Refugees' Self-selection into Europe: Who Migrates Where? *

Cevat Giray Aksoy
European Bank for Reconstruction and Development and London School of Economics, United Kingdom
IZA, Germany

Panu Poutvaara
University of Munich, ifo Institute, CESifo, CReAM and IZA, Germany
CReAM, United Kingdom

Abstract

About 1.4 million refugees and irregular migrants arrived in Europe in 2015 and 2016. We model how refugees and irregular migrants are self-selected. Using unique datasets from the International Organization for Migration and Gallup World Polls, we provide the first large-scale evidence on reasons to emigrate, and the self-selection and sorting of refugees and irregular migrants for multiple origin and destination countries. Refugees and female irregular migrants are positively self-selected with respect to education, while male irregular migrants are not. We also find that both male and female migrants from major conflict countries are positively self-selected in terms of their predicted income. For countries with minor or no conflict, migrant and non-migrant men do not differ in terms of their income distribution. We also analyze how border controls affect destination country choice.

JEL Codes: J15, J24, O15

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1. Introduction

The 1951 Refugee Convention and its extension in 1967 define a refugee as a person who is outside his or her country of nationality "owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion," and is unable or unwilling to return there. The Convention forbids returning a refugee to a territory where his or her life or freedom would be threatened due to persecution (UNHCR, 1967). Irregular migrant is broadly defined as a person who travels abroad voluntarily in search of economic opportunities but has no legal right to remain in the intended destination country. Distinguishing between refugees and irregular migrants is complicated: an irregular migrant has a strong incentive to claim to be a refugee to obtain permission to stay. Receiving countries, instead, may aim to reduce the numbers of refugees by tightening the burden of proof for persecution.

Nearly 66 million people were forcibly displaced worldwide at the end of 2016 (UNHCR, 2017). The total seeking safety across international borders as refugees reached 22.5 million, with more than half of all refugees worldwide coming from only three countries: Afghanistan, South Sudan, and Syria (UNHCR, 2017). Although most refugees stay in developing countries (Chin and Cortes 2015; Hatton 2016), about 1.6 million refugees and irregular migrants have arrived in Europe between January 2015 and December 2017 (see Figure 1). About one million of them arrived in 2015 alone, with more than 800,000 reaching Europe by sea from Turkey to Greece (UNHCR, 2018). The present migration crisis differs from that in the 1990s in three crucial respects, as summarized by Dustmann et al. (2017). First, the current crisis has had a much stronger political impact on Europe that was already divided by populist and separatist national movements and weakened by the Great Recession and the Eurozone crisis. Second, the current crisis involves multiple actors over which Western nations have much weaker influence than in conflicts in the 1990s. Third, the refugees arriving in Europe are perceived to be culturally more distant than those in the early 1990s.

As policymakers try to make sense of a complex reality, it is important to understand the self-selection of refugees and irregular migrants in terms of their skills and demographic characteristics. This is the focus of our paper. We provide the first large-scale systematic evidence on the motivations, self-selection and intended sorting of refugees and irregular migrants from multiple countries of origin. We analyze data from the 2015 and 2016 Flow Monitoring Surveys (FMS) carried out in Europe as part of the Displacement Tracking

Matrix of the IOM. In these surveys, migrants were asked about their demographic characteristics, intended destination countries and reasons for leaving their home countries.[1] The large sample size of FMS allows us to analyze data on nearly 19,000 refugees and irregular migrants aged 14 and over. We combine FMS with Gallup World Polls to understand how migrant groups are self-selected from the source population in terms of observable characteristics and predicted income.

Motivations of migrants and their self-selection and intended sorting are important for several reasons. First, knowing the motivations and intended destinations of migrants helps to distinguish between the refugee crisis and challenges associated with irregular migration and helps to plan optimal policies to alleviate the humanitarian crisis. Second, refugees' self-selection has implications for rebuilding their home countries. The more skilled refugees are, the more difficult the gap they leave is to fill once the country enters the reconstruction stage. Third, knowing the skill distribution and intended destinations of refugees and irregular migrants who make it to the transit countries is helpful in planning integration policies, and thereby contributes to social stability in host countries and in intended destination countries. In 2015 and 2016, concerns about refugees and irregular migrants resulted in the re-introduction of border controls inside the Schengen area, disrupting the central principle of intra-EU free mobility and intra-European trade and supply chains. The refugee crisis also played a central role in the Leave campaign against the United Kingdom's membership in the European Union (despite the United Kingdom being outside the Schengen area and therefore relatively unaffected by the refugee crisis). Worries about immigration have powered the rise of populist parties and candidates in Germany (Otto and Steinhardt 2014), Austria (Halla et al. 2017), Denmark (Dustmann et al., forthcoming), France (Edo et al. 2018), and Greece (Dinas et al. 2018).

To preview, we find that 77 percent of respondents had emigrated mainly due to conflict or persecution, 21 percent for economic reasons or lack of basic services like healthcare, and 2 percent due to natural disasters or other reasons. However, there are major differences in main reasons to emigrate between different nationalities. More than 90 percent of respondents from Afghanistan, Iraq, Somalia, Sudan, and Syria emigrated because of conflict or persecution, while this share was less than 10 percent for respondents from Algeria and Morocco. We find important differences in how refugees and irregular migrants

[1] We use the term "refugees and irregular migrants" to refer to individuals surveyed in Flow Monitoring Surveys. We will sometimes refer to each group separately. We will also sometimes refer to both groups as migrants.

are self-selected relative to the country of origin population: refugees from countries suffering from major conflict with 1000 or more battle-related deaths (Afghanistan, Iraq, Libya, Nigeria, Pakistan, Somalia, Sudan, and Syria) are positively self-selected with respect to secondary and tertiary education. We show that extending the framework developed by Roy (1951) and Borjas (1987) to account for risks associated with conflict or persecution can explain why migrants from countries facing a major conflict or large-scale repression are positively self-selected, even when returns to skill in those countries would be higher than in the destination countries. This positive self-selection from countries plagued by major conflict arises even without assuming borrowing constraints and is contrary to the intuition that migrants from more unequal countries should be negatively self-selected. Borrowing constraints would further strengthen the result as those with more education are likely to have more resources that allow them to leave, and those able to leave are likely to want to do so in times of major conflict, even when returns to skills in Europe would be relatively low. These patterns with respect to tertiary education hold for both men and women, as does the finding that young people are more likely to emigrate from all country groups. Among men, singles are more likely to migrate, while married women are more likely to emigrate than single women, reflecting that women typically migrate with their spouse.

To further investigate selection, we also compare predicted earnings of refugees and irregular migrants and non-migrants. We find that refugees and irregular migrants are strongly positively self-selected in terms of their predicted earnings in all country groups (that is, major conflict and minor or no conflict). When we compare predicted earnings by migrants and non-migrants separately for men and women, we find that men are more strongly positively self-selected from all country groups.

Migrant self-selection is of major importance for both origin and destination countries. Building on Roy (1951), Borjas (1987) showed that if skills are sufficiently transferable across countries, the theory suggests that migrants from a less egalitarian to a more egalitarian country should come from the lower end of the skill distribution, and migrants from a more egalitarian to a less egalitarian country should come from the upper end of the skill distribution. Subsequently, Grogger and Hanson (2011) presented a model that also builds on the Roy model but assumes linear utility and absolute cost of migration, instead of time-equivalent costs as in Borjas (1987). The model by Grogger and Hanson (2011) predicts that migrants are generally positively self-selected also from less egalitarian countries and that the sorting of migrants depends on relative skill prices in different

destinations. Therefore, more educated migrants are more likely to settle in countries that offer high rewards to skill.

Deciding whether to migrate is a complicated process. It is often difficult to distinguish between refugees and those migrating for other reasons but claiming to be refugees. Economic incentives can be expected to play an important role even for those leaving countries suffering from civil war. Understanding migrants' decision-making process better helps to plan policies that alleviate migration pressure resulting from a lack of economic opportunities. Given that European countries have much narrower income differences than African and Middle Eastern countries, theory by Borjas (1987) suggests that economic migrants from these regions to European welfare states should come from the lower end of the skill distribution, while Grogger and Hanson (2011) predict that migrants should be positively self-selected also from these regions, but sorted according to differences in skill prices in different destinations. Liquidity constraints and immigration restrictions can mean that the poorest simply cannot migrate, and could help to explain why the high-skilled have been found to be more mobile (Docquier, Lowell and Marfouk 2009). Research has also shown that low growth, high (youth) unemployment and environmental problems are powerful push factors for international migration in poor countries of origin (Beine and Parsons 2015; Cattaneo and Peri 2016; Mayda 2010).

In this paper, we make five main contributions. First, we provide a theoretical model of refugee self-selection, building upon Borjas (1987) and Grogger and Hanson (2011). Second, we provide the first large-scale evidence on the motivations of migrants in the transit countries in 2015 and 2016, distinguishing refugees and (irregular) economic migrants. Third, we document how recent flows of refugees and migrants in transit countries are selected from the source population in terms of various characteristics, like gender, age, and education. Fourth, we analyze how these characteristics and self-selection differ between migrants whose main reason to emigrate is conflict or persecution, and migrants who emigrate for other reasons. Fifth, we analyze how demographic characteristics differ by intended destination countries.

Although there is a large literature on migrant self-selection, its focus has been on economic migrants (see Borjas 1987; Chiquiar and Hanson 2005; Fernandez-Huertas Moraga 2011; Grogger and Hanson 2011; Abramitzky et al. 2012; Parey et al. 2017; Borjas et al. 2019). There are a few studies that analyze the self-selection of refugees from some individual countries (see Cohen (2007) on immigrants from the former Soviet Union in Israel and the United States and Birgier et al. (2016) on Argentinian and Chilean refugees in the

United States, Sweden, and Israel) but no systematic analysis on the self-selection of refugees from multiple countries of origin into multiple destinations.

As for the current refugee crisis, there is an ongoing research project on recently arrived refugees in Germany, based on surveys carried out since June 2016 by the Institute for Employment Research (IAB), the Research Centre of the Federal Office for Migration and Refugees (BAMF-FZ), and the German Socio-Economic Panel (SOEP) at the German Institute for Economic Research (DIW Berlin). The first results by Brücker et al. (2016) show that refugees who have arrived in Germany have a relatively low level of education compared with the German population. Using the same data, Guichard (2017) compares people who came to Germany from three conflict-affected source countries (Afghanistan, Iraq, and Syria) and two countries that are generally considered as safe (Albania and Serbia). He finds that refugees from Afghanistan, Iraq, and Syria are positively self-selected in terms of education relative to the population at the origin, while migrants arriving from Albania and Serbia are negatively self-selected. Our paper and these studies are complements. Taken together, our survey data from 2015 and 2016 and IAB data from 2016 onwards allow comparing how migrants who applied for asylum in Germany compare with refugees and irregular migrants in transit countries, separately for those aiming at Germany and those aiming at other destinations.

The remainder of the paper is organized as follows: Section 2 outlines a theoretical framework for understanding the self-selection mechanisms. Section 3 provides details on the data sources. Section 4 shows descriptive statistics. Section 5 describes the estimation strategy. Section 6 presents the results, after which section 7 concludes.

2. Theoretical Framework

We analyze emigration from several countries of origin into one destination. We denote countries of origin with index *k*, and the potential destination with index *d*.[2] Our model builds on Borjas (1987), but adds into it risks related to conflict or persecution in the home country, and risks related to migrating. As Grogger and Hanson (2011), we simplify the Borjas (1987)

[2] We model migration decision between staying in the home country or migrating into one destination, rather than a specific choice between various European countries, as asylum-seekers may face considerable uncertainty on whether they can make it to their preferred destination country. Destination *d* may be interpreted as a composite of various European countries, in which different countries receive a weight corresponding to the conditional probability that a migrant from country *k* ends up there in case of reaching Europe.

framework by leaving out unobservable skill components in origin and in destination as our data do not allow testing hypotheses related to it. We denote human capital of individual *i* beyond primary education by h_i. The wage individual *i* would receive in home country *k* is given by

$$w_i^k = \exp(\alpha_k + r_k h_i),$$

in which $\exp(\alpha_k)$ captures the wage available to those with primary education, and r_k is the return to human capital above primary education in country *k*. To capture the risks associated with conflict or persecution, we assume that there is a country-specific risk q_k, $0 \leq q_k < 1$ of losing the wage income and suffering an additional utility loss L_k, $L_k \geq 0$. The utility is logarithmic in terms of consumption in case of working and linear in terms of the loss in case the risk is realized. It is reasonable to expect q_k and L_k to be highest in countries suffering a war or civil war, intermediate in countries with a low-intensity conflict or persecution, while it can be viewed as zero, or close to zero, in relatively safe countries from which migrants are motivated by the lack of job opportunities, rather than conflict or persecution. The expected utility in case of no migration is therefore

$$EU_i^k = (1 - q_k)\log(w_i^k) - q_k L_k.$$

In case of successful migration, individual *i* receives wage $w_i^d = \exp(\alpha_d + r_d h_i - \pi_k)$, in which $\exp(\alpha_d)$ depicts the wage available to natives with primary education in country *d*, r_d is the return to human capital above primary education in country *d* and π_k measures the loss of potential productivity due to imperfect applicability of migrant's human capital and lack of language skills. It plays an equivalent role to time-equivalent migration costs in Borjas (1987), and can differ across countries of origin, for example reflecting linguistic distance and quality of schooling.

To capture the idea that refugees and irregular migrants face various risks also on their way to the destination countries, we assume that migrants from country *k* face risk s_k, $0 \leq s_k < 1$ of not making it to their intended destination in case of trying to migrate. This risk could include, at its extreme, dying on the way, as well as being imprisoned or caught in a transit country the migrant would prefer not to stay in due to lack of funds or unexpected border closures. We denote the expected loss in case the risk is realized by $L_M, L_M \geq 0$. We also allow for gender-specific risks and norms that affect the cost of travelling, by introducing gender dummy D_i which obtains value 1 if individual *i* is female and 0 if

individual i is male. We expect lower female migration rates as many traditional societies have social norms that may make travelling alone more difficult for women. As only men are subject to conscription in most countries, it is an additional push factor for men and has a similar effect on gender difference as a higher migration cost for women. The differential cost for women of migrating from country k is denoted by c_k. Finally, an idiosyncratic component ε_i depicts various costs and benefits related to migration that are not captured by other terms, including valuation of different cultural norms and social networks. The expected utility in case of migration is therefore

$$EU_i^d = (1 - s_k)\log\left(w_i^d\right) - s_k L_M - D_i c_k + \varepsilon_i.$$

We assume that ε_i is independently and identically distributed and denote its density function by f and its cumulative distribution function by F, which we assume to be differentiable. We assume that the distribution is sufficiently wide so that under all relevant circumstances, some people migrate and some stay.

It is ex-ante rational to migrate if $EU_i^d > EU_i^k$. This simplifies into condition

$$\varepsilon_i > \varepsilon_i^* = [(1 - q_k)r_k - (1 - s_k)r_d]h_i + (1 - q_k)\alpha_k - (1 - s_k)\alpha_d + \pi_k - q_k L_k + s_k L_M + D_i c_k.$$

The probability that individual i migrates is given by

$$p_i = 1 - F(\varepsilon_i^*).$$

We can now summarize our predictions as

Proposition 1.

(i) $\frac{dp_i}{dh_i} = -[(1 - q_k)r_k - (1 - s_k)r_d]f(\varepsilon_i^*)$;

(ii) $\frac{dp_i}{dr_k} = -(1 - q_k)h_i f(\varepsilon_i^*) < 0$;

(iii) $\frac{dp_i}{dr_d} = (1 - s_k)h_i f(\varepsilon_i^*) > 0$;

(iv) $\frac{dp_i}{d\alpha_k} = -(1 - q_k)f(\varepsilon_i^*) < 0$;

(v) $\frac{dp_i}{d\alpha_d} = (1 - s_k)f(\varepsilon_i^*) > 0$;

(vi) $\frac{dp_i}{dq_k} = (r_k h_i + L_k) f(\varepsilon_i^*) > 0$;

(vii) $\frac{dp_i}{ds_k} = -(r_d h_i + L_M) f(\varepsilon_i^*) < 0$;

(viii) $\frac{dp_i}{dL_k} = q_k f(\varepsilon_i^*) > 0$;

(ix) $\frac{dp_i}{dL_M} = -s_k f(\varepsilon_i^*) < 0$;

(x) $\frac{dp_i}{d\pi_k} = -f(\varepsilon_i^*) < 0$;

(xi) $\frac{dp_i}{dc_k} = -D_i f(\varepsilon_i^*) < 0$.

Part (i) of proposition 1 shows that the self-selection of migrants with respect to their human capital depends not just on returns to human capital, but also on risks related to conflict or persecution if staying in the home country and risks related to potential migration. Migrants are positively self-selected if $(1 - q_k)r_k < (1 - s_k)r_d$ and negatively self-selected if $(1 - q_k)r_k > (1 - s_k)r_d$. This implies that if returns to skills are higher in the country of origin and the country of origin is relatively safe (a low risk term q_k) migrants are negatively self-selected, in line with Borjas (1987). However, if the country of origin suffers from a sufficiently severe conflict, given by $q_k > 1 - \frac{(1-s_k)r_d}{r_k}$, the self-selection is reversed and migrants tend to come from the upper part of the skill distribution. This is the main prediction that we test in our empirical part. It also implies a central difference between our model and that by Chin and Cortes (2015). According to Chin and Cortes, "refugees will be less selected on characteristics associated with labor market success in the destination country compared to other migrants." According to our model, refugees' self-selection depends on the relative risks faced in the country of origin and during the migration process. Even if everyone in the country of origin would face the same risk of losing one's job due to persecution, a high risk could result in refugees being self-selected *more strongly* in terms of their skills than irregular migrants who are not subject to persecution would be from an otherwise identical country. The different prediction arises as Chin and Cortes (2015) model persecution as a disamenity which does not influence the wage income in the country of origin, while we assume that

people who are subject to persecution both lose their wage income and are subject to an additional utility loss, for example due to maltreatment if being imprisoned.[3]

Parts (ii) and (iv) show that increases in the basic and skill-related component of the wage in the home country reduce migration, while parts (iii) and (v) show that increases in the basic and skill-related component of the wage in the destination country increase migration. Parts (vi) and (viii) ((vii) and (ix)) suggest that higher risks related to staying in the country of origin (migration) increase (decrease) migration. Therefore, we expect that intensifying conflict and persecution, as well as improved weather conditions or sea rescue missions increase migration.[4] Also, policies related to border closures or openings directly influence incentives to migrate. Finally, part (x) suggests that worse labor market options in the destination countries reduce migration, suggesting that migration should be higher from countries in which migrants are more likely to speak the language of the destination country, and part (xi) states that higher gender-specific risks when traveling alone for female migrants (or higher risks from conscription for males if staying in the country of origin) reduce the share of female migrants; note that the model does not impose that the share of female migrants would be lower but that this is an empirical question. We expect that the share of female migrants is especially low from countries in which traditional gender roles are strong and from which most migrants emigrate for economic reasons. We also expect that women would be more likely to emigrate from countries with intense conflict or persecution as then the risk of staying could be bigger than the risk of migrating, even when accounting for gender-specific risks.

3. Data

The data used in this paper come from the Flow Monitoring Surveys (IOM), Gallup World Polls, the World Bank's World Development Indicators (WDI), and the Uppsala Conflict Data Program (UCDP). The level of analysis is the individual level, and the details on how the dataset was constructed are provided below.

[3] A richer model could allow for separate risks of persecution that does not involve losing one's job as in Chin and Cortes (2015) and persecution which involves both losing one's job and additional utility loss, for example due to imprisonment or militia violence that forces its victims to flee from their homes.

[4] For example, Ibanez and Velez (2008) show that intensification of the political conflict and its expansion to a wider territory caused displacement numbers to grow at a larger pace in Colombia in the late 1990s.

3.1. Flow Monitoring Surveys

Our analysis is based on the Flow Monitoring Survey (FMS) obtained from the International Organization for Migration (IOM). The FMS provides in-depth insight in the profile, motivations, experiences and intentions of the migrants. It aims to derive quantitative estimates of the flow of (non-European) third-country nationals who are migrating towards Europe through the so-called Central and the Eastern Mediterranean routes. The surveys are conducted in 11 languages (Arabic, Dari, English, Farsi, French, Italian, Kurdish, Pashto, Somali, Tigrinya, and Urdu) and administered by trained (male and female) data collectors with a mix of cultural and linguistic backgrounds (IOM, 2017).[5] FMS only gathers information from migrants and refugees aged 14 and older.

The survey aims to be representative of the nationalities, sex and age structures of migrants arriving in Europe through the Central and Eastern Mediterranean route (IOM, 2017). Figure 2 illustrates the main migratory flows: (i) the Central Mediterranean Route refers to the sea journey from Sub-Saharan Africa to Italy, with Libya being the main point of departure; (ii) the Eastern Mediterranean Route refers to the sea crossing from Turkey to Greece. Migrants who entered the EU (Bulgaria or Greece) via Turkey by land or sea then travel through Western Balkan countries — Albania, Bosnia and Herzegovina, Croatia, Former Yugoslav Republic of Macedonia, Kosovo, Montenegro, Serbia, and Slovenia — with the aim of reaching the Schengen area.[6]

The surveys are conducted at the transit points.[7] They are fully anonymous and voluntary. Respondents are approached by IOM field staff and are informed of the purposes of the research and of the fact that participation does not influence their legal status in the country of the interview. The remainder of the questions is posed only to those migrants who give their consent to proceed.

[5] In case of large groups, the surveys were conducted on a sample of the population. In case of small groups, the entire population was surveyed.

[6] As for Italy, the FMS was conducted in 36 entry and transit points in Sicily, Calabria and Apulia in 2016 including the 3 of the 4 hotspots operating in the country (Trapani, Pozzallo and Taranto). The hotspots are first reception facilities with high capacity for the purpose of identification and registration of migrants soon upon arrival (IOM, 2016). Western Mediterranean Route (sea crossing from Morocco to mainland Spain) is not part of the analysis. Migrants using East African Route (sea crossing from Egypt and Libya to mainland Greece and Italy) might be included in our datasets depending on where they arrived.

[7] The share of interviews by survey country is as follows: 24 percent in Italy, 20 percent in Greece, 19 percent in FYR Macedonia, 18 percent in Croatia, 6 percent in Bulgaria, 5 percent in Hungary, 5 percent in Slovenia, and 3 percent in Serbia.

FMS provides rich information on migrants' demographic characteristics (age, gender, educational attainment, and marital status), employment status before migration, key transit points on their route, cost of the journey, reasons for leaving the place of residence, and intended destination(s). We use three waves of FMS. The first wave (October 2015 to December 2015) conducted interviews in Croatia, Greece, Slovenia, the Former Yugoslav Republic of Macedonia. The second wave of FMS (January 2016 to November 2016) covers Bulgaria, Croatia, Greece, Hungary, the Former Yugoslav Republic of Macedonia, Serbia, and Slovenia. The last wave of the survey only covers Italy, spanning from June to November 2016. Our final sample (with no age restriction, i.e. 14+) consists of nearly 19,000 observations provided by migrants of 19 different nationalities with at least 100 respondents (i.e., source countries). As the differences between migrants of a given nationality in a given transit country are minor between survey waves, we pool migrants from different waves. In Appendix Table 1, we provide evidence on how the demographic characteristics of respondents from excluded source countries (those with less than 100 respondents) compare to the individuals included in the analysis.

It is important to note that, despite the fast-changing conditions in the field, FMS provides a good representation of migrant groups. More specifically, in Table 1, we evaluate the representativeness of FMS data by comparing it with official Eurostat data on asylum applications in 2015 and 2016. The table includes only those countries that were named as a country of nationality by at least 100 respondents in the FMS data. Syrians are by far the largest group (25.6 percent in FMS data and 25.5 percent in Eurostat data), Afghans the second largest group (18.5 percent in FMS data and 12.8 percent in Eurostat data) and Iraqis the third largest group (9.3 percent in FMS data and 8.5 percent in Eurostat data) in both data sets. Overall, the correlation between the shares of the nationalities in FMS and Eurostat data is remarkably high: 0.98. The share of males is somewhat higher in FMS data, but the differences are small for most countries. To sum up, comparisons with Eurostat data do not raise any major concerns about the representativeness of FMS data, with the caveat that women may have been somewhat less likely to answer the FMS survey, as suggested by IOM experts based on their field experience (UNICEF, 2017). Unfortunately, we are not able to include Eritrea in the analysis as it is not surveyed by Gallup World Polls.

3.2. Gallup World Poll and Country Level Characteristics

Our primary data on the source country population come from the 2009-2014 Gallup World Polls (GWP).[8] These nationally representative surveys are fielded every year in over 120 countries and interview approximately 1,000 individuals in each country on a range of topics. The GWP provides detailed information on individuals' demographic characteristics (age, gender, educational attainment, and marital status), labor market outcomes, income, and migration intentions.

The GWP's main advantage for our purposes is that the poll allows us to combine the FMS data with data on non-migration population for a broad spectrum of countries. Specifically, we merge two unique datasets based on 19 source countries reported by at least 100 respondents in the FMS. We then create a "*migrant*" indicator variable, which takes a value of 1 for respondents surveyed in the FMS and zero otherwise. Using this pseudo-cross-sectional sample, we investigate how refugees and irregular migrants are self-selected from the source population.[9] Importantly, each variable in GWP is harmonized with the definitions used in FMS to ensure comparability.

To further understand the characteristics of refugees and economic migrants, we use Uppsala Conflict Data Program (UCDP) battle-related deaths dataset and classify the source countries based on their conflict intensity (Therése and Eck, 2018).[10] Following the definitions provided by UCDP, we define: i) *major conflict* category as countries with 1000 or more battle-related deaths in any of the years between 2009 and 2014 (this category includes Afghanistan, Iraq, Libya, Nigeria, Pakistan, Somalia, Sudan, and Syria); ii) *minor conflict* category as countries with 25 to 999 battle-related deaths in any of the years between 2009 and 2014 (this category includes Algeria, Egypt, Iran, and Mali); iii) *no conflict* category as countries that did not experience a major war or minor conflict in any of the years between 2009 and 2014 (this category includes Bangladesh, Cameroon, Côte d'Ivoire, Ghana, Guinea, Morocco, and Senegal). It is important to note that there is some movement of

[8] In appendix, we show that our results remain qualitatively the same when we use the data on source population between 2009 and 2011 (i.e. pre-Syrian conflict period).

[9] When we restrict our sample to age band 25-64, the data relate to people from the following thirteen countries: Afghanistan, Algeria, Bangladesh, Cameroon, Côte d'Ivoire, Iran, Iraq, Morocco, Nigeria, Pakistan, Senegal, Sudan and Syria.

[10] We use the UCDP's best estimate for battle-related deaths to classify the countries based on their conflict intensity.

countries between the categories across years and using a continuous measure of the conflict intensity produces qualitatively similar results.[11]

We also use a number of country characteristics in our analysis. We obtained country level unemployment rates and the GINI Index (0-100 range) from the World Bank's World Development Indicators database. For destination countries, we use *migrant integration policy index* variable from the MIPEX, which measures migrants' opportunities to participate in society. The index uses 167 policy indicators covering 8 policy areas (labor market mobility, family reunion, education, political participation, long-term residence, access to nationality, anti-discrimination and health) to rate countries from 0 to 100, with 100 being the top score.[12] We obtained data on the *average duration of asylum procedure* from Eurofound (2016). This variable reports the average number of months passed between the submission of the asylum claim and the first decision. For ease of interpretation, we rescale this variable from 0 to 1, with 1 being the longest duration. Data on waiting duration for labor market access come from the OECD (2016). This variable measures the waiting period, in months, that it takes to obtain a work permit after successfully claiming asylum. Again, we rescale this variable from 0 to 1, with 1 being the longest duration.

4. Descriptive Statistics

Tables 2.a and 2.b present descriptive statistics of FMS data, with respect to when and where the interviews took place and basic demographic and socioeconomic characteristics of survey respondents. In table 2.a, we show the descriptive statistics for the full-sample (i.e., with no age restrictions). In Table 2.b, we focus on the sample of migrants aged 25 to 64.

Table 2.a shows descriptive statistics for the full FMS sample. An overwhelming majority of survey respondents are male (82 percent) and single (70 percent) with an average age of 26. 18 percent of the respondents have tertiary level education.[13] About half of the respondents also report to have been employed before migration.

When we focus on individuals aged 25 to 64 in Table 2.b, we again find that a vast majority of survey respondents are male (80 percent). There are also notable differences

[11] These results are not presented here but available upon request.

[12] For details of the compilation of the MIPEX, see Huddleston et al. (2015).

[13] These figures are in line with those found in Brücker et al. (2016) who show that 13 percent of refugees aged 18 or more have a university degree and 6 percent have a vocational qualification.

between the two samples: migrants in this age band are more likely than those in the full-sample to be married (57 percent), to have tertiary level education (25 percent), and to have been employed before migration (63 percent). These differences in education levels and employment status before migration also highlight the importance of focusing on individuals aged 25 and older when testing our theory. By doing so, we avoid the share of young respondents mechanically driving results for self-selection with respect to tertiary level education and employment. When it comes to the reasons for leaving their home country, migrants cite "conflict or persecution (79 percent)" and "economic reasons (17 percent)" as the main causes. The shares are almost the same for the full-sample.[14] There is a major gender difference in marital and past employment status: women are much more likely to be married and much less likely to have been employed. The share of Syrians is also considerably higher among women.

There are some notable differences between the survey waves. First, the share of Syrians, Afghans, and Iraqis are the highest in the Wave 1 and Wave 2. In Wave 3, most migrants come from Africa, with Nigerians and Guineans being the largest groups. This is expected given that the Wave 3 was fielded in Italy, which is the main arrival point for people fleeing conflict and poverty in Africa. Second, the share of migrants motivated by economic reasons is somewhat higher in the second and the third wave, although conflict or persecution dominate as the main reasons for the vast majority also in these waves. Third, there is huge variation in the level of education across survey waves: the share of those with tertiary education in the full sample is 36 percent in wave 1, 20 percent in wave 2 and 6 percent in wave 3. Corresponding patterns prevail if the analysis is restricted to those aged 25 to 64.

In Table 3, we present descriptive characteristics of the source population from the GWP. Unlike in Tables 2a and 2b, the gender ratio is balanced. People in source countries (compared to refugees and irregular migrants) are also older on average, more likely to be married, and less likely to have (completed) tertiary level education. There is no significant differential in employment between the two groups in the full sample. In contrast, refugees and irregular migrants are more likely to be employed before migration in the 25-64 sample. These patterns remain qualitatively similar when we use the source population data between 2009 and 2011 (see Appendix Table 2). Women are much less likely to be employed and somewhat less educated.

[14] Using IAB-BAMF-SOEP survey, Brücker et al. (2016) report that 70% of refugees listed war and conflict, as the main reason to migrate followed by persecution (44%), poor personal living conditions (39%), discrimination (38%) and fear of forced conscription (36%).

Table 4 presents the differences in educational attainment for the main source countries. Apart from Nigeria, Bangladesh, and Senegal, migrants are better educated than non-migrants, whether analyzing the full population or restricting the attention to those aged 25 to 64.

Figure 3 illustrates the reasons for leaving by nationality. We find that more than 90 percent of respondents from Afghanistan, Iraq, Somalia, Sudan, and Syria report leaving their country due to conflict or persecution. At the other end of the scale, a vast majority of respondents from Morocco and Algeria cite economic conditions as the main reasons for leaving their home country. Limited access to basic services (like school and health care) or lack of food or accommodation was named as the main reason by only 3 percent of respondents. Overall, this suggests that the vast majority of migrants were seeking refuge from conflict or persecution, although there is a sizable population driven primarily by economic concerns. Examining the reasons for leaving by nationality delivers similar results. There are no noteworthy gender- and age-specific differences in reported reasons. Most origin countries in our sample are predominantly Muslim and low or lower-middle income nations.

The respondents were also asked their intended destination country. As shown in Figure 4, 45 percent named Germany. Somewhat surprisingly, the second most common country was Italy (19 percent). This is explained by those already in Italy and not aiming to continue: 82 percent of respondents who named Italy as the intended destination country were already there. These countries are followed by France, Sweden, and the UK.

Figure 5 shows the reasons for leaving by the intended destination country. We find that more than 80 percent of those aiming for Germany, Denmark, Finland, Sweden, Norway and Austria had left their country of origin because of conflict or persecution. This share was below 60 percent among those aiming for Italy, Belgium, and France, which had, correspondingly, highest shares of economic migrants.

5. Empirical Approach

To assess the self-selection of migrants we estimate a series of multivariate regression models relating to how refugees and irregular migrants in the FMS differ from the overall population in GWP. We restrict the attention to those aged 25 to 64 to focus on individuals most likely to have completed their education, and not yet retired. Our main variables of interest are age,

gender, and level of education. In some of the analyses, we also use predicted incomes to study how these are related to self-selection into emigration from different country groups. We proceed by estimating linear probability models for our outcomes for ease of interpretation, though logistic regression models returned similar patterns. We also estimate most models separately by the level of conflict in source country and gender. Our models of self-selection take the form:

$$(1) \qquad \text{Refugee/Migrant}_{ic} = \alpha + \beta_1 X_i + + \beta_2 C_c + \varepsilon_i$$

where $\text{Refugee/Migrant}_{ic}$ takes a value of 1 if individual *i* from country *c* is in the FMS sample and 0 otherwise. X_i is a vector of demographic variables that includes: age group dummies (25-34, 35-44, 45-54); education dummies (tertiary education, secondary education); dummy variable indicating the labor market status before migration (employed); a dummy variable indicating the marital status (married, divorced, widowed). To account for other unobservable characteristics, we include a full set of source country (C_c) dummies, which control for all time-invariant variation caused by factors that vary cross-nationally.

We use data for the source population from Gallup World Polls between 2009 and 2014; however, the results are robust to using data between 2009 and 2011 (pre-Syrian conflict period). Note that in equation (1) the relevant reference category is composed of individuals who are in the Gallup World Poll. We estimate standard errors robust to heteroscedasticity.

To investigate the self-selection of refugees and migrants with respect to income, we use Gallup data that includes household income and individual income. Specifically, we first estimate within-country Mincer regressions controlling for the level of education, employment status, gender, age, and marital status based on migrants' home country. We then use these estimates to predict household income and personal income for those surveyed in the FMS and use these predicted incomes to gain further insights into how migrants from different country groups are self-selected with respect to their earnings potential.

After analyzing self-selection into emigration, we analyze sorting into different intended destinations by using FMS data only. Our models of sorting take the form:

$$(2) \qquad \text{OUTCOME}_c = \alpha + \beta_1 X_i + + \beta_2 C_c + \varepsilon_i$$

where OUTCOME_c is one of the country level indicators: (i) Gini coefficient; (ii) country-level unemployment; (iii) migrant integration policy index; (iv) average duration of asylum

procedure; (v) average waiting duration for labor market access; (vi) social expenditure as percentage of GDP. In addition, we use country-level estimates for returns to education as an outcome (i.e., by estimating within-country Mincer equations in GWP). All other variables are as described above.

6. Results

This section presents four sets of results. We first show self-selection of refugees and irregular migrants with respect to education and other demographic characteristics. Second, we analyze the self-selection of refugees and irregular migrants according to their predicted earnings. Third, we investigate whether refugees and irregular migrants with tertiary level education (or more) sort themselves into more inegalitarian countries and whether refugees' and irregular migrants' choice for destination countries is shaped by macro-level characteristics. The final set of results provides descriptive evidence on the role of border closures in migrants' intended destinations.

6.1. Self-selection of Refugees and Irregular Migrants with respect to Demographic Characteristics

In this subsection, we start testing our theoretical predictions - based on our extension of the Roy-Borjas model - to understand how the distribution of education among refugees and irregular migrants compares with that among non-migrants. We present this evidence in Table 5 for males and females together, in Table 6 for males only, and in Table 7 for females only. The columns are structured as follows: all countries (column 1); major conflict countries (column 2); minor or no conflict countries (column 3). As mentioned above, we restrict attention to individuals aged 25 to 64 to focus on individuals most likely to have completed their education and not yet retired.

In column 1 of Table 5, we find that educated people are significantly more likely to migrate when we analyze all countries together. The results in column 2 and 3 suggest that the probability of emigration increases in tertiary education in both country groups, but decreases in secondary education in countries with a minor or no conflict.[15] Notably, refugees

[15] The results hold also if excluding Iran, which has by far the highest share of tertiary educated emigrants.

and irregular migrants escaping major conflicts tend to be highly educated relative to the national average in their country of origin. These results are in line with our theoretical predictions suggesting that if the risk of being a victim of conflict or persecution increases, the probability of emigration becomes eventually increasing in human capital even if returns to human capital would be higher in the country of origin in the absence of conflict or persecution. An additional mechanism outside our model is that better-educated individuals would find it easier to finance their trip, while liquidity constraints would prevent the least educated people from migrating. Turning to other covariates, we find that the probability of emigration is higher for men, younger people, and singles.

Tables 6 and 7 present corresponding analyses separately for men and women. The probability of emigration increases in both secondary and tertiary education for both men and women in countries suffering from a major conflict. In countries with minor or no conflict, men with secondary education are somewhat less likely to emigrate than men with less than secondary education, while the effect of tertiary education is statistically insignificant. This is intuitive as African and Asian countries have much wider income differences than European countries. More positive self-selection of migrants from major conflict countries is in line with our model. Table 7 shows that in countries with minor or no conflict women with tertiary education are significantly more likely to emigrate than women with less than secondary education, while women with secondary education do not differ from women with less than secondary education in their probability of emigration. At the first sight, positive self-selection of women from minor or no conflict countries with respect to their education may appear to contradict our model. However, it is important to note that gender discrimination is a major problem in most of Africa and Asia, and in many countries women's labor market opportunities are severely restricted. If these restrictions hit disproportionately tertiary-educated women, then they may actually enjoy higher expected return to their human capital in Europe, explaining opposite selection pattern compared with men. Furthermore, the fact that also female migrants are more strongly positively self-selected from major conflict countries than from minor or no conflict countries is in line with what our theory predicts.

We also find that men who were in employment before migration are more likely to emigrate from countries suffering from major conflict but less likely to emigrate from countries with minor or no conflict, again in line with emigration from no or low conflict countries being motivated by lack of economic opportunities. The opposite is found for women: those who were in employment before migration are less likely to emigrate from

countries suffering from major conflict but more likely to emigrate from countries with minor or no conflict. Given that employment and educated may be strongly correlated, we analyzed the effects of employment and demographic controls separately according to the level of education (results available upon request). The results for men are driven by those with secondary education. When analyzing women, a more complex picture arises. Being employed reduces the probability of emigrating from major conflict countries for women with primary or secondary education, but has no effect on the probability of emigration from minor conflict countries. Among women with tertiary educated, being employed has no effect on the probability of emigration from major conflict countries, but increases the probability of emigration from minor or no conflict countries. This finding may reflect highly educated women's relatively bad labor market opportunities to which those women who choose to pursue employment react more strongly.

We establish a link between self-selection among refugees and irregular migrants and their main motivation to emigrate in Table 8. More specifically, our outcome variable is *reason to migrate: conflict/persecution*, which is equal to 1 for respondents who cite conflict or persecution as the main reason to migrate and 0 for other respondents who cite other reasons (economic reasons, limited access to amenities and natural disasters and other reasons) in the Flow Monitoring Surveys. The columns are structured as follows: all respondents (column 1); males (column 2); females (column 3). We again restrict attention to individuals aged 25 to 64.

In Column 1 of Table 8, we find that refugees who escaped conflict or persecution are significantly more likely to have secondary and tertiary level education compared with those who cite other reasons for leaving their countries. The results in column 2 and 3 suggest that this pattern applies to both men and women. These results are in line with our theory: higher risks related to remaining in the country of origin can result in positive self-selection of migrants, even if self-selection in the absence of conflict or persecution would be negative.

6.2. Self-selection with respect to Predicted Income

In Table 9, we use predicted individual income as the only explanatory variable to predict emigration of those aged 25 to 64, in addition to country fixed effects. Specifically, we obtain predicted individual income by estimating within-country Mincer regressions which control for the level of education, employment status, gender, age, and marital status, separately for each country or origin.

Note that our models in Table 9 do not include individual covariates again as these are all strongly correlated with predicted income. We find that predicted log income strongly increases the probability of emigration from all country groups. The effect of predicted income is highest for migrants from countries suffering a major conflict, in line with our theoretical predictions. Interestingly, migrants from countries with minor or no conflict are also positively self-selected when using all migrants. If the attention is restricted to singles, the effect of predicted income turns negative for men from countries with minor or no conflict. The patterns without restriction to singles also remain qualitatively similar when using predicted household income.[16]

A potential concern related to our findings is that self-selection according to predicted earnings could reflect borrowing constraints, with migrants from countries with higher income being more likely to be able to emigrate. Therefore, we analyzed self-selection separately from Syria, Afghanistan, and Iraq, and ran the regressions separately for men and women. The results also confirm that refugees and irregular migrants are positively self-selected from main sending countries.[17] As these countries all suffer major conflict, the finding of positive self-selection in terms of earnings potential is in line with our theoretical predictions.

Borjas, Kauppinen, and Poutvaara (2019) showed that the Roy model has more precise predictions about the self-selection of migrants than previously realized. The same conditions that result in positive or negative selection in terms of expected earnings also imply a stochastic dominance relationship between the earnings distributions of migrants and non-migrants. As FMS did not ask respondents about their income, we can only test self-selection with respect to predicted incomes. We use predicted incomes for both migrants and non-migrants to focus on both groups' income arising from observable characteristics. We restrict the attention to single persons to minimize any confounding factors related to marital status.

Figures 6 and 7 show migrants' and non-migrants' cumulative distribution functions (CDFs) of predicted income for major conflict countries and for countries with minor or no conflict. We find that both male and female migrants from major conflict countries are positively self-selected in terms of their predicted income. For countries with minor or no conflict, migrant and non-migrant men do not differ in terms of their income distribution. Migrating women, instead, are positively self-selected in terms of their income. This could

[16] These results are not reported but available upon request.

[17] These results are not reported but available upon request.

reflect single women facing more difficulties in financing the journey than single men, resulting in self-selection from upper part of earnings distribution even when relative returns to skills in Europe are lower than in the origin countries.

Figure 8 compares CDF of refugees who migrate due to conflict or persecution with non-migrants' CDF, and Figure 9 makes a corresponding comparison between irregular migrants whose main reason to emigrate was not conflict or persecution and non-migrants. Male and female refugees and female irregular migrants are positively self-selected with respect to their income. Male irregular migrants, instead, do not differ much from non-migrants. The pattern that male refugees are more strongly positively self-selected that male irregular migrants is in line with what our theory predicts. The absence of such a difference among women is surprising and explaining it is an important topic for future research. It should be noted that women are a small minority among refugees and irregular migrants. Among single refugees covered in Figure 8, 7 percent are women and among single irregular migrants in Figure 9, 6 percent.

6.3. Sorting of Refugees and Irregular Migrants

We next analyze sorting of refugees and irregular migrants into different intended destination countries. Table 10 investigates how migrants' sorting according to their education differs between major conflict countries and countries without a major conflict. In this table, we only focus on FMS sample and our outcome variable is the Gini coefficient of the intended destination country. When studying all destination countries, those with tertiary education are more likely to choose more unequal countries and those with secondary education more equal countries than those below secondary education. This pattern also holds for those who emigrate from major conflict countries. When it comes to countries with minor or no conflict, the sorting pattern of those with tertiary education is strongly in line the Roy-Borjas model: they are much more likely to aim for more unequal countries. Surprisingly, migrants with secondary education from countries with conflict are less likely to sort into more unequal countries, compared with those with only primary education. An important caveat is that these models implicitly assume that skills are sufficiently transferable across countries. These findings also do not imply causality, as other factors (such as culture and institutions) may affect the choice of destination and be linked to a person's education. Nonetheless, our findings indicate that education may play an important role when refugees and irregular migrants choose their destination.

Table 11 provides suggestive evidence on other country-specific factors that might influence migrants' choice of destination. As with the previous analysis, the sample is restricted to respondents covered by FMS surveys (ages 25 to 64), while outcome variables represent various characteristics of the intended destination country of each respondent. However, unlike in previous tables, we now report the estimates using migrants with tertiary education as a reference category. This helps us to highlight the country level characteristics that are more important for low-skilled migrants.

Migrants who are educated to primary and secondary level are more likely to head for countries that have lower unemployment rates and more comprehensive migrant integration policies. The nature of integration policies is captured by the Migrant Integration Policy Index (MIPEX), which ranges from 0 to 100 and is based on 167 policy indicators covering the following eight policy areas: labor market mobility, reunification of families, education, political participation, long-term residence, access to nationality, measures tackling discrimination and health.

Refugees and irregular migrants who are educated to primary and secondary level are also more likely to choose destination countries where asylum applications are considered faster and where work permit applications, once asylum has been granted, take less time to process. More generous social safety nets also make a destination country more attractive for migrants with primary and secondary education. In other words, refugees and irregular migrants coming to Europe respond to incentives at all stages of the migration process. This is in line with the Borjas (1999) finding that immigrants who receive welfare benefits in the United States tend to be more concentrated in states with generous benefits than natives or immigrants who do not receive welfare.

Table 12 provides evidence on sorting of refugees and irregular migrants into intended destinations with respect to their skill levels. Specifically, we focus on the top five intended destination countries reported in the FMS sample (Germany, Italy, France, Sweden, and Austria). We find that those with secondary level education less likely to target Germany and Italy and more likely to target France and Sweden. There is no clear sorting pattern for those with tertiary level education.

6.4. The Role of Border Controls

The refugee crisis catapulted to the top of the European policy agenda following Chancellor Merkel's decision to open German borders to Syrian refugees in August 2015. Subsequently,

several other policy changes, mostly tightening border controls, significantly reduced or redirected the numbers of refugees and irregular migrants to affected countries. In this section, we analyze the effect of such policies on FMS respondents' intended destination country, using information on the interview date. Did the policies change intended destinations and, if so, how? Alternatively, it could be that policy changes would have relatively little effect on intended destinations, and simply change timing and intended route of entry.

We mainly focus on the major border policy changes over the sample period of FMS (October 2015-November 2016). In particular, we identified five important policy changes: (i) *Austria imposes quota* refers to a dummy variable that is equal to one, if interviews were conducted after 19th February 2016, when Austria imposed a quota of accepting maximum 80 refugees or irregular migrants and a maximum of 3,200 people allowed traveling through Austria per day; (ii) *Austria quota announcement* is equal to one for interview dates after Austria announced this quota on 20th January 2016; (iii) *Hungary border closing* is equal to one if the interview took place after Hungary closed its border on 16th October 2015; (iv) *Slovenia and Macedonia border tightening* refers to the date on which Macedonia closed its border with Greece and Slovenia set stricter border controls, and it is equal to one if the interview was conducted after 9th March 2016. *Sweden border control* is equal to one, if interviews took place after the 11th November 2015.

Table 13 reports the coefficients of border policy dummies listed above, while controlling for origin and survey country fixed effects as well as individual characteristics. The outcomes across the columns are as follows: intended destination is Germany (column 1); the intended destination is Italy (column 2); the intended destination is France (column 3); the intended destination is Austria (column 4); and intended destination is United Kingdom (column 5).

The results suggest that border policies significantly affected the intended destinations of refugees and irregular migrants. Results in Column 1 suggest that while Austria quota announcement and Sweden border controls increased the likelihood of stating "Germany" as an intended destination country, Slovenia and Macedonia border tightening significantly reduced migration intentions to Germany. Moving to Column 2, we find that none of the policies have significantly affected sorting patterns to Italy. This is expected given that those who migrate from sub-Saharan Africa aim to settle in Italy and these policies should not affect their choices. Focusing on France (Column 3) and the UK (Column 6), we find that

Slovenia and Macedonia border tightening is the only policy that significantly affected (positively) the sorting patterns of refugees and irregular migrants.

Column 4 present results for Sweden. We find that Sweden's border controls and Austria's quota policies significantly reduced the migration intentions to Sweden. Finally, in Column 5, we focus on sorting to Austria. The results suggest that migrants are significantly more likely to aim for Austria after the quota announcement. This is in line with the intuition that migrants wanted to reach Austria before they actually start imposing quotas on the 19th of February, 2016. However, once Austria limits the number of refugees accepted in the country, the likelihood of stating Austria as a destination country falls.

7. Conclusion

Using Flow Monitoring Surveys and Gallup World Polls, we analyzed the main reasons to emigrate and self-selection of refugees and irregular migrants through the so-called Central and the Eastern Mediterranean routes in 2015 and 2016. We found that 77 percent of respondents were refugees in the sense of fleeing war, conflict or persecution, 21 percent were motivated by economic reasons, including the lack of basic necessities, and 2 percent had left because of natural disasters or other reasons. Most of the respondents were from Syria, Afghanistan, and Iraq, followed by Nigeria, Pakistan, Morocco, and Iran. Refugees and irregular migrants are more likely to be single, male, and young, with vast cross-country variation in the main motivation to migrate.

Our results show that refugees are more educated than irregular migrants whose main reason to emigrate is not conflict or persecution. There are, however, important gender differences. While both men and women emigrating from countries with major conflict are positively self-selected with respect to their education, self-selection patterns between men and women are starkly different from countries with no or minor conflict, or if analyzing those whose main motivation to emigrate was not conflict or persecution. Men from minor or no conflict countries, as well as men whose main motivation to emigrate was not conflict or persecution, instead, do not differ much from non-migrants. Women from minor or no conflict countries, as well as women whose main motivation to emigrate was not conflict or persecution, are more educated than non-migrants. Our conjecture is that women's positive self-selection in terms of education also from countries with no or minor conflict arises because of gender

discrimination that depresses especially tertiary educated women's job opportunities. We also find that those with lower levels of education are relatively more likely to head for countries with lower unemployment rates, better migrant integration policies, faster asylum processes, easier access to the labor market for people who have successfully claimed asylum, and stronger social safety nets.

Our detailed analysis of socio-demographic characteristics and background of refugees and irregular migrants points to several policy implications. While the vast majority of them leave their country in order to escape conflict, the main motivation of a significant number of migrants from countries such as Algeria, Egypt, Morocco, and Pakistan is a desire to seek out better economic opportunities abroad. While most of these migrants may ultimately be denied asylum, they can slow down asylum application procedures. This may, in turn, undermine popular support for a well-managed and fair asylum system (Hatton, 2017). Ageing European economies could consider tackling this problem by increasing legal employment opportunities for African citizens on a selective basis, depending on local needs. Such initiatives could form part of a broader strategy aimed at containing illegal migration to Europe (MEDAM, 2018).

Moreover, policies that support refugees' and migrants' integration into the labor market need to be tailored to their skills (World Bank, 2018). Migrants escaping major conflicts (such as the fighting in Syria) may well benefit from receiving early access to language courses and other basic training while waiting for decisions on their asylum applications. Battisti et al. (2018) show that labor market outcomes of certain groups of refugees can be improved though a basic job search assistance program. Prompt access to employment will also help migrants to integrate better into society (OECD, 2018). All of these aspects are particularly important in terms of promoting the integration of migrants and helping a country to make society more inclusive for everyone.

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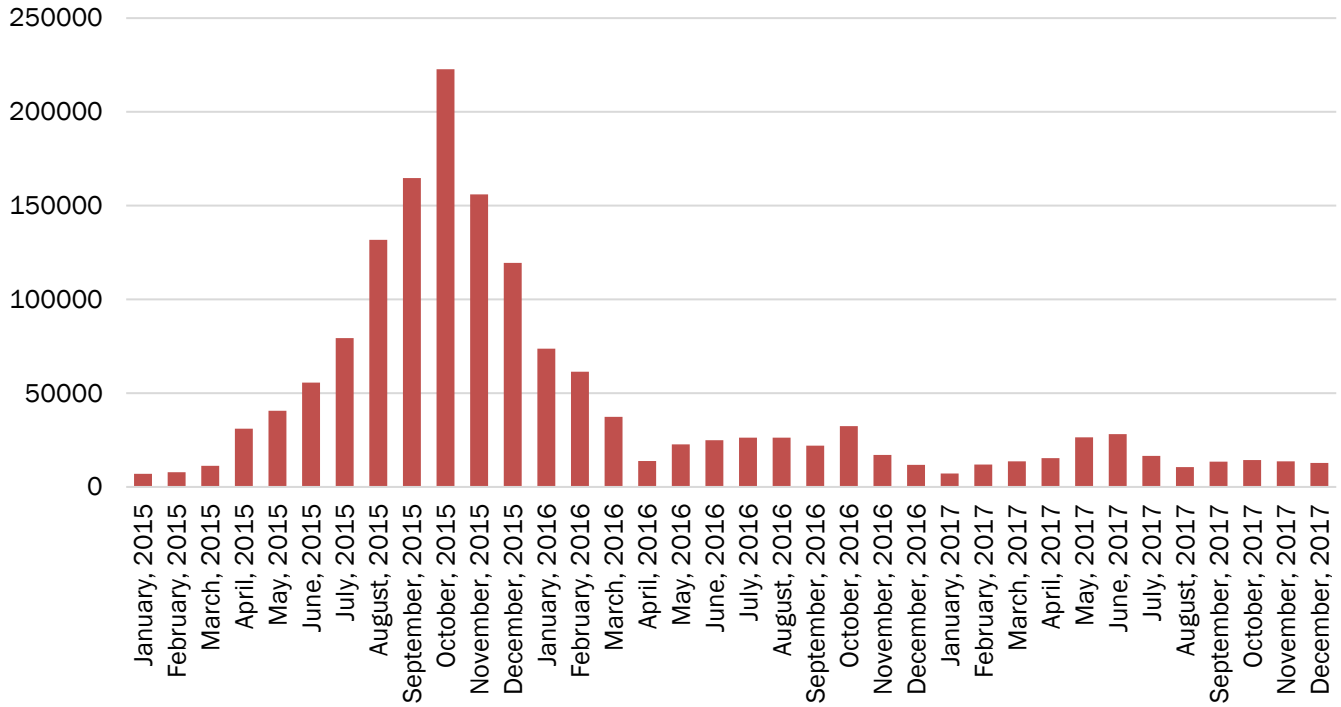
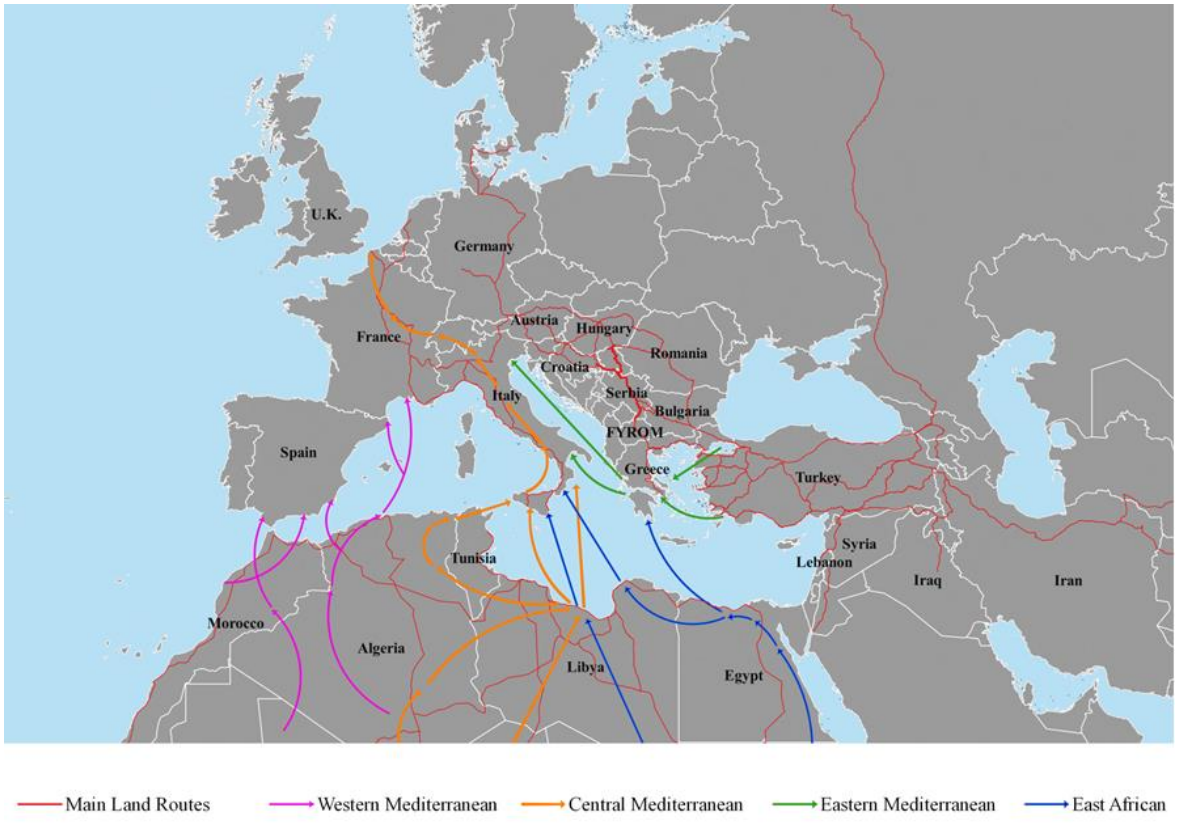
Figure 1: Sea and land arrivals to Europe, monthly



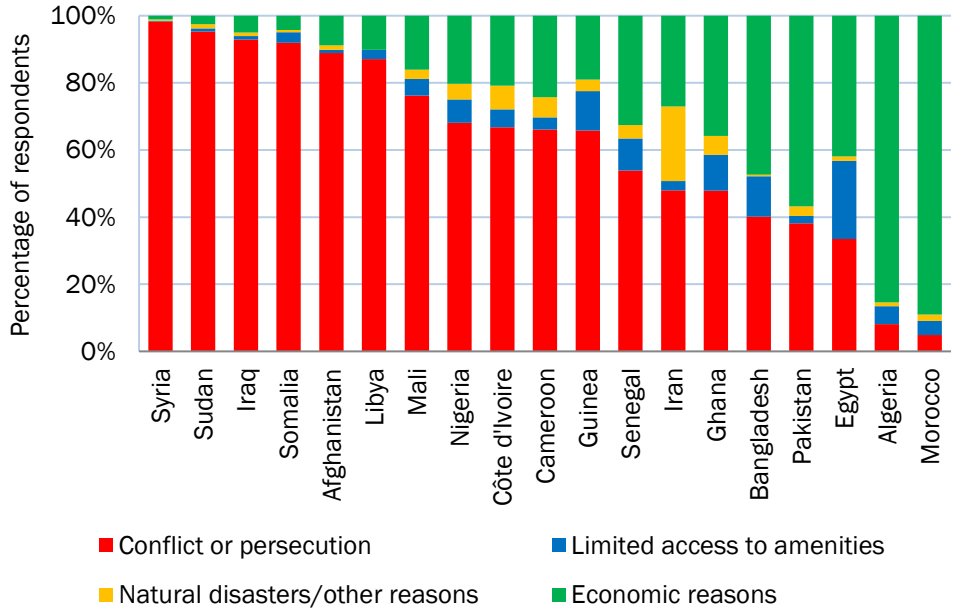
Source: UNHCR and authors' calculations.

Figure 2: Mediterranean Sea routes and main land routes



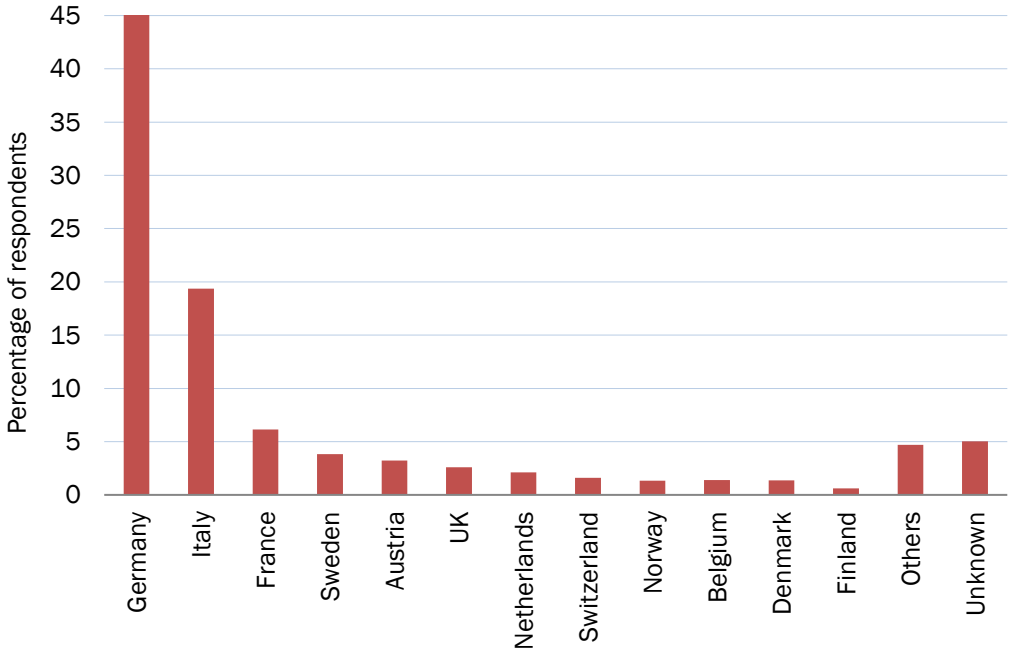
Source: IOM and authors' calculations.

Figure 3: Reasons to emigrate by origin country



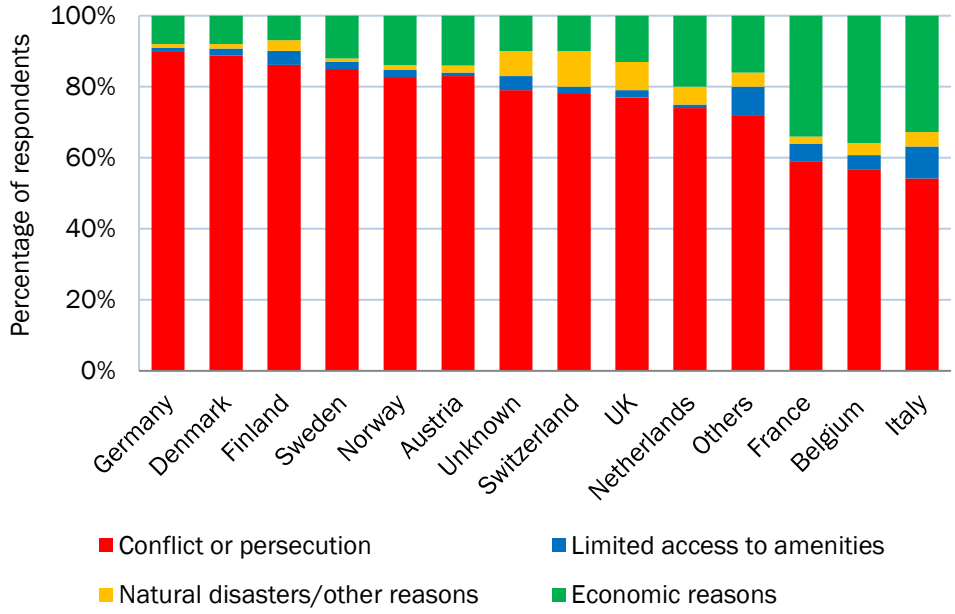
Source: FMS (2015-16) and authors' calculations.

Figure 4: Intended destination country, age 14+



Source: FMS (2015-16) and authors' calculations.

Figure 5: Reasons to emigrate by intended destination country



Source: FMS (2015-16) and authors' calculations.

Figure 6: CDF for single migrants' and single non-migrants' predicted income, major conflict countries and by gender

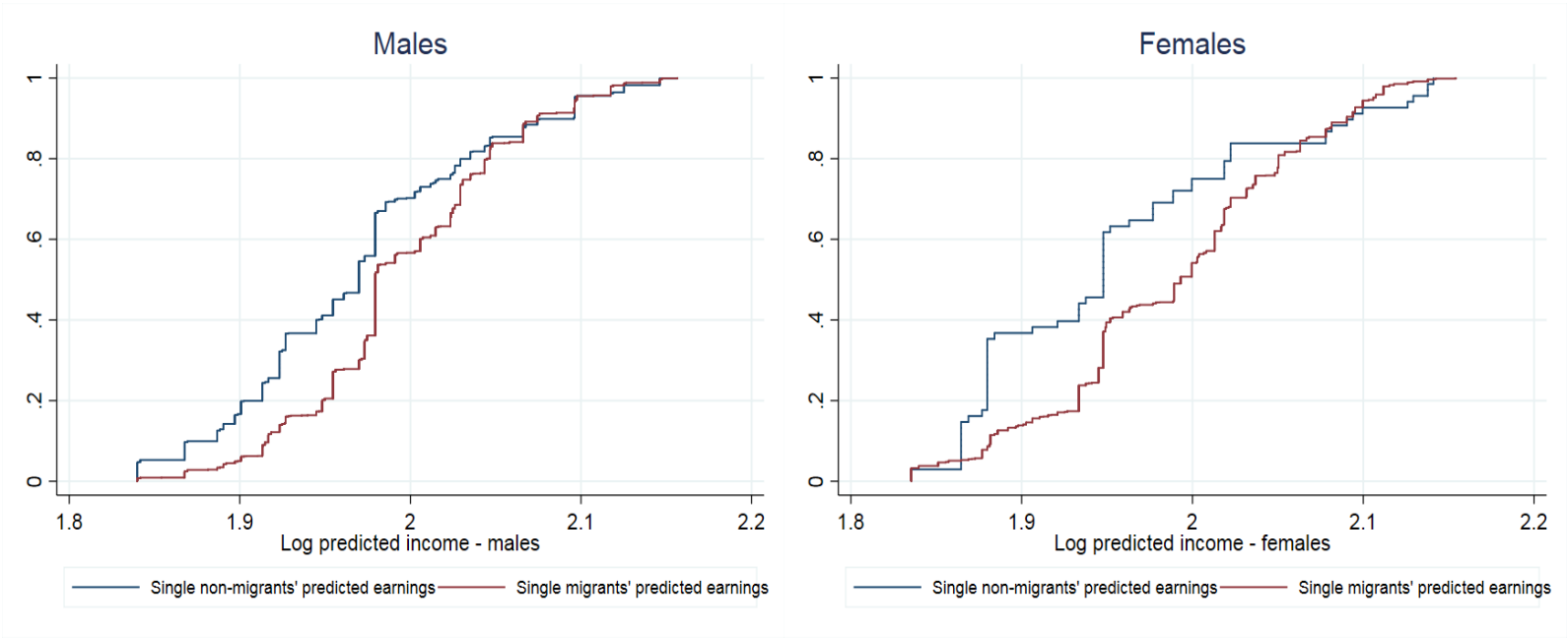


Figure 7: CDF for single migrants' and single non-migrants' predicted income, minor or no conflict countries and by gender

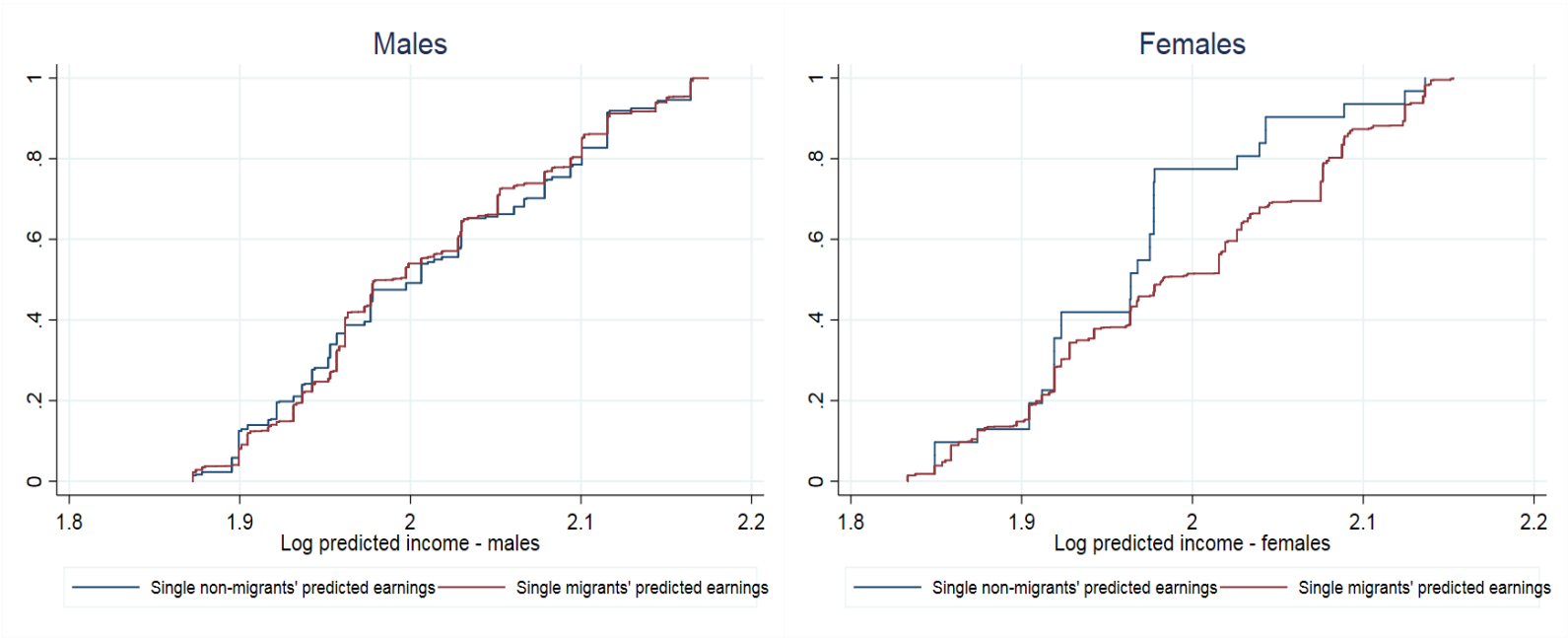


Figure 8: CDF for single migrants' and single non-migrants' predicted income, reason to migrate: conflict/persecution

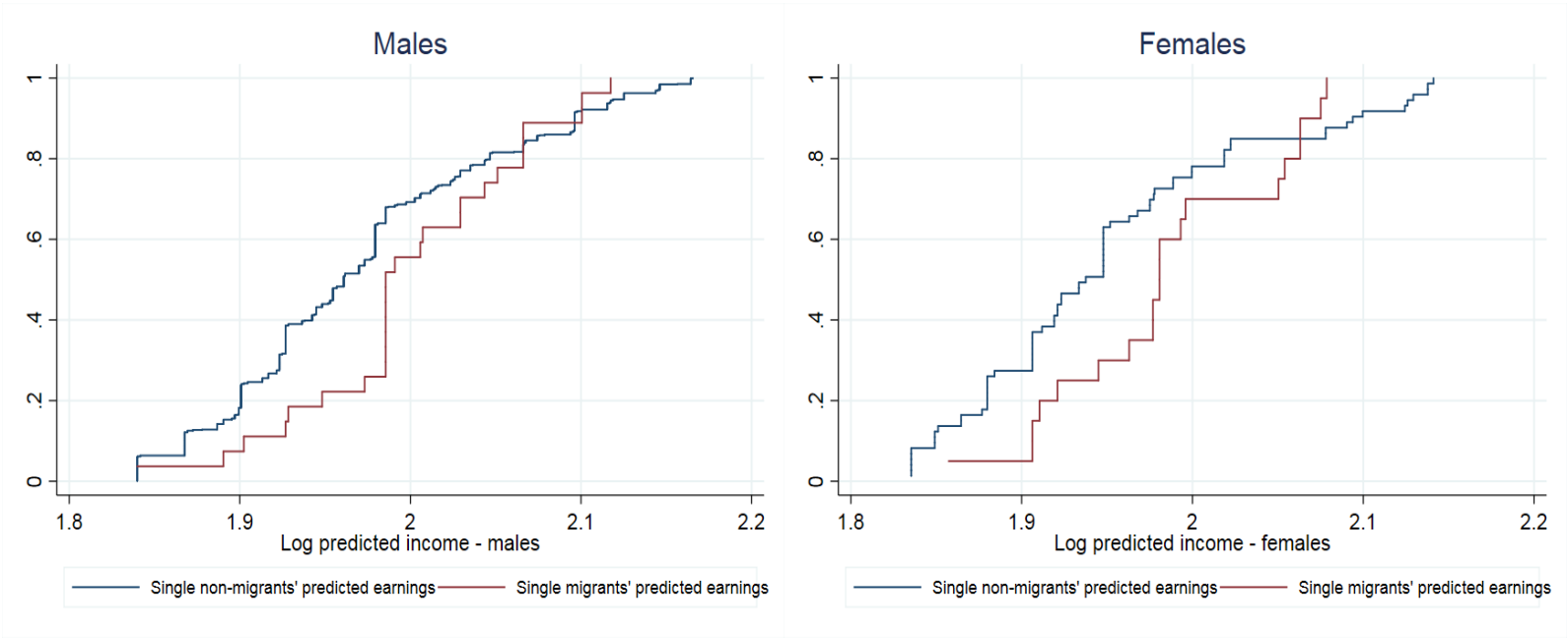


Figure 9: CDF for single migrants' and single non-migrants' predicted income, reason to migrate: others (i.e. all but conflict/persecution)

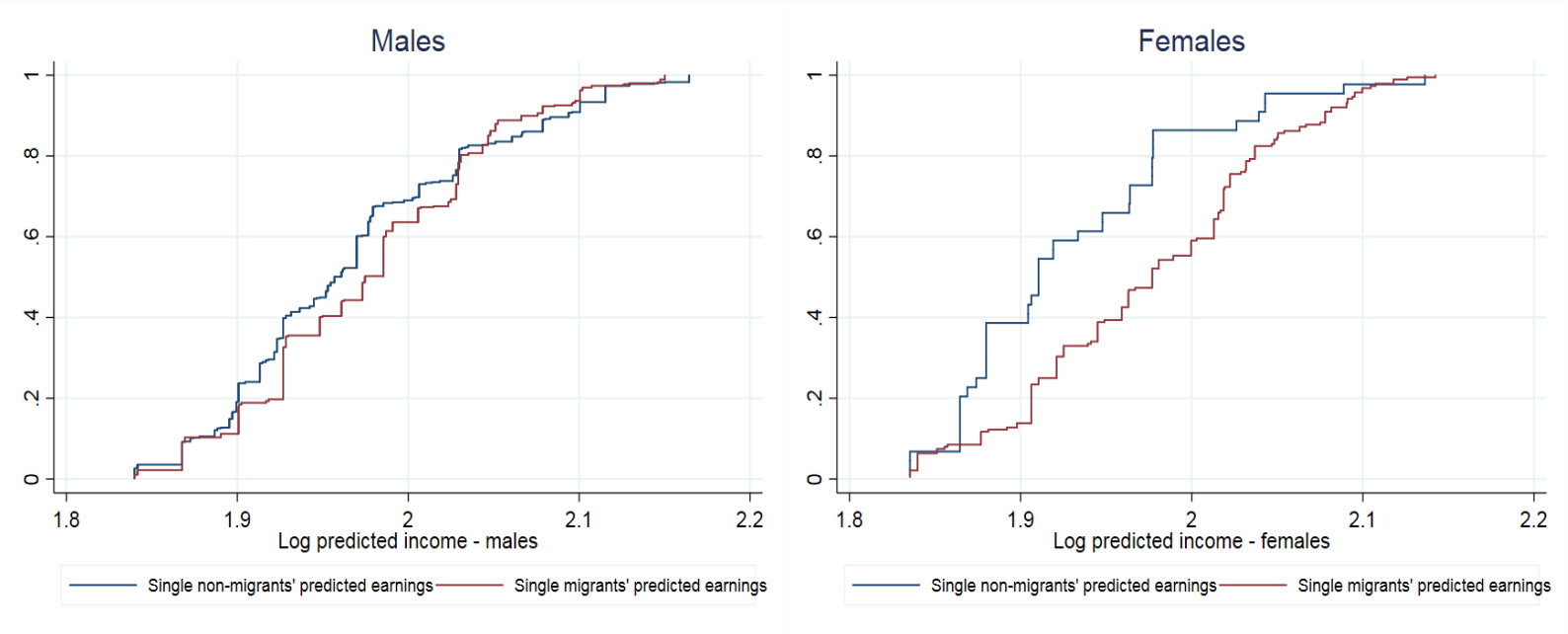


Table 1: Comparison of FMS and Eurostat data by nationality

Nationality	Number of observations from FMS	Share		Share of Males	
		FMS	Eurostat	FMS	Eurostat
Syria	5562	0.256	0.255	0.719	0.674
Afghanistan	4026	0.185	0.128	0.866	0.765
Iraq	2028	0.093	0.085	0.803	0.681
Nigeria	1223	0.056	0.031	0.729	0.698
Pakistan	1056	0.049	0.036	0.985	0.933
Eritrea	971	0.045	0.040	0.778	0.705
Morocco	817	0.038	0.007	0.902	0.896
Iran	721	0.033	0.024	0.770	0.711
Guinea	553	0.025	0.008	0.955	0.790
Bangladesh	418	0.019	0.014	0.995	0.940
Senegal	400	0.018	0.008	0.983	0.939
Mali	323	0.015	0.009	0.954	0.936
Sudan	317	0.015	0.009	0.962	0.916
Somalia	285	0.013	0.019	0.677	0.678
Côte d'Ivoire	284	0.013	0.006	0.852	0.806
Algeria	246	0.011	0.008	0.967	0.888
Egypt	237	0.011	0.004	0.987	0.830
Ghana	215	0.010	0.006	0.986	0.882
Cameroon	165	0.008	0.003	0.812	0.675
Libya	108	0.005	0.004	0.935	0.758
		Correlation: 0.978***		Correlation: 0.875***	

Source: Flow Monitoring Surveys, 2015 and 2016. Eurostat, 2015 and 2016. Notes: Eurostat data set contains information on the number of asylum applications by nationality. The table only includes countries, which at least 100 respondents in the FMS named as their nationality. Eritrea is not included in the analysis as it is not surveyed by Gallup World Polls.
* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 2.a: Descriptive characteristics from Flow Monitoring Survey (all ages)

Variables	(1) Full sample	(2) Males	(3) Females	(4) Wave 1 (10/2015 - 12/2015)	(5) Wave 2 (01/2016 - 11/2016)	(6) Wave 3 (06/2016 - 11/2016)
Age	26.45 (8.46)	26.12 (8.26)	27.98 (9.17)	27.40 (8.85)	27.77 (8.73)	22.50 (5.94)
Male	0.82 (0.38)	--	--	0.79 (0.40)	0.81 (0.39)	0.87 (0.33)
Married	0.29 (0.46)	0.25 (0.43)	0.55 (0.50)	--	0.43 (0.50)	0.16 (0.37)
Divorced	0.00 (0.01)	0.00 (0.06)	0.03 (0.18)	--	0.01 (0.11)	0.00 (0.07)
Widowed	0.00 (0.00)	0.00 (0.05)	0.03 (0.18)	--	0.01 (0.10)	0.00 (0.07)
Secondary education	0.50 (0.50)	0.50 (0.50)	0.48 (0.50)	0.40 (0.49)	0.53 (0.50)	0.45 (0.50)
Tertiary level education	0.18 (0.38)	0.18 (0.38)	0.22 (0.41)	0.36 (0.48)	0.20 (0.40)	0.06 (0.24)
Employed	0.47 (0.50)	0.52 (0.49)	0.25 (0.43)	--	0.47 (0.50)	0.46 (0.50)
Reasons for leaving:						
Conflict or persecution	0.77 (0.42)	0.76 (0.43)	0.84 (0.36)	0.86 (0.35)	0.79 (0.40)	0.67 (0.46)
Economic reasons	0.17 (0.38)	0.19 (0.39)	0.09 (0.28)	0.11 (0.31)	0.17 (0.38)	0.21 (0.41)
Limited access to amenities	0.03 (0.18)	0.02 (0.15)	0.02 (0.14)	0.01 (0.06)	0.01 (0.11)	0.08 (0.26)
Other reasons	0.02 (0.15)	0.02 (0.14)	0.03 (0.18)	0.02 (0.10)	0.02 (0.15)	0.03 (0.16)
Nationalities:						
Syria	0.29 (0.46)	0.26 (0.44)	0.47 (0.50)	0.47 (0.50)	0.36 (0.48)	0.01 (0.09)
Afghanistan	0.21 (0.40)	0.22 (0.42)	0.16 (0.37)	0.24 (0.42)	0.28 (0.45)	0.01 (0.07)
Iraq	0.11 (0.30)	0.10 (0.30)	0.12 (0.32)	0.14 (0.35)	0.13 (0.34)	0.01 (0.09)
Nigeria	0.06 (0.25)	0.06 (0.23)	0.10 (0.30)	0.01 (0.07)	0.00 (0.05)	0.26 (0.43)
Pakistan	0.05 (0.22)	0.07 (0.25)	0.00 (0.07)	0.06 (0.23)	0.07 (0.25)	0.01 (0.13)
Morocco	0.04 (0.20)	0.05 (0.25)	0.02 (0.15)	0.02 (0.15)	0.05 (0.22)	0.03 (0.17)
Iran	0.04 (0.19)	0.04 (0.19)	0.05 (0.22)	0.05 (0.22)	0.05 (0.21)	0.01 (0.05)
Guinea	0.03 (0.16)	0.03 (0.18)	0.01 (0.09)	0.01 (0.02)	0.01 (0.030	0.11 (0.32)
Bangladesh	0.02 (0.14)	0.03 (0.16)	0.00 (0.02)	0.01 (0.08)	0.00 (0.06)	0.08 (0.26)
Senegal	0.02 (0.14)	0.02 (0.16)	0.00 (0.05)	0.01 (0.05)	0.00 (0.06)	0.08 (0.27)
N	18,945	15, 608	3,337	1,638	12,708	4,599

Source: Flow Monitoring Surveys, 2015 and 2016. Notes: Means (standard deviations). The sample sizes for some variables are different either due to missing data or because they were not asked in each wave.

Table 2.b: Descriptive characteristics from Flow Monitoring Survey (25-64 ages)

Variables	(1) Full sample	(2) Males	(3) Females	(4) Wave 1 (10/2015 - 12/2015)	(5) Wave 2 (01/2016 - 11/2016)	(6) Wave 3 (06/2016 - 11/2016)
Age	32.42 (7.60)	32.20 (7.39)	33.29 (8.36)	32.70 (8.32)	32.92 (7.80)	29.60 (5.03)
Male	0.80 (0.40)	--	--	0.80 (0.39)	0.79 (0.41)	0.87 (0.33)
Married	0.57 (0.49)	0.52 (0.50)	0.78 (0.41)	--	0.65 (0.47)	0.40 (0.50)
Divorced	0.01 (0.13)	0.01 (0.10)	0.05 (0.21)	--	0.02 (0.14)	0.01 (0.12)
Widowed	0.01 (0.16)	0.00 (0.08)	0.05 (0.21)	--	0.01 (0.13)	0.01 (0.11)
Secondary education	0.48 (0.50)	0.49 (0.50)	0.45 (0.50)	0.35 (0.47)	0.50 (0.49)	0.44 (0.50)
Tertiary level education	0.25 (0.43)	0.25 (0.43)	0.28 (0.45)	0.41 (0.49)	0.26 (0.44)	0.12 (0.32)
Employed	0.63 (0.48)	0.73 (0.44)	0.28 (0.45)	--	0.61 (0.49)	0.69 (0.46)
Reasons for leaving:						
Conflict or persecution	0.79 (0.41)	0.77 (0.42)	0.86 (0.35)	0.86 (0.34)	0.79 (0.41)	0.69 (0.46)
Economic reasons	0.17 (0.37)	0.19 (0.39)	0.09 (0.28)	0.10 (0.30)	0.17 (0.37)	0.22 (0.41)
Limited access to amenities	0.02 (0.13)	0.01 (0.11)	0.01 (0.10)	0.02 (0.08)	0.01 (0.07)	0.06 (0.23)
Other reasons	0.02 (0.16)	0.02 (0.14)	0.04 (0.19)	0.02 (0.08)	0.03 (0.16)	0.02 (0.15)
Nationalities:						
Syria	0.37 (0.48)	0.33 (0.47)	0.52 (0.50)	0.51 (0.50)	0.41 (0.49)	0.03 (0.07)
Afghanistan	0.17 (0.37)	0.18 (0.38)	0.15 (0.36)	0.15 (0.36)	0.20 (0.40)	0.01 (0.06)
Iraq	0.14 (0.35)	0.14 (0.35)	0.13 (0.34)	0.15 (0.36)	0.16 (0.37)	0.02 (0.15)
Nigeria	0.05 (0.21)	0.05 (0.22)	0.04 (0.20)	0.01 (0.08)	0.00 (0.05)	0.30 (0.46)
Pakistan	0.06 (0.23)	0.07 (0.25)	0.01 (0.08)	0.06 (0.24)	0.06 (0.23)	0.03 (0.17)
Morocco	0.05 (0.20)	0.05 (0.22)	0.03 (0.17)	0.02 (0.13)	0.05 (0.21)	0.18 (0.38)
Iran	0.06 (0.23)	0.05 (0.23)	0.07 (0.25)	0.07 (0.24)	0.06 (0.25)	0.01 (0.07)
Guinea	0.01 (0.09)	0.01 (0.09)	0.01 (0.08)	0.01 (0.03)	0.01 (0.03)	0.05 (0.22)
Bangladesh	0.01 (0.12)	0.02 (0.13)	0.00 (0.02)	0.01 (0.07)	0.01 (0.05)	0.07 (0.26)
Senegal	0.01 (0.10)	0.01 (0.12)	0.00 (0.06)	0.01 (0.05)	0.01 (0.06)	0.06 (0.24)
N	9,828	7,865	18,945	925	7,475	1,428

Source: Flow Monitoring Surveys, 2015 and 2016. Notes: Means (standard deviations). The sample sizes for some variables are different either due to missing data or because they were not asked in each wave.

Table 3. Descriptive characteristics from Gallup World Polls, 2009-2014

	(1) Full sample (all ages)	(2) Full sample (all ages) males	(3) Full sample (all ages) females
Age	33.22	36.14	34.23
	(14.68)	(15.23)	(14.00)
Male	0.51	--	--
	(0.50)		
Married	0.61	0.60	0.63
	(0.49)	(0.48)	(0.48)
Divorced	0.02	0.02	0.03
	(0.15)	(0.13)	(0.18)
Widowed	0.04	0.02	0.08
	(0.21)	(0.14)	(0.27)
Secondary education	0.42	0.45	0.40
	(0.49)	(0.50)	(0.50)
Tertiary level education	0.08	0.10	0.06
	(0.27)	(0.30)	(0.24)
Employed	0.48	0.65	0.29
	(0.50)	(0.48)	(0.45)
N	129,431	67,167	62,264
	Restricted sample (ages 25-64)	Restricted sample (ages 25-64) males	Restricted sample (ages 25-64) females
Age	39.31	39.95	38.63
	(10.90)	(11.13)	(10.61)
Male	0.52	--	--
	(0.50)		
Married	0.76	0.77	0.76
	(0.42)	(0.42)	(0.43)
Divorced	0.03	0.02	0.04
	(0.17)	(0.15)	(0.20)
Widowed	0.04	0.02	0.08
	(0.21)	(0.15)	(0.71)
Secondary education	0.37	0.40	0.35
	(0.48)	(0.49)	(0.48)
Tertiary level education	0.10	0.12	0.07
	(0.29)	(0.32)	(0.26)
Employed	0.55	0.75	0.33
	(0.50)	(0.43)	(0.47)
N	89,484	46,493	42,991

Source: Gallup World Polls, 2009-2014. Means (standard deviations). This table presents summary statistics for 19 source countries included in the analysis: Afghanistan, Algeria, Bangladesh, Cameroon, Côte d'Ivoire, Egypt, Ghana, Guinea, Iran, Iraq, Libya, Mali, Morocco, Nigeria, Pakistan, Senegal, Somalia, Sudan, and Syria.

Table 4: Educational attainment by source country

	(1) Secondary education (Full-sample)	(2) Tertiary education (Full-sample)	(3) Secondary education (Ages 25-64)	(4) Tertiary education (Ages 25-64)
Flow Monitoring Surveys				
Syria	0.51 (0.50)	0.31 (0.46)	0.48 (0.50)	0.34 (0.47)
Afghanistan	0.45 (0.50)	0.13 (0.34)	0.39 (0.49)	0.19 (0.39)
Iraq	0.61 (0.49)	0.20 (0.40)	0.59 (0.49)	0.23 (0.42)
Nigeria	0.50 (0.50)	0.06 (0.23)	0.52 (0.50)	0.09 (0.29)
Pakistan	0.56 (0.50)	0.11 (0.31)	0.53 (0.50)	0.14 (0.35)
Morocco	0.66 (0.47)	0.09 (0.29)	0.63 (0.48)	0.11 (0.32)
Iran	0.44 (0.50)	0.40 (0.49)	0.41 (0.49)	0.45 (0.50)
Guinea	0.47 (0.50)	0.06 (0.24)	0.38 (0.48)	0.18 (0.39)
Bangladesh	0.39 (0.48)	0.02 (0.14)	0.44 (0.49)	0.05 (0.22)
Senegal	0.36 (0.48)	0.04 (0.20)	0.32 (0.47)	0.06 (0.23)
Gallup World Polls				
Syria	0.37 (0.48)	0.07 (0.25)	0.35 (0.48)	0.09 (0.28)
Afghanistan	0.25 (0.44)	0.04 (0.19)	0.21 (0.41)	0.05 (0.22)
Iraq	0.46 (0.50)	0.13 (0.33)	0.43 (0.50)	0.15 (0.35)
Nigeria	0.71 (0.45)	0.03 (0.17)	0.69 (0.46)	0.04 (0.20)
Pakistan	0.27 (0.44)	0.05 (0.22)	0.24 (0.42)	0.06 (0.23)
Morocco	0.34 (0.47)	0.06 (0.25)	0.26 (0.44)	0.08 (0.27)
Iran	0.58 (0.49)	0.25 (0.43)	0.54 (0.50)	0.28 (0.44)
Guinea	0.16 (0.37)	0.06 (0.24)	0.12 (0.32)	0.08 (0.27)
Bangladesh	0.47 (0.49)	0.03 (0.16)	0.41 (0.49)	0.03 (0.18)
Senegal	0.39 (0.48)	0.02 (0.15)	0.33 (0.47)	0.03 (0.18)

Source: Flow Monitoring Surveys, 2015 and 2016. Gallup World Polls, 2009-2014. Notes: Means (standard deviations).

Table 5: Self-selection of refugees and irregular migrants, adults aged 25-64

	(1)	(2)	(3)
Sample ➔	All	Major conflict	Minor or no conflict
Secondary education	0.022***	0.045***	-0.006**
	(0.002)	(0.004)	(0.002)
Tertiary education	0.037***	0.049***	0.016***
	(0.004)	(0.005)	(0.005)
Employed	0.001	0.003	-0.001
	(0.002)	(0.003)	(0.003)
Female	-0.057***	-0.066***	-0.044***
	(0.002)	(0.003)	(0.003)
Age 25-34	0.079***	0.097***	0.061***
	(0.002)	(0.004)	(0.003)
Age 35-44	0.035***	0.052***	0.016***
	(0.002)	(0.004)	(0.002)
Age 45-54	0.012***	0.021***	0.005***
	(0.002)	(0.003)	(0.001)
Married	-0.035***	-0.031***	-0.043***
	(0.003)	(0.005)	(0.004)
Divorced	-0.036***	-0.066***	-0.003
	(0.006)	(0.008)	(0.008)
Widowed	-0.013***	-0.015**	-0.018***
	(0.005)	(0.007)	(0.005)
Country FE	Yes	Yes	Yes
r2	0.081	0.079	0.061
N	62488	34405	28083

Source: Flow Monitoring Surveys, 2015 and 2016. Gallup World Polls, 2009-2014. Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Outcome variable, *refugee/migrant*, is equal to 1 for respondents in the Flow Monitoring Surveys and 0 for participants in Gallup World Polls. All specifications include source country fixed effects. Countries are classified by the level of conflict following the definitions provided by Uppsala Conflict Data Program: major conflict category includes countries with 1000 or more battle-related deaths in a given year over the sample period (Afghanistan, Iraq, Nigeria, Pakistan, Sudan, Syria); minor conflict category includes countries with 25 to 999 battle-related casualties in a given year over the sample period (Algeria, Iran); no conflict category includes countries that did not experience a major conflict or minor conflict over the sample period (Bangladesh, Cameroon, Côte d'Ivoire, Morocco, Senegal). Reference categories are as follows: less than secondary education, unemployed or out of labor force, female, age 54+, and single.

Table 6: Self-selection of refugees and irregular migrants, adults aged 25-64, males

	(1)	(2)	(3)
Sample ➔	All	Major conflict	Minor or no conflict
Secondary education	0.021***	0.045***	-0.010**
	(0.004)	(0.005)	(0.004)
Tertiary education	0.036***	0.053***	0.008
	(0.005)	(0.007)	(0.008)
Employed	0.012***	0.029***	-0.011**
	(0.004)	(0.005)	(0.005)
Age 25-34	0.107***	0.126***	0.095***
	(0.004)	(0.006)	(0.005)
Age 35-44	0.043***	0.068***	0.021***
	(0.003)	(0.005)	(0.003)
Age 45-54	0.014***	0.028***	0.005**
	(0.003)	(0.005)	(0.002)
Married	-0.062***	-0.067***	-0.059***
	(0.005)	(0.007)	(0.006)
Divorced	-0.081***	-0.133***	-0.001
	(0.011)	(0.013)	(0.018)
Widowed	-0.070***	-0.088***	-0.033**
	(0.011)	(0.016)	(0.013)
Country FE	Yes	Yes	Yes
r2	0.086	0.082	0.072
N	33253	18869	14384

Source: Flow Monitoring Surveys, 2015 and 2016. Gallup World Polls, 2009-2014. Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Outcome variable, *refugee/migrant*, is equal to 1 for respondents in the Flow Monitoring Surveys and 0 for participants in Gallup World Polls. Countries are classified by the level of conflict following the definitions provided by Uppsala Conflict Data Program: major conflict category includes countries with 1000 or more battle-related deaths in any of the years over the sample period (Afghanistan, Iraq, Nigeria, Pakistan, Sudan, Syria); minor conflict category includes countries with 25 to 999 battle-related casualties in any of the years over the sample period (Algeria, Iran); no conflict category includes countries that did not experience a major conflict or minor conflict in any of the years over the sample period (Bangladesh, Cameroon, Côte d'Ivoire, Morocco, Senegal). Reference categories are as follows: less than secondary education, unemployed or out of labor force, female, age 54+, and single.

Table 7: Self-selection of refugees and irregular migrants, adults aged 25-64, females

	(1)	(2)	(3)
Sample ➔	All	Major conflict	Minor or no conflict
Secondary education	0.025***	0.046***	0.001
	(0.003)	(0.004)	(0.002)
Tertiary education	0.045***	0.057***	0.028***
	(0.005)	(0.007)	(0.006)
Employed	-0.012***	-0.034***	0.015***
	(0.002)	(0.003)	(0.003)
Age 25-34	0.035***	0.050***	0.017***
	(0.003)	(0.005)	(0.002)
Age 35-44	0.016***	0.027***	0.001
	(0.003)	(0.005)	(0.001)
Age 45-54	0.003	0.009*	-0.001
	(0.002)	(0.005)	(0.001)
Married	0.024***	0.039***	0.005
	(0.003)	(0.005)	(0.003)
Divorced	0.022***	0.016	0.025***
	(0.006)	(0.010)	(0.008)
Widowed	0.031***	0.049***	0.007*
	(0.005)	(0.008)	(0.004)
Country FE	Yes	Yes	Yes
r2	0.061	0.068	0.028
N	29235	15536	13699

Source: Flow Monitoring Surveys, 2015 and 2016. Gallup World Polls, 2009-2014. Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Outcome variable, *refugee/migrant*, is equal to 1 for respondents in the Flow Monitoring Surveys and 0 for participants in Gallup World Polls. Countries are classified by the level of conflict following the definitions provided by Uppsala Conflict Data Program: major conflict category includes countries with 1000 or more battle-related deaths in any of the years over the sample period (Afghanistan, Iraq, Nigeria, Pakistan, Sudan, Syria); minor conflict category includes countries with 25 to 999 battle-related casualties in any of the years over the sample period (Algeria, Iran); no conflict category includes countries that did not experience a major conflict or minor conflict in any of the years over the sample period (Bangladesh, Cameroon, Côte d'Ivoire, Morocco, Senegal). Reference categories are as follows: less than secondary education, unemployed or out of labor force, female, age 54+, and single.

Table 8: Self-selection of refugees and irregular migrants, adults aged 25-64, FMS sample only

	(1)	(2)	(3)
Outcome: *reason to migrate: conflict or persecution*			
Sample ➔	All	Male	Female
Secondary education	0.067***	0.054***	0.121***
	(0.013)	(0.015)	(0.026)
Tertiary education	0.080***	0.087***	0.048*
	(0.017)	(0.019)	(0.023)
Employed	-0.027**	-0.020	-0.006
	(0.014)	(0.003)	(0.034)
Married	0.019	0.015	0.050
	(0.014)	(0.015)	(0.049)
Divorced	-0.009	0.026	0.013
	(0.042)	(0.057)	(0.072)
Widowed	0.040	0.068	0.031
	(0.043)	(0.069)	(0.070)
Country FE	Yes	Yes	Yes
r2	0.359	0.350	0.429
N	4473	3553	920

Source: Flow Monitoring Surveys, 2015 and 2016. Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Outcome variable, *reason to migrate: conflict or persecution*, is equal to 1 for respondents who cite conflict or persecution as the main reason to migrate and 0 for other respondents who cite other reasons (economic reasons, limited access to amenities and natural disasters and other reasons) in the Flow Monitoring Surveys. Reference categories are as follows: less than secondary education, unemployed or out of labor force, and single.

Table 9: Self-selection of refugees and irregular migrants based on predicted income, adults aged 25-64

	(1)	(2)	(3)	(4)	(5)
Sample ➔	All	Major conflict	Minor or no conflict	Major conflict & singles	Minor or no conflict & singles
			Men and women		
Predicted log income	0.080***	0.103***	0.047***	0.035***	0.002*
	(0.004)	(0.006)	(0.004)	(0.012)	(0.000)
r2	0.045	0.042	0.011	0.071	0.011
N	62488	34405	28083	6839	5787
Country FE	Yes	Yes	Yes	Yes	Yes
			Men		
Predicted log income	0.101***	0.127***	0.062***	0.019**	-0.015***
	(0.006)	(0.008)	(0.007)	(0.008)	(0.004)
r2	0.050	0.048	0.012	0.093	0.043
N	33253	18869	14384	4648	3751
Country FE	Yes	Yes	Yes	Yes	Yes
			Women		
Predicted log income	0.037***	0.046***	0.026***	0.044***	0.018***
	(0.004)	(0.006)	(0.004)	(0.008)	(0.003)
r2	0.050	0.046	0.014	0.036	0.014
N	29235	15536	13699	2191	2036
Country FE	Yes	Yes	Yes	Yes	Yes

Source: Flow Monitoring Surveys, 2015 and 2016. Gallup World Polls, 2009-2014. Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Outcome variable, *refugee/migrant*, is equal to 1 for respondents in the Flow Monitoring Surveys and 0 for participants in Gallup World Polls. Countries are classified by the level of conflict following the definitions provided by Uppsala Conflict Data Program: major conflict category includes countries with 1000 or more battle-related deaths in any of the years over the sample period (Afghanistan, Iraq, Nigeria, Pakistan, Sudan, Syria); minor conflict category includes countries with 25 to 999 battle-related casualties in any of the years over the sample period (Algeria, Iran); no conflict category includes countries that did not experience a major conflict or minor conflict in any of the years over the sample period (Bangladesh, Cameroon, Côte d'Ivoire, Morocco, Senegal).

Table 10: Sorting of refugees and irregular migrants in respect to Gini index, adults aged 25-64

	(1)	(2)	(3)
Sample ➔	All	Major conflict	Minor or no conflict
Secondary Education	-0.180**	-0.175**	-0.143
	(0.074)	(0.079)	(0.184)
Tertiary Education	0.405***	0.081**	1.065***
	(0.124)	(0.033)	(0.267)
Employed	0.227***	0.118	0.557***
	(0.081)	(0.093)	(0.162)
Female	-0.014	0.021	-0.325
	(0.111)	(0.113)	(0.340)
Age 25-34	0.513	0.304	1.690
	(0.412)	(0.446)	(1.007)
Age 35-44	0.117	-0.037	1.231
	(0.413)	(0.446)	(1.024)
Age 45-54	0.151	-0.009	1.319
	(0.418)	(0.448)	(1.084)
Married	-0.142*	-0.200**	-0.046
	(0.084)	(0.092)	(0.187)
Divorced	-0.582*	-0.547	-0.104
	(0.316)	(0.370)	(0.737)
Widowed	-0.172	-0.226	-0.289
	(0.287)	(0.334)	(0.538)
Country FE	Yes	Yes	Yes
r2	0.306	0.394	0.113
N	3512	2650	862

Source: Flow Monitoring Surveys, 2015 and 2016. World Development Indicators, 2016 or earliest available. Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. *Gini* coefficient of the intended destination country is the outcome variable and measured between 0 (no inequality), and 100 (perfect inequality). Countries are classified by the level of conflict following the definitions provided by Uppsala Conflict Data Program: major conflict category includes countries with 1000 or more battle-related deaths in any of the years over the sample period (Afghanistan, Iraq, Nigeria, Pakistan, Sudan, Syria); minor conflict category includes countries with 25 to 999 battle-related casualties in any of the years over the sample period (Algeria, Iran); no conflict category includes countries that did not experience a major conflict or minor conflict in any of the years over the sample period (Bangladesh, Cameroon, Côte d'Ivoire, Morocco, Senegal). Reference categories are as follows: less than secondary education, unemployed or out of labor force, female, age 54+, and single.

Table 11: Sorting of refugees and irregular migrants in respect of characteristics of destination countries, adults aged 25-64

Outcome ➔	(1) Unemployment rate (log)	(2) Migrant integration policy index	(3) Average duration of asylum procedure	(4) Waiting duration for labor market access	(5) Social expenditure (as percentage of GDP)
Primary Education	-0.092***	0.844***	-0.035***	-0.072***	0.687***
	(0.019)	(0.270)	(0.007)	(0.014)	(0.140)
Secondary Education	-0.084***	0.841***	-0.011***	-0.051***	0.723***
	(0.018)	(0.265)	(0.003)	(0.013)	(0.137)
Employed	0.024*	0.020	0.002	0.004	-0.136
	(0.015)	(0.189)	(0.005)	(0.009)	(0.103)
Female	-0.042**	0.774***	0.020***	0.005	-0.384***
	(0.017)	(0.270)	(0.007)	(0.012)	(0.132)
Age 25-34	0.075*	-0.311	0.007	0.043	0.437
	(0.044)	(1.145)	(0.030)	(0.044)	(0.369)
Age 35-44	0.005	0.460	-0.002	0.011	0.290
	(0.045)	(1.152)	(0.030)	(0.044)	(0.370)
Age 45-54	-0.031	0.357	0.010	-0.008	-0.314
	(0.418)	(1.217)	(0.031)	(0.044)	(0.393)
Married	-0.012	0.637***	-0.001	-0.016*	0.068
	(0.014)	(0.190)	(0.005)	(0.009)	(0.104)
Divorced	0.037	0.221	-0.032*	0.004	0.389
	(0.045)	(0.676)	(0.019)	(0.029)	(0.373)
Widowed	-0.050	0.867	-0.001	-0.017	-0.356
	(0.056)	(1.008)	(0.027)	(0.034)	(0.452)
Country FE	Yes	Yes	Yes	Yes	Yes
r2	0.302	0.053	0.192	0.076	0.353
N	3492	3509	3484	3509	3423

Source: Eurofound, Flow Monitoring Surveys, 2015 and 2016, MIPEX, OECD, World Development Indicators. Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Unemployment (log) is the unemployment rate in the intended destination country in the survey year. Migrant integration policy index is a continuous variable (0-100, with 100 being the top score) and measures the country specific integration outcomes, integration policies, and other contextual factors for migrants' integration. Average duration of asylum procedure is the duration (number of months) between the submission of the asylum claim and the first decision (rescaled from 0 to 1, with 1 being the longest duration). Waiting duration for labor market access is the waiting period (number of months) for obtaining the work permit after claiming asylum (rescaled from 0 to 1, with 1 being the longest duration). Social expenditure is measured as a percentage of GDP and comprises cash benefits, direct in-kind provision of goods and services, and tax breaks with social purposes. Reference categories are as follows: tertiary education, unemployed or our of labor force, female, age 54+, and single.

Table 12: Sorting of refugees and irregular migrants into intended destinations, adults age 25-64

	All	Major conflict	Minor or no conflict
Outcome ➔ Intended destination country: **Germany**			
Secondary Education	-0.041***	-0.043**	-0.058**
	(0.015)	(0.019)	(0.024)
Tertiary Education	-0.005	0.022	-0.074*
	(0.022)	(0.027)	(0.038)
r2	0.284	0.245	0.106
Outcome ➔ Intended destination country: **Italy**			
Secondary Education	-0.054***	-0.027*	-0.135***
	(0.013)	(0.014)	(0.033)
Tertiary Education	-0.081***	-0.070***	-0.127***
	(0.017)	(0.019)	(0.040)
r2	0.456	0.491	0.375
Outcome ➔ Intended destination country: **France**			
Secondary Education	0.030***	-0.003	0.129***
	(0.010)	(0.010)	(0.028)
Tertiary Education	-0.006	-0.023*	0.052*
	(0.012)	(0.013)	(0.029)
r2	0.201	0.067	0.299
Outcome ➔ Intended destination country: **Sweden**			
Secondary Education	0.020***	0.028***	-0.003
	(0.007)	(0.009)	(0.007)
Tertiary Education	-0.010	-0.011	-0.002
	(0.008)	(0.010)	(0.009)
r2	0.067	0.064	0.026
Outcome ➔ Intended destination country: **Austria**			
Secondary Education	0.003	0.002	0.006
	(0.007)	(0.008)	(0.011)
Tertiary Education	0.002	0.015	-0.037**
	(0.011)	(0.013)	(0.017)
r2	0.052	0.056	0.069
N	3421	2480	941
Demographics	Yes	Yes	Yes
Employment status before migration	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes

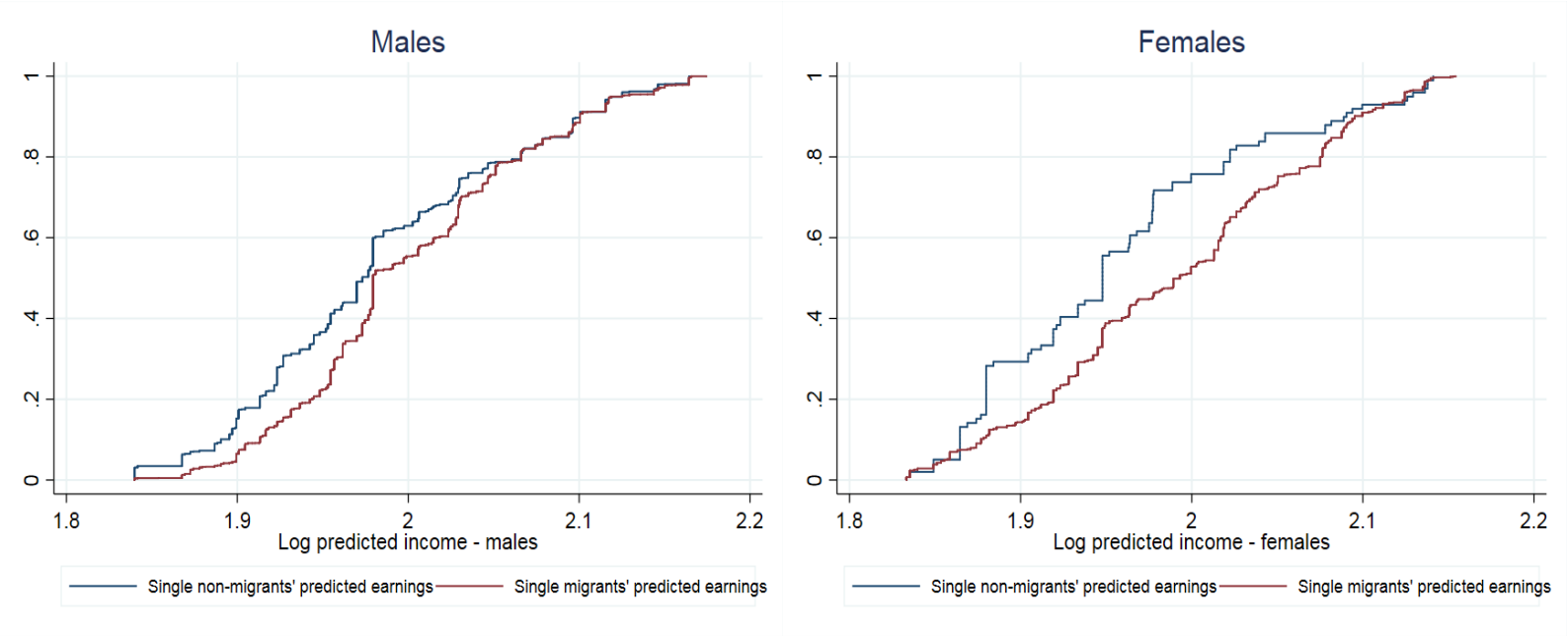
Source: Flow Monitoring Surveys, 2015 and 2016. Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. *Intended destination country* is the outcome variable. Countries are classified by the level of conflict following the definitions provided by Uppsala Conflict Data Program: major conflict category includes countries with 1000 or more battle-related deaths in any of the years over the sample period (Afghanistan, Iraq, Nigeria, Pakistan, Sudan, Syria); minor conflict category includes countries with 25 to 999 battle-related casualties in any of the years over the sample period (Algeria, Iran); no conflict category includes countries that did not experience a major conflict or minor conflict in any of the years over the sample period (Bangladesh, Cameroon, Côte d'Ivoire, Morocco, Senegal).

Table 13: Border policies and sorting of refugees and irregular migrants, adults age 15+

Outcome ➔ *Intended destination country*	(1) **Germany**	(2) **Italy**	(3) **France**	(4) **Sweden**	(5) **Austria**	(6) **UK**
Austria quota announcement	0.160***	0.001	0.000	-0.058***	0.016***	0.001
	(0.011)	(0.008)	(0.006)	(0.005)	(0.005)	(0.005)
Austria imposes quota	-0.007	0.012	0.007	-0.015***	-0.025***	-0.002
	(0.011)	(0.008)	(0.006)	(0.006)	(0.005)	(0.005)
Hungary border closing	-0.111	0.007	0.004	-0.055	0.031	0.024
	(0.080)	(0.059)	(0.045)	(0.039)	(0.034)	(0.035)
Slovenia and Macedonia border tightening	-0.161***	0.003	0.029**	0.048***	0.010**	0.024***
	(0.012)	(0.009)	(0.006)	(0.006)	(0.005)	(0.039)
Sweden border control	0.116***	0.007	-0.015	-0.072***	-0.002	0.000
	(0.018)	(0.013)	(0.010)	(0.009)	(0.008)	(0.008)
Demographics	Yes	Yes	Yes	Yes	Yes	Yes
Employment status before migration	Yes	Yes	Yes	Yes	Yes	Yes
Origin Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Survey Country FE	Yes	Yes	Yes	Yes	Yes	Yes
r2	0.406	0.503	0.407	0.082	0.030	0.082
N	20463	20463	20463	20463	20463	20463

Source: Flow Monitoring Surveys, 2015 and 2016. Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. *Intended destination country* is the outcome variable, which is equal to one if a refugee or irregular migrant names a particular country as their country of destination and zero otherwise. *Austria quota announcement* is equal to one for interview dates after Austria announced this quota on 20th January 2016. *Austria imposes quota* refers to a dummy variable that is equal to one, if interviews were conducted after 19th February 2016, when Austria imposed a quota of accepting maximum 80 refugees or irregular migrants and a maximum of 3,200 people allowed traveling through Austria per day. *Hungary border closing* is equal to one if the interview took place after Hungary closed its border on 16th October 2015. *Slovenia and Macedonia border tightening* refers to the date on which Macedonia closed its border with Greece and Slovenia set stricter border controls and it is equal to one if the interview was conducted after 9th March 2016. *Sweden border control* is equal to one, if interviews took place after the 11th November 2015. For details on individual characteristics, see notes to Table 5.

Appendix Figure 1: CDF for single migrants' and single non-migrants' predicted income, all country groups and by gender



Appendix Table 1. DescriptivecCharacteristics from Flow Monitoring Survey – excluded countries

	(1) Full sample (all ages)	(2) Restricted sample (ages 25-64)
Age	25.38	31.05
	(7.28)	(6.39)
Male	0.86	0.83
	(0.34)	(0.36)
Married	0.26	0.49
	(0.44)	(0.50)
Divorced	0.00	0.01
	(0.09)	(0.13)
Widowed	0.00	0.01
	(0.07)	(0.12)
Secondary education	0.49	0.51
	(0.50)	(0.50)
Tertiary level education	0.13	0.16
	(0.33)	(0.36)
Employed	0.46	0.64
	(0.49)	(0.48)
Reasons for leaving:		
Conflict or persecution	0.65	0.63
	(0.47)	(0.48)
Economic reasons	0.26	0.26
	(0.43)	(0.44)
Limited access to amenities	0.05	0.05
	(0.18)	(0.13)
Other reasons	0.04	0.06
	(0.16)	(0.19)
N	587	283

Source: Flow Monitoring Surveys, 2015 and 2016. Means (standard deviations). This table presents summary statistics for 19 source countries that are not included in the analysis due to small number of observations (i.e. less than 100 respondents): Burkina Faso, Central African Republic, the Republic of the Congo, the Democratic Republic of the Congo, Cuba, Ethiopia, Guinea-Bissau, India, Kenya, Lebanon, Liberia, Mauritania, Nepal, Niger, Palestine, Sierra Leone, Sri Lanka, Togo, Tunisia.

Appendix Table 2: Descriptive characteristics from Gallup World Polls, 2009-2011

	(1) Full sample (all ages)	(1) Restricted sample (ages 25-64)
Age	33.20	38.87
	(12.49)	(10.51)
Male	0.51	0.51
	(0.50)	(0.50)
Married	0.58	0.73
	(0.49)	(0.44)
Divorced	0.02	0.03
	(0.14)	(0.18)
Widowed	0.03	0.04
	(0.19)	(0.20)
Secondary education	0.42	0.36
	(0.49)	(0.48)
Tertiary level education	0.08	0.10
	(0.27)	(0.30)
Employed	0.49	0.56
	(0.50)	(0.50)
N	65688	46270

Means (standard deviations). Source: Gallup World Polls, 2009-2011. This table presents summary statistics for 19 source countries included in the analysis: Afghanistan, Algeria, Bangladesh, Cameroon, Côte d'Ivoire, Egypt, Ghana, Guinea, Iran, Iraq, Libya, Mali, Morocco, Nigeria, Pakistan, Senegal, Somalia, Sudan, and Syria.

Appendix Table 3: Self-selection of refugees and irregular migrants, GWP 2009-2011

	(1)	(2)	(3)
Sample ➔	All	Major conflict	Minor or no conflict
Secondary education	0.044***	0.076***	-0.015***
	(0.004)	(0.006)	(0.005)
Tertiary education	0.089***	0.096***	0.077***
	(0.007)	(0.009)	(0.014)
Employed	-0.004	-0.008	0.003
	(0.004)	(0.005)	(0.007)
Male	0.107***	0.113***	0.093***
	(0.004)	(0.005)	(0.006)
Age 25-34	0.153***	0.166***	0.130***
	(0.005)	(0.007)	(0.006)
Age 35-44	0.069***	0.088***	0.032***
	(0.004)	(0.006)	(0.005)
Age 45-54	0.025***	0.036***	0.009**
	(0.004)	(0.006)	(0.004)
Married	-0.049***	-0.037***	-0.080***
	(0.006)	(0.007)	(0.008)
Divorced	-0.041***	-0.076***	0.021
	(0.011)	(0.014)	(0.019)
Widowed	-0.008	-0.010	-0.017*
	(0.009)	(0.013)	(0.010)
Country FE	Yes	Yes	Yes
r2	0.161	0.134	0.234
N	29401	19023	10378

Source: Flow Monitoring Surveys, 2015 and 2016. Gallup World Polls, 2009-2011. Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Outcome variable, *refugee/migrant*, is equal to 1 for respondents in the Flow Monitoring Surveys and 0 for participants in Gallup World Polls (adults aged 25-64). All specifications include source country fixed effects. Countries are classified by the level of conflict following the definitions provided by Uppsala Conflict Data Program: major conflict category includes countries with 1000 or more battle-related deaths in a given year over the sample period (Afghanistan, Iraq, Nigeria, Pakistan, Sudan, Syria); minor conflict category includes countries with 25 to 999 battle-related casualties in a given year over the sample period (Algeria, Iran); no conflict category includes countries that did not experience a major conflict or minor conflict over the sample period (Bangladesh, Cameroon, Côte d'Ivoire, Morocco, Senegal). Reference categories are as follows: less than secondary education, unemployed or out of labor force, female, age 54+, and single.

Appendix Table 4: Self-selection of refugees and irregular migrants, males, GWP 2009-2011

	(1)	(2)	(3)
Sample ➔	All	Major conflict	Minor or no conflict
Secondary education	0.039***	0.070***	-0.021**
	(0.006)	(0.008)	(0.009)
Tertiary education	0.082***	0.097***	0.047**
	(0.010)	(0.012)	(0.019)
Employed	0.018**	0.037***	-0.024**
	(0.007)	(0.009)	(0.012)
Age 25-34	0.209***	0.225***	0.197***
	(0.007)	(0.010)	(0.011)
Age 35-44	0.096***	0.126***	0.046***
	(0.007)	(0.009)	(0.008)
Age 45-54	0.034***	0.057***	0.004
	(0.006)	(0.009)	(0.006)
Married	-0.089***	-0.079***	-0.105***
	(0.008)	(0.010)	(0.013)
Divorced	-0.105***	-0.169***	0.050
	(0.020)	(0.021)	(0.038)
Widowed	-0.104***	-0.120***	-0.046*
	(0.020)	(0.025)	(0.027)
Country FE	Yes	Yes	Yes
r2	0.171	0.144	0.243
N	16152	10650	5502

Source: Flow Monitoring Surveys, 2015 and 2016. Gallup World Polls, 2009-2011. Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Outcome variable, *refugee/migrant*, is equal to 1 for respondents in the Flow Monitoring Surveys and 0 for participants in Gallup World Polls (adults aged 25-64). Countries are classified by the level of conflict following the definitions provided by Uppsala Conflict Data Program: major conflict category includes countries with 1000 or more battle-related deaths in any of the years over the sample period (Afghanistan, Iraq, Nigeria, Pakistan, Sudan, Syria); minor conflict category includes countries with 25 to 999 battle-related casualties in any of the years over the sample period (Algeria, Iran); no conflict category includes countries that did not experience a major conflict or minor conflict in any of the years over the sample period (Bangladesh, Cameroon, Côte d'Ivoire, Morocco, Senegal). Reference categories are as follows: less than secondary education, unemployed or out of labor force, female, age 54+, and single.

Appendix Table 5: Self-selection of refugees and irregular migrants, females, GWP 2009-2011

	(1)	(2)	(3)
Sample ➔	All	Major conflict	Minor or no conflict
Secondary education	0.048***	0.078***	-0.002
	(0.005)	(0.007)	(0.005)
Tertiary education	0.108***	0.111***	0.115***
	(0.010)	(0.012)	(0.020)
Employed	-0.029***	-0.063***	0.036***
	(0.005)	(0.006)	(0.007)
Age 25-34	0.073***	0.085***	0.041***
	(0.006)	(0.009)	(0.005)
Age 35-44	0.030***	0.040***	0.002
	(0.005)	(0.008)	(0.004)
Age 45-54	0.008	0.011	-0.001
	(0.005)	(0.008)	(0.003)
Married	0.049***	0.063***	0.013*
	(0.006)	(0.008)	(0.007)
Divorced	0.056***	0.046***	0.064***
	(0.013)	(0.017)	(0.021)
Widowed	0.067***	0.083***	0.021**
	(0.009)	(0.014)	(0.010)
Country FE	Yes	Yes	Yes
r2	0.121	0.108	0.207
N	13249	8373	4876

Source: Flow Monitoring Surveys, 2015 and 2016. Gallup World Polls, 2009-2011. Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Outcome variable, *refugee/migrant*, is equal to 1 for respondents in the Flow Monitoring Surveys and 0 for participants in Gallup World Polls (adults aged 25-64). Countries are classified by the level of conflict following the definitions provided by Uppsala Conflict Data Program: major conflict category includes countries with 1000 or more battle-related deaths in any of the years over the sample period (Afghanistan, Iraq, Nigeria, Pakistan, Sudan, Syria); minor conflict category includes countries with 25 to 999 battle-related casualties in any of the years over the sample period (Algeria, Iran); no conflict category includes countries that did not experience a major conflict or minor conflict in any of the years over the sample period (Bangladesh, Cameroon, Côte d'Ivoire, Morocco, Senegal). Reference categories are as follows: less than secondary education, unemployed or out of labor force, female, age 54+, and single.