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The UN Refugee Agency

Analysis of the impact of refugees from Ukraine on the economy of Poland

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Contents

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Executive summary

Progress in market integration

Ukrainian refugees have been increasingly successful in terms of labour market integration. The large influx of refugees since February 2022, has further increased and changed the demographics of the already significant Ukrainian migrant population in Poland. Refugees from Ukraine are primarily women and children, with over 67% of female-headed households. Poland was quick to open its labour market to refugees from Ukraine, who – despite difficulties – surprisingly promptly began their economic integration and soon supported themselves primarily from employment. In the past year, refugees' employment rate grew from 61% to 69%, with the median net wage rising from PLN 3,100 to PLN 4,000 and narrowing the gap to the median net wage in the entire economy.

As Ukrainian refugees entered the labour market, the economy adapted, resulting in more specialization and higher productivity. In a simplistic supply-demand framework, the influx of Ukrainian refugees would have had a negative impact on Polish workers employment or caused a decline in real wages. However, this has not occurred. First, Polish citizens employment rates have grown, and unemployment rates have fallen. Second, poviats in which the employment share of Ukrainian refugees has grown by 1 pp. saw 0.5 pp. higher employment rates among Polish citizens, and 0.3 pp. lower unemployment rates. Third, there is no evidence of lowered wages, in fact the limited available data indicates that a higher share of Ukrainian refugees in a poviat may have caused local wages to rise. Such findings are in line with academic literature, which documents a positive impact of migrants on native workers. With foreigners entering the labour market, native workers increasingly shift to complementary, higher value and better paid tasks. This can be seen in the data, as Polish citizens are moving to better paid occupations. It constitutes a positive shock to productivity, which is what counterbalances labour market pressures.

Macroeconomic impact

In 2024, Ukrainian refugees' net impact amounted to 2.7% of the Polish GDP. This is the amount that would be lost, should refugees "disappear" from the Polish economy. It is mainly driven by a higher number of workers in the economy, but also accounts for increased productivity brought about by more specialization. Considering all aspects, the overall impact of the refugees has been predominantly positive, and it moved the Polish economy to a higher growth path. Refugees contribute to the economy slightly more than their employment share – they increase the labour supply as both workers and entrepreneurs and expand demand as consumers. The rise in productivity due to more specialization across the labour force further boosts the economy. The impact of refugees is lowered by a temporary decrease in the capital-to-labour ratio (companies need time to invest in equipment and machines to match the rise in the number of workers), as well as an increase in competition on the labour market.

The figures are higher than those in the previous Deloitte (2024) report, which – due to scant data available at the time – did not account for the positive impact on labour productivity. In the earlier report, the overall positive impact of refugees was reduced based on conservative assumptions, in the absence of available/clear data on the increased competition in the labour market. The model notably considered lower wages and higher unemployment among native workers. However, recent data indicates that these concerns did not materialize. Instead, Polish workers have moved on to better paid occupations, and the economy has benefited from a larger pool of talent, enabling deeper specialization and increased productivity growth.

Remaining challenges

Despite significant progress in integrating refugees into the labour market, several challenges persist. Refugees are half as likely to have an employment contract as Polish citizens and few of them achieve high incomes. Although refugees have been moving on to more desirable professions at a faster rate than other groups in the economy, their jobs continue to be disproportionately skewed towards elementary occupations. These issues are most evident among those with university diplomas, but those with below university education also face obstacles. As of June 2024, there were several interconnected issues:

- **There is a disparity between the educational attainment and labour market position of refugees, reflecting their significant over-qualification compared to Polish citizens.** While the proportion of individuals with tertiary education among refugees is slightly higher than among Polish citizens (40% vs 38%), only 12% of refugees work as managers, professionals, and technicians (occupational groups usually requiring higher education) compared to 37% of Poles. Consequently, the wage premium for individuals with tertiary education is much lower among refugees than among Poles (22% vs 84%).
- **Widespread occupational licensing is an obstacle to efficient use of refugees' human capital.** Only 3.6% of Ukrainian refugees insured at ZUS work in regulated professions compared to 10.6% of Polish citizens. Many barriers on entry to a profession apply to foreign citizenship rather than skill or exam requirements. This is relevant in education, medical professions, and even fire service.
- **Lack of fluent Polish negatively affects the labour situation of refugees.** Although language skills improve over time, still only 18% of refugees speak Polish fluently, usually those who arrived in Poland 29 months ago. On average, those at the beginner level have been in the country for only 18 months.
- **Lack of work experience negatively affects the labour outcomes of older refugees.** Refugees who back in Ukraine managed the household or were not employed remain underemployed in Poland. The employment rate among the most enterprising refugees, who were self-employed back in Ukraine, is 91%. In contrast, those who did not work, study or train in Ukraine, have an employment rate in Poland of approximately 35%.

Addressing the remaining issues of refugee integration into the labour market would improve their situation and further benefit the Polish economy. The key measures to improve refugees' standing include advanced language courses for professionals, easing of occupational licensing, especially requirements based on citizenship, and active labour market policies to help specific groups enter the labour market.

Potential macroeconomic benefits from the further integration of refugees into the labour market are considerable. Addressing even half of the existing gaps can generate significant macroeconomic gains of at least PLN 6 billion value added annually. Such an increase in GDP would contribute more than PLN 2.5 billion to public sector revenue through taxes and social security contributions. These estimates are conservative, as they consider only the direct gains for workers. As the economy adjusts to a more skilled workforce, additional growth would result from increased company investments necessary to meet needs of more advanced workforce. While increased competition might reduce overall gains, deeper specialization can mitigate such effects, as suggested by the experience with refugee integration into the labour market.

Analysis of the impact of refugees from Ukraine on the economy of Poland

1.

Ukrainian refugees in Poland

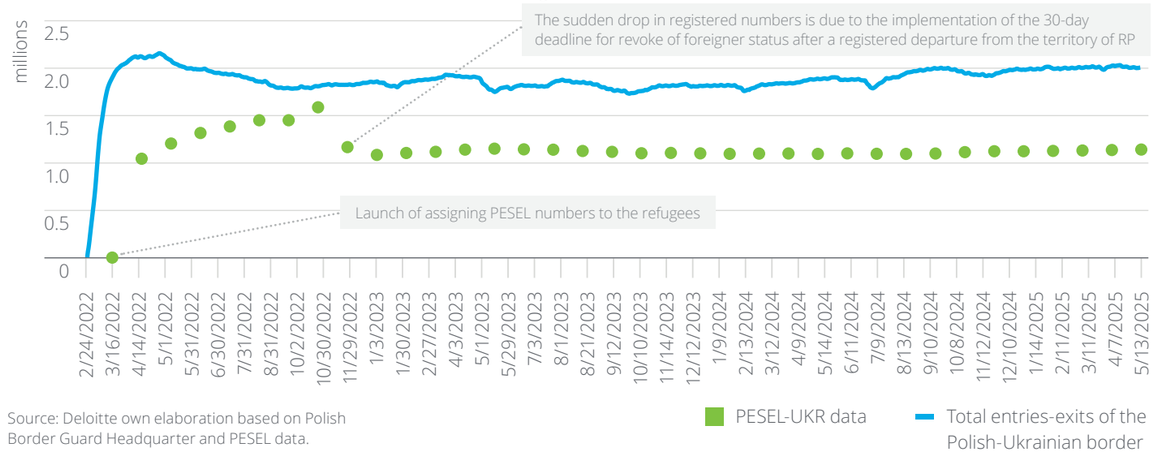
The large influx of refugees since February 2022, added to a hefty and growing Ukrainian migrant population in Poland (1.1). Refugees have changed the demographics of the local Ukrainian residents, with most of them being women and children and many households led by women alone (1.2). In the past year, refugee household income sources have become more Poland-based (1.3).

1.1 Influx since February 2022

After the full-scale Russian invasion of Ukraine, Poland experienced a massive influx of refugees – with more than 27 million border crossings from Ukraine and more than 1.9 million applications for protection submitted by April 7, 2025[1]. Not all of those people stayed in Poland. Many of them later returned to Ukraine or moved to other countries. By February 14, 2025, PESEL UKR[2] holders who remained in Poland stood at less than 1 million, while the border movement balance between Poland and Ukraine was slightly below 2 million.

[1] UNHCR data, https://data2.unhcr.org/en/situations/ukraine
[2] PESEL UKR is a version of Polish national ID number for Ukrainian citizens in connection with the armed conflict in the territory of that country.

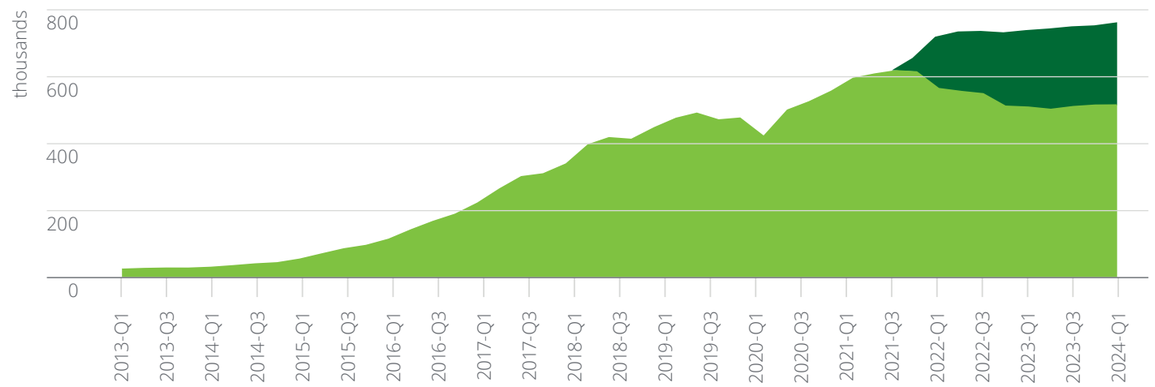
Chart 1. Poland-Ukraine border movement balance and registered/active PESEL data



Source: Deloitte own elaboration based on Polish Border Guard Headquarter and PESEL data.

Prior to the 2022 conflict in Ukraine, the population of Ukrainians in Poland was already significant and on the rise, but the exact number of migrants was challenging to quantify. Since the onset of the armed conflict in eastern Ukraine in 2014, there was a consistent influx of Ukrainians into Poland. Many of them sought work as Ukraine's economy declined and the currency devalued. Most of the migrants came as guest workers, a status brought in by a 2011 law enabling Ukrainians and five other nations to work in Poland for six months during a year without a work permit, based on an employer's declaration. This was a circular migration, with Ukrainians coming to Poland for half of the year, then returning to Ukraine for another six months, and coming back to Poland. The data on employers' declarations do not reveal the actual number of Ukrainian citizens who followed this system – a single person could hold several declarations, because with every change of employer or promotion at the same employer they had to ask for a new declaration. What is more, with stays shorter than one year, those people fell outside the definitions of population used by Statistics Poland (Główny Urząd Statystyczny, GUS, Poland's statistical office). The National Bank of Poland estimated that between 2014 and 2018, there were approximately one to two million Ukrainian workers in Poland at a time (Strzelecki, Growiec and Wyszyński, 2022). According to the 2021 Polish National Census, one year before the outbreak of the full-scale war in Ukraine there were about one million Ukrainian citizens residing in Poland, almost all of them on a temporary basis.

Chart 2. Ukrainians registered for social insurance



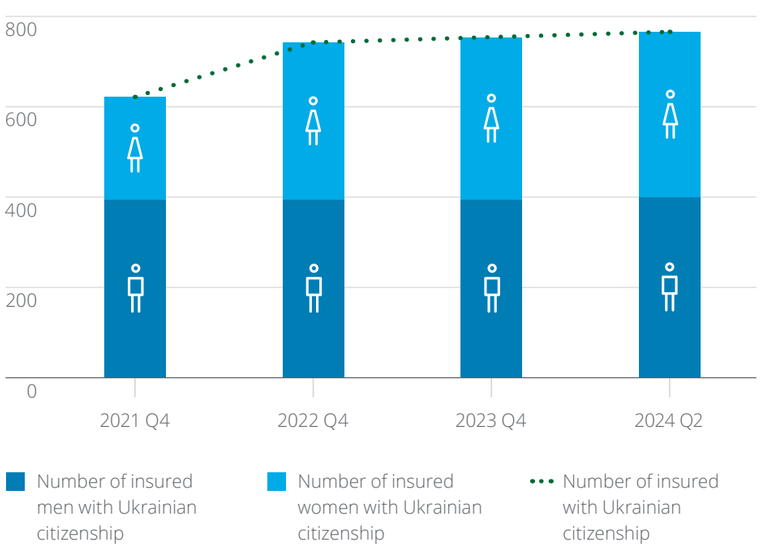
Note: Refugees are identified by PESEL UKR status.
Source: Deloitte own elaboration based on ZUS data.

The only reliable timeseries of the number of Ukrainians in Poland over the past decade is social insurance data on insured Ukrainian nationals, though it accounts only for workers. The focus on workers rather than on the entire group does not change much in the data from before February 2022, as the previous influx consisted mainly of Ukrainians seeking employment in Poland. However, the actual number of employed Ukrainian nationals must have been higher. First, certain types of legal work often undertaken by temporary employees do not require social insurance. Second, the statistical definition of an employed person is wider than just being registered with the Social Insurance Institution (Zakład Ubezpieczeń Społecznych, ZUS) on a certain day[3]. Third, some Ukrainians work in the shadow economy. The number of workers with Ukrainian citizenship and social insurance increased from only 33 thousand at the end of 2013 to 627 thousand at the end of 2021 – just before the refugee influx. Some of this increase reflects the transitioning of Ukrainians to more regular work arrangements and securing work permits. Following February 2022, the numbers further increased with the arrival of Ukrainian refugees. The data for mid-2024 shows 771 thousand workers with Ukrainian citizenship registered for social insurance, including 247 thousand refugees. Ukrainian refugees in Poland have been given PESEL UKR numbers – a version of an ID number assigned to every Polish national – which made high quality data on their demographics easily available, though they may still be missing from most of the statistics compiled by the Polish statistical office.

1.2 Households characteristics

The structure of the Ukrainian population in Poland has changed radically after February 24, 2022. Up until 2021, Ukrainians in Poland were mostly men (close to two-thirds), who came for work-related reasons, often leaving their families back in Ukraine. The onset of the full-scale conflict in Ukraine triggered the arrival of individuals displaced by the war. Those were primarily women and children, with men in Ukraine being mobilized for the war effort. Social insurance data does not reflect the full extent of the change, showing only workers, without children and adults outside of employment.

Chart 3. Number of Ukrainians registered in Poland for social insurance by sex

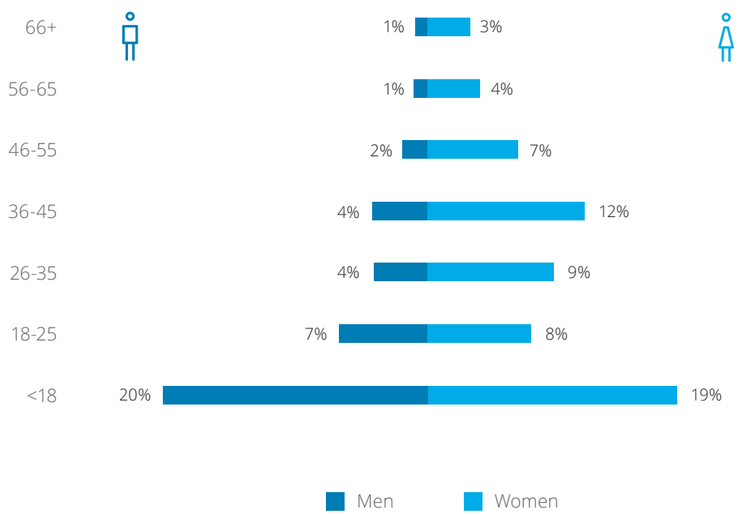


Source: Deloitte own elaboration based on ZUS data.

[3] Employed person is a person, who during the reference week worked for at least 1 hour for pay or profit, including contributing family workers; had a certain job attachment; or produced agricultural goods for sale or barter. A definition according to the Labour Force Survey: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Employed_person_-_LFS

Most of the refugees from Ukraine currently living in Poland are women and children, though over half of the total population is of working age. The best population data available is the regularly updated active PESEL database.[4] According to the registry, 61.5% of the registered are women and 38.5% are men. The database also includes the age of PESEL UKR holders, which indicates that over half (57.4%), i.e. more than 560 thousand people, are of working age (18-65). While the male and female shares of people below 18 years of age (20% and 19%, respectively) and 66+ (1% and 3%) are similar, there is a large difference among productive-age individuals, with women 18-65 making up 40% and men only 18% of Ukrainian refugee population. This is largely due to the conscription of military aged men in Ukraine.

Chart 4. Age and gender structure of Ukrainian refugees

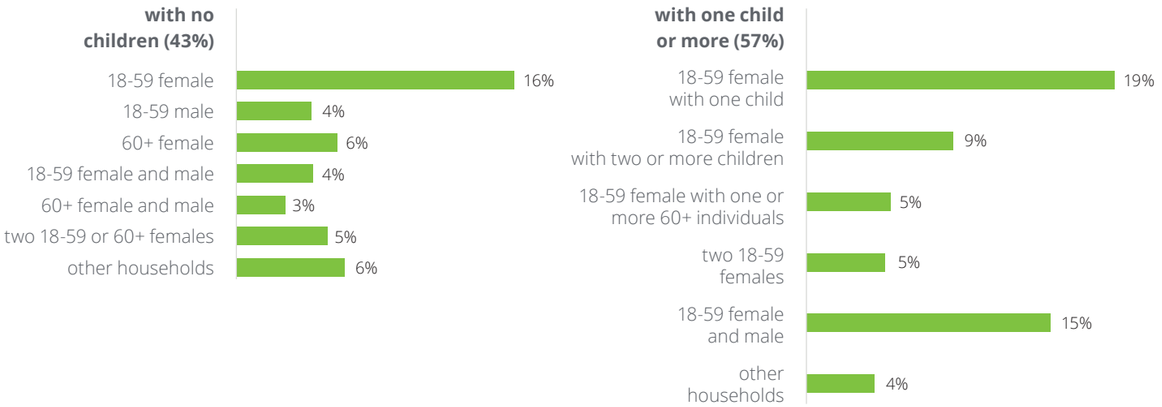


Source: Deloitte own elaboration based on the PESEL database as of September 2024.

[4] Available in the repository maintained by the government https://dane.gov.pl/pl/dataset/2715 as well as UNHCR data portal https://app.powerbi.com/view?r=eyJrIjoiODhkOGZiMzctZTliMi00NzA5LTgyM2QtZGZhM2IwZjBiZDk2IiwidCI6ImU1YzM3OTgxLTY2NjQtNDEzNC04YTBjLTY1NDNkMmFmODBiZSIsImMiOjh9

Most Ukrainian refugee households are led by women alone. According to the 2024 Socio-Economic Inclusion Survey (SEIS), 67% of Ukrainian refugee households are led by women without adult partners. When changes are compared to the 2023 edition, the Multi-Sector Needs Assessment (MSNA) survey, 5% of households include a person with disability, down from 10% previous year, and 48% include a chronically ill person, compared to 49% in 2023. Furthermore, average household size is 2.4 persons (compared to 2.7 previous year), 57% include children (compared to 52%), and 6% include a pregnant or breastfeeding mother (same as previously; UNHCR, 2025a). Only 15% of households are nuclear families with a working age man and woman with children.

Chart 5. Ukrainian refugee households' demographic composition



Note: Some groups that constituted less than 2% of households have been omitted.
Source: Deloitte own elaboration based on SEIS (May-June 2024) UNHCR (2024) survey.

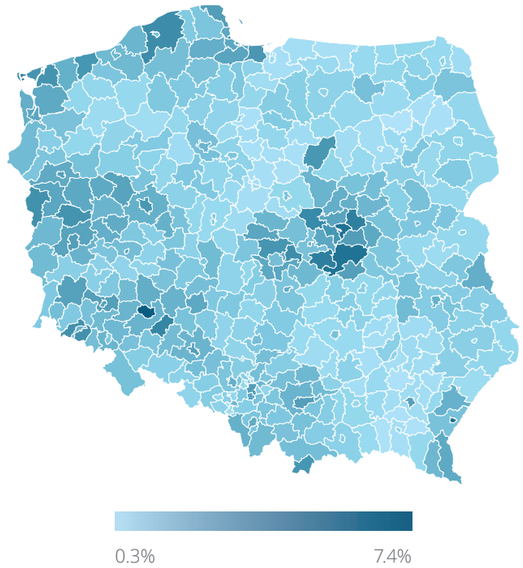
The majority of refugees settled in major cities, especially Warsaw and Wroclaw, and their vicinities. Eight most populous poviats in Poland[5] comprising 16% of the host population, are also the top eight poviats in terms of the number of Ukrainian refugees, 29% of whom reside there. This shows that Ukrainian refugees are more concentrated in the largest cities than the host population, as they migrated to the most attractive labour markets, where they have better chances of supporting themselves. Ukrainian refugees make up the largest shares of the population in the city of Wroclaw (7.4%), Przemysl, a city on the Ukrainian border (6.5%), and in Pruszkowski poviat, a suburban area of Warsaw (6.3%). The city of Warsaw comes seventh with Ukrainian refugees comprising 5.6% of the local population.

[5] Seven cities and Poznański poviat.

Table 1. 10 poviats with most Ukrainian refugees

1. Warsaw	109,705
2. Wroclaw	53,901
3. Cracow	33,057
4. Poznan	23,991
5. Gdansk	17,829
6. Lodz	15,902
7. Szczecin	14,318
8. Poznanski	14,028
9. Pruszkowski	12,206
10. Katowice	11,591

Chart 6. Local population shares of Ukrainian refugees

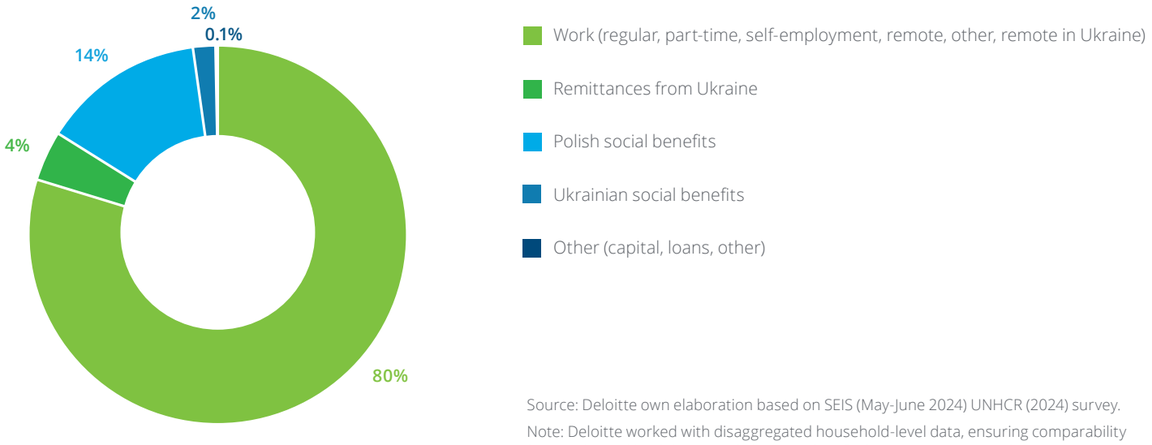


Note that poviat-level population does not include Ukrainian refugees, who were added to calculate their appropriate shares.
Source: Deloitte own elaboration based on the PESEL database as of September 2024 and GUS population data as of mid-2024.

1.3 Households income sources

Ukrainian refugees in Poland continue to get their incomes primarily from work. In the SEIS survey conducted in May and June 2024, 80% of the refugee households' incomes came from work, which included full-time and part-time work, self-employment, remote work, and other forms of employment in Poland, as well as remote employment in Ukraine. This is the same as in the previous MSNA survey, conducted in July and August 2023 (see Deloitte, 2024), despite the fact that the child benefit received by 42% of Ukrainian refugee households increased in that time from PLN 500 to PLN 800 a month. For a vast majority of Ukrainian household the „Family 800+" child benefit was the only social benefit that they received from the Polish government. Only 5% of Ukrainian refugee households claimed an accommodation allowance, 4% – a disability grant and an even smaller percentage – other benefits.

Chart 7. Income of Ukrainian refugee households by source

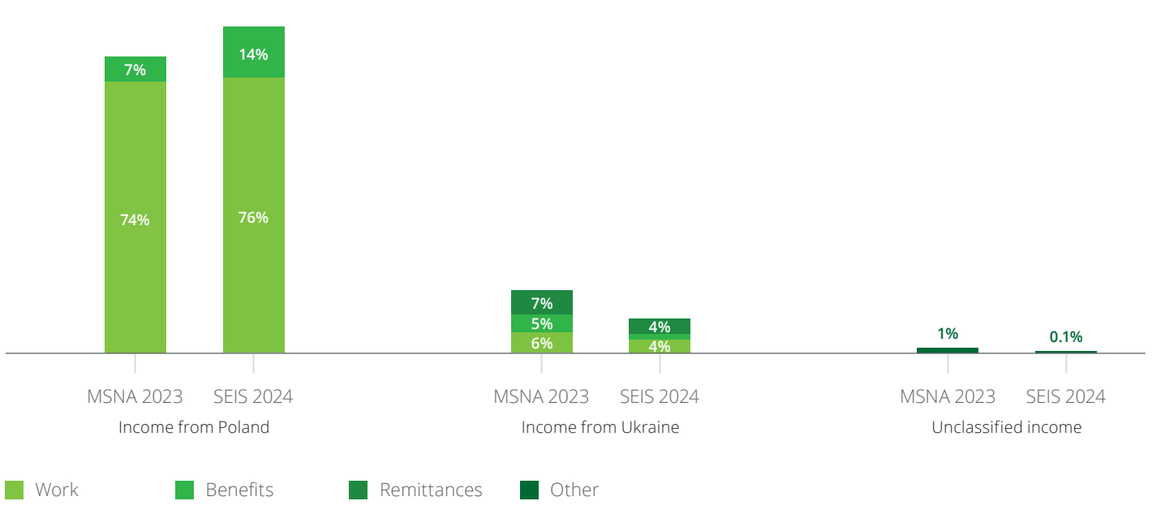


Source: Deloitte own elaboration based on SEIS (May-June 2024) UNHCR (2024) survey.

Note: Deloitte worked with disaggregated household-level data, ensuring comparability (converting all Ukrainian hryvnia incomes into Polish zloty based on daily exchange rates in the time of the interview, and 3-month into 1-month remittance incomes).

In 2024, Ukrainian refugee households increasingly sourced their income from Poland, rather than from Ukraine. This can be seen when comparing the MSNA survey conducted in July-August 2023 and SEIS in May-June 2024 (UNHCR, 2024, 2023). While some methodological differences apply, we can see that incomes earned in Poland grew from 81% in 2023 to 90% in 2024. Conversely, incomes from Ukraine declined from 18% to just 9%. This change demonstrates that Ukrainian refugees continue to integrate economically. It comes as no surprise, given that employment rates and wages of Ukrainian refugees in Poland increased during that time, which is the focus of the next chapter.

Chart 8. Ukrainian refugee household incomes from Poland and Ukraine in 2023 and 2024



Note: There are minor differences in the MSNA and SEIS income categories, as in MSNA remittances refer to all remittances from friends and family, while in SEIS to remittances from Ukraine.

Source: Deloitte own elaboration based on MSNA (July-August 2023) and SEIS (May-June 2024) UNHCR (2024, 2023) surveys.

According to academic literature, better access to host country's public services increases the likelihood of refugees returning to their country of origin, while labour market integration decreases it. Some evidence shows that when refugees from Ukraine have access to education, healthcare, and social services, they may be more likely to consider returning home, precisely because they feel more stable and have the resources to make plans. Sohst et al. (2024) found that short-term return intentions were higher in countries offering strong public services and with healthier economies (lower poverty and higher GDP). In short, when people aren't just surviving but have some breathing room, they're better positioned to think about going back.
On the other hand, host country labour market integration decreases the chances that refugees will be returning to their country of origin. Personal circumstances clearly play a major role. Refugees who are formally employed in their host countries are 12 percentage points less likely to plan a return in the near future than those who aren't (Sohst et al., 2024). Furthermore, Lewandowski et al. (2025) find that refugees who underwent greater task degradation were more likely to plan to return to Ukraine by 2023, particularly those who initially, in 2022, did not plan to return. So, while public services seem to increase the likelihood of return, employment has the opposite effect, it gives people a reason to stay. Families with children or elderly dependents are also more hesitant, which makes sense given the ongoing uncertainty in Ukraine and school continuity in host country. Refugees with disabilities are even less likely to return, often because of healthcare needs or limited support options. Return is often less about 'desire' and more about 'capacity', what in development terms includes social capital, human capital (like education and skills), and even psychological readiness. That capacity is shaped by a combination of public policies and personal circumstance.[6]

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[6] Crucial will also be the 'pull' factors in Ukraine, which will be determined by the conditions of future peace. The longer the full-scale war continues, the smaller will be the percentage of refugees who are willing to return to Ukraine (Tokariuk, 2025). Some 1.3 million refugees have already returned to Ukraine. However, report that economic opportunities in areas of return are inferior than what they had expected before returning, and while half of respondents are currently working, only around a quarter reported being able to cover all or most of their basic needs, and only around a third report feeling safe in their current locations (UNHCR, 2025c).

2.

Ukrainian refugees in the Polish labour market

In the past year, as far as labour market integration is concerned, refugees from Ukraine improved in terms of employment and wages, yet they continue to be disproportionately skewed towards elementary occupations. They are also the group to see the fastest improvements, with the gap towards Polish citizens visibly closing across the entire wage distribution (2.1). The current refugee employment rates are only slightly lower than those for Polish citizens, and median net wages are at about four-fifths of the economy as a whole, which may nevertheless be overly optimistic when compared to gross or average wages (2.2).

2.1 Improving economic situation

Ukrainian refugees in Poland have clearly improved their economic situation over the past year. As indicated in chapter 1, the share of Ukrainian refugee household incomes derived from work in Poland has increased from 74% in the July-August 2023 MSNA survey to 76% in the May-June 2024 SEIS survey.[7] This is not surprising, as the situation of Ukrainians in the Polish labour market has clearly improved. First, employment rate of working-age refugees from Ukraine has increased from 61% to 69%, while their unemployment rate has halved from 15% to 8%. Second, median net wage of Ukrainian refugees grew from PLN 3,100 to PLN 4,000, i.e. by 29%. While half of this wage growth came from the overall high earnings growth in the country due to high inflation (gross wages in the general economy grew by 15%[8]), it was still a major improvement. Gross wage gains appear lower, with ZUS social insurance contributions data for the period from June 30, 2023 and June 30, 2024 showing an increase of 18% (compared to 15% for Polish citizens). As of June 30, 2024, only 44% of ZUS-insured Ukrainian refugees had an employment contract (compared to 82% of Polish citizens). Many may opt for civil law contracts and self-employment to limit their social insurance contributions to the level of minimum wage.

[7] Together with refugees working remotely in Ukraine, their income from work would add up to 80% in the SEIS survey.
[8] From Q2 2023 to Q2 2024, https://stat.gov.pl/en/latest-statistical-news/communications-and-announcements/list-of-communiques-and-announcements/average-gross-wage-in-the-second-quarter-2024,281,43.html

Chart 9. Ukrainian refugee labour status[9]
Working age (women 15-59, men 15-64)

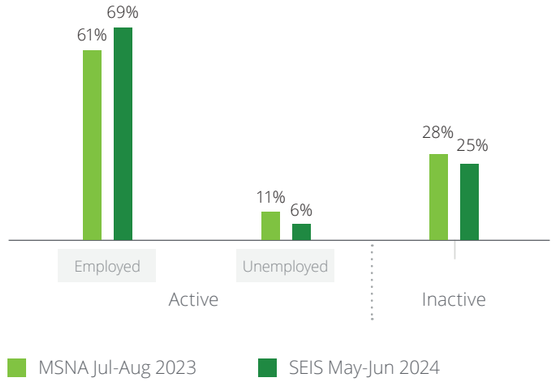
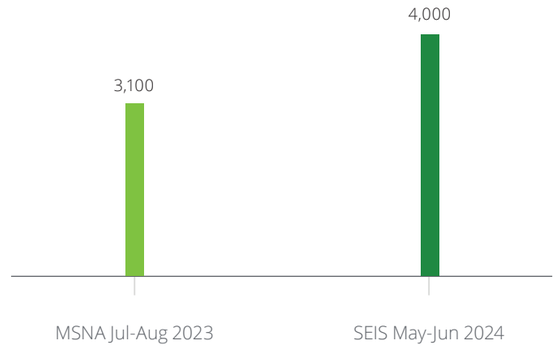


Chart 10. Ukrainian refugee median net wage[10]
PLN, 18-64 age group

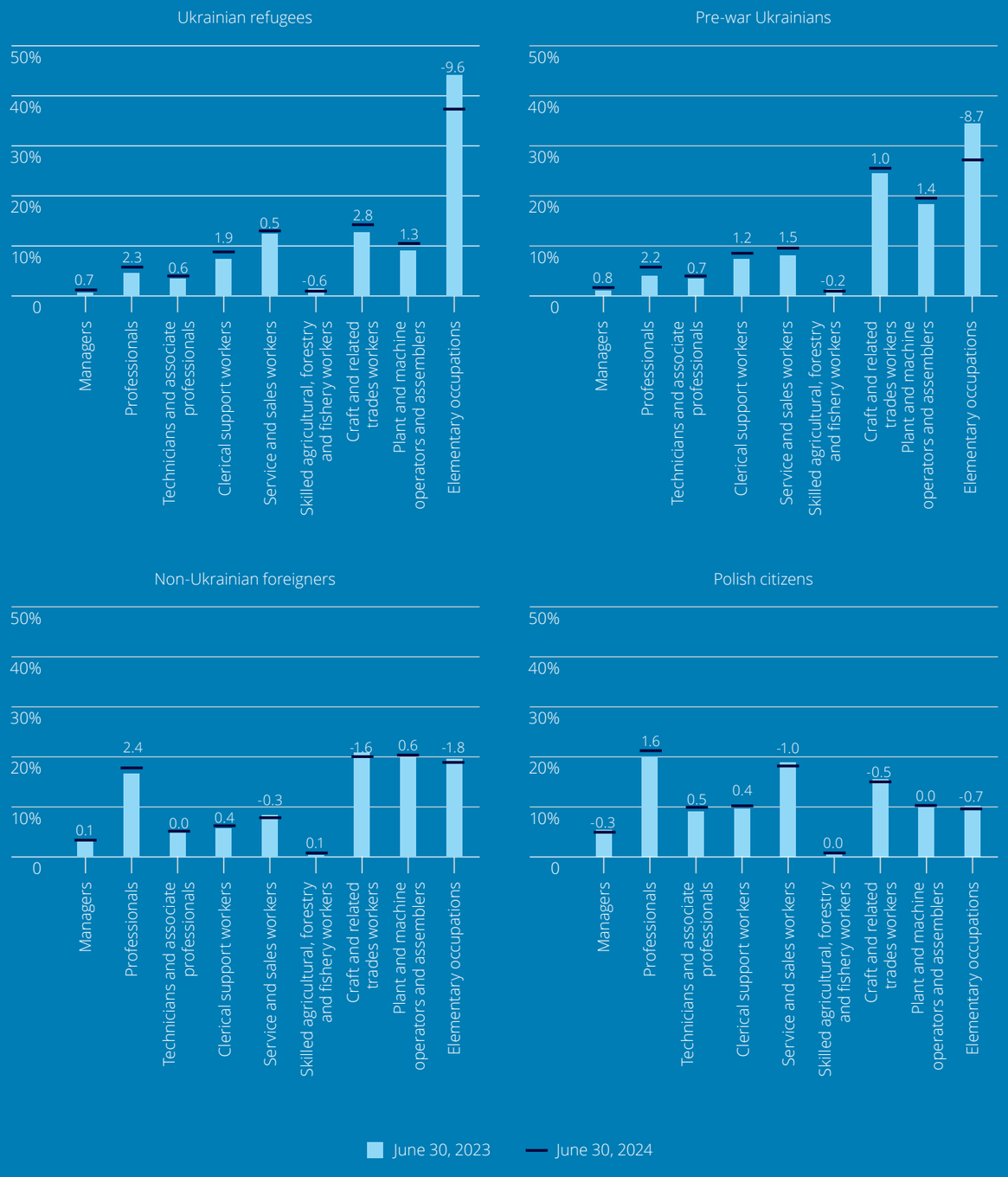


Source: Deloitte own elaboration based on MSNA and SEIS UNHCR surveys conducted in July-August 2023 and May-June 2024.

Ukrainian refugees are more likely to be employed in elementary occupations than pre-war Ukrainian migrants, non-Ukrainian foreigners, and Polish citizens, but they are also the group to have improved the most in the last two years. The data as of June 30, 2024 shows that 38% of Ukrainian refugees worked in elementary occupations, much more than pre-war Ukrainians (25%), non-Ukrainian foreigners (18%), and Polish citizens (10%). While the share seems least favourable among Ukrainian refugees, their situation improved the most in the two years since June 30, 2022 (by 10 pp. compared with 9 pp. for the pre-war Ukrainians, 2 pp. for non-Ukrainian foreigners and 1 pp. for Polish citizens). On the other hand, in Q2 2024, managers and specialists, the two highest paid occupational groups, comprised 8% of both Ukrainian refugees and pre-war Ukrainians, 22% of non-Ukrainian foreigners (who include many IT specialists and executives), and 28% of Polish citizens. Their shares increased in the past two years by 3 pp. among Ukrainian refugees and pre-war Ukrainians, 2 pp. among other foreigners, and 1 pp. among Polish citizens – this data shows that though Ukrainian refugees may be largely employed in the less attractive occupational groups, they are also the fastest to progress toward more attractive professions.[11]

[9] These employment rates are very close to the ones from the Polish central bank surveys of Ukrainian refugees, which showed 62% in July 2023 and 68% in July 2024 (NBP, 2024). NBP (2024) age group was slightly different, describing adults as 18 years or older.
[10] See the note on median wage estimation method in the Online Technical Appendix.
[11] Since 2021, ZUS has been requesting information about the occupation of non-agricultural workers who first join the social insurance system (most farmers have a separate social insurance system). Unfortunately, this data is not yet comprehensive, as on June 30, 2022, it included 4.8 million people, and June 30, 2024, 7.2 million – out of about 16 million socially insured workers. Nevertheless, it is still a very large sample and thus a useful proxy, especially in the case of Ukrainian refugees who presumably all should have their occupations listed as they did not arrive before 2022.

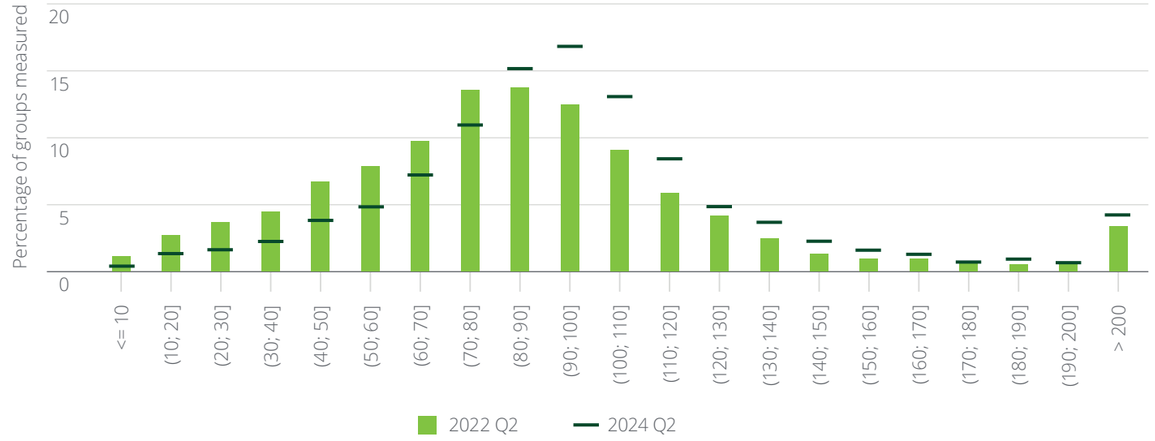
Chart 11. Main occupational groups of Ukrainian refugees, pre-war Ukrainians, other foreigners, and Polish citizens registered for social insurance, Q2 2022 and Q2 2024 (civilian, non-agricultural)



Source: Deloitte own elaboration based on ZUS data. Note that the data is not comprehensive. In Q2 2022 ZUS had data about occupations of 4.8 mln insured persons while in Q2 2024 about 7.2 mln. 89% of the increase came from Polish citizens. The total number of persons insured at ZUS is about 16 mln.

The occupational progress of Ukrainian refugees as compared to the host population may be faster than the nine main occupational groups above suggest. What is particularly striking is the similar pace of progress of Ukrainian refugees and pre-war Ukrainians in the nine main occupational groups presented above. However, it conceals much of the heterogeneity inside of these groups. Every two years, GUS publishes information about the average wages in 128 occupational groups, with the latest data for October 2022 (GUS, 2024a). When ZUS data is aggregated into these occupational groups with the assumption that wage structure remains the same as in October 2022, the rate at which Ukrainian refugees move to better-paid occupations becomes clearer. Between June 30, 2022, and June 30, 2024, Ukrainian refugees gained an estimated 7% in earnings having shifted towards better paid occupations, pre-war Ukrainians 5%, non-Ukrainian foreigners 4%, and Polish citizens 1%.

Chart 12. Ukrainian refugee wages relative to Polish citizens in the same employee-cells
Employee cells are divided by poviat, sex, age group, and main occupational group



Note: Data are based on average social security contributions bases in employee-cells, each cell for a specific poviat, sex, age group, and main occupational group. All data are for the 01XX ZUS insurance code (employees). Data for Q2 2022 encompass 6945 employee-cells of Ukrainian refugees joined with likewise cells for Polish citizens, while for Q2 2024 13477 such cells. Ukrainian refugees have been identified by PESEL UKR and Ukrainian citizenship, Poles by Polish citizenship.

Source: Deloitte own elaboration based on ZUS data.

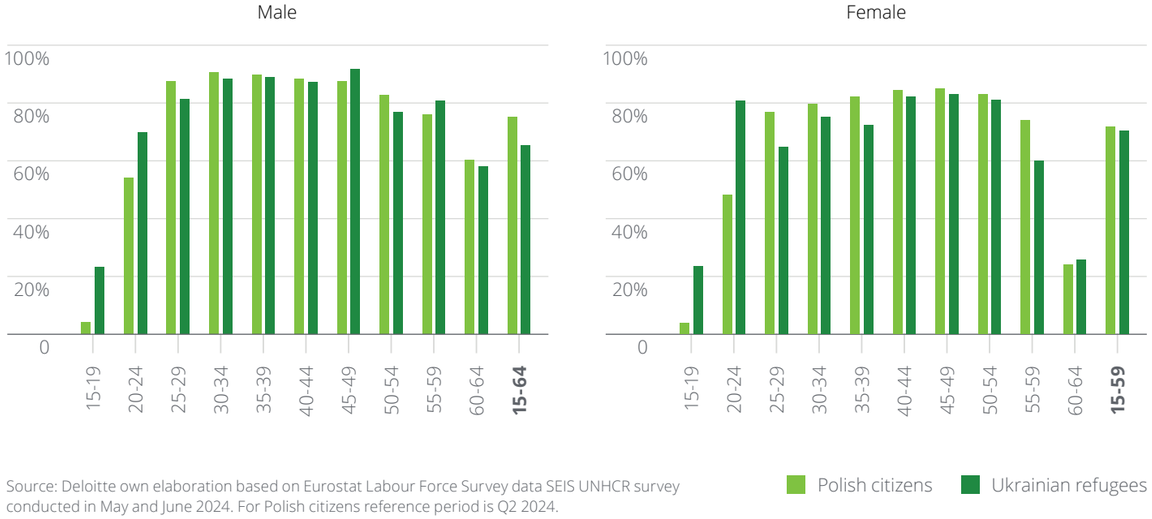
Ukrainian refugees have been slowly closing their wage gap to Polish citizens across all wage levels. Once ZUS administrative data on Ukrainian refugees with employment contracts is divided into employee cells based on 380 poviats, 2 sexes, 7 age groups, and 10 main occupational groups (including unallocated), the gap in social contributions bases towards Polish citizens narrows. The largest group (16%) is positioned between 90% and 100% of Polish citizens (median 93%). This is an improvement over two years, when the majority (13%) situated between only 80% and 90% (median 82%).[12]

[12] Unfortunately, the data is available in a format that is not suitable for econometric modelling and thus these are only comparisons between thousands of employee cells and average social contributions bases.

2.2 Current occupational situation

Ukrainian refugees in Poland have clearly improved their economic situation over the past year. In the 15-59/64 age group, employment rate of Polish citizens stood at 75% in Q2 2024 according to Eurostat, slightly more than the 69% for Ukrainian refugees in the SEIS 2024 survey and 73% when adjusted for a different sex and age structure. In the 15-64 age group, the employment rate of Ukrainian male refugees was 67% while that of Polish citizens in Q2 2024 was 77%. For women, the rates for Ukrainian refugees and Polish citizens are closer in the 15-59 age group (female retirement age in Poland is 60) with 70% for refugees and 72% for Poles. Visible differences are identified in 15-19 and 20-24 age groups, with much higher employment rates for Ukrainian refugees due perhaps to the fact that the Ukrainian school system ends at 17 while the Polish one at 19.[13] However, employment rates drop for Ukrainian female refugees in the 25-29, 30-34, and 35-39 age groups when compared to younger and older groups, as well as to Polish women, which may be due to insufficient access to childcare services. Employment rates for Ukrainian female refugees are also substantially lower in the 55-59 age group, perhaps due to the fact that female retirement age in Ukraine has only recently (in 2021) become 60.[14]

Chart 13. Polish citizens and Ukrainian refugees' employment rates by age group

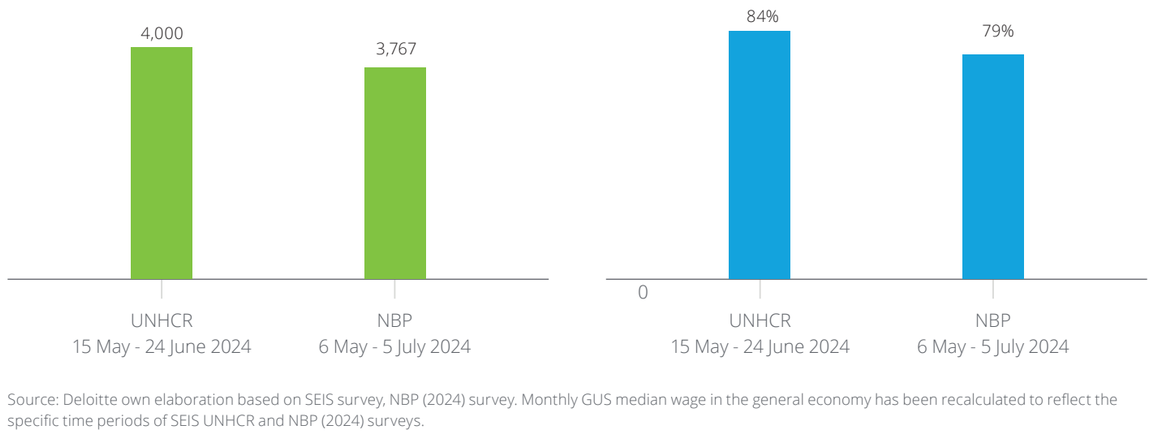


Source: Deloitte own elaboration based on Eurostat Labour Force Survey data SEIS UNHCR survey conducted in May and June 2024. For Polish citizens reference period is Q2 2024.

[13] Children in Ukraine start school at 6 years of age, while in Poland at 7. School system lasts for 11 years in Ukraine and 12 years in Poland. After recent reform, Ukrainian children who started school in or after 2018 will receive 12 years of schooling.
[14] https://www.social-protection.org/gimi/gess/Media.action;jsessionid=U1dm6XAPF38pPk5_pzhfaGoS_rOACMDDVv4w5uevMsKBeQEC5-_g!284293951?id=15680

With the current level of integration of Ukrainian refugees into the labour market and the jobs they perform, their median net earnings are about four-fifths of the national median – although likely lower in terms of average or gross earnings. The median net earnings of Ukrainian refugees in Q2 2024 were PLN 4,000 in SEIS, and PLN 3,767 in NBP (2024) surveys. This is 84% and 79% of the national median, respectively. This estimate would be most likely lower, if data allowed us to look at average or gross earnings. First, a comparison of average instead of median earnings would show a larger gap between Ukrainian refugees and all workers in the economy, as the national average is inflated by top incomes, which are less often earned by Ukrainian refugees than the general population. UNHCR (2025b), using a different method than the one in this report, estimated average instead of median net wages based on the SEIS data. The average net wage of a Ukrainian refugee they arrived at was PLN 4,214, only slightly higher than calculated above. This would yield 72% of the national average net wage.[15] Average is not used here, because median is more relevant for discussing economic impact, as it is not disrupted by bottom or top earnings. Furthermore, there are no outside estimates to compare it to. Second, as discussed previously, there are much fewer Ukrainian refugees with employment contracts than Poles, and this lowers their social contributions and thus gross earnings. Unfortunately, there is no such data available, as both SEIS and NBP (2024) measure only net earnings. Administrative ZUS data can be used as a proxy for both average and *gross* earnings percentages. On June 30, 2024, average bases for social contributions of Ukrainian refugees accounted for just 64% of those of Polish citizens. However, this is only relative to Polish citizens not all workers in the economy as a whole, and comes with other caveats of administrative instead of survey data sources – data given on a particular day instead of period average, the shadow economy unaccounted for, different contributions based on the type of contract, no data for farmers who belong to a separate social insurance scheme. Also, the ZUS data, that is available, is much more limited that the SEIS survey data primarily used in this report.

Chart 14. Ukrainian refugee median net wage estimates in Q2 2024

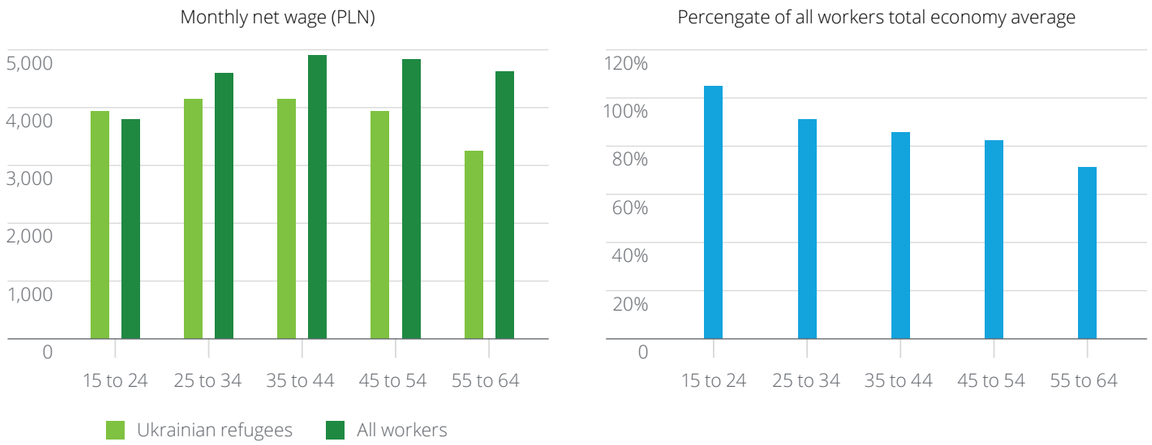


Source: Deloitte own elaboration based on SEIS survey, NBP (2024) survey. Monthly GUS median wage in the general economy has been recalculated to reflect the specific time periods of SEIS UNHCR and NBP (2024) surveys.

The wages of Ukrainian refugees are higher for men than women, but the gap is not wider than in the economy as a whole. The median net wage of female Ukrainian refugees is 6% lower than in the male group (compared to 7% in the economy as a whole), however, the gap may be different due to the fact that there are fewer men in the Ukrainian refugee population.

[15] Percentage calculated based on GUS average for the economy as a whole in the months of the SEIS survey.

Chart 15. Ukrainian refugees wages median net wage by age group



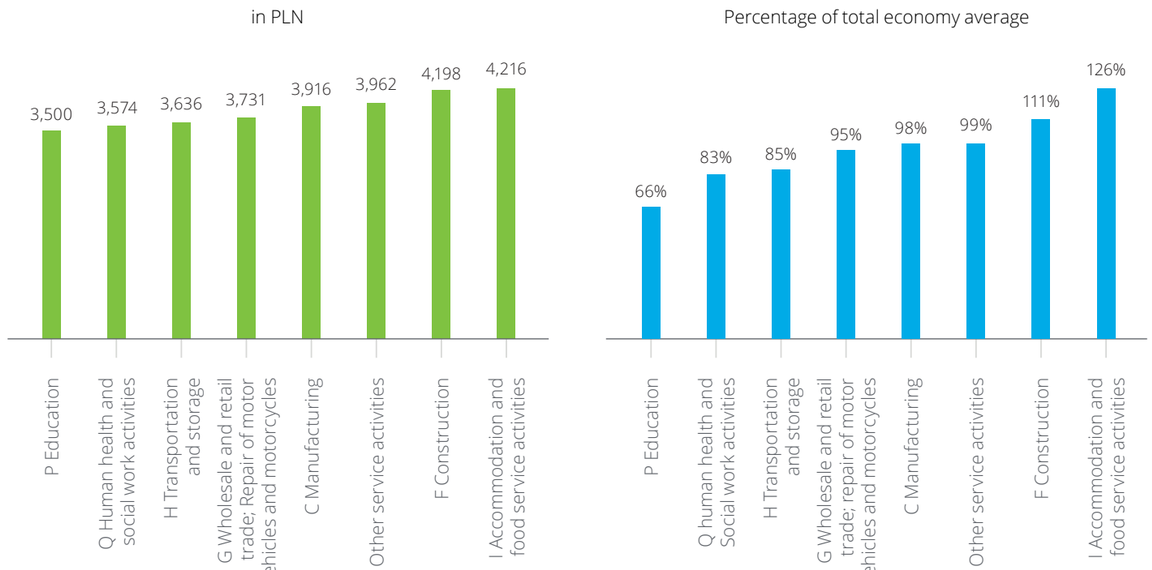
Source: Deloitte own elaboration based on SEIS UNHCR survey and GUS data.

The Ukrainian refugee groups to earn the highest wages compared to the wages in the economy as a whole are the younger age groups. Ukrainian refugee incomes from employment are highest in the 25–34 and 35–44 age groups. However, relative to the economy as a whole, the wages of Ukrainian refugees are the highest in the youngest age groups and decrease with age. This can be explained by three facts. First, wages in the youngest age groups are most compressed, because they diverge with time and accumulated professional experience. Second, younger persons have less experience and so lose least from migration. Third, younger persons often find it easier to learn the language of the host country.

The earnings of Ukrainian refugees differ across sectors in nominal terms and as a percentage of the economy as a whole – only education ranked lowest on both measures. Ukrainian refugees earn the highest wages in manufacturing, health, and accommodation and food service activities, while the lowest in education, other services, and construction. A comparison to median earnings in these sectors in the economy as a whole (after recalculation from gross to net earnings) changes that order, with Ukrainian refugees employed in accommodation and food service activities, and construction earning more than 100% of all workers median, and education, health services, and transportation and storage on the lowest ranks. Earnings relative to the total economy would be lower, if gross wages were compared, because Ukrainian refugees are less likely to have employment contracts and pay social contributions on their entire earnings.[16] Ukrainian refugees employed in education have the lowest median net wages when compared to other sectors. This is likely due to occupational regulations that prevent persons with non-EU citizenship from working as teachers in public schools, which is further discussed in chapter 4.

[16] As refugees more often than average in the Polish economy work based on civil law contracts or self-employment, they may not be covered by employee protections denoted in the labour code. Furthermore, if they pay lower pension contributions, they will receive lower pensions in the future, as Poland has a defined contribution system. It also lowers their sick leave benefits.

Chart 16. Median net wages of Ukrainian refugees median net wage by sector



Source: Deloitte own elaboration based on SEIS UNHCR survey and GUS data.

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3.

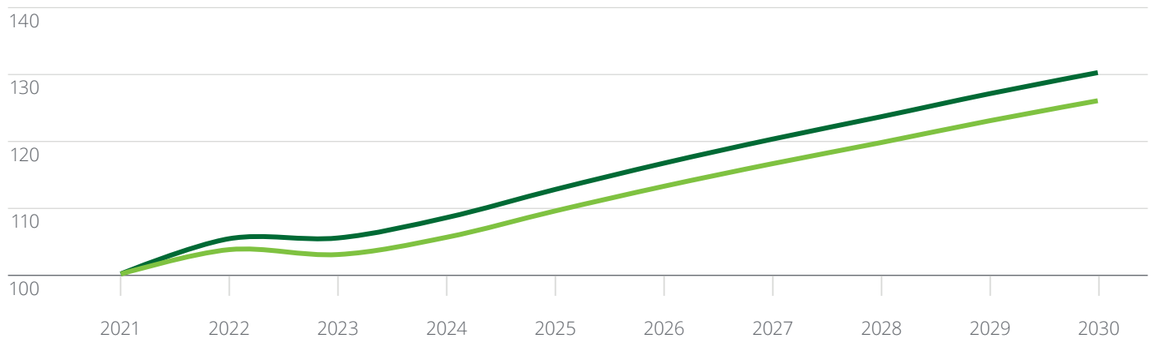
Economic impact of Ukrainian refugees

The Polish economy has adapted to the arrival of Ukrainian refugees, resulting in more specialization and higher productivity. These have counterbalanced any negative effects of higher competition in the labour market. As a result, in 2024 the value added of Ukrainian refugees accounted for 2.7% GDP. This is the amount which would have been lost, had the refuges disappeared from the Polish economy. The results are in line with the optimistic scenario outlined in Deloitte (2024) previous report.

As Ukrainian refugees entered the labour market, the economy adapted, resulting in more specialization and higher productivity. In a simplistic supply-demand framework, the influx of Ukrainian refugees should have caused some Polish workers to become unemployed or leave the labour force, or real wages to fall. This has not happened. First, among Polish citizens employment rates have grown, and unemployment rates have fallen. Second, poviats in which employment share of Ukrainian refugees has grown by 1 pp., saw 0.5 pp. higher employment rates among Polish citizens, and 0.3 pp. lower unemployment rates. Third, there is no evidence of lowered wages, in fact the limited available data suggests that Ukrainian refugees may have caused higher wage growth in poviats which they have moved to. These are common findings well documented in academic literature, that as immigrants enter the labour market, native workers specialize in complementary, higher value tasks, which we see empirically in Polish workers moving to more attractive occupational groups. This can be seen in the data, as Polish citizens are moving to better paid occupations. It constitutes a positive shock to productivity which is what counterbalances labour market pressures.[17]

The impact of Ukrainian refugees on the Polish economy is estimated with the Deloitte D.Climate general equilibrium model[18] in a modelling scenario that includes a productivity shock to account for the positive productivity impacts of migrants. In the model a marginal productivity of labour shock of a 1.5-2% dependent on the year is set, as to zero out the impact of Ukrainian refugees on the unemployment rate in the economy. This is in line with the lack of negative impacts of Ukrainian refugees on the Polish labour market in our econometric modelling, and empirical literature on productivity impacts of immigration reviewed in the Appendix.[19] Because marginal productivity of capital remained the same and the population of Poland increased more than the number of workers (primarily by Ukrainian refugee children), the impact on GDP per capita has been smaller – at 0.2%. This outcome is rather modest compared to a cross-country panel model estimated in an IMF report, in which a 1.7% Ukrainian refugee share in the adult population of Poland should eventually result in about 3.4% higher GDP per capita (Jaumotte et al., 2016).

Chart 17. Gross domestic product growth paths with and without Ukrainian refugees
Deloitte D.Climate model calibrated to the Ministry of Finance GDP growth forecast.



Source: Deloitte D.Climate estimates. For details see the Online Technical Appendix.

The main impact of Ukrainian refugees is expanding the economy and putting it on a higher growth path. According to the Deloitte D.Climate model, economic impact of Ukrainian refugees amounted to a higher real GDP by 1.5% in 2022, as they initially entered the labour market. With more refugees finding employment, their impact grew to 2.3% GDP in 2023, and further to 2.7% GDP in 2024. This corresponds to GDP being higher by PLN 98.7 billion in 2024. In the long term, as the refugees acquire more country-specific skills and firms invest to restore their capital-to-labour ratio, the impact will grow to 3.2% GDP by 2030. Refugees contribute to the economy by increasing the labour supply as both workers and entrepreneurs, and by boosting demand as consumers. The increase in GDP is not directly proportional to the increase in population or employment.[20] On the one hand, increase in productivity further boosts the economy, on the other net benefits are lowered both due to a decrease in the capital-to-labour ratio, as well as an increase in competition in the labour market. Moreover, the increase in demand in tight labour market conditions work in the direction of higher inflation and lower price competitiveness of Polish products which decrease its overall positive impact.

The results are in line with the optimistic scenario from the previous Deloitte (2024) report. The current report is different from the one from 2024 in that we account for the positive productivity shock reflected in the labour market data, which further boosts the economic impact of Ukrainian refugees. To arrive at results that would be comparable to the previous report, economic impact has been additionally simulated in a scenario without the productivity shock. This brought the results down to 1.3% GDP in 2024, which is in line with the Deloitte (2024) most optimistic of the four outlined scenarios of 1.1% GDP in 2023 and 1.4% GDP in the long term.[21] The Ukrainian refugees and the economy turned out to have adapted better than expected last year. Moreover, the fact that the previously modelled mild adverse effects on the labour market have not materialized reflects a stronger increase in labour productivity than was assumed. As a result, the positive impact of Ukrainian refugees on the economy is greater than previously expected.

[17] For the literature review, underlying empirical evidence, and model calibration refer to the appendix on modelling strategy.
[18] Details on Deloitte D.Climate model calibration are outlined in the Appendix on modelling strategy, while further details on this CGE- class (Computable General Equilibrium) model are available in the Online Technical Appendix.
[19] The complete rationale for the productivity shock is outlined in the Appendix on modelling strategy, while further detailed results of econometric models are available in the Online Technical Appendix.
[20] As outlined in the Appendix on modelling strategy, the total number of refugees was set at 2.6% of the total population, while their share in total employment as growing from 1.5% in 2022 to 2.4% in 2024.
[21] Full results of a modelling scenario with no shock to productivity are available in the Online Technical Appendix.

Table 2. Deloitte D.Climate model results for Ukrainian refugees' influx

	Current estimate 2024	Long-run estimate 2030
Gross Domestic Product	+2.71%	+3.21%
Unemployment rate	–	-0.10 pp.
Real wages	0.00%	+0.24%
General government income	+2.94%	+2.73%

Source: Deloitte D.Climate estimates.

The positive shock to the marginal productivity of labour stabilized the current impact on the labour market and should turn positive in the long run. In the model, additional influx of employees increases labour market competition, creating an upward pressure on unemployment rate and downward pressure on real wages. This increase almost completely offsets the additional positive shock to the marginal productivity of labour. While the assumed increase in productivity stabilizes unemployment rate and real wage impacts in the 2022-2024, in the long-term, in 2030 the cumulative impact of Ukrainian refugees should lower the unemployment rate by 0.1 pp. and increase real wages by 0.24%.

Ukrainian refugees increase general government revenue as workers, entrepreneurs, and consumers. First, a larger number of employees increases the wage pool. Second, a larger population increases private consumption. Both streams are taxed. Also, an inflow of capital from abroad (e.g. savings of refugees in Ukrainian banks) further strengthens that effect. In total, general government revenue increased by 2.0% in 2022, 2.75% in 2023, and 2.94% in 2024. In monetary terms this amounts to PLN 25.0 billion in 2022, PLN 39.1 billion in 2023, and PLN 47.0 billion in 2024[22]. In the long term, refugees should increase annual general government revenue by around 2.7%.

Ultimately, Ukrainian refugees generate additional output and demand. This results in an increase in real GDP, and is especially beneficial for public finance. Although the influx of refugees was costly at the start, the additional general government revenue they provided was more than enough to compensate for the expense[23]. Tight labour market helped absorb the increase in labour force, mitigating negative impacts of increased competition on the native workforce. Over time, increased productivity should benefit native workers, as it is the primary driver of long-term wage growth.[24]

[22] Deloitte own calculations based on Informacja kwartalna o stanie finansów publicznych - Ministerstwo Finansów - Portal Gov.pl for respective years. The general government income share in GDP in 2024 was calculated based on the data for Q1–Q3 and based on that total general government income was calculated using forecast for GDP from Wytyczne dotyczące wskaźników makroekonomicznych - Ministerstwo Finansów - Portal Gov.pl.
[23] Model treats general government sector as a whole, as such cost and income internal structure may differ creating institutions with financial loses while other may have disproportionate increase of income.
[24] For a discussion on the stable long-term relationship between wages and labour productivity, see for example Meager & Speckesser (2011).

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4.

Ukrainian refugees' skill-job mismatch

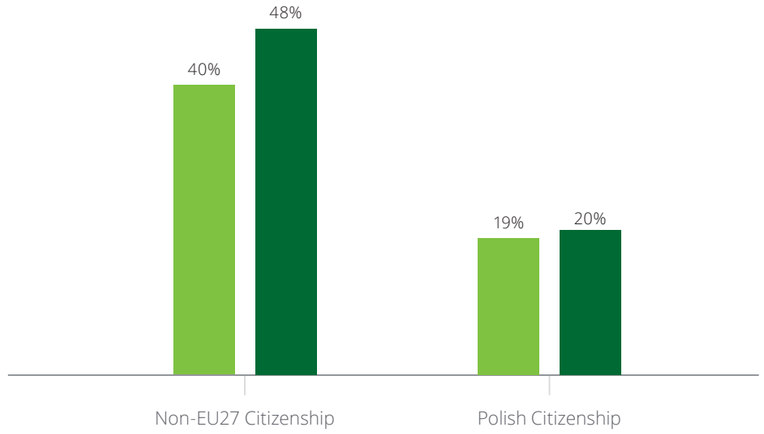
The disparity between education levels and the jobs performed by Ukrainian refugees indicates their significant over-qualification in comparison to Polish citizens (4.1). Widespread occupational licensing presents an obstacle to efficient use of Ukrainian refugees' human capital, who – in comparison to Polish citizens – rarely work in regulated professions (4.2). The higher the level of Polish language competence, the higher the wage premium. Older refugees, those who have been in Poland for a shorter period of time or have below tertiary education tend to have poorer language skills (4.3). Refugees who back in Ukraine managed the household or were not employed, remain underemployed in Poland (4.4). Key factors to enhancing the status of Ukrainian refugees in Poland will be language courses, including advanced levels tailored for professionals, easing of occupational licensing restrictions, particularly those based solely on citizenship, and implementation of active labour market policies to help specific groups enter the workforce (4.5).

4.1 Over-qualification

Occupational downgrading affects all types of migrants across the globe, including refugees, and has long concerned economists and policymakers. According to a previous research, usually about a third of migrants holding a university degree work in jobs requiring only high-school diplomas, versus 10% of natives (Tani, 2020). Migrants may lack language fluency or country-specific knowledge (e.g. of the law or business contacts) and find it difficult to prove the professional experience or educational credentials gained in their home country. They also face regulatory barriers to entering some professions, e.g., in the public sector or regulated specialist occupations. Ensuring that migrants` and refugees` skills are fully utilized to the benefit of both the individuals and host-country economies is a central policy challenge for the countries facing large-scale immigration.

In Poland, non-EU27 citizens are twice as likely to be over-qualified (for their job) as Polish citizens. In its Labour Force Survey (LFS), Eurostat defines over-qualification rate as the share of persons with tertiary education (bachelor's degree and higher) who are employed in the ISCO (International Standard Classification of Occupations) 4-9 occupational groups[25]. While the LFS is unlikely to cover all Ukrainian refugees and migrants from other nationalities in Poland, there was a visible increase in over-qualification rates for non-EU27 citizens between 2022 and 2023 that is not observed for Polish citizens.

Chart 18. Over-qualification rates by citizenship

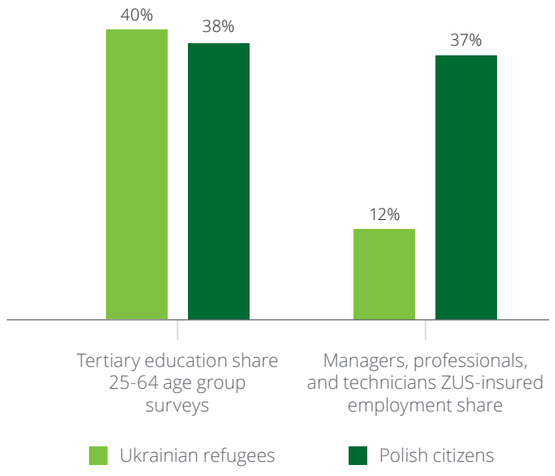


Source: Deloitte own elaboration based on Eurostat (Labour Force Survey) data.

Occupational downgrading is widespread among Ukrainian refugees in Poland. SEIS data shows that 40% of Ukrainian refugees aged 25–64 hold a tertiary degree – exceeding the share of Polish citizens in the same age bracket, according to Eurostat's 2023 annual average. While ZUS data available as of June 30, 2024, shows occupational groups for less than half of the socially insured in Poland, it reflects a visible mismatch between the refugees' education and the jobs they perform. Only 12% of Ukrainian refugees (less than one-third of the share in terms of tertiary education) worked in occupational groups which require tertiary education, that is managers, specialists, and technicians (ISCO 1-3), compared to 37% of Polish citizens (almost the same as the tertiary education share in the 25-64 age group).

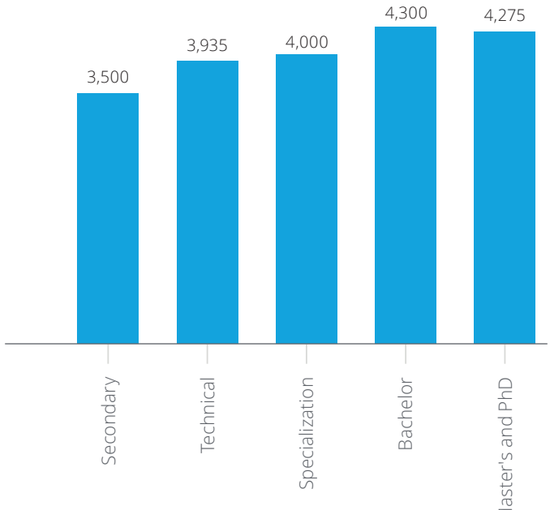
[25] This is the same classification as quoted from GUS and ZUS in the previous chapters. Codes 4-9 refer to clerical support workers; service and sales workers; skilled agricultural, forestry and fishery workers; craft and related trades workers; plant and machine operators and assemblers; elementary occupations.

Chart 19. Tertiary education and corresponding occupational groups shares



Source: Deloitte own elaboration based on mid-2024 SEIS UNHCR survey (Ukrainian refugees' educational attainment), 2023 Eurostat Labour Force Survey Eurostat (Polish citizens educational attainment), and mid-2024 ZUS administrative data (occupational groups).

Chart 20. Ukrainian refugees median net wages by educational attainment



Source: Deloitte own elaboration based on mid-2024 SEIS UNHCR survey (Ukrainian refugees' educational attainment and median net wages), 2023 Eurostat Labour Force Survey Eurostat (Polish citizens educational attainment), and mid-2024 ZUS administrative data (occupational groups).

The educational premium seems to be lower for Ukrainian refugees compared to the general workforce in Poland. According to the SEIS survey, Ukrainian refugees with master's and PhD degrees earn a 22% higher median net wage than those with only secondary education. This appears to be a small gain, even accounting for the fact that, generally, the differences between median wages are less pronounced than between average wages (which are pulled higher by top incomes) and that our method of wage estimation based on SEIS household incomes[26] flattens the distribution. According to the most recent estimate in October 2022, in the economy as a whole, the average gross wage of master's and PhD degree holders was 84% higher than those with only secondary education.[27]

Most Ukrainian refugees work in a different sector than previously in Ukraine, which also points to occupational downgrading. The SEIS survey indicates that 34% of Ukrainian refugees currently employed in Poland work in the same sector as back in Ukraine, while 48% – in a different one. There is no data for 18% of workers – mostly made up of the youngest refugees who might not have worked back in Ukraine. Employment in one's pre-displacement sector appears to boost the median net wage by about 6%, when compared to those who switch fields – a back-of-the-envelope calculation puts their median net earnings at 89% of the overall median. However, this likely overstates the true effect of staying in the same sector, since the higher-paid groups (for example, the majority of IT specialists) were more likely to remain in their original industry.

Highly skilled Ukrainian refugees are likely to suffer from significant downgrading. With the median wages of Ukrainian refugees estimated at 84% (SEIS survey) or 80% (NBP 2024 survey) of the national median (see chapter 2), the difference for average wages may be even larger. This is because medians are insensitive to high earners who typically inflate average earnings. Such high earners may suffer significant downgrading considering the unfavourable occupational structure of Ukrainian refugees. There are many reasons to this, from occupational licensing to a high level of language fluency required by high-skill jobs.[28]

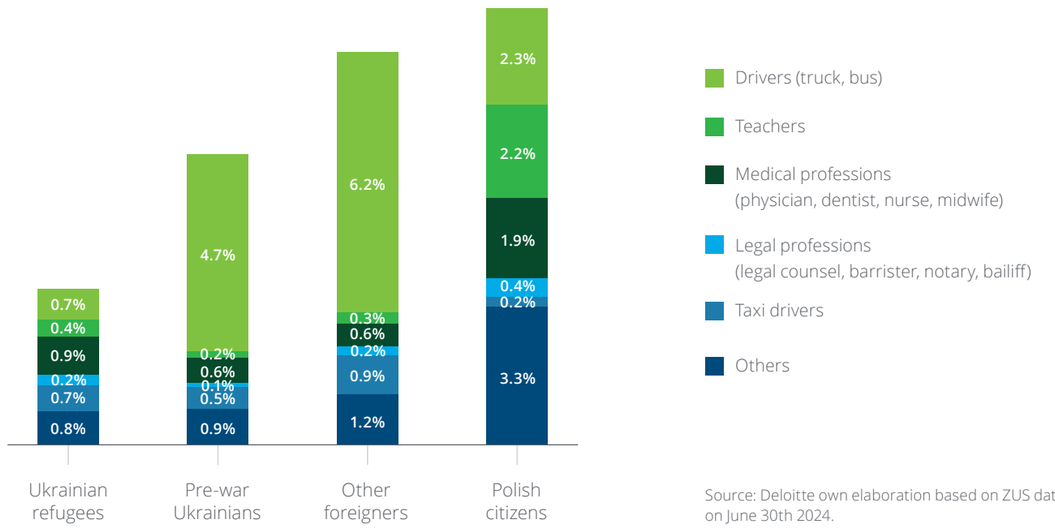
[26] As described in chapter 2, SEIS measures incomes on the household level. Using it to estimate individual wages likely underrepresents lowest and highest incomes. Details are available in the Online Technical Appendix.
[27] Note that the GUS (2024) data for the host population is not exactly comparable, as it does not include microenterprises, it covers an earlier period and focuses on gross and average wages.

Addressing occupational downgrading could bring macroeconomic benefits. To demonstrate the potential impact, a simulation was conducted in which the underrepresentation of refugees in higher-paying occupations was reduced by half. It was not assumed that there would be no differences between refugees and Polish citizens, as some barriers (such as country-specific knowledge and business networks) are more difficult to address than others (such as language skills and occupational licensing). However, if the gap was narrowed by half, the average wage of refugees would increase by approximately 10%. Assuming that the productivity increase is equivalent to the wage increase, this would result in PLN 3.5 billion of added value to the economy. This estimate may underestimate the potential benefits, as the boost in productivity would most likely rise not just employee wages, but employer profits as well. Conversely, the overall impact on wages might be lower, if increased worker competition reduced the average individual premium.

4.2 Access to regulated professions

Widespread occupational licensing is a serious obstacle to an efficient use of Ukrainian refugees' human capital. Poland has the third highest number of regulated professions among the 28 European Union member states, according to European Commission's Regulated Professions Database. This can be a problem, as occupational licensing is cited in the literature among the reasons for occupational downgrading of migrants. Cassidy and Dacass (2021) found that in the United States, immigrants were significantly less likely to have a license than similar natives and this gap was largest for men, workers in the highest education level, and nonnaturalized immigrants. This has an important impact on wages, because, as showed in a seminal work by Kleiner and Krueger (2013) and confirmed in several analyses, working in a regulated profession comes with a significant wage premium. Brücker et al. (2021), who analysed German data, found that occupational recognition led to full convergence of immigrants' earnings to those of their native counterparts. Tani (2020) found that in Australia, licensing raised hourly wages and reduced over-education for migrants working in licensed jobs, while producing worse labour market outcomes for those who did not gain licensure. According to Peterson et al. (2014), over the 1973–2010 period, U.S. states with more stringent occupational licensing for migrant physicians received fewer new migrant physicians and struggled more with staffing shortages in healthcare. Aleksynska and Tritah (2013) quoted data that migrants in France were denied legal access to approximately 30% of jobs in the country.

Chart 21. Share of regulated professions by citizenship and legal status, Q2 2024



Source: Deloitte own elaboration based on ZUS data on June 30th 2024.

[28] Lessem and Sanders (2020) modelled immigrant wage growth in the United States, finding that in a counterfactual model eliminating barriers to occupational entry would lead to only small earnings increase for the average immigrant, but a substantial increase for the most highly skilled.

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Compared to Polish citizens, Ukrainian refugees rarely work in regulated professions –3.6% of those insured at ZUS compared to 10.6% of Polish citizens, as of mid-2024. This percentage was higher among pre-war Ukrainian migrants and other foreigners, because of a large share of truck and bus drivers. Overall, Ukrainian refugees are less likely to work in major regulated professions compared to Polish citizens. Among Ukrainian refugees, 0.7% work as truck or bus drivers, much less than among other migrants (4.7% pre-war Ukrainians and 6.2% other migrants) or Polish citizens (2.3%). This may be partly attributed to a higher share of women among Ukrainian refugees. An exception is the taxi driving profession, which has lower entry barriers, offers flexibility and has a large share of migrants.

Due to citizenship requirements, the difference is more clearly regulatory-driven in the case of teachers (school and preschool), who account for just 0.4% of Ukrainian refugees and even less of other migrants, but 2.2% of Polish citizens. In recent years, medical professions (physicians, dentists, nurses, and midwives) have opened to migrants and refugees to reduce shortages, and while the shares for all of them stand at just 0.9% compared to 1.9% for Polish citizens, the gap is actually very narrow for physicians and dentists, who constitute 0.7% of Ukrainian refugees and 0.8% of Polish citizens. In legal professions (legal counsels, barristers, notaries, and bailiffs), the gap remains wide, although in addition to occupational licensing, the likely causes may be the differences between the Polish and Ukrainian legal systems as well as new entrants' struggles with attracting clients due to advertising restrictions. In effect, just 0.02% of Ukrainian refugees work in legal professions, compared to 0.4% of Polish citizens. There are also high contrasts across the remaining regulated professions, which employ 0.8% of Ukrainian refugees and 3.3% of Polish citizens. These are construction engineers (0.02% Ukrainian refugees), pharmacists (0.01%), and psychologists (0.09%), compared to the following shares for Polish citizens: 0.26%, 0.19%, and 0.18%, respectively.

There are substantial barriers for those seeking entry into the teaching profession. There are three career stages for teachers working in Polish schools: teacher trainee, appointed teacher, and chartered teacher. Three-quarters of teachers in the 2023/2024 school year fell into the last two categories (GUS, 2024). However, to become promoted to an appointed or chartered teacher, a foreigner must possess Polish, EU, Swiss, or other EEA citizenship (Babakova et al., 2024). In effect, only 0.4% of Ukrainian refugees were teachers (ZUS-registered in mid-2024) compared to 2.2% of Polish citizens. There were more teachers' assistants, who are not regulated, than actual teachers. Furthermore, the data presented in chapter 2 shows that the median net wages of Ukrainian refugees in the teaching profession are just PLN 3,500, constituting 66% of what the host population earns, the lowest earnings of all sectors.

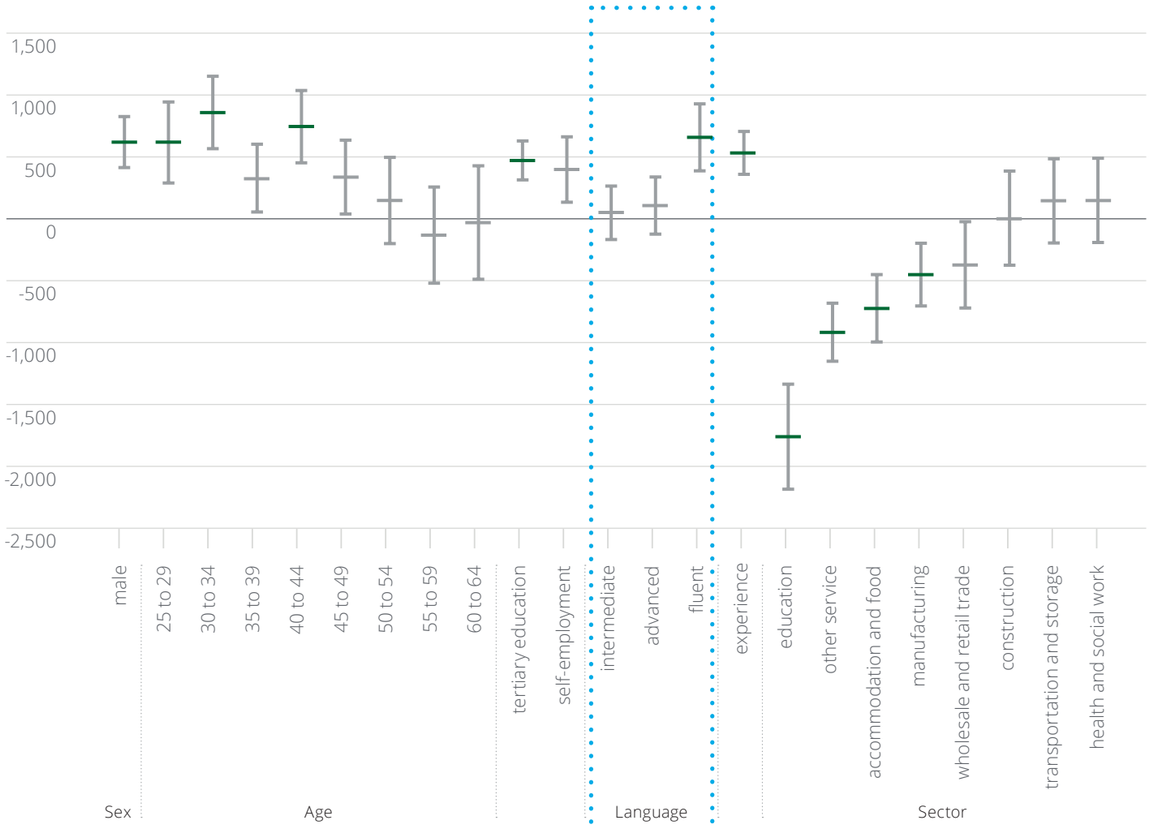
Occupational licensing rules regarding citizenship have been relaxed for medical professions in the wake of the COVID-19 pandemic in 2020 and in February 2022, but those were often makeshift arrangements. According to the Babakova et al. (2024) report, during the COVID-19 pandemic, practicing medical professionals from Ukraine were allowed to work, but only in a designated health care center, and for no longer than five years without the possibility of extension. In February 2022, Ukrainian psychologists were allowed to provide services to other Ukrainian citizens, but only for 18 months. While such changes are likely to be extended, they do not motivate Ukrainian refugees – unsure, if they will be allowed to continue practice in the long term – to acquire the necessary skills, for instance to improve language fluency or invest in professional courses. Instead, the refugees may prefer to seek opportunities in other countries or change their line of work to one that will be more accessible, but less valuable for the Polish economy.

4.3 Language wage premium

One of the most effective forms of support offered to refugees and other immigrants in terms of employment and earnings to be found in the literature is language training. Foged et al. (2024) analysed labour market outcomes of language training, placement in strong labour markets, active labour market policies, cutting welfare benefits, and placement in co-ethnic networks that were directed at refugees in Denmark. Thanks to unusually detailed Danish data, they could follow individual refugees who arrived in Denmark between 1987 and 2008, for at least 10 years, and in most cases for 15 years. They found intensive language training introduced in 1999 to be the most effective of all policies, accounting for a 5-6 pp. increase in the probability of employment and a USD 3,000 increase in annual earnings (2015 figures). While locating refugees in strong labour markets also had considerable positive effects, the report found only some evidence that Active Labour Market Policies (ALMPs) focused on matching refugees with deficit occupations improved their employment prospects and no evidence of positive effects of cutting benefits or placing refugees in co-ethnic networks. Heller and Mumma (2023) exploited randomized enrolment lotteries for a publicly-funded English for Speakers of Other Languages programme in Massachusetts. The policy targeted all immigrants, including those who had lived in Massachusetts for several years, with data for 2008–2016 and 4,700 individual lottery applicants. Authors found a causal effect, with annual earnings increasing by USD 2,400. These earnings gains generated additional tax revenue that produced a 6% return for taxpayers. Schmid (2023) studied African refugees who applied for asylum in Switzerland between 2008 and 2017. He exploited the random assignment of refugees to French, German, and Italian cantons, as well as their prior language knowledge (e.g. French speakers placed in French or German speaking cantons). The results showed that language proficiency more than doubled the employment level in the first five years after arrival.

The econometric model estimated in the SEIS UNHCR survey shows substantial wage gains from Polish language proficiency for Ukrainian refugees. Deloitte has estimated an econometric model incorporating individual income determinants of Ukrainian refugees. Our study has confirmed the results found in international literature presented above. The most important result is that Ukrainian refugees who are fluent in Polish earn a net wage premium of about PLN 700 (+16% relative to refugee net median wage, PLN 1,000 gross wage) when compared to those with beginner language skills. This result is stable across different model specifications. Note that such an earnings gain would bring the median net wage of a Ukrainian refugee (estimated based on the SEIS UNHCR survey in chapter 2) from 80% to 98% of the median in the economy as a whole (or from 80% to 93% according to Ukrainian refugee's median in the NBP's 2024 survey), almost closing the gap to the economy as a whole in these terms. It is in fact higher than the PLN 500 median net wage premium of the pre-war Ukrainian migrants over Ukrainian refugees in the NBP (2024) survey, even though 68% of the former and only 28% of the latter said they had a high level of fluency in Polish.

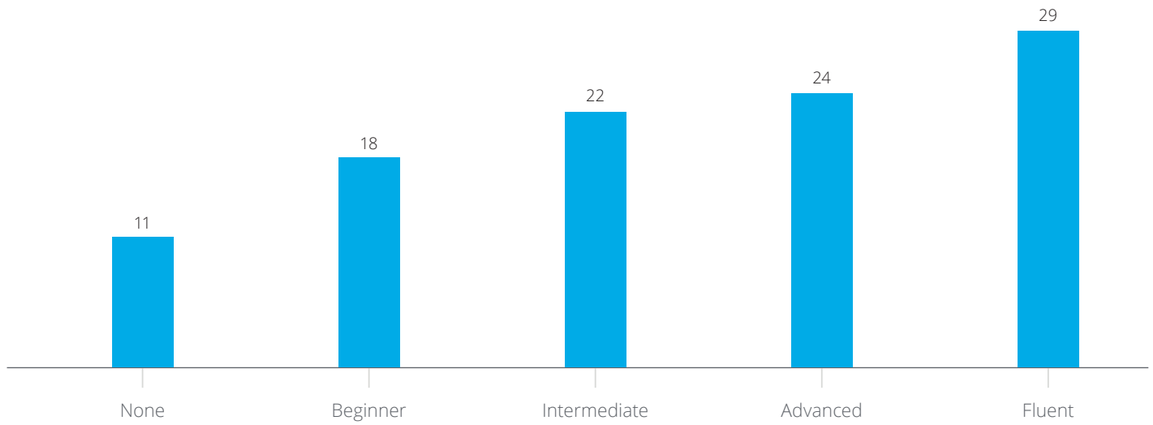
Chart 22. Econometric model of determinants of Ukrainian refugees' net wages



Note: Statistically significant results are given in green. Confidence bars reflect standard errors. Sample has been 833 individuals aged 18-64.
Source: Deloitte own elaboration based on SEIS UNHCR survey.

Ukrainian refugees visibly improve their Polish language fluency over time. In the SEIS UNHCR survey, on average, Ukrainian refugees who said they were fluent in Polish had stayed in Poland for 29 months, while those with an intermediate level – for only 22 months. The results are interesting, especially the fact that the average time required to progress from advanced to fluent language levels was longer than from intermediate to advanced, or beginner to intermediate (although not from zero to beginner). It is likely that the highest level of fluency, which may be required in some of the most attractive occupations, is also the hardest to achieve, and such language courses are not as readily available.

Chart 23. Average number of months since arrival of a Ukrainian refugee by Polish language fluency
N=702, age 18-64



Source: Deloitte own elaboration based on SEIS UNHCR survey.

Chart 24. What Ukrainian refugee groups have weakest Polish language fluency?
Odds ratio of Ukrainian refugees intermediate and below knowledge of Polish language
Logistic regression model

Note: Statistically significant results are given in green. n=681, age individuals aged 18-64.
Source: Deloitte own elaboration based on SEIS UNHCR survey.

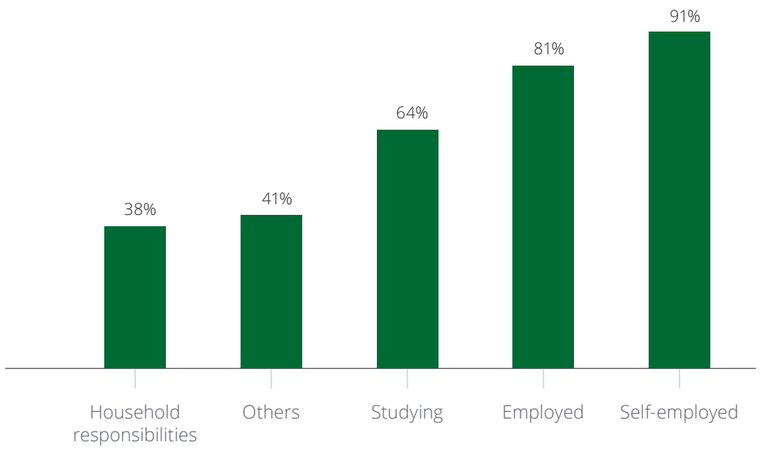
Recently arrived Ukrainian refugees, those with below tertiary education and in older age group are most likely to communicate in Polish at intermediate and lower levels. Based on the SEIS UNHCR survey, a logistic regression has been performed to find out which categories of Ukrainian refugees may most require Polish language improvement.[29] Results show that the odds of only zero to intermediate Polish knowledge decrease with every month since arrival. Ukrainian refugees in the 18 to 29 age group have the lowest odds of having an intermediate or lower level of Polish. It translates into a 38% probability, even lower than the 41% for refugees with tertiary education. The group with the highest odds (70% probability) of zero to intermediate Polish are Ukrainian refugees aged 50 to 64. The results by employment sectors are not statistically significant, other than for manufacturing. The results are intuitive, with the best language skills among refugees working in health and education, and the lowest among those working in construction, other services, and trade.

Addressing the gap in language fluency would yield significant macroeconomic benefits. To illustrate the macroeconomic impact of public intervention, we have assumed that half of the current language gap is addressed, so that the share of working refugees not speaking Polish fluently falls from 82% to 41%. Assuming that the productivity increase corresponds to wage increase, this intervention would add PLN 2.5 billion in value to the economy. This should be considered a lower-bound estimate, as it understates potential benefits. In part, the higher productivity of workers may boost employer profits, further enhanced by increased investment. As far as improved language skills are concerned, we do not anticipate a significant negative impact on wages due to increased competition. Enhancing language fluency is one way to address occupational downgrading. To avoid double counting, we estimated that around PLN 1 billion has been already included in the previously estimated gains from reduced downgrading.

4.4 Persons not previously in employment

Employment rates among Ukrainian refugees are exceptionally high, with only a minority requiring targeted assistance to enter the labour market, in particular those who were not employed before their displacement. In the SEIS survey, employment rates among refugees aged 18-64 previously employed or self-employed in Ukraine, are 81% and 91% respectively. That is already very high and any further increase would be marginal. On the other hand, those who back in Ukraine managed the household have an employment rate in Poland of 38%. Even before becoming refugees, they would have required support to enter the workforce and now, in the host country, they would be likely to benefit from such help even more. Some of them may be discouraged by not having been able to find a job, others may be marginally attached workers who fell outside the labour force, but have some desire and ability to return to work.

Chart 25. Ukrainian refugees' employment rate in the 18-64 age group by previous status in Ukraine



Source: Deloitte own elaboration based on SEIS UNHCR survey conducted in May and June 2024.

A further increase in labour participation of refugees would yield significant macroeconomic benefits. Although the employment rate of Ukrainian refugees in Poland is already high when compared to other countries, there is still room for improvement. Increasing the employment of refugees by 15 thousand people, which would close half of the gap between the employment rate of refugees and Poles, would yield at least PLN 1 billion of value added in the economy. This calculation is made under an assumption that those newly hired would be paid minimum wage and should be considered a lower-bound estimate, as it understates potential benefits. In part, the higher productivity of workers might boost the profits for employers, further enhanced by increased investment.

[29] A dummy variable that takes the value of 1 in case of none, beginner, or intermediate language knowledge, and 0 for other levels has been regressed against a number of explanatory variables.

Analysis of the impact of refugees from Ukraine on the economy of Poland

4.5 Recommendations

Language courses

Ukrainian refugees in Poland earn higher wages when they have higher language skills. There is substantial scientific evidence that language courses improve labour market outcomes of refugees and other migrants. Financing language courses for refugees would generate positive impacts for them and the economy. Courses should be available not just at beginner to intermediate levels, but also for advanced speakers who want to become proficient and gain access to high-skill jobs.

Occupational licensing deregulation

While some occupational licensing rules with regard to Ukrainian citizens were relaxed, further and permanent easing would benefit both the Polish economy and the inclusion of refugees. The low-hanging-fruit are the restrictions referring to citizenship only – rather than actual expertise or language skills – which could be scrapped altogether.

Active Labour Market Policies

Active Labour Market Policies (ALMPs) should focus on Ukrainian refugees who were outside the labour force before coming to Poland. We have demonstrated that Ukrainian refugees who managed the household or engaged in other non-work-related tasks before arriving in Poland, are much more likely to be unemployed. ALMPs could be targeted at supporting this group and increasing its employment opportunities.

Appendix: Modelling strategy

Compared to refugees in other countries, Ukrainians in Poland show high employment rates, making their economic impact more positive and comparable to immigrants in general. Most of the migration economics literature quoted in this appendix refers to all immigrants, not just refugees.

In terms of economic impact, refugees are treated as a subset of all immigrants. Economic literature typically categorises immigrants by their country of birth, regardless of their legal status. Although refugees seek new homes out of necessity rather than for economic opportunity, economic research focuses on their employment rates and other measures of labour market integration, which are usually lower than those of other immigrants and natives (Brell et al., 2020). In this respect, Ukrainian refugees in Poland resemble other immigrants and natives more closely than usual.

This appendix outlines a revised **Deloitte D.Climate** general equilibrium modelling strategy compared to the previous Deloitte (2024) report, accounting for the impact of Ukrainian refugees on productivity. Over the past two decades, research by academic economists has shown that viewing immigration solely through the lens of supply and demand severely constrains our understanding of the process (Peri, 2016). Such a model suggests that immigration increases economic output but has negative labour market effects due to increased competition for jobs among workers. However, little of these theoretical negative labour market effects can be seen in empirical data. This is because immigrant workers encourage further specialisation among native workers and firms, which increases productivity and offsets the negative effects. The same effects can be expected in the case of refugees entering the Polish labour market – besides increasing labour supply and competing with Polish workers, they provide new skills, ideas, and allow Polish workers to specialize in higher value-added tasks. These effects were included in the estimates of the impact of Ukrainian refugees on Polish GDP by Monitor Deloitte (2022) and Oxford Economics (2022), but these estimates were based on literature rather than Polish empirical data. In Deloitte's 2024 study, these effects were omitted due to a lack of empirical data with which to calibrate them specifically. This study uses available data, albeit limited, to create a conservative scenario that includes positive impacts on productivity.

"Canonical model" and recent advances

Including a productivity shock will allow us to address the limitations of the "canonical model" of immigration. Peri (2016, 2014) refers to the framework that economists typically used to analyse migration in the 1980s and 1990s as the "canonical model". In this model, immigration is simply a shift in the labour supply for a given labour demand and given labour supply of native workers. It is also assumed that immigrants and natives are essentially identical in that they enter the same occupations and perform the same tasks, while firms do not adjust production technologies. In effect, immigrant workers have a positive impact on output, but a negative impact on wages, employment and activity of natives, and positive – on unemployment. However, this is difficult to reconcile with empirical evidence. Peri (2014) reviewed 27 empirical studies on the effect of immigration on natives' wages, showing minimal impacts evenly distributed around zero. All estimates showed an adjustment to a 1 percentage point increase in the share of immigrants in a labour market of between -0.8% and +0.8% of the average native wage. In fact, 70% of estimates were between -0.1% and +0.1%.

Two theories have been put forward in the literature to explain this:

01. Immigrants and natives differ in terms of skills, occupational experiences, contact networks and work tasks. Hence, they are not in direct competition. Typically, immigrants take on tasks previously performed by natives, who move to higher-value-added tasks in the process known as "**occupational upgrading**" (Beerli and Peri, 2018; Tabellini, 2020; Cattaneo et al., 2015; Foged and Peri, 2016; D'Amuri i Peri, 2014; Ortega and Verdugo, 2014; Peri and Sparber, 2009).

02. Firms recognise changes in the abundance of skills in the labour force resulting from immigration and adjust their production technologies accordingly. They thereby increase the productivity of these skill groups and themselves (Peri, 2016; Lewis and Peri, 2015; Lewis, 2013; Peri, 2012). This theory is called "**directed technical change**" by Acemoglu (2002). Firms adopt production technologies that favour skills that have become abundant (and thus cheaper) in the labour force. This increases their productivity and offsets the negative effects of competition between workers. In the late eighteenth and early nineteenth centuries, firms in English cities engaged in unskilled technical change in response to an influx of unskilled workers from the countryside and Ireland. In the post-war United States of the twentieth century, skilled technical change occurred as the proportion of college-educated workers grew rapidly.

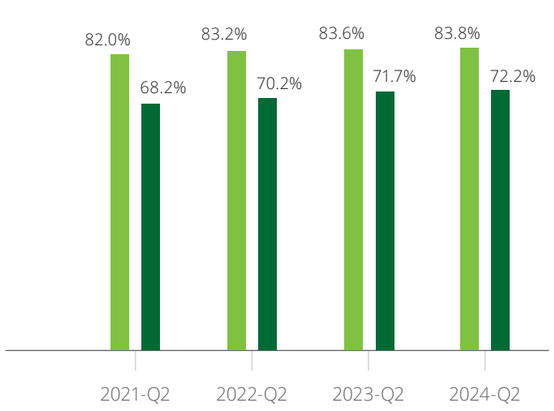
In effect, immigrants increase not just the size of the economy, that is the gross domestic product, but its productivity as well. While this has been well documented on the macroeconomic level, showing the existence of the effect, the exact channels remain unclear. Jaumotte et al. (2016) in an IMF report show that an increase of 1 percentage point in the share of immigrants in the adult population increases GDP per capita by 2% in a sample of 18 developed OECD countries during the period from 1980 to 2010. It should be noted that this model would yield much higher estimates for Ukrainian refugees than those presented in this appendix, given that they currently constitute 2% of Poland's adult population. Aleksynska and Tritah (2015) found that a 1 percentage point increase in the rate of immigration increased GDP per capita growth by 0.3 percentage point in a sample of 20 developed OECD countries during the 1960–2005 period. Peri (2012) in a seminal paper, estimates that a 1 pp increase in the immigrant share raises labour productivity by 0.9% and TFP by 1.4%, using a sample of U.S. states from 1960 to 2006.

Productivity shock rationale

As Ukrainian refugees entered the labour market, the economy adapted in line with expectations based on scientific literature, resulting in greater specialisation and higher productivity. In a simplistic supply-demand framework akin to the "canonical model", the influx of Ukrainian refugees should have caused some Polish workers to become unemployed or leave the labour force, or real wages to fall. Even in the Deloitte D.Climate model, Ukrainian refugees add 0.4 percentage points to the unemployment rate and lower real wages by 1.35% in 2024 when it is not counterbalanced by an additional positive productivity shock. However, this is not what we observe in empirical data. First, Polish citizens employment rates have grown, and unemployment rates have fallen. Second, poviats in which the employment share of Ukrainian refugees has grown by 1 percentage point, experienced higher by 0.5 percentage point Polish citizens employment rates, and 0.3 percentage point lower unemployment rates. Third, there is no evidence of lowered wages; in fact, the limited available data suggests that Ukrainian refugees may have caused higher wage growth in poviats to which they have moved. These are common findings in the scientific literature quoted in the previous section, that as immigrants enter the labour market, native workers tend to specialise in higher-value, complementary tasks. This is evident in Polish workers moving to more attractive occupational groups. This constitutes a positive productivity shock, counterbalancing labour market pressures.

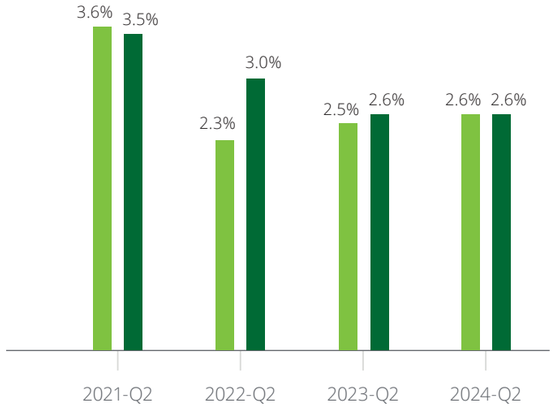
First, the employment rate of Polish citizens has been growing since the Ukrainian refugee influx, while the unemployment rate has been falling. This is particularly evident among women, who make up the majority of refugees. The employment rate for women aged 20-64 has grown consistently from 68.2% in Q2 2021 to 70.2% in Q2 2022, 71.7% in Q2 2023, and 72.2% in Q2 2024 (see Chart 26). The unemployment rate for women aged 20-64 has consistently fallen, from 3.5% in Q2 2021 to 3.0% in Q2 2022, 2.6% in both Q2 2023 and Q2 2024.

Chart 26. Polish citizens employment rate
Eurostat survey data, 20-64 age group



Source: Deloitte own elaboration based of Eurostat data (Labour Force Survey).

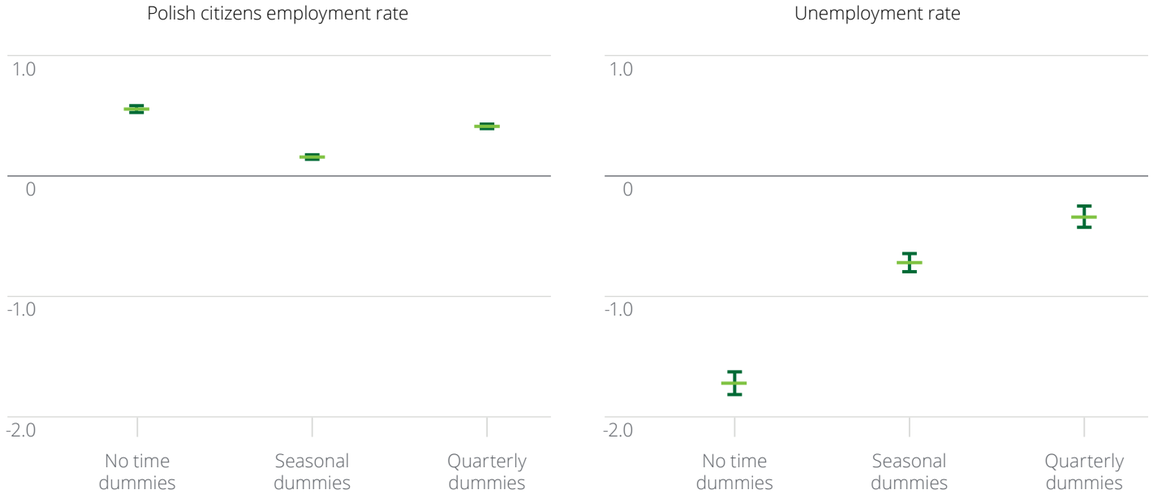
Chart 27. Polish citizens unemployment rate
Eurostat survey data, 20-64 age group



Source: Deloitte own elaboration based of Eurostat data (Labour Force Survey).

Second, panel regression analysis shows that a larger influx of Ukrainian refugees at the poviat level was accompanied by a larger increase in employment rates for Polish citizens along with a larger decrease in registered unemployment rates. The data sample for all regressions encompassed quarterly data for all 380 poviats from Q1 2022 to Q2 2024. The Ukrainian refugee share variable was constructed as the share of Ukrainian refugees among all employed, temporarily employed, and self-employed persons insured with ZUS in a given poviat at the end of the quarter. The employment rate of Polish citizens was constructed as the share of Polish citizens who are employed, temporarily employed, and self-employed and who are insured with ZUS, divided by the population from GUS in a given poviat in a given quarter (estimated based on half-year population data). The unemployment rate is the registered unemployment rate series from GUS. Fixed effects panel regressions show that an increase in the employment share of Ukrainian refugees by 1 percentage point correlates with an increase in Polish citizens' employment rates by 0.5% and a decrease in the unemployment rate by 0.3%, in the preferred specification with dummy variables for all quarters. All results are statistically significant at a 0.01 level.

Chart 28. Effect of a 1 pp. change in employment share of Ukrainian refugees on
Panel model of all 380 poviats quarterly data from Q1 2022 to Q2 2024. Results are statistically significant at a 0.01 level.



Source: Deloitte own elaboration based on GUS and ZUS data. All continuous variables have been regressed in first differences to account for non-stationarity Polish citizens employment rates and registered unemployment rates. For details see the Online Technical Appendix.

The above results do not distinguish between Ukrainian refugees improving the labour market outcomes in the poviats they arrived in and Ukrainian refugees disproportionately moving to the poviats with better performance, which continued to perform better in subsequent quarters. This distinction is mostly academic, as causality is always uncertain in social sciences, as effects can run both ways. However, instrumental variable regressions have been performed to ascertain causal effects. This approach is widely used in studies focused on the impact of migration on socio-economic outcomes. This econometric technique additionally uses variables that correlate well with Ukrainian refugees' employment shares, but do not directly cause changes to the Polish citizens' employment rate or to the unemployment rate. Two variables have been used: the first was the share of Ukrainian children in Polish schools, and the second was the pre-war distribution of Ukrainian citizens based on notifications of entrusting work to a foreigner. Unfortunately, panel fixed effects regressions with quarterly dummies showed statistically insignificant results for either instruments or both. In addition, regressions using only the instrumental variable for the distribution of pre-war Ukrainian citizens reveal only a modest link to the employment share of Ukrainian refugees.

Similarly to the above results, an early analysis by Gromadzki and Lewandowski (2023) found no impact on the employment rate or unemployment rate. In a peer-reviewed scientific article, they examined the impact of Ukrainian refugees on the labour market outcomes of Polish women from January to April 2022 (as most Ukrainian refugees are female). They found that the proportion of Ukrainian refugees in a given poviat had no statistically significant impact on the employment rate or unemployment rate of Polish women.

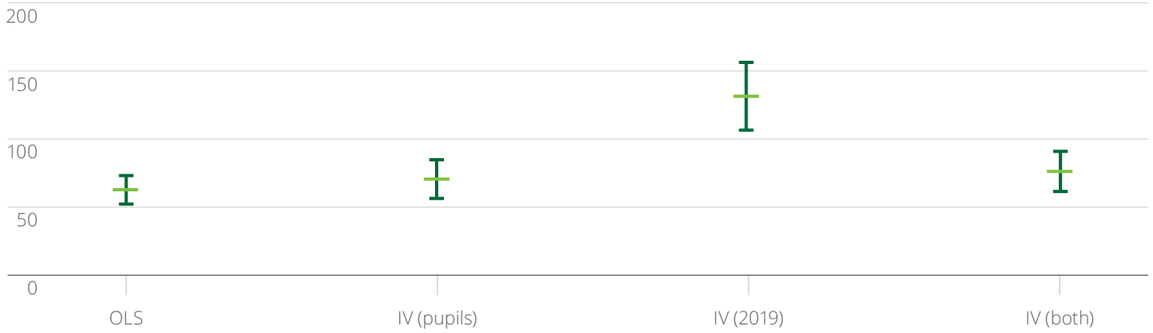
Third, cross-section regression analysis shows that poviats with a higher number of Ukrainian refugees saw a greater increase in wages, which was caused by larger share of refugees in local employment. Due to limitations in the wage dataset, our calculations incorporated yearly data. Cross-section models were estimated using a data sample for all 380 poviats in 2023. The share of Ukrainian refugees among all employed, temporarily employed, and self-employed persons insured at ZUS in a given poviat was averaged across quarters to construct a yearly variable. The wage variable is the GUS data series on gross monthly wages and salaries[30], and taken as nominal change in 2023 from 2022. The ordinary least squares cross-section model shows that in 2023, a 1 percentage point increase in the employment share of Ukrainian refugees was associated with an increase in wages of PLN 66. Given that in a mean poviat gross wage growth amounted to PLN 757 and the gross wage in the previous year was PLN 5,803, wages have grown by 13.1% in nominal terms (including inflation), of which 0.7 percentage points were associated with Ukrainian refugees (considering the fact that the employment share of the Ukrainian refugees in a mean poviat was 0.61%).

Instrumental variables regressions were performed with the Two Stage Least Squares technique. In the first stage, it adjusts for the non-random distribution of Ukrainian refugees across poviats, and in the second stage, it calculates the models. These results can be interpreted causally. The two previously mentioned instruments were used and yielded statistically significant results, as well as passed statistical tests on their appropriateness for instrumenting the employment share of Ukrainian refugees. One instrument is the share of Ukrainian children in Polish schools, and the other is the distribution of Ukrainian citizens across Poland in 2019, as recorded in declarations of intent to employ foreign workers. The results are similar to the OLS estimation; however, when the second instrument is used without the first one, it gives a higher result. Instrumental variables regressions show that in 2023, a 1 percentage point higher employment share of Ukrainian refugees caused a PLN 70 higher wage growth (0.7 pp.) when instrumented by school pupils' share, PLN 132 (1.4 pp.) when instrumented by 2019 Ukrainian workers distribution, and PLN 75 (0.8 pp.) when both instruments were used. That said, the results should be treated with caution, as the instruments used may not be sufficiently exogenous to allow for fully credible causal inference.

The early analysis by Gromadzki and Lewandowski (2023), mentioned previously also found a statistically significant effect of Ukrainian refugees on earnings. In their estimation, the share of the Ukrainian refugee population had a small positive and statistically significant relationship with the earnings of Polish women at a 0.1 level. Their results for foreign women were also positive, albeit smaller and lacking statistical significance.

[30] Unfortunately, GUS data for these time periods and poviat level include the enterprise sector (firms that employ 10 or more persons) and public sector, which is most of the labour market, but not the total economy.

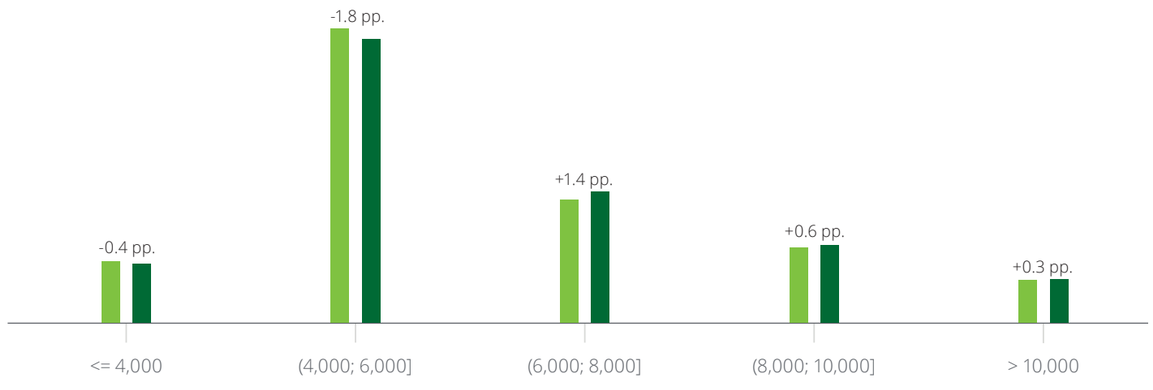
Chart 29. Effect of a 1 pp. change in employment share of Ukrainian refugees on gross wage change
Cross-section model of all 380 poviats in 2023. Results are statistically significant at a 0.01 level.



Source: Deloitte own elaboration based on GUS and ZUS data, as well as data for instrumental variables from Public Employment Services Portal and Open Data governmental portal. OLS is the standard Ordinary Least Squares model, IV are Instrumental Variables Two Stage Least Squares models with instrumental variables of the share of Ukrainian pupils in Polish schools, distribution of Ukrainians from declarations on entrusting work to a foreigner in Poland in 2019, or both. For details see the Online Technical Appendix.

Furthermore, consistent with a positive productivity shock, Polish citizens have been moving to better-paid occupations – as predicted by the theory of occupational upgrading (e.g., Beerli and Peri, 2018; Foged and Peri, 2016; Peri and Sparber, 2009). Deloitte has acquired quarterly data on the occupational groups of Polish citizens who are insured with ZUS from Q1 2022 to Q2 2024. This data is not exhaustive as ZUS only began requiring such information in 2021, so the sample size is still growing. However, it is large enough to allow for some cautious inference with 4.2 million Polish citizens in mid-2022 and 6.2 million in mid-2024. This has been combined with average salaries in 128 occupational groups in GUS data for October 2022 (the most recent data). Over the two-year period from Q2 2022 to Q2 2024, following the arrival of Ukrainian refugees, the occupational group distribution of Polish citizens shifted towards higher-paid occupational groups. The share of Poles in the two lowest salary brackets (earning less than gross PLN 4,000 and PLN 4,000-6,000 in 2022) decreased by 0.4 and 1.8 percentage points, respectively, while the subsequent higher salary brackets increased by 1.4 pp. (PLN 6,000-8,000), 0.6 pp. (PLN 8,000-10,000), and 0.3 pp. (above PLN 10,000) (see Chart 30).

Chart 30. Polish citizens occupational distribution change by salary bracket, Q2 2022 and Q2 2024
Q2 2022 distribution, Q2 2024 distribution, and percentage point changes between them

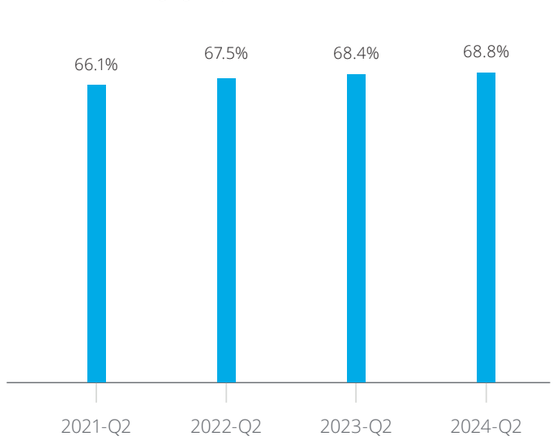


Source: Deloitte own elaboration based on ZUS data and GUS data on salaries of 128 3-digit occupations in October 2022. Note that ZUS data is not comprehensive.

Model calibration

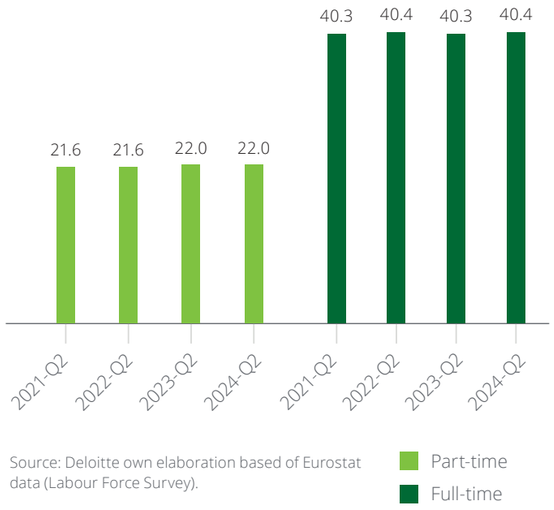
We introduce a positive productivity shock into the Deloitte D.Climate model, reflecting empirical findings that refugee inflows coincided with stronger labour-market outcomes, to offset any potential adverse effects. Although higher employment rates among Ukrainian refugees correlate with improved job and wage outcomes for Polish citizens, we take a deliberately conservative approach in our general equilibrium simulations. While descriptive statistics and econometric estimates point in a positive direction, the available data remain too sparse for firm conclusions.[31] On the other hand, a default Deloitte D.Climate model estimation is in line with the previously mentioned canonical model. This yields a 1.35% decrease in wages and a 0.4 percentage point increase in the unemployment rate, which is implausible. Therefore, a positive marginal productivity of labour shock has been added to the model and calibrated to eliminate the impact on the unemployment rate throughout the simulation years of 2022, 2023, and 2024. While it is possible that the unemployment rate could fall despite the influx of Ukrainian refugees due to factors other than productivity growth, this is unlikely. Any negative impact could only arise if other workers left the labour force or reduced their working hours. No evidence of this is seen in recent Eurostat's Labour Force Survey data for the Polish economy, where activity rates continued to grow, while the average number of usual weekly hours worked in full- and part-time employment remained fairly stable, particularly for women (who should be closer substitutes for Ukrainian refugees, most of whom are also women; see charts below).

Chart 31. Labour market activity rates
Women in 15-64 age group



Source: Deloitte own elaboration based of Eurostat data (Labour Force Survey).

Chart 32. Average weekly hours in main job
Women in 15-64 age group



Source: Deloitte own elaboration based of Eurostat data (Labour Force Survey).

[31] Deloitte has not received data that would be detailed as to citizenship, poviat, sex, age group, occupational group, and ZUS insurance code that would be suitable for econometric approach.

Deloitte D.Climate,[32 33] is a general equilibrium model that uses consumer and producer optimisation to calculate changes in the economy in response to shocks. This enables the impact of shocks to be assessed by considering supply and demand channels as well as connections between different sectors of the economy. It provides information on the total impact of shocks on various aspects of the economy, including the labour market, government revenue, as well as key economic aggregates. It is the most appropriate tool for accounting for the multi-layered impact of Ukrainian refugees. A counterfactual analysis was performed using the latest data on the Polish economy to account for the effects of other shocks in the economy. The model enabled a counterfactual analysis to be conducted by isolating the refugee influx from all other economic shocks, e.g. the other macroeconomic consequences of the war in Ukraine. The results were calculated for 2022, 2023 and 2024 with an additional long-term analysis up to 2030 to assess the economy's long-term adaptation (assuming no new shocks, including no counter-shocks[34]).

In the model, shocks were calibrated using data for 2022-2024. In the case of 2022, we adjusted the data to reflect refugee arrivals after February, fixing their share at roughly 2.6 percent of the population per PESEL registry figures. We then calibrated refugee employment to match the NBP's 2022 survey (NBP, 2024), the UNHCR's 2023 MSNA, and the 2024 SEIS survey - implying their employment share rose from 1.5 percent to 2.4 percent of total employment in Poland. To keep the regional labour supply balance, equivalent offsets were applied in the broader Eastern Europe aggregate.[35] Furthermore, it was assumed that refugees have higher spending needs and thus a lower saving rate than other earners in Poland for 2022 and 2023. Moreover, according to National Bank of Ukraine data, the consumption of Ukrainian refugees has been partially financed by savings in Ukrainian banks in 2022 and 2023, which was modelled as them having a negative saving rate, while being offset by lowering investment levels in Eastern Europe.[36] By 2024, it was assumed that their situation on the labour market had stabilised and that there had been no further changes in their savings.

[32] Economics of climate change | Deloitte Australia
[33] https://www2.deloitte.com/pl/pl/pages/risk/solutions/analiza-ryzyk-klimatycznych-badanie-scenariuszy-z-modelem-DClimate.html34
[34] E.g. refugees keep having lower productivity rather than adapt to level of natives.
[35] Aggregate region in the D.Climate model, that consists of Ukraine, Russia, Belarus, Moldova, Czechia, Slovakia, Hungary, Romania, and Bulgaria.
[36] In other words, it was assumed that money that would be spent e.g. through credit action for investments in Eastern Europe were spent for consumption in Poland.

Glossary

GUS – Główny Urząd Statystyczny, Polish statistical office, also known as Statistics Poland.
LFS – Labour Force Survey, Eurostat labour market survey conducted by national statistical offices.
MSNA - Multi-Sector Needs Assessment, a 2023 UNHCR survey of refugees from Ukraine.
PESEL/PESEL UKR - Powszechny Elektroniczny System Ewidencji Ludności, Universal Electronic System for Registration of the Population. An ID number of every Polish citizen. **PESEL UKR** is a version issued to Ukrainian citizens in connection with the armed conflict in the territory of that country.
Poviat – a middle tier of sub-central government in Poland between voivodship (province) and gmina (commune) level.
Pre-war Ukrainian migrants – persons who migrated from Ukraine, primarily for economic reasons, before the full-scale Russian invasion of Ukraine in February 2022.
SEIS – Socio-Economic Inclusion Survey, a 2024 UNHCR survey of refugees from Ukraine as a follow-up to MSNA from the year before.
Ukrainian refugees – persons fleeing Ukraine after the full-scale Russian invasion in February 2022, covered by EU's Temporary Protection Directive.
ZUS – Zakład Ubezpieczeń Społecznych, Polish social security administration, also known as Social Insurance Institution.

List of charts and tables

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