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Self-Selection of Ukrainian Refugees and Displaced Persons in Europe

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The literature on migrants' self-selection is focused on labour migrants, while little is known about refugees and internally displaced persons (IDPs). We contribute to this scant literature, by (1) examining a broad set of factors that could determine self-selection, (2) contrasting self-selection profiles of refugees and IDPs, and (3) comparing self-selection profiles of refugees across countries. Specifically, we compare the self-selection profiles of Ukrainian refugees and IDPs with stayers in the months directly following the Russian full-scale invasion in February 2022. We draw on unique, cross-nationally comparative data from the *OneUA* project, which surveyed Ukrainian refugees and displaced persons in Europe as well as those who stayed in Ukraine in the summer of 2022. More than 24,000 Ukrainian women residing in nine countries participated in this survey. We find systematic empirical patterns of self-selection related to people's region of origin, family status, and individual-level characteristics.

Keywords: refugees, displaced persons, Ukraine, migration, self-selection, conflict, war

1. Introduction

A well-established finding in the migration literature is that migrants are not a random sample of the population in their country of origin (Lee 1966). In

particular, scholars have argued and indeed found that the educational profiles of migrants strongly differ from those who stayed behind (Borjas 1987; Chiswick 1999; Feliciano 2005). Selectivity patterns, such as with respect to education, are traditionally interpreted in a framework which emphasizes economic incentives of migration. It is argued that individuals' migration decisions are based on weighting the expected returns to human capital when migrating, the expected returns to human capital when remaining in the country, and the costs of migration (Roy 1951; Sjaastad 1962; Borjas 1987; Chiswick 1999). Higher educated people may expect significantly higher earnings when migrating to high-income countries, leading to the well-known educational selectivity pattern among labour migrants. The patterns of self-selection and selectivity that result from these economic cost-benefit calculations are well-established and also reflected in research on the integration of immigrants in host societies (Van Tubergen *et al.* 2004; Feliciano 2020).

A shortcoming of the literature on self-selection is that it strongly focused on labour migrants and emphasized economic incentives driving migration. Much less is known, however, about self-selection among non-economic migrants. In light of record number of worldwide refugees and displaced persons (UNHCR 2023a), such research is urgently called for. Scholars have theorized that, in the context of forced migration, self-selection is not solely a consequence of economic considerations, but also influenced by a variety of non-economic factors and motivations (FitzGerald and Arar 2018). Empirically, however, there is a dearth of knowledge about self-selection profiles of this group. The few studies so far on this topic have looked at refugees' self-selection in terms of education, gender, and age (Birgier *et al.* 2018; Guichard 2020; Spörlein *et al.* 2020; Aksoy and Poutvaara 2021).

We contribute to the scarce field of research on self-selection of refugees and displaced persons in three ways. First, we examine a broader set of self-selection factors. To do so, we elaborate on the theoretical framework, proposed by Schewel (2019) and De Haas (2021), which posits that migration decisions-including forced migration-are influenced by a complex interplay of motivations and capabilities. We use this framework to derive and test hypotheses on a broad set of self-selection factors (e.g. region of origin, financial capital, language skills, family status).

The second contribution of this study is that we compare selectivity profiles of refugees with internally displaced persons (IDPs). Previous work on self-selection of people who flee from conflict zones focused on those who moved abroad (Birgier *et al.* 2018; Guichard 2020; Spörlein *et al.* 2020; Aksoy and Poutvaara 2021). For example, Guichard (2020) studied educational selectivity among asylum seekers in Germany, comparing their educational profile with those who remained in the origin country. However, a significant proportion of people in conflict zones do not move abroad but resettle in their own country. It is therefore important to gain insight into the similarities or differences in the selectivity profiles of IDPs and those who escape their country, and we do so by comparing both groups.

Third, we contribute to existing work by comparing self-selection profiles of refugees across receiving countries. Refugees' selection of their destination

country may be linked to their socioeconomic background, encompassing factors such as financial capital, education, and language skills. However, there remains limited understanding of the role of such background characteristics in forced migration decisions (Havinga and Böcker 1999; Spörlein *et al.* 2020; Díaz-Sánchez *et al.* 2021). Importantly, cross-national differences in refugee profiles bares important consequences for host societies in their pathways to accommodate and integrate refugees (Kosyakova and Kogan 2022; Kosyakova *et al.* 2022).

To address these questions, we examine the profiles of Ukrainian refugees and displaced persons in the months directly following the Russian full-scale invasion in February 2022 and compare these profiles to those who stayed in Ukraine. The Russian military attack has resulted in a humanitarian crisis of unprecedented scope, with millions of Ukrainian citizens being displaced from their homes (Lloyd and Sirkeci 2022). In the months following the invasion, significant parts of the North, East, and South of Ukraine were attacked and partially occupied by Russian troops. The war triggered massive migration movements among Ukrainians: some seeking refuge in other areas within their country, others resettling abroad. By May 2022, around 5 million Ukrainian refugees were recorded across Europe (UNHCR 2023b), and another 8 million were internally displaced (EUAA 2022).

To test the hypotheses, we draw on unique, cross-nationally comparative data from the *OneUA* project (Kogan *et al.* 2022), which surveyed Ukrainian refugees in Europe, displaced persons in Ukraine, and those who have not changed their pre-war place of residence in the summer of 2022. More than 24,000 Ukrainian women residing in nine countries participated in this survey: Ukraine, Poland, Germany, Czech Republic, Italy, Netherlands, Romania, Hungary, and Moldova. Specifically, the survey included those who did not migrate, those who escaped to other areas in Ukraine (IDPs), and refugees who migrated to one of these eight European countries. As more than 94% of the Ukrainian refugees migrated to Europe (UNHCR 2023b), the *OneUA* survey captures the most important continent of destination. The three top destinations for refugees are Germany ($N = 1{,}081{,}410$ refugees from Ukraine recorded in August 2023), Poland (968,390), and Czech Republic (363,195). But also other countries included in the survey host sizable numbers of Ukrainian refugees: Italy (167,210), Moldova (117,160), Netherlands (94,415), Romania (94,415), and Hungary (52,290). By deliberately surveying both nearby countries (e.g. Poland) and more-distant countries (e.g. Germany), more insight is gained into the role of geographical distance in self-selection profiles of refugees. The results of this research contribute to a deeper understanding of the complex migration decisions made by individuals in conflict-affected contexts.

2. Mechanisms of migration from conflict zones: theory and hypotheses

We use the 'motivations–capabilities' framework of Schewel (2019) and De Haas (2021), to scrutinize different mechanisms that may drive self-selection of forced migration. The concept of 'motivations' subsumes various mechanisms that drive

an individual's motives to either stay or migrate. These can be productivity-related motives, i.e. the economic incentives traditionally modelled with respect to labour migrants (i.e. the *productivity motive*). But they also encompass non-economic motives. In the context of conflict-induced violence, a key non-economic motive can be to escape violence and seek protection and safety, for oneself and/or for beloved ones (*security motive*). However, many people do not escape from conflict zones despite apparent risks, for different reasons. As people have a fundamental need for social attachment and being close to their family, friends, and other intimate connections, they may prefer to stay over leaving home (*attachment motive*).

As emphasized in the motivations–capabilities framework, however, migration decisions are not simply an outcome of incentives or motives. 'Capabilities' refer to the opportunities and limitations that individuals may face in realizing their migration aspirations. An individual's motivation to migrate may be dampened by their capacity to do so. In the context of conflict-induced violence, we assume that (at least) three resources play a role in people's capabilities to migrate: *health*, *knowledge*, and *financial means*. Thus, people with health issues, lack of knowledge (e.g. on how to migrate, or where to), or who have insufficient means, may face difficulties in migrating—even when their lives are at risk.

As such, self-selection patterns in the context of forced migration and refugee movements are shaped by a complex array of factors that extend beyond mere economic considerations. In the following, we relate the underlying economic motives (productivity), non-economic motives (security, attachment), and capabilities (health, knowledge, financial resources) to develop testable hypotheses on self-selection related to (1) *region of origin* at the onset of the war, (2) *family status*, and (3) *individual-level characteristics*.

We theorize about how these three sets of factors may affect three sequential steps in migration decisions, and thereby create self-selection patterns among IDPs and refugees from Ukraine. First, we look at the decision to leave home vs. staying behind. Second, among those who left their home, we compare those who resettled within Ukraine (i.e. IDPs) with those seeking refuge abroad (i.e. refugees). Third, among refugees, we compare those who moved to a country nearby Ukraine vs. those who migrated to a more geographically distant country.

To provide some context to our study, it is important to clarify that the focus of our study is on Ukrainian women, who make up a significant proportion of displaced Ukrainians, as most men were banned from leaving the country and potentially conscripted for military service. Under some circumstances, also men were allowed to leave Ukraine (e.g. those with disabilities or those with three or more children), and the *OneUA* project also surveyed men (Kogan *et al.* 2022). However, given that this is a very specific group, and the number of male respondents becomes too small when broken down by nine countries, we focus on women only.

In terms of institutional context, it is important to emphasize that, immediately after the outbreak of the full-scale Russian aggression, Ukrainian women could leave the country without passport. After 18 April 2022, leaving Ukraine without

a passport was largely prohibited. This resulted in an increasing number of women applying for passports, thereby delaying leaving Ukraine with weeks or even months. In terms of official EU policy, even those without valid documents were accepted by EU countries on humanitarian grounds (EC 2023). However, in practice, not holding valid passports has been a barrier to some Ukrainian women.

In addition, after the outbreak of the full-scale war, the EU countries activated the 'Temporary Protection Directive' (2001/55/EC) for the first time—specifically for Ukrainian refugees. Hence, Ukrainians received a completely different status than other hitherto refugees in the EU countries. Whereas Ukrainian refugees did not have to apply for asylum, other refugee groups had to. Also, Moldova, a candidate EU-member, followed these directions (UNESCO 2023). In Moldova and EU countries Ukrainian women would go through very similar bureaucratic procedures given the shared EU Temporary Protection Directive.

2.1 Region of origin

We begin with self-selection related to people's place of living at the onset of the full-scale war. The Russian invasion of Ukraine in February 2022 created a major *security motive* for Ukrainians to flee. The invasion resulted in a safety threat to Ukrainian citizens, not only directly (attacks) but also indirectly through the destruction of housing and critical infrastructure. The conflict hindered the delivery of basic services and essential humanitarian aid to those in need. While the whole country has been under attack since the outbreak of the full-scale invasion, and everywhere citizens face security threats due to the war, the intensity of the conflict varies across regions.

In this study, we examine whether regional variation in conflict intensity affects migration decisions. Previous work reports that the intensity of conflict-related violence in a country increases migration aspirations (Dustmann and Okatenko 2014; Etling *et al.* 2020; Ozaltin et al., 2020) and the volume of forced migration (Davenport *et al.* 2003; Moore and Shellman 2006; Shellman and Stewart 2007; Tai *et al.* 2022). With a few exceptions (Schon 2019) such a link between conflict intensity and migration has also been observed within countries (Engel and Ibáñez 2007; Bohra-Mishra and Massey 2011; Adhikari 2013; Braithwaite *et al.* 2021; Tai *et al.* 2022). Based on these arguments and findings, we expect to see that conflict intensity in the region of origin is a driver of self-selection, but only with respect to leaving one's home:

> **H1**. The fiercer the intensity of the conflict in the region of living, the more likely Ukrainian women are to leave.

2.2 Family status

The motivation to flee from conflict zones might depend on people's family status. We argue that mothers with younger children (i.e. non-adults) have an additional

incentive to migrate from war zones. In conflict-affected areas, they put both their lives and the lives of their children at risk. Additionally, conflict often disrupts essential services such as healthcare, education, and food security, making it more difficult for women to meet the basic needs of their children. As a result, they may feel compelled to leave their homes in search of safer environments where they can provide for their children and protect them from harm. For these *security motives*, moving abroad is more attractive than relocating somewhere in Ukraine. We therefore expect that women with (non-adult) children are more likely to leave conflict areas and move abroad:

> **H2**. Ukrainian women with (non-adult) children are (1) more likely to leave, and if they do, (2) more likely to move abroad than Ukrainian women without (non-adult) children.

Despite the significant physical threat, demolition of the infrastructure, and economic losses posed by the war, many Ukrainians decided not to leave and stayed in their homes—even in the areas that were hardest-hit. What drives people not to leave conflict-induced zones? One motivation to stay is *attachment*, i.e. people want to stay close to their family they might otherwise leave behind. As Ukrainian men were called for the mobilization, they were not allowed to migrate abroad, but instead to stay in Ukraine and be prepared to conscript to the military forces. Hence, for women who are married, or cohabiting, resettlement would imply that they potentially move away from where their partner is. Staying, or, when moving, relocating nearby—sometimes together with the partner—would therefore be preferred. Therefore, based on the attachment motive, we expect to see that, marriage/cohabitation not only increases the odds of staying, but also, in case of leaving, reduces the geographic distance associated with migration:

> **H3**. Ukrainian women who are married/cohabited are (1) less likely to migrate, and if they do, they are more likely to (2) migrate internally than abroad, and if they migrate abroad (3) they are more likely to settle in countries nearby than in more distant countries.

2.3 Individual characteristics

We examine several individual-level factors that may affect decisions to migrate, as well as the choice of location. We begin with age. Scholars have argued that younger individuals have a stronger *economic incentive* to migrate, given their longer time horizon in the receiving country and the expected returns to their human capital (Chiswick 1999). Younger migrants more easily acquire the language of the host country (Kosyakova *et al.* 2022), which facilitates their labour market position. In addition, older people more often suffer from *health* issues, which may provide a barrier to migration, particularly so when they have to travel over longer distances (Spörlein *et al.* 2020). This would imply that young Ukrainian women are not only more likely to leave their homes, but also that, when they do, they more often migrate to (distant) countries. Hence, based on

economic incentives and health resources related to age, we expect to see the following:

> **H4**. Ukrainian women who are younger are (1) more likely to migrate, and if they do, they are more likely to (2) migrate abroad than internally, and if they migrate abroad (3) they are more likely to settle in more distant countries than in countries nearby.

Previous research on asylum seekers and refugees has demonstrated that individuals with higher levels of education are more likely to migrate from conflict zones (Bohra-Mishra and Massey 2011; Guichard 2020; Spörlein *et al*. 2020; Aksoy and Poutvaara 2021), and over longer distances (Spörlein *et al*. 2020). Higher-educated people in conflict areas, it is assumed, have stronger *economic incentives* to migrate and to migrate to higher-income countries that are typically further away. In the context of violence, those with higher educational levels are likely to possess greater *knowledge* (i.e. information advantage) to plan and execute an escape. We examine whether these earlier patterns of educational selectivity are also observed among Ukrainian women. Based on these theoretical arguments and findings, we hypothesize:

> **H5**. Ukrainian women with more education, are more likely to (1) migrate (vs. stay), (2) to migrate abroad (vs. migrate internally), and (3) migrate to more distant countries (vs. countries nearby).

In addition, we look more closely at *financial resources* to flee. Monetary resources are essential not only to cover costs of migration but also to sustain one's leaving until an official legal status as an IDP, or refugee, is received. Considering the extremely large numbers of those who resettled within and outside Ukraine, the paperwork might take considerable time and consequently individual financial resources are needed. Therefore, those who lack financial means might be limited in their opportunities to move. And, when they can afford to leave, they may have fewer options: instead of moving to more distant countries, which might be more attractive, they are constrained to settle nearby.

> **H6**. Ukrainian women with more financial resources at the onset of the war, are more likely to (1) migrate (vs. stay), (2) to migrate abroad (vs. migrate internally), and (3) migrate to distant countries (vs. countries nearby).

Another factor that may affect migration decisions is language skills. It is easier to find your way in a new country, and to integrate, study and work, when you are familiar with the official language, or when your mother tongue closely resembles the official language. Language skills, viewed in this way, clearly amplify *productivity*. The Ukrainian language is spoken by virtually the entire population in Ukraine, but hardly so outside the country. Countries nearby Ukraine, such as Poland, do have historically attracted sizable number of Ukrainians (mainly labour migrants), which implies the Ukrainian language is spoken there too. In addition, as a Slavic language, Ukrainian resembles other Slavic languages, like

Polish and Czech. Hence, those who do not speak other languages besides Ukrainian can reasonably communicate in some nearby countries (i.e. Poland and Czech Republic). Furthermore, the Russian language is a lingua franca in Moldova and is spoken in the Southern parts of Ukraine from which the bulk of refugees to this country came from. It is much harder for refugees with poor foreign language skills to move to more distant countries, like Germany and the Netherlands. Being proficient in English—the lingua franca spoken across (western) Europe—may then be a key resource for migrating to more distant countries, as it increases productivity. Therefore, we formulate the following hypothesis:

> **H7**. Ukrainian women who have better command of the English language, are more likely to (1) migrate abroad (vs. migrate internally) and, if they do, (2) migrate to distant countries (vs. countries nearby).

3. Data, measures, and methods

3.1 Data

This study is based on data from the cross-national *OneUA* survey (Kogan *et al.* 2022).[1] The data were collected between 14 July and 18 August 2022, via self-administered computer-assisted web interviews. All Ukrainians who lived in Ukraine on 23 February 2022, were considered part of the target population. The survey then targeted Ukrainians within Ukraine who were still residing in their pre-war places of residence, IDPs within Ukraine and Ukrainian refugees in eight other European countries (Poland, Germany, Czech Republic, Italy, Netherlands, Romania, Hungary, and Moldova). However, already under the best of circumstances, it is difficult to find sampling frames that simultaneously cover the mobile part of a national population and migrants in specific target countries (Reichel and Morales 2017; Andreß and Careja 2018).

In the context of an armed conflict and forced migration this is even more the case as otherwise available sampling frames might not be usable at particular points in time due to damages to the infrastructure or fighting, or because of the recent nature of the target population's mobility which might mean that they are not (yet) included in national population registers, even where they exist and could otherwise be used for sampling purposes. Due to these restrictions, target advertisements on the Meta platforms Facebook, Instagram, and Facebook messenger were used to recruit *OneUA* respondents. Furthermore, a snowball element was implemented to broaden the survey's reach beyond users of the mentioned social networking sites. This approach allowed us to employ an identical sampling procedure across countries.

Using Meta's advertisement manager we created advertisements that allowed us to display advertisements to all users within Ukraine and Ukrainian- and Russian-speaking users in the other targeted countries [see Supplementary Section A for details on the targeting and (Pötzschke *et al.* 2023) for general information on this type of targeting method]. These advertisements contained

a link which guided users to our externally hosted survey. Alternatively, potential respondents were able to reach the survey through a link included on the project's Facebook page or after being invited by previous respondents (snowball element).

While targeting Ukrainian and Russian speakers, the advertisements on Meta's platforms were created in the Ukrainian language only. This approach was taken to reduce interference from Russian trolls. Despite a significant portion of Ukrainian citizens considering Russian as their mother tongue, the prevalence of proficiency in the Ukrainian language is high enough that Ukrainian citizens are capable of responding to the questionnaire in Ukrainian (Kulyk 2016). After sample selections (see Supplementary Section B), the analytical sample consists of 31,585 respondents.

3.2 Dependent variable

We classified respondents in four different groups, based on their situation during the survey: (1) *Stayers*, i.e. those who stayed in the same home since the outbreak of the war. (2) *Internally displaced*, i.e. those who remained in Ukraine but no longer live in the same home since the outbreak of the war. (3) *Refugees in countries nearby*, i.e. those who migrated to Poland, Romania, the Czech Republic, Hungary, or Moldova. (4) *Refugees in more distant countries*, i.e. those who migrated to Germany, Italy, or the Netherlands.

We assume that migration decision-making process occurs in several consecutive steps. Based on the above distinctions between the four groups, we created three dichotomous dependent variables:

DV1. *Leaving home* (1) versus staying (0)
DV2. *Migrating abroad* (1) versus resettle in Ukraine (0)—among those who left home.
DV3. *Migrating to a distant country* (1) versus. settle in countries nearby (0)—among those who migrated abroad.

3.3 Independent variables

The variable *conflict intensity in region of origin* is constructed with information on respondents' region of living in Ukraine at the outbreak of the war. Based on the development of the war up to the period of the fieldwork (July–August 2022), we grouped oblasts (counties) in the following way. We differentiate between (1) the capital Kyiv, (2) Northern-Eastern front, excluding city of Kyiv (which were partially occupied by the Russian troops in the beginning of the war), (3) the Donbas (encompassing parts of the Donetzk and Luhansk oblast, which were under the Ukrainian control on 23 February 2022), (4) Southern regions, which experienced the invasion of the Russian ground troops,[2] (4) Central region, and (5) Western regions. In this classification, the most affected region in the period between February and August 2022 was the Donbas, whereas the Western regions were less affected.

We include a dummy variable for *children*, capturing the difference between women with (1) and without children (0). Unfortunately, the survey does not contain data on the age of the children, so we cannot separate mothers with young children from mothers who have adult children. Therefore, in additional analyses, we examine the effect of having children across mothers in different age groups (as defined in the following). *Age*: to capture possibly non-linear effects, we include a categorical variable for age (i.e. age 18–25, 26–35, 36–45, 46–55, 55+). *Partnership status*: we contrast women who are (1) either married or unmarried but in partnership with (0) those who are separated/divorced, single, never married, or widowed. *Education*: measures the highest level of education attained in Ukraine. We collapsed the original nine categories into three clusters: (1) at most secondary education, (2) post-secondary vocational non-tertiary and incomplete tertiary, and (3) bachelor, master, and PhD. *Financial status*: this measure captures respondents' self-reported relative financial situation in the summer of 2021, i.e. in the period preceding the outbreak of the full-scale war (instead of e.g. the summer of 2022, which would capture people's situation during the war). Given the frequent reluctance of individuals to disclose their income, we utilized the relative measure derived from the following question 'How would you estimate your financial situation in summer 2021 compared to the financial situation of other people in Ukraine?'. As a reference point, respondents are asked to assess their financial situation in relation to other people in Ukraine, rather than a localized reference group. We include the measure as a continuous scale, ranging from 1 'well below average' to 5 'well above average'. *English language skills*: this is a self-assessed measure of speaking English. The scale ranges from 1 'not at all' to 5 'very well' and we include this as a continuous variable.

We include several control variables. These are a dummy variable for *being born in Ukraine*, *survey type* (categorical variable for the way people enrolled in the survey with three categories: advertisement, Facebook page, and snowball), and *survey week* (categorical variable for the week of survey completion with six categories: ranging from week 28 to week 33). Descriptive statistics for all dependent, independent, and control variables are presented in Table 1.

3.4 Empirical strategy

We analyse the four migration outcomes (see above) as sequential steps. First, we estimate a regression model whether people stayed in their home or not. In doing so, we contrast the first group (*stayers*, '1') with the rest (*internally displaced*, *refugees*, '2–4'). Second, among those who migrated, we estimate a model of whether people migrated within Ukraine (internally displaced, '2') vs. those moving abroad (refugees, '3–4'). Third, we present findings from a regression model contrasting refugees who moved to neighbouring countries ('3') with refugees migrating to distant countries ('4'). We estimate a set of logistic regression models with robust standard errors. A multicollinearity assessment revealed that overall Variation Inflation Factor (VIF) is consistently below 2, and none of the VIF values exceed the threshold of 4–5.

Table 1

Summary statistics.

Variable	*N*	Mean	SD	Min/max
Outcome variables				
Leave (vs. stay)	31,585	0.79		0/1
Go abroad (vs. resettle in Ukraine)	24,882	0.81		0/1
Arrived in distant country (vs. nearby country)	20,130	0.51		0/1
Focal variable				
Regions of living in UA	31,585			
Kyiv		0.13	–	0/1
Northern-Eastern Front		0.29	–	0/1
Ukrainian Donbas		0.06	–	0/1
South		0.14	–	0/1
Centre		0.26	–	0/1
West		0.12	–	0/1
With children	31,274	0.76	–	0/1
In partnership	31,295	0.61	–	0/1
Age	31,585			
18–25		0.22	–	0/1
26–35		0.25	–	0/1
36–45		0.28	–	0/1
46–55		0.13	–	0/1
55+		0.12	–	0/1
Education	29,780			
Incomplete secondary or below		0.06	–	0/1
Full secondary and post-secondary non-tertiary		0.37	–	0/1
Tertiary or higher		0.58	–	0/1
Financial status	29,455	2.83	0.86	1–5
English language skills	29,938	2.14	1.13	1–5
Control variables				
Born in Ukraine	30,589	0.94	–	0/1
Survey type	31,585			
Advertisements		0.97	–	0/1
Facebook page		0.01	–	0/1
Snowball		0.02	–	0/1
Survey week	31,585			
28 (14 July 2022–15 July 2022)		0.23	–	0/1
29 (16 July 2022–21 July 2022)		0.07	–	0/1
30 (23 July 2022–29 July 2022)		0.10	–	0/1
31 (30 July 2022–05 August 2022)		0.54	–	0/1
32 (06 August 2022–12 August 2022)		0.07	–	0/1
33 (13 August 2022–16 August 2022)		0.00	–	0/1

Notes: Variation in the sample size (column 2) is due to the differences in missing data across variables. In the multivariate model, we control for missing values in the variables of interest. Data source: *OneUA* (2022).

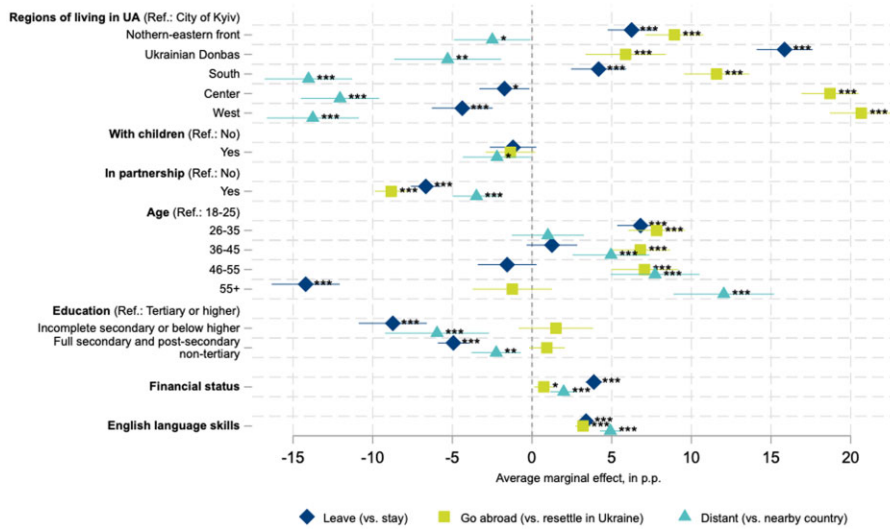

Figure 1.

Average marginal effects on the probability of (1) leaving home (rather than staying), (2) going abroad (rather than resettling in Ukraine), and (3) moving to a distant country (rather than a nearby country), in percentage points (with 95% CIs). Notes: *$p<0.05$, **$p<0.01$, ***$p<0.001$ (two-sided tests). Results from logistic regressions, models 1.1 (leave vs. stay), 2.1 (go abroad vs. resettle in Ukraine), and 3.1 (distant country vs. nearby country) in Supplementary Table C1 (average marginal effects) and Supplementary Table C2 (odds ratios). Data source: *OneUA* (2022).

As can be seen from Table 1, the proportion of missing data is 0–1% for the variables capturing region of origin, having children, partnership, and age. With respect to education (5.7%), financial status (6.7%), and English language skills (5.2%), the share of missingness is higher. To address missingness, we used single imputation using the lowest value of the variable for imputation and included dummy variables to indicate whether the value was imputed. A key advantage of this method is that we keep the full sample. As a robustness check, we replicated the main analysis using listwise deletion. As explained by Allison (2001), listwise deletion gives valid inferences for logistic regression under a broad set of conditions. Our robustness checks show that we arrive at the same conclusions when using single imputation or listwise deletion (see Supplementary Table D1).

4. Results

4.1 Testing hypotheses

Figure 1 plots average marginal effects from a series of logistic regression models predicting probability of (1) leaving home (rather than staying), (2) going abroad

(rather than resettling in Ukraine), and (3) moving to a distant country (rather than nearby country) for a set of variables capturing motivational factors and resources (see corresponding Supplementary Tables C1 and C2 for the full models).

Results demonstrate that, in line with H1, Ukrainian women who lived in the Ukrainian Donbas (the region most affected by the war) were substantially more likely to leave their region, compared to the women residing in any other region. Specifically, we find that the probability of leaving was 16 percentage points (p.p.) higher among those from the Donbas, as compared to those from Kyiv city (reference category). Women living in Northern-Eastern front region (+6 p.p.) and Southern regions (+4 p.p.) were somewhat more likely to leave their homes, compared to women from the city of Kyiv. Women residing in Central regions were slightly less likely to leave their home in the aftermath of the Russian invasion (−2 p.p. lower than those from Kyiv). The lowest probability of leaving home is observed among women who lived in the Western regions. Their probability to leave their home was 4 p.p. below that of women from Kyiv, and 20 p.p. below that of those who were from the Donbas area. This pattern clearly reflects the course of the warfare with fighting occurring most intensively on the ground in the Northern-Eastern and Southern regions and, especially, the Donbas regions.

It was expected that women with (non-adult) children were more likely to leave their homes than women without children and that they were more likely to migrate abroad rather than to resettle in Ukraine (H2). The results presented in Figure 1 do not conform to these expectations, as having children is not statistically significantly related to these migration decisions. Regarding partnership, the findings are in line with expectations (H3). Specifically, Ukrainian women who were married/cohabiting were less likely to leave their home (−7 p.p.), and if they migrated, they were less likely to migrate abroad (−9 p.p.). When they migrated to foreign countries, they were less likely to settle in more distant countries than in nearby countries (−3 p.p.). Thus, in each sequential step in migration choices, we find in our sample that Ukrainian women who were in a relationship were more likely to make a decision that kept them closer to their home.

With respect to age, it was hypothesized that younger women were more likely to leave, go abroad and migrate to distant countries. Our findings, however, are not in line with this prediction. To begin, we find evidence for a concave relationship between age and the probability to leave and go abroad (Figure 1). Specifically, women aged 26–35 were more likely to leave their homes (+7 p.p.) than the youngest group (aged 18–25, reference category). However, those aged 35–55 did not differ from those aged 18–25, and those 55 years and older were significantly less likely to leave their home (−14 p.p.). Thus, the group between 26–35 was the most likely to leave, much more so than the youngest (18–25) and oldest (55+) groups.

With respect to moving abroad, we find a similar concave pattern. The youngest (18–25) and oldest (55+) age groups in our sample were less likely to move abroad compared to the age groups in between these two (i.e. 26–55). Conditional on migrating to a foreign country, however, we find a linear and positive relationship

with age: the older Ukrainian women were, the more likely they were to migrate to distant countries (i.e. Netherlands, Germany, and Italy) rather than nearby countries (i.e. Poland, Romania, the Czech Republic, Hungary, or Moldova). All in all, these findings do not conform to H4.

Education is also linked to migration outcomes, our results show. We find, as hypothesized, that Ukrainian women who were higher educated were more likely to leave. Those with tertiary or higher level of education had 9 p.p. higher probability of leaving than those with (at most) incomplete secondary education. Surprisingly, education is not related to the outcomes in the second step, i.e. the choice to resettle in Ukraine or move abroad. At the same time, we do find that education is associated with locational choices among those who left the country: as predicted, those with tertiary education are more likely to migrate to distant countries (+6 p.p.). Overall, these findings largely support H5.

The results furthermore stress the importance of two resources in migration decisions: financial resources and English language skills. In line with H6, we find that Ukrainian women who were financially more resourceful prior to the war were more likely to leave home (+4 p.p.) and if they did, there were more likely to go abroad (+1 p.p.), and then heading to more distant countries (+2 p.p.). In support of H7, our findings suggest that Ukrainian women who have better command of the English language are indeed more likely to leave (+3 p.p.), to migrate abroad (+3 p.p.), and to distant countries (+5 p.p.).

4.2 Additional analyses

We probe the results of the main model (Figure 1) in several ways. First, we take a closer look at the unexpected finding that having children is unrelated to migration choices. As mentioned, the dummy variable in Figure 1 reflects having children rather than having young children. As our sample also includes a significant portion of women aged 46 and older, this implies that many of the children are already grown up. In additional analyses, we therefore studied the relationship between having children and migration decisions across different age groups (Figure 2; see Supplementary Tables C3 and C4 for full models). It appears that, among women aged 18–25, having children is strongly negatively related to the probability of leaving their home (−12 p.p.) and going abroad (−12 p.p.), whereas the corresponding relationship is positive for women of older age groups. This pattern is opposite to what was expected (H2), namely that especially women with younger children were more likely to resettle.

Second, we examine whether resources and the corresponding pattern of self-selection vary with conflict intensity in the region of living. Resources may be a stronger or weaker determinant of leaving the areas more seriously affected by war. To explore this, we estimated the effect of education and financial resources across regions. To simplify the analyses and presentation we dichotomized education level (tertiary or higher = 1, rest = 0), and clustered the region of residence at the outbreak of the war in three categories: (1) the 'rear regions', which we defined as regions in which there were no Russian ground troops (Central and

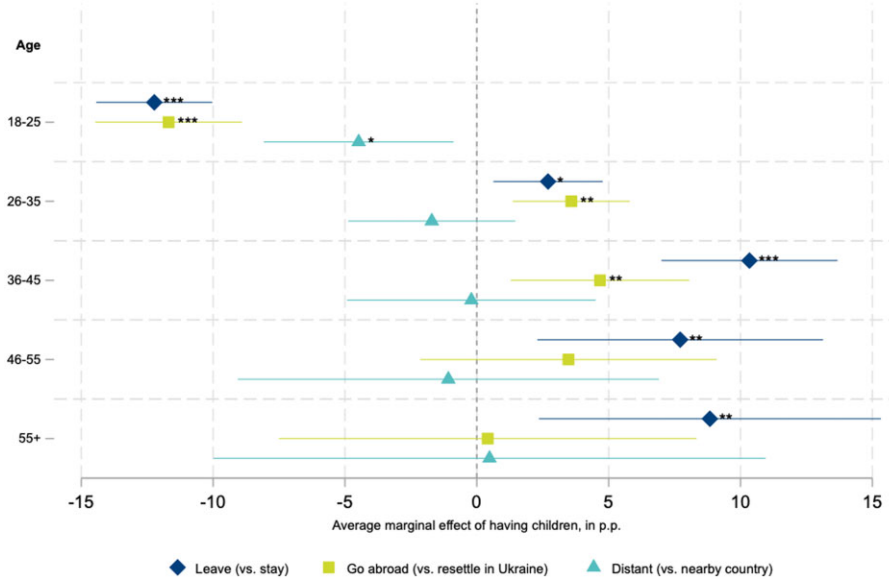

Figure 2.

Average marginal effects of having children by age on the probability of (1) leaving home (rather than staying), (2) going abroad (rather than resettling in Ukraine), and (3) moving to a distant country (rather than nearby country), in percentage points (with 95% CIs). Notes: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ (two-sided tests). Results from logistic regressions, models 1.3 (leave vs. stay), 2.3 (go abroad vs. resettle in Ukraine), and 3.3 (distant country vs. nearby country) in Supplementary Table C3 (average marginal effects) and Supplementary Table C4 (odds ratios). Data source: *OneUA* (2022).

West), (2) the 'frontline regions', which were partially occupied by Russian troops during the period between 24 February 2022 and the time of interview and where the ground warfare took place (Northern-Eastern, Southern regions, and Donbas), and (3) the capital, Kyiv city.

The results are plotted in Figure 3 (see Supplementary Tables C5 and C6 for full models). Overall, the findings indicate that tertiary-educated Ukrainian women were more likely to leave their homes, regardless of where they resided on the outset of the full-scale war. The effect of tertiary education on leaving home is positive and of similar size for those from the most conflict-intense front regions (+5.4 p.p.), those from Kyiv City (+5.8), and the least conflict-intense regions (+5.2 p.p.). We observe no statistically significant differences in the effect across the regions. Likewise, it appears that in none of the three regions education is associated with the probability of going abroad vs. resettling within Ukraine, conditional on leaving home. We do find that, among those who migrated abroad, tertiary education has a statistically significant positive effect on the probability of

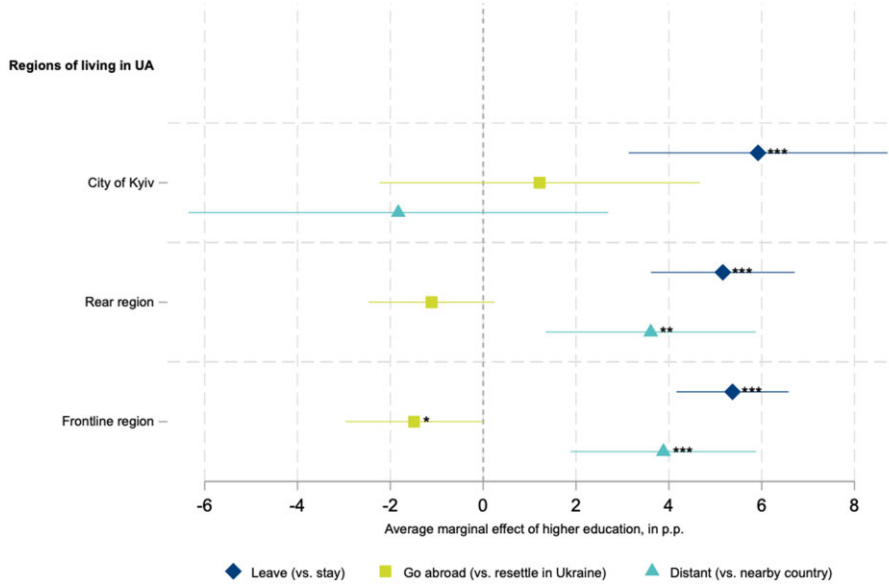

Figure 3.

Average marginal effects of educational level by region of living in Ukraine on the probability of (1) leaving home (rather than staying), (2) going abroad (rather than resettling in Ukraine), and (3) moving to a distant country (rather than nearby country), in percentage points (with 95% CIs). Notes: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ (two-sided tests). Results from logistic regressions, models 1.2 (leave vs. stay), 2.2 (go abroad vs. resettle in Ukraine), and 3.2 (distant country vs. nearby country) in Supplementary Table C5 (average marginal effects) and Supplementary Table C6 (odds ratios). Data source: *OneUA* (2022).

going to distant countries among Ukrainian women from the frontline regions and the rear regions, but not among those from Kyiv City.

Figure 4 presents the findings for the average marginal effect of financial resources across regions of origin (see Supplementary Tables C5 and C6 for full models). According to our results, in each of the three regions, better-to-do women were more likely to leave their homes. Tests for interaction effects reveal that the effect of financial resources on leaving does not vary across regions (Supplementary Table C5). When it comes to the decision to move abroad vs. seeking refuge in Ukraine, we do not find significant differences either. We do find, again, that resources work out differently for Ukrainian women in the decision to migrate to distant or nearby countries: whereas for those from rear and front regions, financial resources were positively associated with migrating to distant countries, this was not the case for women from the city of Kyiv.

A third way in which we elaborate on the findings from the main model is to estimate a multinomial model of the four outcomes (i.e. staying, IDPs, refugees in nearby country, refugee in distant country). Thus, rather than estimating binary

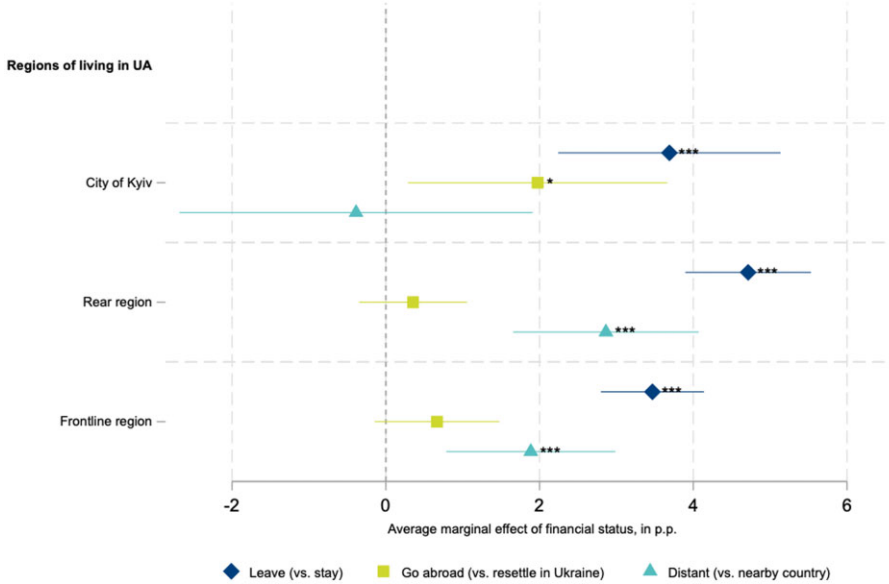

Figure 4.

Average marginal effects of financial status by region of living in Ukraine on the probability of (1) leaving home (rather than staying), (2) going abroad (rather than resettling in Ukraine), and (3) moving to a distant country (rather than nearby country), in percentage points (with 95% CIs). Notes: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ (two-sided tests). Results from logistic regressions, models 1.3 (leave vs. stay), 2.3 (go abroad vs. resettle in Ukraine), and 3.3 (distant country vs. nearby country) in Supplementary Table C5 (average marginal effects) and Supplementary Table C6 (odds ratios). Data source: *OneUA* (2022).

logit models of three sequential steps of migration decisions (i.e. the main analyses), the multinomial model addresses the migration outcomes and selectivity profiles simultaneously. The results of this model, with those who stayed as the reference category, are presented in Table 2.

These findings provide another perspective on selectivity profiles of Ukrainian women, namely in which one compares the profile of the migrant group (i.e. IDPs, refugees in nearby and distant countries) with the non-migrants (i.e. stayers). To highlight the key results, we find that among IDPs in Ukraine (1) those from Donbas, (2) who are younger, (3) higher educated, and (4) with more financial resources were overrepresented (as compared to those who stayed). We do not find selectivity with respect to the presence of children or a partner among IDPs. Regarding those who moved to one of the nearby countries, (1) women from Donbas (but also other regions than Kyiv), and those who were (2) aged 26–35, (3) higher educated, (4) single, and (5) with good financial resources and (6) English skills were overrepresented. Finally, in our sample of Ukrainian women who migrated to Germany, Netherlands, and Italy, we find that (1) those from

Table 2

Multinomial regression of the probability of resettling in Ukraine, probability of moving to nearby country, and probability of moving to distant country (rather than staying), in odds ratio.

	Model 4.1		
	Resettling in Ukraine (vs. stay) Coef. (SE)	Nearby country (vs. stay) Coef. (SE)	Distant country (vs. stay) Coef. (SE)
Region of living in UA (ref. City of Kyiv)	1.00	1.00	1.00
	(.)	(.)	(.)
North-Eastern Front	1.07	1.87***	1.73***
	(0.06)	(0.11)	(0.10)
Donbas	3.22***	5.04***	4.06***
	(0.35)	(0.54)	(0.42)
South	0.81**	2.13***	1.20**
	(0.06)	(0.14)	(0.08)
Centre	0.34***	1.58***	0.96
	(0.02)	(0.09)	(0.05)
West	0.24***	1.46***	0.79***
	(0.02)	(0.10)	(0.05)
With children	1.00	0.92	0.88*
	(0.07)	(0.05)	(0.05)
In partnership	1.06	0.60***	0.52***
	(0.05)	(0.02)	(0.02)
Age (ref. 18–25)	1.00	1.00	1.00
	(.)	(.)	(.)
26–35	1.09	1.83***	1.84***
	(0.08)	(0.11)	(0.11)
36–45	0.78***	1.09	1.32***
	(0.06)	(0.06)	(0.08)
46–55	0.64***	0.87*	1.16*
	(0.05)	(0.06)	(0.08)
55+	0.51***	0.35***	0.57***
	(0.04)	(0.02)	(0.04)
Education (ref. tertiary or higher)	1.00	1.00	1.00
	(.)	(.)	(.)
Incomplete secondary or below	0.52***	0.64***	0.50***
	(0.05)	(0.05)	(0.04)
Full secondary and post-secondary non-tertiary	0.68***	0.76***	0.69***
	(0.03)	(0.03)	(0.03)
Finances in summer 2021	1.24***	1.26***	1.37***
	(0.03)	(0.03)	(0.03)
English language skills	1.05*	1.17***	1.45***
	(0.02)	(0.02)	(0.03)

(*Continued*)

Table 2 **(continued)**

	Model 4.1		
	Resettling in Ukraine (vs. stay) Coef. (SE)	Nearby country (vs. stay) Coef. (SE)	Distant country (vs. stay) Coef. (SE)
Controls	Yes		
Survey week FE	Yes		
Country of birth FE	Yes		
Survey type FE	Yes		
Observations	31,585		

Notes: FE = fixed effects. Robust standard errors. Controls include survey week, an indicator for being born in Ukraine, survey type, and an indicator for imputed missing data. Data source: *OneUA* (2022).
*$p < 0.05$ (two-sided tests).
**$p < 0.01$ (two-sided tests).
***$p < 0.001$ (two-sided tests).

Donbas (but also some other regions), (2) singles, (3) aged 26–55, (4) higher educated, and with (5) better financial resources and (6) English proficiency are overrepresented.

Finally, we examine more directly the motives and restrictions that underly migration decisions. In the *OneUA* survey, respondents were asked about the reasons to stay in, or move to, their current area of residence. Respondents could indicate multiple reasons among a fixed choice set. Security motives were not directly asked, but attachment motives and economic motives/resources were. Results are displayed per group in Table 3. It appears that among stayers, social attachment motives score very high, such as 'being close to or at home' (mentioned by 57%), 'family' (47%), and 'family had to stay' (16%). At the same time, motives such as 'availability of accommodation' (31%) and 'availability of jobs' were often mentioned, indicating the lack of foreseeing opportunities elsewhere. Among IDPs, attachment motives also seemed to be the most important ('family' 25%, 'family had to stay' 25%).

When examining the groups who migrated abroad, it appears that those who settled in nearby countries (i.e. Poland, Romania, the Czech Republic, Hungary, or Moldova), indeed often mention that they wanted to stay 'close to home' (28%)—much more so than those who migrated to Netherlands, Germany, or Italy (2%). Those who moved to these more distant countries mentioned 'friends/acquaintances' (28%) more often than any other group. Strikingly, both refugee groups often indicated that the choice of their location was a 'coincidence' (24% nearby countries, 34% distant countries). At the same time, 18% of those who moved to distant countries mentioned that the 'state or social welfare system' played a role in their locational choice, as against only 7% among those who moved to nearby countries.

Table 3

Self-reported reasons for locational choice among stayers, IDPs, and refugees who moved to nearby and distant countries.

	Stayers	IDPs	Nearby countries	Distant countries	Total
	Share	Share	Share	Share	Share
Family	0.47	0.25	0.24	0.21	0.30
Friends and acquaintances	0.12	0.10	0.19	0.28	0.18
People from the region	0.11	0.02	0.06	0.03	0.06
Close to or at home	0.59	0.16	0.28	0.02	0.27
(Family) had to stay	0.16	0.25	0.09	0.03	0.12
Feeling well/welcome	0.26	0.10	0.11	0.08	0.14
Availability of jobs	0.20	0.04	0.13	0.08	0.12
General economic situation	0.04	0.02	0.03	0.09	0.05
Education system	0.03	0.01	0.03	0.04	0.03
Availability of accommodation	0.31	0.18	0.12	0.12	0.19
Health care system	0.03	0.01	0.02	0.05	0.03
State and social welfare	0.02	0.02	0.07	0.18	0.08
Coincidence	0.02	0.15	0.24	0.34	0.19
Other reasons	0.04	0.14	0.09	0.08	0.08

Notes: Multiple choice of reasons was possible. Data source: *OneUA* (2022).

5. Conclusions

The literature on self-selection has mostly focused on labour migrants (Borjas 1987; Chiswick 1999), emphasizing economic motives of migration. Although theoretically, scholars have argued that the selectivity profiles of forced migration populations, i.e. IDPs and refugees, may be subject to distinct motives (FitzGerald and Arar 2018), there is a dearth of empirical research on these groups (Birgier *et al*. 2018; Guichard 2020; Spörlein *et al*. 2020; Aksoy and Poutvaara 2021). This article contributes to the scant literature on self-selection among refugees and IDPs (1) by examining a much broader set of self-selection factors than addressed before (e.g. language skills, region of origin, family status), (2) by comparing the self-selection profiles of refugees with IDPs, and (3) by studying self-selection profiles of refugees across receiving countries. We use cross-national data from the *OneUA* project (Kogan *et al*. 2022), which surveyed Ukrainian individuals between 14 July and 18 August 2022. More than 24,000 Ukrainian women residing in nine countries participated in this survey, i.e. those who stayed in Ukraine (either in the same home or as IDPs), Poland, Germany, Czech Republic, Italy, Netherlands, Romania, Hungary, and Moldova.

We expanded and tested a theoretical framework, which posits that migration decisions of displaced persons are influenced by a complex interplay of 'motivations' and 'resources' (or capabilities) to migrate. We considered *security*,

Table 4

Hypothesized and observed self-selection patterns.

H	Self-selection related to	Mechanism(s)	Hypothesized and observed effects on:		
			Leaving	Going abroad	Moving to distant country
1	Regions: conflict intensity	M: security	+ [+]		
2	Having young children	M: security	+ [−]	+ [−]	
3	Having a partner	M: attachment	− [−]	− [−]	− [−]
4	Age	M: productivity R: health	− [∩]	− [∩]	− [+]
5	Educational level	M: productivity R: knowledge	+ [+]	+ [0]	+ [+]
6	Financial capital	R: financial	+ [+]	+ [+]	+ [+]
7	English language skills	R: productivity	+ [+]	+ [+]	+ [+]

Notes: the symbols '+', '−', '∩', and '0' indicate positive relationship, negative relationship, curvilinear (concave) relationship, and no relationship, respectively. 'M' and 'R' indicate motivations and resources of migration, respectively. Observed findings are presented in brackets.

attachment, and *productivity* as key motivations for migration and people's *health*, *knowledge*, and *financial resources* as determining their resources to realize migration intentions. Using these underlying drivers, or mechanisms, of migration we then hypothesized how (1) the region of origin at the outbreak of the war, (2) family status, and (3) individual-level characteristics affected three sequential steps of migration decisions: first, the decision to leave home vs. staying behind; second, among those who left their home, the decision to resettle within Ukraine vs. seeking refuge as a refugee in another country; and third, among refugees, the decision to move to a country nearby Ukraine (e.g. Poland) vs. a more distant country (e.g. Germany). The hypotheses, mechanisms, and findings are summarized in Table 4.

Two main conclusions can be drawn from this study. First, we find systematic empirical patterns of self-selection related to respondents' region of origin, family status, and individual-level characteristics. Specifically, those from the most conflict-intense areas in Ukraine, those without (young) children, singles, those aged 26–35, those who are higher educated, those who have more financial resources, and those who speak English well were more likely to leave their homes. When looking at the decision to go abroad rather than resettle in Ukraine (the assumed second step in the decision-making process) and migrating to more distant countries rather than nearby countries (the third step), we find very similar self-selection patterns, as compared to the decision to stay or leave. An exception to this is that the relationship between age and leaving and going abroad is concave (i.e. the youngest and oldest age groups are the least likely to leave and go abroad), whereas when we look at migrating to distant countries, the relationship with age

is linear and positive. These empirical patterns contribute to the scant literature on self-selection profiles among refugees and internally displaced people (Havinga and Böcker 1999; Birgier *et al*. 2018; Guichard 2020; Spörlein *et al*. 2020; Aksoy and Poutvaara 2021; Díaz-Sánchez *et al*. 2021).

Second, the observed empirical patterns are generally in line with the theoretical framework, and the role of various motivations and resources in determining migration (Schewel 2019; De Haas 2021). Hence, we find that regarding forced migration, migration decisions are shaped not only by productivity arguments (i.e. economic motives), such as related to education and English language skills. Security motives (escaping the regions hit hardest), attachment motives (staying nearby partner), and financial resources play an important role as well. In the additional analyses of self-reported reasons for locational choice, we find evidence that these underlying motives and restrictions play a key role. Most prominently, we find that, among stayers, attachment motives were named very frequently, such as 'being close to or at home' (mentioned by 57%), 'family' (47%), and 'family had to stay' (16%).

Some findings in our study are contrary to expectations. This is especially so for the effect of having young children. We find that younger mothers (aged 18–25) are the least likely to leave their home, and when they do, they are more likely to resettle in Ukraine instead of moving abroad. Although the data do not contain direct information on the age of the child, the detailed analyses among the younger mothers provide compelling evidence of this pattern. It was hypothesized instead that mothers with young children would do the opposite: more often leave their homes and go abroad, assuming that security motives would drive them away from conflict areas. Possibly, there are additional motives and restrictions that play a role. It could be that mothers with younger children face more difficulties to escape their homes, or perceive migration as riskier to them, than mothers with adult children.

These findings and conclusions should be seen in light of the limitations of this study. The data from the *OneUA* project are based on non-probability samples, which undermine the generalizability of the results to the general population. This obvious drawback should be assessed against relative advantages of this method (compared to probability sampling). One advantage is that shortly after the Russian full-scale invasion, the target population might not yet have been included in traditional sampling frames in the European countries studied here, which creates bias in probability-based surveys. Another advantage is that, in our study we employed identical approaches to target respondents, thereby avoiding bias in the sample by relying on a multitude of sampling frames in the targeted countries. Lastly, in the case of Ukraine, the partly damaged infrastructure makes it hard to rely on conventional methods of probability sampling. Therefore, it has been argued that, when studying refugees and IDPs, like in this paper, it is important to not solely rely on probability samples, but also use other strategies for data collection (Ersanilli and Van der Gaag 2020; Pötzschke *et al*. 2022). Notwithstanding clear advantages of our strategy, it should be emphasized that findings of this study might not be generalizable to the entire population of

Ukraine—above all, those residing in the occupied territories or those with limited access to the internet—, and follow-up research using representative samples is encouraged.

In conclusion, this study contributed to a better understanding of the decision-making processes among refugees and displaced persons in war situations. We believe that the results of this study will be of interest to researchers, policymakers, and practitioners working in the fields of forced migration and displacement.

Acknowledgements

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Supplementary material

Supplementary material is available at *Journal of Refugee Studies* online.

Ethical approval

The study is approved by the Ethics Committee of the Faculty of Social and Behavioural Sciences of Utrecht University (file number 22-0226).

Data availability

Replication codes for data preparation and analyses are available at https://osf.io/zfkyc/. Information about the *OneUA* project can be found at: https://osf.io/tmgcd/.

ENDNOTES

1. Replication codes for data preparation and analyses are available at https://osf.io/zfkyc/.
2. In the main analyses, the Odessa oblast is classified with the central regions although it is administratively a Southern part of Ukraine. This is explained by the fact that Russian ground troops did not enter Odessa oblast apart and beyond the uninhabited Snake

Island. In additional analyses, we ran an alternative model, in which Odessa if grouped together with Southern regions. Results remain robust and are available upon request.

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