Slovakia by occupation and education

Skill level	Occupation (SK ISCO-08)	ISCED-97 level of education			Total
		1	2 + 3	4	
		Primary	Secondary	Tertiary	
3 + 4	1 Managers	0.00%	0.07%	0.23%	0.30%
4	2 Professionals	0.10%	0.45%	3.11%	3.66%
3	3 Technicians and Associate Professionals	0.05%	0.58%	1.00%	1.64%
2	4 Clerical Support Workers	0.34%	2.01%	1.50%	3.84%
2	5 Services and Sales Workers	0.50%	4.42%	2.35%	7.27%
2	6 Skilled Agricultural, Forestry and Fishery Workers	0.33%	0.55%	0.12%	0.99%
2	7 Craft and Related Trades Workers	0.60%	4.53%	1.18%	6.31%
2	8 Plant and Machine Operators, and Assemblers	2.13%	30.41%	5.90%	38.43%
1	9 Elementary Occupations	3.46%	26.28%	7.82%	37.55%
Total		7.51%	69.29%	23.20%	100.00%

Source: COLAF. Note: See Table 2.1.

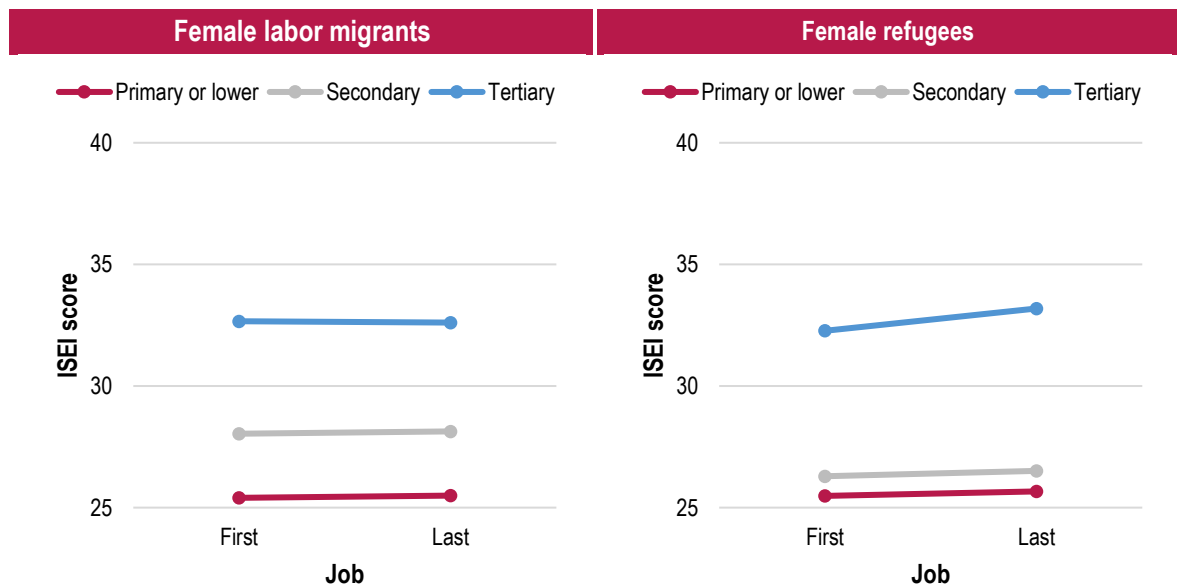
Appendix 3: Gender differences in occupational trajectories of working Ukrainians

Figure 3.1 Occupational trajectories of working Ukrainians by educational attainment - male



Source: COLAF.

Figure 3.2 Occupational trajectories of working Ukrainians by educational attainment - female



Source: COLAF.

Appendix 4: Gender differences in the real gross monthly wage of labor migrants and refugees

Table 4.1 Average monthly real gross wages of Ukrainian labor migrants and refugees in Slovakia by occupation

Occupation (SK ISCO-08)	Labour migrants		Refugees	
	Jobs	Average earnings (EUR)	Jobs	Average earnings (EUR)
1 Managers	2	1,653	48	2,568
2 Professionals	48	2,073	693	1,696
3 Technicians and Associate Professionals	63	1,615	260	1,197
4 Clerical Support Workers	20	1,219	594	1,095
5 Services and Sales Workers	37	1,076	921	1,007
6 Skilled Agricultural, Forestry and Fishery Workers	44	1,142	69	1,008
7 Craft and Related Trades Workers	396	813	976	977
8 Plant and Machine Operators, and Assemblers	2,054	1,048	6,574	1,049
9 Elementary Occupations	428	1,266	4,004	960
Missing	0	0	28	944
Average monthly real gross wage		1,079		1,057

Source: COLAF, Social Insurance Agency, Statistical Office of the Slovak Republic. Note: Includes the wages of regular employees who were insured for a full calendar month and the assessment base for the payment of social contributions was at least the minimum wage. Wages reported in February 2023 prices.

Table 4.2 Average monthly real gross wages of Ukrainian labor migrants and refugees in Slovakia by occupation - male

Occupation (SK ISCO-08)	Labour migrants		Refugees	
	Jobs	Average earnings (EUR)	Jobs	Average earnings (EUR)
1 Managers	1	2,537	18	2,897
2 Professionals	33	2,256	131	2,247
3 Technicians and Associate Professionals	38	1,533	45	1,334
4 Clerical Support Workers	13	1,258	136	1,053
5 Services and Sales Workers	9	1,272	90	1,085
6 Skilled Agricultural, Forestry and Fishery Workers	28	1,099	17	867
7 Craft and Related Trades Workers	348	797	393	1,022
8 Plant and Machine Operators, and Assemblers	1,431	1,046	1,370	1,085
9 Elementary Occupations	248	1,334	764	986
Missing	0	0	6	983
Average monthly real gross wage		1,070		1,114

Source: See Table 4.1.

Table 4.3 Average monthly real gross wages of Ukrainian labor migrants and refugees in Slovakia by occupation - female

Occupation (SK ISCO-08)	Labour migrants		Refugees	
	Jobs	Average earnings (EUR)	Jobs	Average earnings (EUR)
1 Managers	1	769	30	2,371
2 Professionals	15	1,671	562	1,567
3 Technicians and Associate Professionals	25	1,741	215	1,168
4 Clerical Support Workers	7	1,146	458	1,107
5 Services and Sales Workers	28	1,013	831	999
6 Skilled Agricultural, Forestry and Fishery Workers	16	1,218	52	1,055
7 Craft and Related Trades Workers	48	926	583	947
8 Plant and Machine Operators, and Assemblers	623	1,052	5,204	1,040
9 Elementary Occupations	180	1,173	3,240	953
Missing	0	0	22	933
Average monthly real gross wage		1,099		1,042

Source: Source: See Table 4.1.