Employment outcomes of Ukrainian refugees based on country-specific factors

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Abstract

This research aims to achieve two main objectives: firstly, to compile a comprehensive data profile of Ukrainian refugees residing in the EU and Schengen countries under temporary protection schemes, and secondly, to understand the relationship between refugee-specific and host country-specific characteristics and their employment outcomes. Specifically, the study focuses on examining the impact of financial aid provided by the respective governments on the refugees' employment prospects, including their likelihood and speed of finding employment, as well as the extent to which their skills match the positions they obtain.

To accomplish these goals, the research methodology utilizes a combination of statistical techniques, including Ordinary Least Squares (OLS), post-LASSO (Least Absolute Shrinkage and Selection Operator), and double Machine Learning (ML). These methods help generate robust and nuanced findings regarding the employment outcomes and destination choices of Ukrainian refugees.

In addition to exploring employment outcomes, the study also investigates several hypotheses related to the destination country choices of Ukrainian refugees. Specifically, it examines whether refugees who have more financial resources when they flee tend to migrate to countries that are farther away from Ukraine.

By employing a comprehensive methodology that incorporates OLS, post-LASSO, and double Machine Learning techniques, this study aims to provide valuable insights and recommendations for policymakers and practitioners involved in refugee resettlement. The ultimate goal is to enhance the effectiveness of temporary protection schemes and promote the economic and social integration of refugees in their host communities. The data analysis reveals significant insights into the employment outcomes and destination country choices of Ukrainian refugees. The majority of respondents fall within the age range of 30 to 45, with a considerable proportion holding a master's degree or higher. Surprisingly, language skills, such as proficiency in English and the local language, did not significantly impact employment outcomes. However, the study indicates that Ukrainian refugees are more likely to choose countries further away when they have more financial resources due to higher travel costs. Additionally, belonging to the Slavic group in the host country significantly in-

creases the probability of finding employment for Ukrainian refugees. The findings emphasize the need for policymakers and practitioners to enhance temporary protection schemes and promote economic and social integration in host communities. It is essential to consider the factors influencing employment outcomes and destination country choices to provide targeted support and maximize the refugees' potential contributions to the host country's economy.

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I can not even begin to express my gratitude and pride for the nation of Ukraine without whom I would never have had the privilege of being able to study, conduct research and live peacefully in the past year.

Last but not at all least, I want to thank Richard Ruston who in these past three years has been carrying parts of the weight that has fallen on me when I could not.

Contents

1 Introduction to the problem

The 2022 Russian invasion of Ukraine led millions of people out of their homes and cities, with as many as 8,183,357 seeking refuge across Europe and 5,065,235 registered in the temporary protection or corresponding nation-specific schemes(1). The UNHCR estimates show that 63% of the refugees interviewed were planning to stay in the host country in the near future.

Figure 1: Distribution of Urgent Needs According to the Ukrainian Refugees who have taken the UNHCR survey

Source: UNHCR Operational Portal for the Ukraine Emergency

Of those who participated in the survey, 36% identified employment as their most pressing need, while 47% reported holding a university degree.

Irrespective of the future developments of the war, a substantial number of refugees are expected to remain in the host countries in the upcoming years and will require resources to support themselves and integrate into the local societies. Although many possess the required skills to make a significant contribution to the host country's economy, some may be compelled to accept any available job due to financial urgency, rather than focusing on language proficiency and pursuing opportunities that align with their education and background.

Current research made on this topic only covers basic descriptive statistics of Ukrainian refugees as a group and usually concentrates on one host country as opposed to the whole area proposed in this research. Moreover, none of the research known to the author so far examine the people who managed to remain in the job position they had before the full-scale invasion and are, thus, still

working remotely in Ukraine, while consuming good and services in the host country and paying consumption taxes. This research estimates that to be at the level of 16.5% of the working age refugees.

This research aims to address the primary objective of examining the relationship between refugee-specific and host country-specific characteristics and their employment outcomes. Specifically, the study focuses on investigating the impact of financial aid provided by the respective governments on the refugees' employment prospects, including the likelihood and speed of finding employment and the degree to which their skills align with the positions they obtain. The financial aid is measured in EUR per month. By May 2023 out of the respondents' sample, only 38.9% kept consistently receiving financial aid, and 18.3% never received it to begin with.

To achieve these objectives, the research methodology employs a combination of statistical techniques, including Ordinary Least Squares (OLS), post-LASSO (Least Absolute Shrinkage and Selection Operator), and double Machine Learning (ML). By employing these methods, the study aims to generate robust and nuanced findings regarding the employment outcomes.

In addition to exploring employment outcomes, the study also investigates a hypothesis related to the destination country choices of Ukrainian refugees. Specifically, it examines whether refugees with more financial resources at the time of fleeing tend to migrate to countries that are farther away from Ukraine.

The present literature does not sufficiently cover the impact of financial aid on employment outcomes, as prior to 2022 there were not too many cash payment programs involved in refugee integration of such scale, and for those that took place there was no variation in the sums paid out. Ghida Imad El Kaissi in their thesis "The Effect of Multi-Purpose Cash Assistance Eligibility on Labor Outcomes of Syrian Refugees" covers an assistance scheme called the MultiPurpose Cash Assistance constructed by WFP and UNHCR and its effect on employment of Syrian refugees. It concluded that the program had a significant effect on the desire to work overtime.

The greatest challenge of this research is data collection as there is at this moment no consolidated

data on this matter. Therefore, the researcher is conducting a survey and spreading it through public channels of Ukrainian refugees' communication in different countries.

2 The survey data

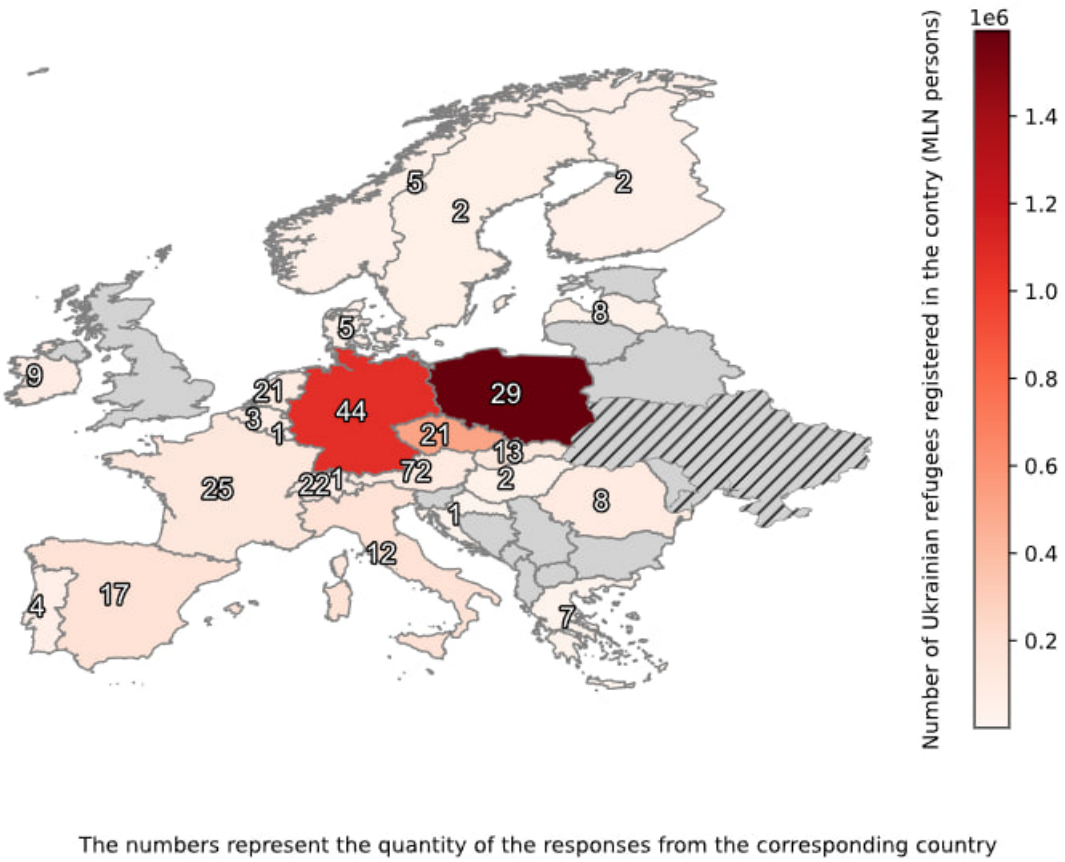
The data collected for the research through the survey include:

- General personal information (age, gender, employment history one year prior to the full-scale invasion (salary, position level, field of work, hours worked per week), education, financial assets available to the person at the moment of February 2022 and at the moment of February-March 2023, prior language skills) to control for non-treatment effects.
- Treatment participation (amount of financial aid received)
- Regional information (host location)
- Outcome variables (speed and quality of employment, language skills gained during the asylum)

As of the time of this analysis, the survey has garnered a total of 340 responses, each representing a distinct refugee. The following figure depicts the map of the studied region with darker colours representing more registered Ukrainian refugees in the respective country according to the UNHCR estimates, the numbers depict the number of survey responses.

The distribution of the respondents does not align with the actual distribution of Ukrainian refugees across Europe. However, this would not pose a threat to the quality of this research if the number of responses was sufficient to be representative in every country.

Figure 2: Distribution of Registered Ukrainian Refugees and Survey Responses across European Countries

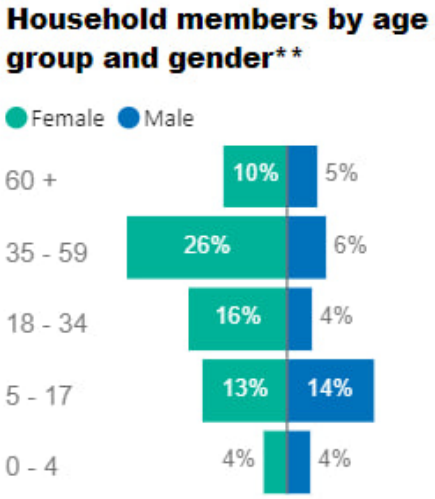


The age distribution of the surveyed refugees aligns with the UNHCR information, with the majority of respondents falling between the ages of 20 and 50. As seen in the age distribution plot below, the peak age range is between 30 and 45 years old, followed closely by the 20-30 age range. Among the respondents, 88.5% identified themselves as female and 10.9% as male, while 0.6% identified as non-binary. This is a significantly higher level of female refugees compared to UNHCR data (69%). However, since this research covers the topic of employment, the survey was directed at people participating in the labour force. For the survey, the age of 18 or above was required and in that age category, the UNHCR estimates are significantly closer to the survey sample (77.6%).

However, the education distribution plot depicts significant discrepancies. While the UNHCR reports that only approximately 15% of Ukrainian refugees have a university degree, the surveyed

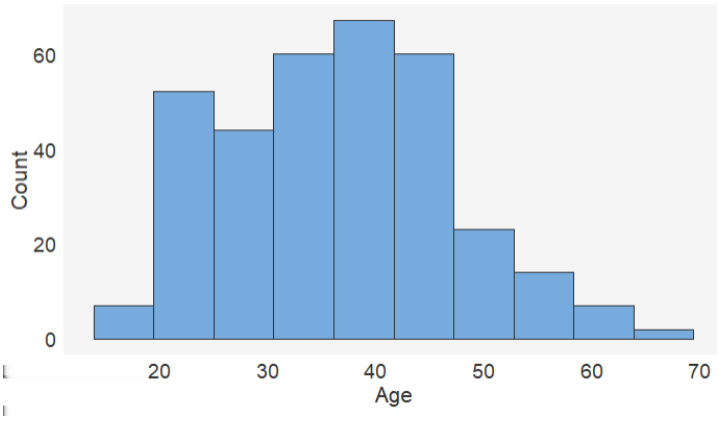
sample shows the vast majority holding a master's degree or higher, as seen in the plot. These differences may potentially introduce a selection bias, which could be attributed to the fact that the survey was conducted online.

Figure 3: Age Distribution of Registered Refugees across Europe



Source: UNHCR Operational Portal for the Ukraine Emergency

Figure 4: Age Distribution of Surveyed Refugees



Other factors such as the presence of a job in the last year before fleeing, family composition, and the proportion of women in the sample appear to be in line with the information provided by the United Nations High Commissioner for Refugees (UNCHR). These factors are important in understanding the background and characteristics of the refugee population and can provide valuable

insights for policymakers and aid organizations. However, it should be noted that the sample selection bias, which may be influenced by the online survey distribution method, could impact the representativeness of the sample and should be taken into account when interpreting the results.

Figure 5: Education Distribution of Surveyed Refugees

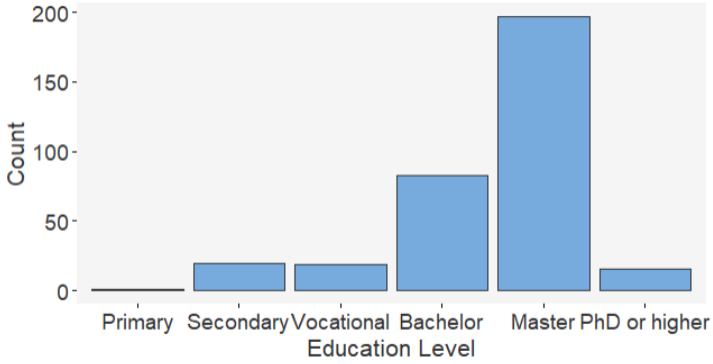


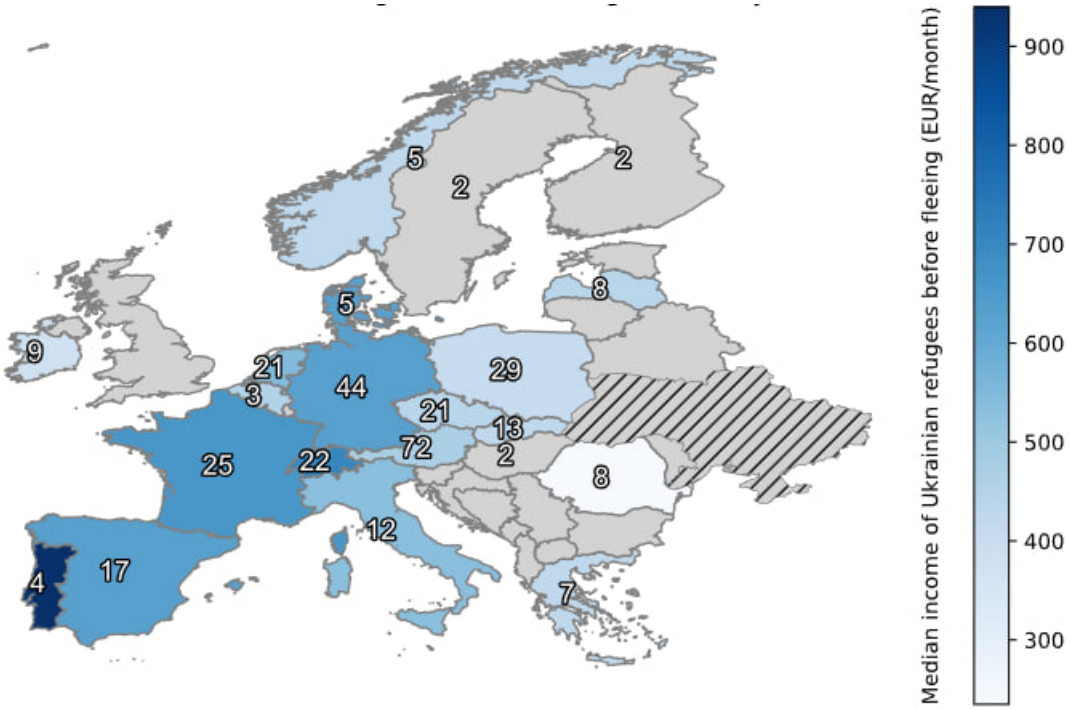
Figure 6: Distribution of Highest Received Level of Education among Ukrainian Refugees in Europe

Source: UNHCR Operational Portal for the Ukraine Emergency

3 Choice of Destination Country Based on Assets Available at the Moment of Fleeing

The following graph depicts the distribution of Ukrainian refugees' income prior to fleeing among host countries. The darker shade of blue corresponds to a higher median level of income of the refugees who accepted the temporary protection status in the corresponding country. The median income is measured in 2022 EUR per month.

Figure 7: Distribution of Ukrainian Refugees' Income Prior to Fleeing among Host Countries



The numbers represent the quantity of the responses from the corresponding country

The graph above provides evidence to support a hypothesis, which suggests that Ukrainian refugees with more resources at the time of leaving Ukraine tended to choose countries that were further away from Ukraine compared to those with more limited savings. The figure shows a clear positive connection between the distance of the destination country from Ukraine and the financial resources available to the refugees at the time of leaving Ukraine. This finding supports the idea that refugees

with more resources may be more likely to choose countries that are further away due to the higher cost of travelling to distant destinations. Overall, this graph confirms that the distance of the destination country is likely influenced by the financial resources available to the refugees at the time of their departure and when presented with possibilities, a desire to spread across Europe more evenly in search of better conditions in the conditions of a refugee crisis. However, it is also possible that this could be explained through personal connections to prior Ukrainian immigrants who were residing in more distant countries.

While a regression model may shed more light on the relationship between resources and destination choice, accurately measuring distance poses a challenge in a well-connected world. Basic measures of distance, such as geographic distance, may not fully capture the actual difficulty of travel.

4 The Likelihood of Securing a Job in the Host Country

Table 1 displays the findings from three regression models, all using a binary dependent variable. The dependent variable is represented by a dummy variable that equals 1 if the individual surveyed secured a job in the host country at the time of the survey and 0 otherwise. The models differ in their selection of independent variables and approaches. The first set of variables was determined by the author based on suggested hypotheses, the second set was selected through a post-LASSO simulation with the optimal tuning penalty parameters subsequently used in an OLS, which is done to decrease the personal bias from the variables selection. The final specification follows a double machine learning approach with LASSO.

All three models indicate that higher financial aid, on average, decreases the probability of a Ukrainian refugee securing a job in the first year in the host country. However, some of that effect might be due to the high negative correlation between financial aid and the dummy variable 'slavic', which equates to 1 if the host country's main official language belongs to the Slavic family and 0 otherwise, since these countries, on average, took a much more significant share of the pressure of the crisis and, thus, could not sustain high payment to the refugees.

The first model implies that, on average, an increase in aid (measured in EUR/month) of 100 EUR decreases the probability of the refugee securing a job by 2%, which increases to 3% in the other specifications. However, the LASSO algorithm picks up an interaction term of the financial aid and the host-country belonging to the Slavic family. Essentially, the last two models depict that, on average, an additional 100 EUR per month in aid decreases the likelihood of finding a job in the first year by 3% in non-Slavic countries and by 2% only in the Slavic ones.

The variable "exper" (years of work experience) also does not show a significant relationship with job prospects. This implies that the amount of work experience individuals had prior to the crisis does not significantly affect their chances of finding employment during the first year in the host country. It becomes significant at the 10% in the second specification as an interaction term in combination with age but that appears to not be robust to changes.

The variable 'income before' stands for the total income of the respective refugee in the month prior to the full-scale invasion and is measured in 2022 EUR per month. Its coefficient remains significant through all the specifications at the same level. It depicts that, on average, an additional thousand EUR per month in salary decreases the likelihood of finding a job in the first year by 10%. The magnitude of the coefficient might appear significant; however, it is important to state that out of 340 respondents, only 70 claimed to have had a monthly income of over 2,000 EUR, and only 14 had an income over 3,000 EUR.

The variable 'position before n' (position level before displacement measured as a categorical variable) has a negative coefficient in the second and third models. This suggests that individuals in higher positions before displacement may face challenges in securing a job in the host country during the first year. This could be attributed to differences in job markets, recognition of qualifications, or other factors related to occupational mobility, as well as a possible unwillingness of those people to take low-skill positions and a lesser level of financial urgency.

The significance of the arrival month (numeric values with January 2022 taken as the base (1) and continuing until May 2023 (17)) is explained by the fact that it takes time to find a job.

Other variables such as the dummy variables representing possessing a working knowledge of English (eng before d) and the host country's local language (local before d) appear insignificant through all the specifications. The same applies to the dummy variable 'female', which represents the gender of the respondent, age measured in years, and 'services', which represents the percentage of service industry jobs out of total employment in the host country (a proxy to estimate low-skill labor positions, ILO estimates).

	Dependent variable:		
	found_job		residuals
	(1)	(2)	(3)
income_before	−0.0001**	−0.0001*	−0.0001**
	(0.0001)	(0.0001)	(0.0001)
educ_n	0.006		
	(0.042)		
position_before_n		−0.058**	−0.048*
		(0.027)	(0.026)
age:exper		−0.001*	
		(0.0004)	
aid:slavic		0.001**	0.001**
		(0.0003)	(0.0003)
age	−0.003	−0.002	
	(0.005)	(0.006)	
exper	−0.001	0.029	
	(0.006)	(0.018)	
eng_before_d	0.093		0.043
	(0.069)		(0.064)
local_before_d	0.112		0.182
	(0.127)		(0.119)
female	−0.044		
	(0.101)		
slavic	0.131	−0.042	−0.038
	(0.111)	(0.102)	(0.104)
arrival_month_num		−0.041***	−0.044***
		(0.012)	(0.013)
aid	−0.0002***	−0.0003***	−0.0003***
	(0.0001)	(0.0001)	(0.0001)
services	0.0001		
	(0.006)		
Constant	0.625	1.063***	0.565***
	(0.475)	(0.229)	(0.139)
Observations	244	229	229
R^2	0.082	0.172	0.158
Adjusted R^2	0.043	0.137	0.127
Residual Std. Error	0.485 (df = 233)	0.463 (df = 219)	0.462 (df = 220)
F Statistic	2.079** (df = 10; 233)	5.037*** (df = 9; 219)	5.155*** (df = 8; 220)
Note:			*p<0.1; **p<0.05; ***p<0.01

5 The Speed of Securing a Job in the Host Country

The speed of job placement is calculated as the number of months from the person's arrival in the host country to the start of their job, expressed as a negative value. This is because a higher numerical value indicates a shorter duration of time taken to find a job.

The same algorithm as before is applied: the first model in the table below corresponds to the set of independent variables picked by the author as opposed to the second set picked by the LASSO model, and the third represents the double machine learning method with LASSO.

The results show that older people tend to have a harder time adjusting, which may contribute to a lower speed of job placements as well as the possibility that there are elderly people already in active retirement. However, when the LASSO model was applied with a penalty factor, the age variable was not found to be significant. Surprisingly, the same occurred with the initially more significant (1% level) 'slavic' variable.

The only variable that remains significant in the LASSO setting as well as in the initial one is financial aid, which has a negative impact on the speed of finding a job. This can be explained by a lower sense of financial urgency. However, an increase in monthly payments by 100 EUR on average leads to a decrease in the speed by 0.3 months, which only amounts to slightly more than a week.

The sample limitations apply even more strongly to these regressions as the speed of finding employment can obviously only be estimated for the people who manage to find such.

	Dependent variable:		
	speed_of_job		residuals
	(1)	(2)	(3)
savings_before	−0.00002		
	(0.0001)		
age	−0.090*		
	(0.048)		
educ_n	−0.243		
	(0.342)		
exper	0.088		
	(0.053)		
eng_after_d	−0.274		
	(0.667)		
local_after_d	−0.953		
	(0.576)		
female	−0.260		
	(0.827)		
nordic	0.780		
	(1.146)		
slavic	1.775***		
	(0.652)		
aid	−0.003***	−0.003***	−0.003***
	(0.001)	(0.001)	(0.001)
savings_after		−0.00001**	−0.00000
		(0.00000)	(0.00000)
Constant	1.345	−2.159***	0.778**
	(1.841)	(0.352)	(0.352)
Observations	134	134	134
R^2	0.167	0.102	0.080
Adjusted R^2	0.099	0.088	0.066
Residual Std. Error	3.039 (df = 123)	3.057 (df = 131)	3.057 (df = 131)
F Statistic	2.461** (df = 10; 123)	7.440*** (df = 2; 131)	5.692*** (df = 2; 131)
Note:			*p<0.1; **p<0.05; ***p<0.01

Table 2: Factors Affecting Speed of Job Finding

6 The Match of the Job and the Qualifications

The match between the person's career back in Ukraine and in the host country is estimated in this case as a dummy variable which is equal to 1 if the field of work remained the same and 0 if it became different. Imperfect as it may sound, it appears that a big share of Ukrainian refugees shifted to low-skill positions in the service industry regardless of what they used to do at home and at what level their career was at that moment.

This way, the share of respondents who worked in the service industry back in Ukraine increased from 6.5% to 16.4% abroad, and the share of respondents who worked in the hospitality sector increased from 2.7% to 23.9%. Thus, the match estimate depicts rather the possibility of avoiding that downgrade and being able to proceed with your previous career forward.

According to the table of results, the variable 'speed of job' has a coefficient estimate of 0.005 ($p > 0.1$), indicating that the speed at which individuals found a job in the host country does not have a statistically significant effect on the match of their job. This suggests that the time it took to secure employment did not have a significant impact on the likelihood of finding a job in the same field as their previous career in Ukraine.

Interestingly, the variable 'exper' (measured in years) has a coefficient estimate of 0.017 ($p < 0.05$), indicating a positive and significant association with the match of job. This suggests that individuals with more experience have a higher likelihood of finding a job in the same field as their previous career. Each additional year of experience increases the odds of job matching by 1.7%. However, it is worth noting that the LASSO method, used for variable selection and regularization, has shrunk the coefficient for 'exper' to zero, along with all other variables. As a result, the post-LASSO and double ML models were excluded from the table. This implies that none of the variables considered in the analysis provided substantial explanatory power for the match of job, and including them in the model did not improve its overall performance.

	Dependent variable:
	match_of_job
savings_before	0.00001
	(0.00001)
age	−0.009
	(0.007)
exper	0.017**
	(0.009)
eng_after_d	0.166
	(0.105)
local_after_d	−0.034
	(0.091)
female	0.192
	(0.129)
educ_n	−0.003
	(0.051)
nordic	0.241
	(0.161)
slavic	−0.209
	(0.151)
aid	0.0001
	(0.0002)
speed_of_job	0.005
	(0.013)
unemp	−0.021
	(0.016)
Constant	0.266
	(0.298)
Observations	113
R^2	0.147
Adjusted R^2	0.045
Residual Std. Error	0.424 (df = 100)
F Statistic	1.440 (df = 12; 100)
Note:	*p<0.1; **p<0.05; ***p<0.01

Table 3: Factors Affecting The Skills-Job Match

7 Conclusion

The objective of this paper is to offer a detailed data analysis of Ukrainian refugees living in EU and Schengen countries under the temporary protection scheme. The study investigates the influence of financial aid provided by the governments on the employment outcomes of refugees, including their probability and speed of finding employment, as well as the degree to which their positions align with their skill sets. Additionally, the research explores hypotheses concerning the selection of destination countries by refugees with different levels of financial resources. Through the analysis of the data, the study seeks to provide policymakers and practitioners with actionable recommendations to improve the economic and social integration of refugees within host communities.

The data collected from 340 Ukrainian refugees in the EU and Schengen countries shows that the majority of respondents are between the ages of 20 and 50, with a peak age range between 30 and 45 years old. Furthermore, the education distribution plot indicates that a vast majority of refugees hold a master's or a higher degree. The research also reveals that refugees with more resources are more likely to choose countries that are further away due to the higher cost of travelling to distant destinations or due to the desire to avoid staying in countries with higher amounts of Ukrainian refugees.

Additionally, the study shows that higher financial aid decreases the probability of a Ukrainian refugee securing a job in the first year in the host country as well as slightly slows down the search process. This is likely to be due to a lesser level of financial urgency and desperation. However, it is plausible that there is another country-specific variable causing this correlation. To check for this, an unemployment rate and percentage of service industry positions among all employment were added to the sample but neither gained significant results.

Surprisingly, prior skills in English and the local language have not been significant in any of the specifications tested. The data also depicts a tremendous downgrade in the level of positions on average for Ukrainian refugees after fleeing.

The data set used in this study has tremendous limitations that must be acknowledged. Firstly, the

survey was conducted online, which may introduce biases in the sample population, as refugees who are more digitally connected may be over-represented. Additionally, the sample size of 340 respondents may not be sufficient to draw accurate conclusions about the entire population of Ukrainian refugees in the EU and Schengen countries. Moreover, a selection bias coming from the refugees' choice of host countries is also very plausible, which is additionally proved by testing the destination hypothesis.

Furthermore, the survey only covers refugees who have been granted temporary protection, which may not be representative of the entire refugee population in the EU and Schengen countries. Therefore, while the findings of this study provide valuable insights into the employment outcomes and destination country choices of Ukrainian refugees, they must be interpreted with caution, and further research is needed to confirm and extend these findings.

Despite these limitations, the findings of this study shed light on the complex dynamics of employment outcomes and destination choices among Ukrainian refugees. The analysis underscores the need for targeted policies and interventions to support the economic integration of refugees, particularly in addressing the challenges related to the utilization of their prior skills and experience. By understanding the factors influencing employment outcomes and destination choices, policymakers and practitioners can develop more effective strategies to facilitate the economic and social integration of Ukrainian refugees, ultimately fostering their successful integration into host communities.

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