# Refugee Crisis, Flight to Safety and Entrepreneurship

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**Abstract**

While large empirical literature analysed the impact of migration on labour market outcomes of natives, its impact on the entrepreneurship behaviour of the native population has been largely neglected. Using massive refugee inflow to Europe in 2016 as a source of exogenous variation in exposure to mass migration, we find that entrepreneurial activity of natives in the affected transit localities falls considerably compared to the localities that are not affected by mass migration. Our instrumental variable estimates also suggest a substantial fall in natives' entrepreneurial activity. We provide several additional analyses to understand mechanisms at play and to show heterogeneity in the entrepreneurial responses by population subgroups. Our results are primarily driven by young and middle-aged men (especially in between their late thirties and late fifties). We also find that risk aversion is the main mechanism explaining the fall in entrepreneurial activity.

**JEL Codes: F22, L26**

**Keywords: refugees, forced migration, entrepreneurship, risk aversion**

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## 1. Introduction

International migration and its socio-economic effects have been a prominent and much debated topic over the last decade. According to recent figures from United Nations (UN), the number of international migrants – including both voluntary migration and forced displacement – has continued to grow rapidly and reached 258 million worldwide in 2017, up from 153 million in 1990. In relative terms, the number of international migrants has grown faster than the world's population and, as a result, 3.4 per cent of the global population resided in a country where they were not born, or of which they do not hold the citizenship, in 2017, as opposed to 2.9 per cent in 1990. Forced displacement across international borders has also continued to rise in absolute figures: the total number of refugees increased from 17 million in 1990 to 20 million in 2017.[1]

One of the central economic arguments behind the immigration is that immigrants create jobs. This is mainly because they are more likely to be entrepreneurial and innovative than non-migrants – think about Silicon Valley figures like Sergey Brin (Google), Jan Koum (Whatsapp), Elon Musk (Tesla), Pierre Omidyar (eBay). The Schumpeterian approach to economic growth (Aghion and Howitt 1997) also argues that entrepreneurial dynamism is the key to innovation and growth (Djankov et al. 2006). However, unlike the focus on entrepreneurial migrants, empirical research on how forced migration affects natives' entrepreneurship is surprisingly limited.

A better understanding of the relationship between forced migration and natives' entrepreneurial activity is important for at least two main reasons. First, entrepreneurship is viewed as a potential way out of poverty. As reported in final report of the 2014 G20 Leaders' Summit many governments around the world encourage entrepreneurship to stimulate economic growth.[2] Second, it is important for developing more effective labour market policies in transit and host countries, which would consequently contribute to social stability and efficiency. The extent to which immigration positively (negatively) affects natives' entrepreneurial activity can also potentially shape the political support (backlash) for immigration policies in the transit and host countries. This makes it all the more important that we understand the relationship between forced migration and natives' entrepreneurial activity.

From April 2011, Syrians started seeking sanctuary mainly in Turkey, Jordan, and

[1] When compared to the global population, the number of refugees actually decreased from 0.33 per cent in 1990 to 0.26 per cent in 2017.

[2] The summary of the report can be found here: http://www.mofa.go.jp/files/000059841.pdf

Lebanon. In addition to the ongoing war in Syria, other unresolved crises and conflicts in various countries forced thousands to flee their homes and to seek sanctuary in Europe starting from early 2015. Consequently, European countries faced the worst refugee crisis since the end of World War II. According to the official figures from Eurostat (2017), nearly 1.25 million first time asylum applications were made in 2015. In 2016, this figure registered a small decrease and fell to 1.2 million. Migrants chose different routes to reach their intended destinations. Thus, two localities within the same country and region were differently exposed to this unexpected wave of migration (which we describe in detail in Section 3.1). Therefore, in this paper we use the mass influx of migrants into Europe in 2016 as a source of variation and ask the following question: does forced migration affect the entrepreneurship of the natives?[3]

We provide the first large-scale cross-country evidence on the causal relationship between exposure to forced migration and natives' entrepreneurship. To do so, we use cross-locality variation in exposure to mass migration to estimate difference-in-differences models controlling for individual and country-level characteristics, as well as locality and year fixed effects. In particular, we use a locality-panel version of the Life in Transition Survey (LiTS, 2010 and 2016) and geographically match these locations to the migrant routes to Europe using digitalized routes by the International Organization for Migration for the period 2015-2016. We then calculate the average distance of each locality to the closest migrant route. We also use LiTS data to measure self-reported entrepreneurial activity, attitudes towards migrants and other groups and risk aversion.

To preview, we find that natives' entrepreneurship falls in localities that are close to the main migrant routes compared to those far away.[4] We also use different definitions of treatment (i.e., different distance thresholds to migrant routes) and, intuitively, find that the effects are larger in magnitude in localities that are closer to the routes. This is consistent with natives becoming more risk averse when exposed to the sudden immigration shocks. To identify a causal effect, we implement instrumental variable approach. Following Del Caprio and Wagner (2016), we use the average minimum driving distance of each locality to the Syrian regions as an instrument.

We also investigate heterogeneity in the findings: our results show that the fall in

[3] To measure entrepreneurial activity at the locality level we use the question on whether respondents tried to set up a business.

[4] Localities refer to the Primary Sampling Units (PSUs), which can be expressed in geographical terms, such as municipality, district, province, depending on the country classifications. The full list of localities used in the analysis is available from the authors upon request.

entrepreneurship is primarily driven by young and middle-aged men (especially in between their late thirties and late fifties). We rule out mechanisms related to changes in the entrepreneurial activity spurred by changes in the local labor market conditions by showing that employment rates are unaffected. Our analysis suggests that risk aversion is the most plausible mechanism explaining the fall in native entrepreneurship.

Our paper makes several contributions. First, we provide the first population-wide causal evidence on the relationship between exposure to forced migration and the entrepreneurship of natives. Second, our identification strategy allows us addressing the endogeneity of forced migration with respect to natives' entrepreneurial outcomes. Third, we identify and test several mechanisms to explain why and how mass migration leads to a fall in the native entrepreneurship. Fourth, we contribute to the growing literature on how "mass migration" affects socio-economic outcomes of the natives, among which entrepreneurship is largely neglected.

We proceed as follows. Section 2 reviews the related literature and provides a conceptual framework for understanding the mechanisms. Section 3 explains the key features of the mass migration to Europe and provides details on the data sources. Section 4 describes the estimation strategy. Section 5 presents the results. Section 6 concludes.

## 2. Prior Research and Conceptual Framework

### 2.1 Migration and Entrepreneurship

Most of the empirical literature on migration and entrepreneurship has mainly focused on the role of migrant entrepreneurs. Previous studies have found that migrants set up their own businesses more often than natives. This pattern has been shown to exist not only in the U.S., where immigrants represent 27.5 per cent of the country's entrepreneurs but only around 13 per cent of the population (the Kauffman Foundation, 2016), but in many other countries. For example, according to Global Entrepreneurship Monitor (2012), migrants exhibit a higher rate of entrepreneurship than natives, especially in innovation- and factor-driven economies. A first strand of the literature provides evidence consistent with various hypotheses that could explain this pattern. Neville et al. (2014), for example, argues that this is mostly driven by self-selection of migrants, who are less likely to be risk averse. Migrants are also argued to be more able to spot opportunities for new businesses as they already spotted opportunities for migration (Hart and Acs 2011). Additionally, discrimination against immigrants in labor markets may exert pressure on them to seek self-employment (Clark and Drinkwater 2000).

A second strand of the literature investigates whether return migrants are more likely to become entrepreneurs than non-migrants. It is well documented that an overseas returnee is more likely to become an entrepreneur than a non-migrant (Démurger and Xu 2011; Dustmann and Kirchkamp 2002; Mesnard 2004; Piracha and Vadean 2010; Wahba and Zenou 2012 and others). These papers suggest that that return migrants accumulate human capital, savings and experience overseas that enable them to start their own business upon return.

Related to this, there is also considerable evidence that – even when migrants do not return - they can boost entrepreneurship in their home countries by transferring funds. Remittances promote access to self-employment and raise investment in small businesses (Rapoport and Docquier 2006), including the creation of microenterprises in recipient countries (Woodruff 2001; Woodruff and Zenteno 2007). Relatedly, Funkhouser (1992) and Yang (2008) show that remittances can promote entrepreneurial activities by relaxing liquidity constraints.

The literature on how migrants affect native's entrepreneurship is, however, surprisingly scarce. Many papers have explored the relationship between local labour market outcomes and refugee – or, more generally, migrant - shocks (e.g. Card 1990 and 2012; Del Carpio and Wagner 2016; Tumen 2016; Borjas 2017; Borjas and Monras 2017; Ceritoglu et al. 2017; Peri and Yesmonov 2017). Although findings are far from being settled (Clemens and Hunt, 2017; Dustmann, Schönberg, and Stuhler 2016), these studies indicate that mass immigration might cause wage decline and job displacement for some native workers and it may increase the local unemployment rate of native populations and eventually of existing migrants (Manacorda et al., 2006).[5] However, only two papers have explored the effect of these migrant flows on native's entrepreneurship. In a paper closer to ours, Unel (2018) investigates the effect of migration on the entry and exit of entrepreneurs in United States and finds a negative effect, consistent with our results. Fairlie and Meyer (2003) also show that self-employed immigrants displace self-employed natives in the US. In both cases, the analysis is not focused on forced displacement (or refugee flows) but on regular migration.

[5] Although we focus only on studies that focused on labour market outcomes, it is worth noting that several has investigated socioeconomic effects of immigration: (i) price levels (Cortes 2008 and Balkan and Tumen 2016); (ii) welfare state and public finance (Borjas 1995; Blume & Verner 2007); (iii) housing market (Saiz 2003; Gonzalez and Ortega 2009; Sa 2015); (iv) innovation and productivity (Hunt & Gauthier-Loiselle 2010; Kerr and Lincoln 2010; Peri 2012).

## 2.2 Conceptual Framework

There are three distinct channels that can affect entrepreneurial activity as described in (Blanchflower and Oswald 1998 and Djankov et al. 2005): the institutional environment, sociological variables, and individual characteristics. First, economic, political and legal institutions play a role in shaping the entrepreneurial environment for countries. These include the role of credit and liquidity constraints (Banerjee and Newman 1993; Beck and Demirguc-Kunt 2006; Sauer and Wilson 2016); size of government (Nyström 2008); red tape and bureaucracy (Ciccone and Papaioannou 2007); and the security of property rights (Besley 1995; Djankov et al. 2002; Frye and Zhuravskaya 2000; Roland and Verdier 2003 and others).

The second set of factors mainly focuses on the role of cultural values (Hayton 2002 and Liñán et al. 2017) and social networks (Elfring and Hulsink 2003; Greve and Salaff 2003; Leyden et al. 2014 and others) in fostering or discouraging entrepreneurial activities.

The third set of factors concentrates on the individual characteristics of entrepreneurs. Ardagna and Lusardi (2008) show that gender, age, and attitudes toward risk are important determinants of entrepreneurship. Lazear (2004) finds that individuals who become entrepreneurs have a special ability to acquire general skills. Liang et al. (2014) finds that entrepreneurship displays an inverted u-shape relation to age: very young do not possess the business skills necessary to start a business and the very old lack the creativity or energy to engage in entrepreneurship.

The evidence on the effect of unemployment on new businesses creation is largely mixed. On the one hand, high unemployment can depress aggregate demand and deteriorates economic incentives to create new businesses (Storey and Johnson 1987). On the other hand, when unemployment is high, individuals may be pushed into entrepreneurial activity (Martinez-Granado 2002). Uhlaner et al. (2002) study the effect of individual variables on entrepreneurial activity in 14 OECD countries and show that greater life dissatisfaction; higher church attendance and left-right extremism are correlated with higher levels of self-employment. Cullen and Gordon (2002) and Schuetze and Bruce (2004) demonstrate that more individuals choose to become self-employed and entrepreneurial companies grow faster when personal income is relatively more heavily taxed than corporate income. Finally, "low-trust" is said to restrict market entry and enterprise growth (Welter and Smallbone 2006).

Our preferred framework is more akin to the standard analysis in economics and relies upon 'individual characteristics'. In particular, we argue that after accounting for differences in time invariant regional characteristics and controlling for observable individual covariates, mass migration may affect natives' entrepreneurship by fostering a change in attitudes. Being close to migrant routes may lead individuals to be more risk-averse due to an increase in the perceived instability of the socio-political environment. Similarly, the exposure to a mass influx of migrants could affect institutional and/or generalised social trust, which are highly relevant for the formation of new enterprises. Finally, an individual might not want to set up a business by anticipating higher taxes in future owing to mass migration. Our results are consistent with the notion that an increase in the risk aversion leads to a fall in entrepreneurship (described in detail in Section 6).

## 3. Data

The data used in this paper come from the Life in Transition Surveys (2010 and 2016), International Organisation for Migration, Google Maps, and the World Bank's World Development Indicators (WDI). The analysis is at the individual level, and the details on how the dataset was constructed are provided below.

### 3.1 Migrant Routes and Migration to Europe

European countries witnessed an unprecedented increase in the number migrants arriving by sea in 2015. Hundreds of thousands crossed the Mediterranean Sea and reached Europe by taking the following routes: Western Balkan, Central Mediterranean, and Eastern Mediterranean (see Figure 1).[6] Greece, FYR Macedonia, Croatia and Bulgaria are the main transit countries for refugees and irregular migrant groups after Italy.[7]

The Western Balkan (formally "closed") route witnessed unprecedented numbers of people move through its territories between January 2015 and March 2016 and it was the most frequent passageway for migrants and refugees heading to the heart of Europe.[8] This route is composed of two migratory flows: one from the Western Balkan countries themselves — Albania, Bosnia and Herzegovina, Croatia, former Yugoslav Republic of Macedonia, Kosovo, Montenegro, Serbia, and Slovenia – and another of migrants that

[6] Frontex categorises 4 other irregular migrant routes (Eastern borders, circular route from Albania to Greece, Western Africa, and Western Mediterranean) into the EU. Here, we only focus on those used for identification.
[7] See EBRD Transition Report (2018).
[8] After the EU-Turkey deal in March 2016, which aimed to end irregular migration across the Aegean Sea, the number of migrants travelling through the Western Balkan route dropped substantially.

entered the EU (Bulgaria or Greece) via Turkey by land or sea, with the aim of reaching the Schengen area. Eastern Mediterranean passage includes crossings through Turkey to the Schengen area via Greece or Bulgaria.

Importantly for this paper, we exploit the geographic variation produced by the distance between these migrant routes into Europe and the different localities surveyed in the Life in Transition Survey to identify the effect of exposure to mass migration on the change of native's entrepreneurship in transit countries. Relevant for the internal validity of this study, we argue that migrants fled from their home countries due to conflict-related reasons: the discontinuous increase in the exposure of local population to the massive influx of migrants originated from a sudden and unexpected expulsion from their home countries. Using Flow Monitoring Surveys, which produces quantitative estimates of the numbers of third-country nationals migrating towards Europe via the central and eastern Mediterranean routes, Figure 2 shows that 77 per cent of respondents cites "war" or "conflict" as the main reason for leaving their country.[9]

Figure 3 shows the localities used in our LiTS sample and the main land routes to Europe, as projected by IOM. This map broadly shows that many European countries serve as transit and/or host countries for refugees and irregular migrant groups. Using the same base map, Figure 4 provides a zoomed in image to better show the within country variation in proximity to migrant routes. In particular, we define four measures of treatment based on the distance of every locality in our sample to their closest migration route. In our first three definitions, a locality is "treated" if its distance to the closest route is within 15, 25 or 50 km radius. In our fourth treatment we use a continuous definition of treatment, which is simply the log of the distance of each locality to the closest route. This figure highlights that there is substantial amount of variation in the proximity of localities to migrant routes. For example, focusing on 15 km radius gives us 200 treatment localities and 721 control localities. For 25 km radius we have 242 treatment localities and 679 control localities and for 50 km radius we have 308 treatment localities and 613 control localities.

[9] FMS data, which are conducted in a total of 11 different languages, are administered by trained data collectors with a range of cultural backgrounds. Respondents are approached by IOM field staff, told about the objectives of the research and advised that participation will not influence their legal status in the country where the interview is conducted. As shown in Aksoy and Poutvaara (2019), despite fast-changing conditions on the ground, FMS data do provide a good picture of migrant groups.

### 3.2 Life in Transition Survey (LiTS)

The Life in Transition Survey (carried out by the European Bank for Reconstruction and Development in collaboration with World Bank) is a nationally representative household and attitudinal survey. LiTS collects information on the demographic and socio-economic characteristics of respondents and interviews individuals on a wide-range of topics. In this paper, we use the locality-panel version of the LiTS II (2010) and LiTS III (2016). 2010 wave (approximately 750 households per country) was conducted in 29 transition countries, the Czech Republic and 5 western European comparator countries (France, Germany, Italy, Sweden and the United Kingdom). The 2016 round (approximately 1,500 households per country) was conducted between the end of 2015 and the beginning of 2016 in 34 countries, comprising 29 transition countries, the Czech Republic and two western European comparator countries (Germany and Italy).[10] An important feature of these data is that it tracks nearly 50 localities per country.[11] This panel structure allows us to measure differences in outcome variables within the same localities. Another key factor is that LiTS only surveys native population, which allows us to directly assess how exposure to migration affects natives' entrepreneurship. Our analysis is restricted to the localities for which we have data in both years and on the countries directly or indirectly affected by European migrant crisis in 2015 and 2016. Overall, we analyse a panel of 808 different localities, in 247 different sub-regions (NUTS2) and in 20 different countries.[12]

LiTS provides information on respondents' demographic characteristics, household's assets, the utilities and the services they have access to, and their consumption patterns. These questions were completed by the head of the household or any other household member who was knowledgeable of the household characteristics and finances at the time of the interview. The survey also provides detailed information on the respondent's work and unemployment history and on any entrepreneurial activities that the respondent may have been involved with. It also includes questions on attitudes toward migrants and minority groups, trust, and values.

[10] Cyprus and Greece were covered in 2016 for the first time, and hence they are not included in the analysis.

[11] A panel element was built into the survey design by requesting interviewers to revisit the localities that were sampled during the second round of the survey in 2010. A mapping exercise preceding the sampling was carried out to match the borders of the 2010 localities to the current ones. The households that participated in the 2016 wave were randomly selected and, hence, are not the ones included in the 2010 wave.

[12] The countries included in the sample are: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, FYR Macedonia, Germany, Hungary, Italy, Kosovo, Latvia, Lithuania, Montenegro, Poland, Romania, Serbia, Slovak Republic, Slovenia, and Turkey.

LiTS only contains a face-to-face survey mode. Our main outcome comes from the primary respondent answer to the question "Have you ever tried to set up a business?". Individuals were then probed to choose one of the following answers: 1. "Yes, I have set up my current business"; 2. "Yes, I set up a business in the past but I am no longer involved in it, or it is no longer operational", 3. "Yes, I tried to set up a business and did not succeed (in setting it up)"; 4. "No". We create a logically defined outcome variable based on the responses 1, 2, and 3: "Tried to set up a business" as a entrepreneurial activity measure. Similarly, we create variables to measure aversion to migrants, confidence in different type of institutions, satisfaction with the government and willigness to pay taxes. The exact wording of these questions are presented in the Appendix.

### 3.3 Descriptive Statistics

Table 1.a (for control variables) and 1.b (for outcome variables) present the descriptive statistics on demographic characteristics from the LiTS data by treatment (pre- and post-) years and based on 15 km radius definition. The data indicate that respondents who live in treatment localities in 2016 (in comparison to 2010), are on average slightly older, more highly educated, more likely to be married, more likely to have children in the household, more likely to be unemployed, more likely to have a bank account and own a car. They are also less likely to report that they tried to set up a business and more likely to report that they do not prefer migrants as neighbours.

Among those who live in control localities, Table 1.a and 1.b show that respondents who live in control localities in 2016 (in comparison to 2010), are on average older, more likely to be male, more likely to be married, more likely to have children in the household, less likely to be unemployed, more likely to have a bank account. There are no significant differences when it comes to reporting to have tried to set up a business. Respondent are also more likely to report that they do not prefer migrants as neighbours in 2016. These broad patterns are also documented for 25 km and 50 km radius definitions and reported in Appendix.

## 4. Estimation Methodology

### 4.1 Difference-in-Differences Estimation

We first use the variation generated by the large migration flow between the two waves of our survey data (2010 and 2016) across different localities to identify a causal effect. By comparing the same areas based on their proximity to the migrant routes before and after the

mass migration episode, we account for potential source of endogeneity generated by locality-specific time-invariant characteristics. More specifically, we estimate the following equation:

$$Start\_Business_{ilct} = \beta_1 + \beta_2 Migrant_l * \gamma_t + \gamma_t + \beta_3 X_{ilct} + \beta_4 Z_{ct} + \theta_l + \varepsilon_{ilt} \quad (1)$$

where *i, l, c and, t* index individuals, localities, countries, and years (2010 or 2016) respectively.

$Start\_Business_{ilct}$ takes the value of 1 if a respondent *i* in locality *l* in country *c* reported to have tried set up a business in year *t* and 0 otherwise. $Migrant_l$ takes a value of 1 if the locality *l* is treated. We use four different definitions of treatment; T15, T25, T50: each takes a value of 1 if the locality *l* is within a 15 km, 25 km and 50 km radius to the migrant routes and 0 otherwise, and a continuous treatment variable measuring the log of the distance of locality *l* to the closest route. Locality fixed effects, $\theta_l$, control for any time-invariant difference in unobserved factors that vary across localities. $\gamma_t$ is a year fixed effect, which capture the impact of global shocks that affect all countries simultaneously. $Migrant_l * \gamma_t$ is the main variable of interest and captures the effect of exposure to mass migration on natives' entrepreneurial activity.

We also control for a vector of individual- ($X_{ilct}$) and country-level ($Z_{ct}$) characteristics. More specifically, $X_{ilct}$ *include*: age, age-squared, a male dummy, dummy variables for marital status (married and divorced/separated); a dummy variable for having children, and educational attainment (tertiary education dummy). We also control for individual-level unemployment and include dummy variable for owning a bank account, a dummy variable for owning a dwelling and a dummy variable for owning a car. Time-varying country characteristics are PPP-adjusted GDP per capita and the log of country population. We cluster robust standard errors at the PSU (locality) level to account for the potential correlation existing in the errors within the same PSU.

### 4.2 Instrumental Variable Estimation

A potential threat to the difference-in-differences identification strategy would arise if migrants had chosen to travel by some localities not based on locality time-invariant characteristics but based on *changes* in locality-specific characteristics. For example, migrants might have preferred to cross the localities that were economically growing the most. Migration and entrepreneurial outcomes may also be jointly affected by omitted variables (such as a change in institutions and policies). Even more importantly, our data do

not allow us to test pre-treatment parallel trends to satisfy the identification assumption of difference-in-differences methodology.[13] To tackle these issues, we use two-stage least squares (2SLS) methodology with instrumental variables to instrument our potentially endogenous variables in Equation (1). We use an instrument that affects the distance to migrant routes but which is arguably unrelated to the natives' entrepreneurial activity.

To find a valid instrument, we focus on exogenous determinants of migrant flows in terms of the travel distance from origin, similar to the approach of Del Caprio and Wagner (2016). Like them, we exploit the sudden and disproportionate increase in migration flows from Syria between 2015 and 2016. In particular, we calculate the minimum driving distance using Google Maps from each locality to the governorate capital in Syria to construct the following instrument:

$$Instrument_l = \sum_S \ln\left(TravelDistance_{sl}\right) \prod_S \ln\left(Borders\right)_{sc} \qquad (2)$$

where $TravelDistance_{sl}$ is the minimum driving distance between each capital city of Syrians governorates ($s$) and each of the localities ($l$) surveyed in the LiTS data. $\prod_s$ is the share of the Syrians that lived in each governorate $s$ in 2010. $\ln\left(Borders\right)_{sc}$ is the minimum number of country-borders needed to cross from Syria (the main "sending" country) to each "receiving" country $c$ in logs. The instrument is thus a weighted minimum driving distance from each locality to Syria, augmented by the number of borders needed to cross from one country to the other.[14]

For the instrument to be valid, first, the routes that migrants chose to travel had to be influenced by the driving distance to the origin (Syria); this is, a locality closer to Syria should be more likely to be chosen to pass by throughout a migrant route than a locality far away. Second, the average driving distance from Syria to each locality has to affect the *change* in the outcome only through the proximity of the migrant routes to the localities. In other words, the main identification assumption is that the driving distance from Syria to each locality must not have induced a change in the entrepreneurial activity through any other channel than the exposure to migration.

[13] Although there is a 2006 wave of the Life in Transition Survey, the questions we use in our analysis were not asked then. Therefore, we cannot test if trends in treated and non-treated localities were the same before the treatment took place in 2016.

[14] The exclusion of the number of borders leaves the estimates almost identical. These results are not reported here but available upon request.

## 5. Results

This section presents four sets of results. First, we show difference-in-differences estimates.. Second, we present the IV results following the methodology introduced in section 4.2 and examine heterogeneity by socio-economic subgroups. Third, we investigate potential mechanisms using our baseline IV specification. Finally, we present a set of robustness checks.

### 5.1 Difference-in-differences Specifications

In this subsection, we start by analysing the entrepreneurial activity in localities, which are close to the migrant routes to those located far away from the migrant routes as described in Section 4.1. Specifically, we estimate models separately based on geographical distance to migrant routes in Table 2. We present results for less than 15 km in the top panel, for less than 25 km in the second panel, for less than 50 km in the third panel and for the continuous distance (in km) variable in the bottom panel. Each column shows coefficient on the *migration effect* variable, which we interpret as the effect of exposure to migration on natives' entrepreneurial activity. Column 1 reports the estimation with fixed effects (locality and year); column 2 adds the country-level controls, Column 3 adds the individual-level demographic variables, Column 4 individual-level education and labour market characteristics and, finally, Column 5 adds control variables for individual-level wealth and assets.

In the first column of the top panel of Table 2, in which we define our treatment localities within 15 km radius to migrant routes, we find that migrant influx to the treatment localities decreases the likelihood of reporting to have tried to set up a business by 4.6 percentage points for natives compared to those in the control localities. Notably, this effect remains qualitatively identical even after adding fixed effects and different set of controls at the individual and country levels (Columns 2 to 5). More specifically, the migration effect coefficient in the fully saturated model in Column 5 yields a negative and statistically significant estimate of .035. In the second panel of Table 2, when we define our treatment localities as within 25 km radius to migrant routes, we find that the migrant influx decreases the likelihood of reporting to have tried to set up a business by 3 percentage points in the treatment localities (Column 5). When we define our treatment localities as within 50 km radius, we find that the natives' entrepreneurship falls by 2.4 percentage points (Column 5). Intuitively, the point estimates on the migration effect variable decreases as we define our

treatment localities further away from the migrant routes. Finally, in the bottom panel of Table 2, we find that a ten per cent increase in the distance to the migrant routes rise the propensity to start a business by one percentage points. Collectively, these distance-based estimates confirm that proximity to migrant routes and exposure to mass migration are significantly associated with the entrepreneurial activity of natives.

### 5.2 Instrumental Variable Specifications

In this section, we present the IV estimates of the relationship between the exposure to migration and natives' entrepreneurship. Table 3 presents the first stage estimates of our instrument. As shown, there is a strong relationship between the average fastest driving distance and distance to migrant routes. This relationship is robust to the inclusion of fixed effects, individual-level covariates as well as country-level controls. Overall, the instrument is highly correlated with the potentially endogenous treatments. The results for the first stage F-test also show that the first-stage relationships are strong for both individual regressions and joint significance of the instruments. The F-statistic is 18.67 in the sample when we define our treatment as 15 km, 21.48 when we define our treatment as 25 km, and 25 when we define our treatment as 50 km.

Table 4 present the second-stage estimates, in which we replicate the difference-in-differences specifications from Table 2. We only report the coefficients on the main variables of interest. Column 5 of Table 4 presents the IV results with fixed effects, individual characteristics, as well as country-level controls. The impact of exposure to migration is negative and significant, with a point estimate of 0.276 when we define our treatment as 15 km. In localities that are in 25 km (50 km) radius to migrant routes, natives' entrepreneurship falls by 24.3 (21.2) percentage points. All these estimates are statistically significant ($p < 0.01$).

*Are These Effects Attributable to Certain Type of People?*

To understand the heterogeneity of the effects, we consider the IV estimations for various demographic characteristics in Tables 5, 6 and 7.[15] First-stage F-statistics for heterogeneity estimates are above 10 in all models (except the rural sub-sample). The format of Tables 5, 6 and 7 follows Table 4 except that we now examine associations for various demographic groups. In each case, the outcome in Tables 5, 6 and 7 are the same outcome as in Table 4

[15] In results not reported we also considered heterogeneity across country characteristics and found weaker evidence of heterogeneity by EU-membership status and GDP per capita.

(i.e., tried to set up a business). Each row reflects a separate regression that is fully saturated with controls for individual and country characteristics, sub-region and time fixed effects.

Tables 5, 6 and 7 reveal interesting descriptive heterogeneity in likelihood of reporting to have started a business. For example, there is a notable gender difference (Table 5): men are significantly more likely to be negatively affected than women. There is also a substantial age effect: younger individuals' (ages 18-38) entrepreneurial activity affected more negatively than older ones. Partnership, education, households with assets and urban/rural differences are also observed clearly in the data. All of these differences are statistically significant at least at the 5 percent level (except for the rural sample, in which we also have weak first stage F-statistics estimates).

**5.3 Discussion of Mechanisms**

In this section, we test and provide evidence for the mechanisms we outlined in Section 2.2. More specifically, we expect that after accounting for differences in time invariant regional characteristics and controlling for observable individual covariates, mass migration may affect natives' entrepreneurship through changes in attitudes: (i) risk aversion and (ii) trust.

We estimate models separately based on geographical distance to migrant routes and for different outcome variables in Table 8. The format is the same as that of Table 2. Each column shows the coefficient on the effect of exposure to migration: Column 1 reports the estimates for the outcome variable "willingness to take risks"; Column 2 reports the estimates for the outcome variable "willingness to pay extra tax for public services", Column 3 reports the estimates for the outcome variable "lost wallet would be returned with nothing missing", and, finally, Column 4 reports the estimates for the outcome variable "people can be trusted".

Column 1 of Table 8 shows that natives in treated localities are significantly less likely to report that they are willing take risks. The IV results in Column 2 indicate that exposure to mass migration also has a substantial negative effect on willingness to pay extra tax for public services. This is line with the view that many people think "*refugees are a burden on their country as they are likely to take natives' social benefits*" Pew Research Center (2016). Importantly, in Column 3 we also find that exposure to mass migration has a negative effect on trust to a stranger, though these estimates are statistical insignificant at the conventional levels. There is also no effect on general trust.

*Other Potential Explanations: Labour Markets*

Previous studies indicate that mass immigration might cause different effects on local labour markets. For instance, it could generate a decline in wages and job displacement for native workers or existing migrants, depending on how close substitutes they are - and it could also affect local unemployment rate.[16] In a context like that, unemployment could depress aggregate demand and deteriorate economic incentives to create new businesses (Storey and Johnson, 1987). On the other hand, the presence of migrants might generate demand for goods and services, which can then push natives into entrepreneurial activity. Similarly, construction and management of reception centres can generate employment opportunities for natives, which, in turn, can negatively affect the entrepreneurial activity in the treated localities – if the demand for salaried employment increases (is there any paper related to this? Seems reasonable to me but it would be good to cite someone)

A priori, the nature of this relationship is unclear. We therefore examine whether the reduction of entrepreneurship is driven by any significant change in the local labour markets. To do so, we take advantage of series of questions on respondents' labour market status (Table 9). The outcomes across the columns are as follows: unemployed (column 1); self-employed (column 2); salaried employed (excluding self-employed) (column 3); and out of labour force (column 4).

For the *unemployed* outcome in Column 1, we find no evidence that exposure to mass migration statistically significantly affected unemployment or salaried-employment in the affected localities. Moving to *self-employed* outcome in Column 2, we find that self-employment fell substantially: on the order of 10 percentage points. Notably, this effect is consistent with our main finding. The results presented in Columns 3 and 4 suggest that mass migration has no effect on economically inactive and unemployment rate. There seems to be a movement in particular from self-employment to inactivity (and to a lesser extent to salaried-employment) with no discernible effect on the total unemployment rate. It is also important to note that these patterns are qualitatively identical to controlling for partner's labour market characteristics.

[16] See for example, Card 1990; Del Carpio and Wagner, 2016; Tumen, 2016; Borjas and Monras, 2017 and others.

### 5.4 Placebo and Robustness Checks

In Table 10, we strengthen inference further by showing that the relationship between mass migration and natives' entrepreneurial activity is unique to the migration domain. Specifically, we estimate similar models where we consider other outcome variables related to attitudes about non-migration issues such as LGBT, people of different religion and people who speak a different language and found no effect in any specification.[17]

Each column of Table 10 presents a separate regression model using the fully saturated specification as in column 5 of Table 4. Columns 1 and 2 show the coefficient estimates for the key outcome variables: (i) migrants make valuable contribution to the economy and (ii) a respondent does not prefer to have migrants as neighbours. Column 3 then shows results for an outcome that equals one if the individual reported that they do not want gays as neighbours. Column 4 shows results for an outcome that equals one if the individual reported that they do not want people of different religion as neighbours. Column 5 shows results for an outcome that equals one if the individual reported that they do not want to have people who speak different language as neighbours.

We find that exposure to mass migration only leads to negative attitudes towards migrants. Respondents in treatment localities are significantly less likely to report that migrants make valuable contributions to the economy (Column 1), they are more likely to state that they do not want migrants as neighbours (Column 2) and there are no statistically significant associations between mass migration and attitudes towards other population groups (Columns 3 to 5).

We conduct additional robustness checks in Table 11. Our findings do not change when: (i) we exclude main destination countries Germany and Italy in Column 1; (ii) we exclude countries with conflict history (Bosnia, Croatia, Macedonia, Kosovo, Montenegro and Slovenia) in Column 2; (iii) when we restrict our sample to working age population, 18-64, in Column 3.

[17] In results not reported but available upon request, we also considered placebo outcomes for different issues and population groups (a respondent would not like to have as neighbours: families with children, drug addicts, elderly people, gypsies, poor people, heavy drinkers, unmarried couples living together, Jewish people) and again found that the effect we identified is unique to the migration domain.

## 6. Discussion and conclusion

How does forced migration affect the natives' entrepreneurship? Analysing data from 20 European countries in 2010 and 2016, we use a distance-based instrument to estimate the causal impact of exposure to migration on natives' entrepreneurship. Our results suggest that localities that are near migrant routes have experienced large decrease in natives' entrepreneurship. The results are stronger for men, younger and less educated people. Somewhat surprisingly, the effects are very similar when we split the samples by country characteristics. We also find that the exposure to refugee flows has resulted in major deterioration of attitudes to migrants; but there is no systematic relation between exposure to mass migration and people's views towards other population groups.

Mass influx of migrants has been a major concern for many European countries, particularly for those in Central and Eastern Europe. Indeed, we find that the fall in entrepreneurial activity can be broadly explained by instability caused by mass migration: risk aversion and an increase in trust to police forces. This is in contrast to contact theory (Allport, 1954), which suggests that natives who have regular contact with migrants settled in their municipalities develop sympathy towards them. Therefore, our results suggest that uncontrolled and mismanaged migration as well as ineffective border policies can undermine economic activity in the affected localities through "spillover" effects. In other words, there is a room for policies that aim to minimise the cost of mass migration while maximising the gains. For example, national governments can work with local authorities to tackle this problem by increasing legal employment opportunities for irregular migrants 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).

Another policy implication is to ensure that the asylum system in European countries operates to the same standards by giving refugees and irregular migrants the comparable level of rights and grants the same duration of residency. A common policy would also ensure that refugees and irregular migrants were distributed proportionally and these are not only the few exposed localities that should bear the burden of the crisis.

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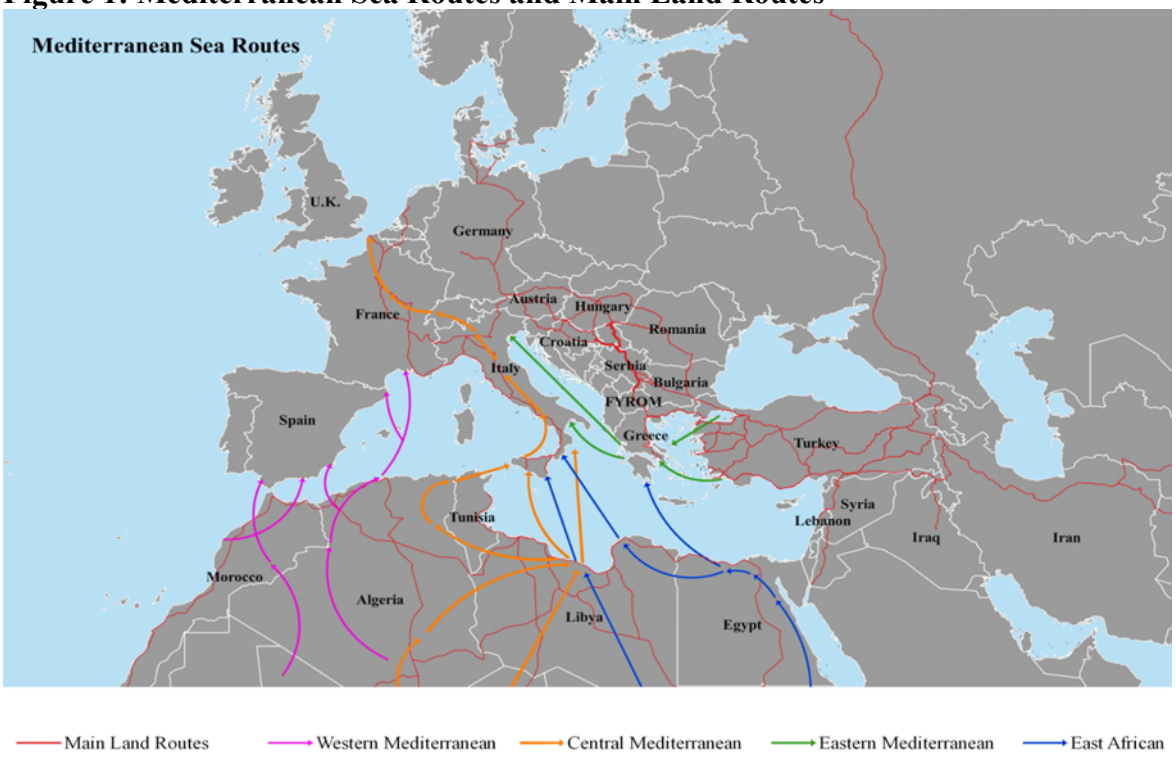
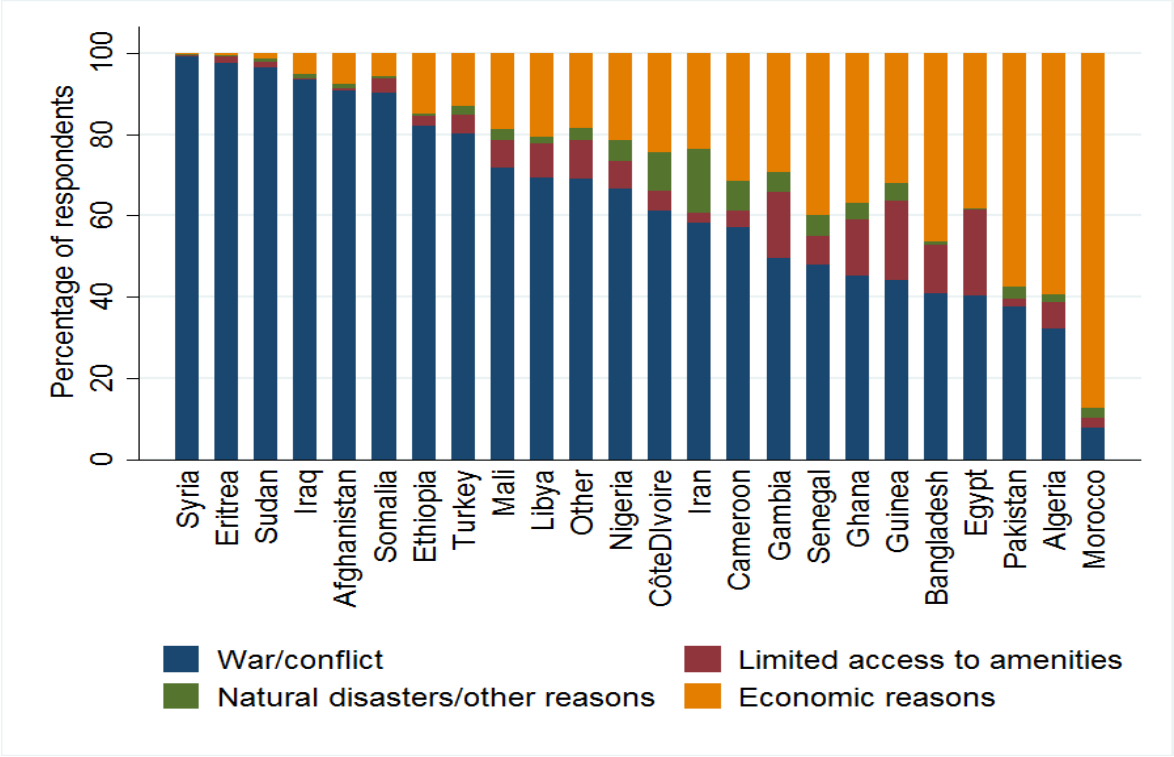
**Figure 1: Mediterranean Sea Routes and Main Land Routes**



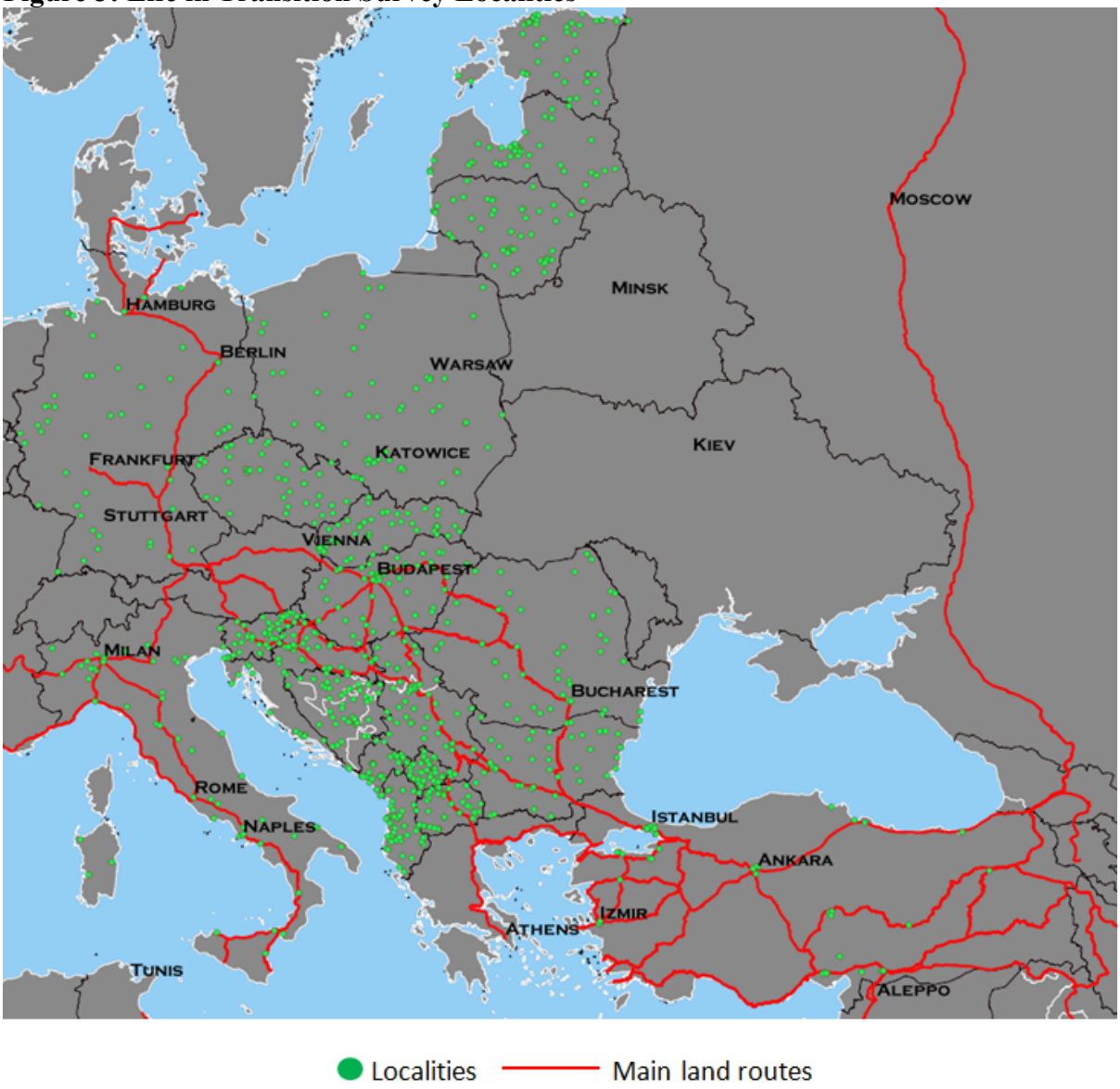

Source: Life in Transition Survey and IOM.

**Figure 2: Reasons for Leaving by Source Country**



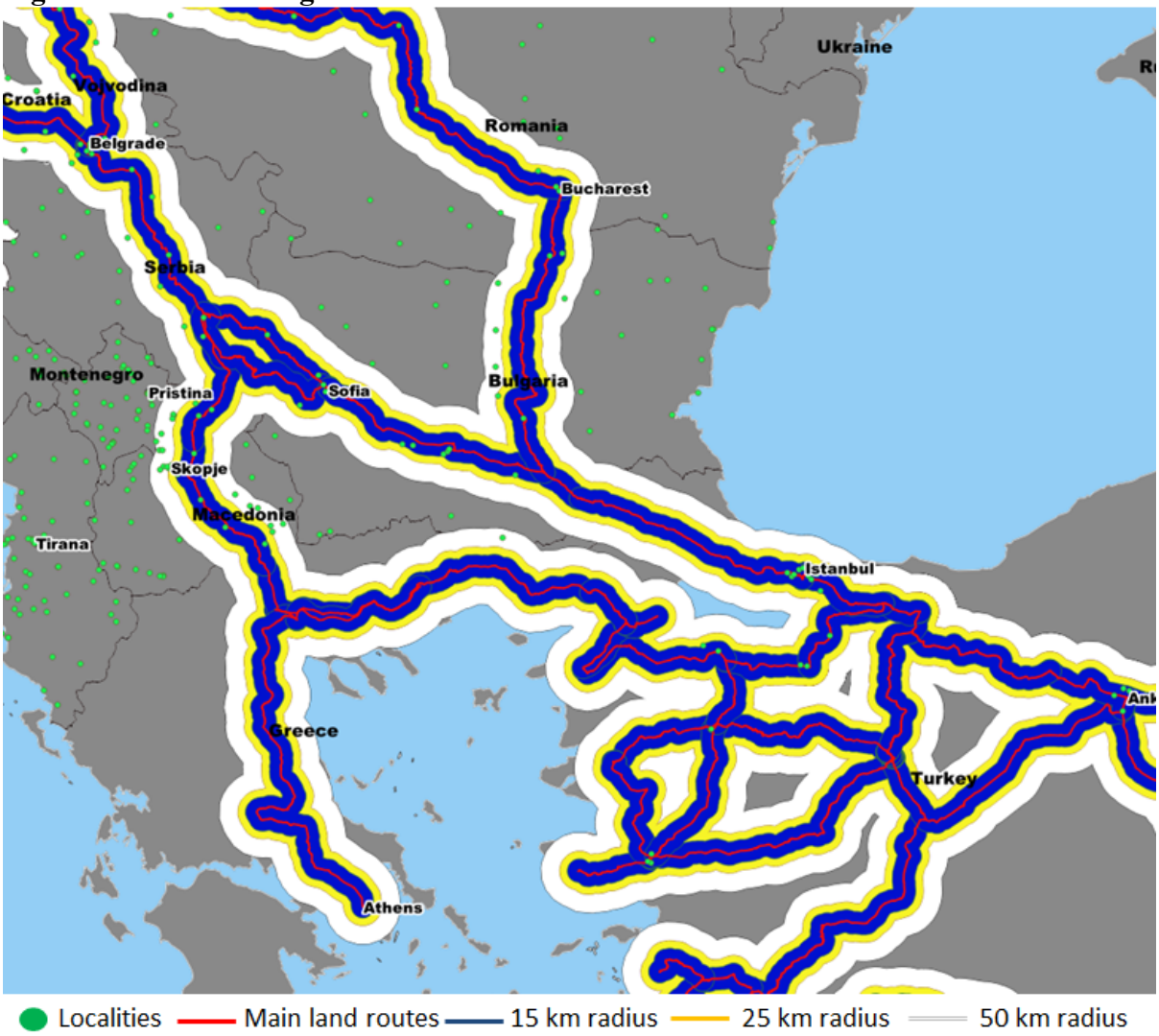

Source: Flow Monitoring Surveys, 2015 and 2016.

**Figure 3: Life in Transition Survey Localities**




Source: Life in Transition Survey and IOM. The map illustrates all localities used in the sample.

**Figure 4: Zoomed Image for Treatment and Control Localities**




Source: Life in Transition Survey and IOM. The map provides a zoomed image for treatment and control localities based on alternative distances to migrant routes.

**Table 1.a: Descriptive Characteristics – Control Variables, Treatment Defined as 15 km**

| | Treatment Localities (15 km) | | Control Localities (15 km) | |
|---|---|---|---|---|
| | Pre-treatment (2010) | Post-treatment (2016) | Pre-treatment (2010) | Post-treatment (2016) |
| *Control Variables* | | | | |
| Age | 47.01 (16.90) | 47.86 (17.50) | 46.76 (17.66) | 50.25 (17.74)[B] |
| Male | 0.41 (0.49) | 0.47 (0.50)[A] | 0.40 (0.49) | 0.45 (0.50)[B] |
| No education | 0.04 (0.19) | 0.01 (0.11)[A] | 0.04 (0.2) | 0.02 (0.12)[B] |
| High school degree | 0.35 (0.48) | 0.39 (0.48) | 0.35 (0.49) | 0.35 (0.49) |
| Married | 0.57 (0.49) | 0.61 (0.49) | 0.58 (0.49) | 0.62 (0.50)[B] |
| Presence of children (<15 years) | 0.34 (0.47) | 0.45 (0.50)[A] | 0.31 (0.46) | 0.54 (0.50)[B] |
| Unemployment rate | 0.06 (0.024) | 0.04 (0.20)[A] | 0.09 (0.29) | 0.07 (0.26)[B] |
| Self-employment rate | 0.09 (0.28) | 0.05 (0.22)[A] | 0.08 (0.27) | 0.06 (0.24)[B] |
| Employment rate (exc. Self-employment) | 0.38 (0.49) | 0.43 (0.50) | 0.40 (0.49) | 0.43 (0.49)[B] |
| Inactivity rate | 0.47 (0.50) | 0.47 (0.50) | 0.43 (0.50) | 0.44 (0.50) |
| Have a bank account | 0.64 (0.48) | 0.75 (0.43)[A] | 0.66 (0.48) | 0.78 (0.41)[B] |
| Household owns a house | 0.78 (0.41) | 0.74 (0.44) | 0.84 (0.36) | 0.82 (0.38) |
| Household owns a car | 0.56 (0.50) | 0.59 (0.49)[A] | 0.62 (0.49) | 0.61 (0.49) |
| Locality is urban | 0.81 (0.39) | 0.80 (0.40) | 0.86 (0.50) | 0.56 (0.50) |

Notes: Means (standard deviations). Source: Life in Transition Survey, 2010 and 2016. Treatment localities are defined are all the localities that are located no more than 15 kilometres away from the migrant routes.

[A] Superscript A means statistically significant difference *($p < 0.01$)* between the pre- and post-treatment years in treatment localities.

[B] Superscript B means statistically significant difference *($p < 0.01$)* between the pre- and post-treatment years in control localities.

**Table 1.b: Descriptive Characteristics – Control Variables, Treatment Defined as 15 km**

| | Treatment Localities (15 km) | | Control Localities (15 km) | |
|---|---|---|---|---|
| | Pre-treatment (2010) | Post-treatment (2016) | Pre-treatment (2010) | Post-treatment (2016) |
| *Outcome Variables* | | | | |
| Tried to set up a business | 0.14 (0.35) | 0.10 (0.29) [A] | 0.12 (0.33) | 0.12 (0.33) |
| Migrants make a valuable contribution | 0.23 (0.42) | 0.13 (0.33) [A] | 0.24 (0.43) | 0.16 (0.37) [B] |
| Willingness to take risk | 0.27 (0.45) | 0.27 (0.45) | 0.27 (0.44) | 0.27 (0.44) |
| Willing to pay extra tax | 0.63 (0.48) | 0.57 (0.50) | 0.59 (0.49) | 0.56 (0.50) |
| Lost wallet would be returned | 0.31 (0.46) | 0.32 (0.47) | 0.33 (0.47) | 0.37 (0.48) |
| Trust to police | 0.48 (0.50) | 0.50 (0.50) | 0.49 (0.50) | 0.55 (0.50) [B] |
| Most people can be trusted | 0.26 (0.44) | 0.31 (0.46) | 0.32 (0.47) | 0.31 (0.46) |
| *Do not prefer… as neighbours* | | | | |
| … Migrants | 0.17 (0.38) | 0.27 (0.44) [B] | 0.14 (0.35) | 0.26 (0.44) [B] |
| … Homosexuals | 0.50 (0.50) | 0.40(0.40) | 0.52 (0.50) | 0.44 (0.50) [B] |
| … People of different religion | 0.09 (0.29) | 0.07 (0.25) | 0.07 (0.25) | 0.06 (0.24) |
| … People of different race | 0.14 (0.35) | 0.11 (0.33) | 0.13 (0.32) | 0.13 (0.33) |
| … People who speak different language | 0.08 (0.27) | 0.04 (0.22) | 0.05 (0.21) | 0.04 (0.19) |

Notes: Means (standard deviations). Source: Life in Transition Survey, 2010 and 2016. Treatment localities are defined are all the localities that are located no more than 15 kilometres away from the migrant routes.

[A] Superscript A means statistically significant difference *($p < 0.01$)* between the pre- and post-treatment years in treatment localities.

[B] Superscript B means statistically significant difference *($p < 0.01$)* between the pre- and post-treatment years in control localities.

**Table 2: Difference-in-differences Estimates**

| *Outcome: Tried to set up a business* | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| **Treatment: 15 km - *migration effect*** | -0.046*** | -0.039*** | -0.041*** | -0.036*** | -0.035*** |
| | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) |
| R-squared | 0.052 | 0.052 | 0.074 | 0.080 | 0.089 |
| N | 38,442 | 38,442 | 38,327 | 38,327 | 38,327 |
| **Treatment: 25 km - *migration effect*** | -0.043*** | -0.036*** | -0.036*** | -0.031*** | -0.030*** |
| | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) |
| R-squared | 0.052 | 0.052 | 0.074 | 0.080 | 0.089 |
| N | 38,442 | 38,442 | 38,327 | 38,327 | 38,327 |
| **Treatment: 50 km - *migration effect*** | -0.037*** | -0.038*** | -0.035*** | -0.033*** | -0.024** |
| | (0.010) | (0.011) | (0.011) | (0.011) | (0.010) |
| R-squared | 0.052 | 0.052 | 0.074 | 0.080 | 0.089 |
| N | 38,442 | 38,442 | 38,327 | 38,327 | 38,327 |
| **Treatment: distance in km (log)** | 0.012*** | 0.011*** | 0.012*** | 0.010*** | 0.010*** |
| | (0.002) | (0.003) | (0.003) | (0.003) | (0.003) |
| R-squared | 0.052 | 0.052 | 0.074 | 0.080 | 0.089 |
| N | 38,442 | 38,442 | 38,327 | 38,327 | 38,327 |
| Fixed effects (locality and year) | Yes | Yes | Yes | Yes | Yes |
| Country level controls | No | Yes | Yes | Yes | Yes |
| Demographic characteristics | No | No | Yes | Yes | Yes |
| Education and labour market characteristics | No | No | No | Yes | Yes |
| Individual wealth and assets | No | No | No | No | Yes |

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Country characteristics include: the log of country population and the log of GDP per capita. Demographic characteristics include: a male dummy, age and its square, dummy variables for marital status (married and divorced/separated), a dummy variable for living in an urban area and presence of children in the household (any child under 15). Education and labour market characteristics include: dummy variables for primary, secondary, lower secondary, and tertiary education or more and an unemployed dummy. Individual wealth and assets include: dummy variables for having a bank account, owning any dwellings, and owning a car. Results use the sampling weights and robust standard errors are clustered at the PSU level.

**Table 3: IV First Stage Estimates**

| | (1) |
|---|---|
| **Outcome ➔ Treatment: 15 km** | |
| **Travel distance** | -0.099*** |
| | (0.023) |
| First stage F-Statistics | 18.67 |
| N | 38,327 |
| **Outcome ➔ Treatment: 25 km** | |
| **Travel distance** | -0.113*** |
| | (0.031) |
| First stage F-Statistics | 21.48 |
| N | 38,327 |
| **Outcome ➔ Treatment: 50 km** | |
| **Travel distance** | -0.129*** |
| | (0.025) |
| First stage F-Statistics | 25 |
| N | 38,327 |
| Fixed effects (locality and year) | Yes |
| Country level controls | Yes |
| Demographic characteristics | Yes |
| Education and labour market characteristics | Yes |
| Individual wealth and assets | Yes |

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors clustered at the PSU level. Specification is Column 5 of Table 2. For details on control variables, see notes to Table 2.

**Table 4: IV Estimates**

| *Outcome: Tried to set up a business* | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| **Treatment: 15 km - *migration effect*** | -0.151*** | -0.273*** | -0.277*** | -0.280*** | -0.276*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| First stage F-Statistics | 56 | 18 | 18.1 | 18.55 | 18.67 |
| N | 38,442 | 38,442 | 38,327 | 38,327 | 38,327 |
| **Treatment: 25 km - *migration effect*** | -0.138*** | -0.241*** | -0.245*** | -0.247*** | -0.243*** |
| | (0.028) | (0.068) | (0.068) | (0.070) | (0.068) |
| First stage F- Statistics | 85.25 | 20.55 | 20.64 | 21.19 | 21.48 |
| N | 38,442 | 38,442 | 38,327 | 38,327 | 38,327 |
| **Treatment: 50 km - *migration effect*** | -0.126*** | -0.209*** | -0.212*** | -0.215*** | -0.212*** |
| | (0.023) | (0.055) | (0.055) | (0.057) | (0.056) |
| First stage F- Statistics | 157 | 25.04 | 25.17 | 25.59 | 25.86 |
| N | 38,442 | 38,442 | 38,327 | 38,327 | 38,327 |
| **Treatment: distance in km (log)** | 0.022*** | 0.047*** | 0.048*** | 0.049*** | 0.048*** |
| | (0.004) | (0.011) | (0.011) | (0.012) | (0.011) |
| First stage F- Statistics | 176 | 24 | 24 | 25 | 25 |
| N | 38,442 | 38,442 | 38,327 | 38,327 | 38,327 |
| Fixed effects (locality and year) | Yes | Yes | Yes | Yes | Yes |
| Country level controls | No | Yes | Yes | Yes | Yes |
| Demographic characteristics | No | No | Yes | Yes | Yes |
| Education and labour market characteristics | No | No | No | Yes | Yes |
| Individual wealth and assets | No | No | No | No | Yes |

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors clustered at the PSU level. For details on control variables, see notes to Table 2.

**Table 5: IV Estimates – Heterogeneity**

| *Outcome: Tried to set up a business* | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Sample ➔ | Male | Female | Less than secondary education | Secondary education or more |
| **Treatment: 15 km - *migration effect*** | -0.353*** | -0.273*** | -0.297*** | -0.201** |
| | (0.108) | (0.081) | (0.085) | (0.084) |
| First stage F-Statistics | 16.25 | 19.66 | 19.30 | 15.59 |
| N | 16,459 | 21,868 | 26,849 | 11,478 |
| **Treatment: 25 km - *migration effect*** | -0.313*** | -0.197*** | -0.243*** | -0.189** |
| | (0.091) | (0.065) | (0.067) | (0.077) |
| First stage F-Statistics | 18.48 | 22.39 | 21.56 | 17.64 |
| N | 16,459 | 21,868 | 26,849 | 11,478 |
| **Treatment: 50 km - *migration effect*** | -0.274*** | -0.171*** | -0.195*** | -0.189** |
| | (0.078) | (0.053) | (0.049) | (0.077) |
| First stage F-Statistics | 21.86 | 27.22 | 25.97 | 18.71 |
| N | 16,459 | 21,868 | 26,849 | 11,478 |
| **Treatment: distance in km (log)** | 0.065*** | 0.037*** | 0.051*** | 0.036*** |
| | (0.017) | (0.011) | (0.013) | (0.013) |
| First stage F-Statistics | 19.53 | 29.29 | 25.32 | 23.85 |
| N | 16,459 | 21,868 | 26,849 | 11,478 |

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors clustered at the PSU level. Specification is Column 5 of Table 4. For details on control variables, see notes to Table 2.

**Table 6: IV Estimates – Heterogeneity**

| *Outcome: Tried to set up a business* | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Sample ➔ | Young people (Age tercile 1, 18-38) | Middle-aged people (Age tercile 2, 39-57) | Older people (Age tercile 3, 58+) | Urban | Rural |
| **Treatment: 15 km - *migration effect*** | -0.389*** | -0.267** | -0.174** | -0.245*** | -0.841 |
| | (0.102) | (0.126) | (0.087) | (0.078) | (0.663) |
| First stage F-Statistics | 17.54 | 16.62 | 11.12 | 17.98 | 2.11 |
| N | 13,064 | 12,602 | 12,661 | 23,389 | 14,938 |
| **Treatment: 25 km - *migration effect*** | -0.350*** | -0.239** | -0.148** | -0.228*** | -0.457 |
| | (0.086) | (0.109) | (0.073) | (0.070) | (0.290) |
| First stage F-Statistics | 20.31 | 18.33 | 12.87 | 19.78 | 3.53 |
| N | 13,064 | 12,602 | 12,661 | 23,389 | 14,938 |
| **Treatment: 50 km - *migration effect*** | -0.314*** | -0.216** | -0.117** | -0.211*** | -0.287* |
| | (0.073) | (0.096) | (0.056) | (0.061) | (0.157) |
| First stage F-Statistics | 24.05 | 20.65 | 17.97 | 23.78 | 7.13 |
| N | 13,064 | 12,602 | 12,661 | 23,389 | 14,938 |
| **Treatment: distance in km (log)** | 0.075*** | 0.051** | 0.022** | 0.042*** | 0.119 |
| | (0.017) | (0.023) | (0.010) | (0.011) | (0.079) |
| First stage F-Statistics | 24 | 19.19 | 28.3 | 31.44 | 2.5 |
| N | 13,064 | 12,602 | 12,661 | 23,389 | 14,938 |

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors clustered at the PSU level. Specification is Column 5 of Table 4. For details on control variables, see notes to Table 2.

**Table 7: IV Estimates – Heterogeneity**

| *Outcome: Tried to set up a business* | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Sample ➔ | Households with assets | Households without assets | Single | Married |
| **Treatment: 15 km - *migration effect*** | -0.435*** | -0.143** | -0.222*** | -0.333*** |
| | (0.141) | (0.055) | (0.077) | (0.103) |
| First stage F-Statistics | 17.03 | 20.52 | 18.41 | 17.38 |
| N | 15,645 | 22,682 | 16959 | 21,368 |
| **Treatment: 25 km - *migration effect*** | -0.384*** | 0.124*** | -0.198*** | -0.290*** |
| | (0.124) | (0.046) | (0.066) | (0.085) |
| First stage F-Statistics | 17.42 | 25.52 | 22.3 | 19.28 |
| N | 15,645 | 22,682 | 16,959 | 21,368 |
| **Treatment: 50 km - *migration effect*** | -0.347*** | -0.105*** | -0.179*** | -0.243*** |
| | (0.106) | (0.038) | (0.057) | (0.067) |
| First stage F-Statistics | 19.67 | 33.11 | 10.61 | 24.9 |
| N | 15,645 | 22,682 | 16,959 | 21,368 |
| **Treatment: distance in km (log)** | 0.086*** | 0.023*** | 0.038*** | 0.059*** |
| | (0.026) | (0.008) | (0.011) | (0.015) |
| First stage F-Statistics | 15.4 | 35.09 | 25.44 | 23.97 |
| N | 15,645 | 22,682 | 16,959 | 21,368 |

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors clustered at the PSU level. Specification is Column 5 of Table 4. For details on control variables, see notes to Table 2.

**Table 8: IV Estimates – Mechanism, Changes in Attitudes**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Outcome ➔ | Willingness to take risks | Willing to pay extra tax | Lost wallet would be returned with nothing missing | People can be trusted |
| **Treatment: 15 km - *migration effect*** | -0.145*** | -0.355*** | -0.165 | 0.204 |
| | (0.009) | (0.179) | (0.110) | (0.147) |
| First stage F-Statistics | 18.64 | 18.67 | 18.58 | 17.61 |
| N | 38,235 | 38,327 | 36,474 | 36,402 |
| **Treatment: 25 km - *migration effect*** | -0.128*** | -0.313** | -0.064 | 0.178 |
| | (0.008) | (0.156) | (0.144) | (0.129) |
| First stage F-Statistics | 21.56 | 21.48 | 21.35 | 20.23 |
| N | 38,235 | 38,327 | 36,474 | 36.402 |
| **Treatment: 50 km - *migration effect*** | -0.112*** | -0.273** | -0.055 | 0.157 |
| | (0.008) | (0.134) | (0.126) | (0.112) |
| First stage F-Statistics | 25.97 | 25.86 | 25.82 | 23.99 |
| N | 38,235 | 38,327 | 36,474 | 36,402 |
| **Treatment: distance in km (log)** | 0.025*** | 0.0621** | 0.012 | -0.0356 |
| | (0.007) | (0.0297) | (0.028) | (0.025) |
| First stage F-Statistics | 25.32 | 25.36 | 25.23 | 23.65 |
| N | 38,235 | 38,327 | 36,474 | 36,402 |

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors clustered at the PSU level. Specification is Column 5 of Table 4. For details on control variables, see notes to Table 2.

**Table 9: IV Estimates – Mechanism, Changes in Labor Market Outcomes**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Outcome ➔ | Unemployed | Self-employed | Employed (exc. self-employment) | Out of labour force |
| **Treatment: 15 km - *migration effect*** | -0.031 | -0.107** | 0.030 | 0.105 |
| | (0.054) | (0.045) | (0.065) | (0.07) |
| First stage F-Statistics | 18.67 | 18.67 | 18.67 | 18.67 |
| N | 37,257 | 38,327 | 36,474 | 37,445 |
| **Treatment: 25 km - *migration effect*** | -0.027 | -0.094** | 0.029 | 0.092 |
| | (0.047) | (0.065) | (0.058) | (0.065) |
| First stage F-Statistics | 21.48 | 21.48 | 21.48 | 21.45 |
| N | 37,257 | 38,327 | 36,474 | 37,445 |
| **Treatment: 50 km - *migration effect*** | -0.027 | -0.086** | 0.048 | 0.065 |
| | (0.047) | (0.034) | (0.054) | (0.056) |
| First stage F-Statistics | 25.60 | 25.60 | 25.60 | 25.60 |
| N | 37,257 | 38,327 | 36,474 | 37,445 |
| **Treatment: distance in km (log)** | 0.005 | 0.018** | -0.005 | -0.018 |
| | (0.009) | (0.007) | (0.001) | (0.012) |
| First stage F-Statistics | 25.36 | 25.36 | 25.36 | 25.36 |
| N | 37,257 | 38,327 | 36,474 | 37,445 |

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors clustered at the PSU level. Specification is Column 5 of Table 4. For details on control variables, see notes to Table 2.

**Table 10: IV Estimates – Placebo Estimates**

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Outcome ➔ | Migrants make valuable contributions | Prefer not to have migrants as neighbours | Prefer not to have homosexuals as neighbours | Prefer not to have people of different religion as neighbours | Prefer not to have people who speak a different language as neighbours |
| **Treatment: 15 km - *migration effect*** | -0.394*** | 0.430*** | -0.032 | -0.054 | 0.053 |
| | (0.143) | (0.161) | (0.167) | (0.0834) | (0.0591) |
| First stage F-Statistics | 17.93 | 18.64 | 18.64 | 18.64 | 18.64 |
| N | 34,194 | 38,235 | 38,235 | 38,235 | 38,235 |
| **Treatment: 25 km - *migration effect*** | -0.355*** | 0.379*** | -0.0289 | -0.0479 | 0.0470 |
| | (0.127) | (0.136) | (0.147) | (0.0729) | (0.0523) |
| First stage F-Statistics | 19.93 | 21.56 | 21.56 | 21.56 | 21.56 |
| N | 34,194 | 38,235 | 38,235 | 38,235 | 38,235 |
| **Treatment: 50 km - *migration effect*** | -0.315*** | 0.330*** | -0.0252 | -0.0417 | 0.0410 |
| | (0.109) | (0.115) | (0.128) | (0.0629) | (0.0454) |
| First stage F-Statistics | 23.43 | 25.97 | 25.97 | 25.97 | 25.97 |
| N | 34,194 | 38,235 | 38,235 | 38,235 | 38,235 |
| **Treatment: distance in km (log)** | 0.071*** | -0.075*** | 0.0057 | 0.009 | -0.009 |
| | (0.024) | (0.027) | (0.029) | (0.0143) | (0.010) |
| First stage F-Statistics | 22.10 | 25.32 | 25.32 | 25.32 | 25.32 |
| N | 34,194 | 38,235 | 38,235 | 38,235 | 38,235 |

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors clustered at the PSU level. Specification is Column 5 of Table 4. For details on control variables, see notes to Table 2.

**Table 11: IV Estimates – Robustness Checks**

| *Outcome: Tried to set up a business* | (1) | (2) | (3) |
|---|---|---|---|
| Sample ➔ | Excludes main destination countries Italy and Germany | Excludes countries with conflict history (Bosnia, Croatia, Macedonia, Kosovo, Montenegro and Slovenia) | Working age population, 18-64 |
| **Treatment: 15 km - *migration effect*** | -0.255*** | -0.407*** | -0.298*** |
| | (0.051) | (0.124) | (0.066) |
| First stage F-Statistics | 17.93 | 18.64 | 18.67 |
| N | 34,242 | 38,235 | 29,994 |
| **Treatment: 25 km - *migration effect*** | -0.221*** | -0.401*** | -0.266*** |
| | (0.0431) | (0.1230) | (0.0576) |
| First stage F-Statistics | 19.93 | 21.56 | 21.48 |
| N | 34,242 | 38,235 | 38,235 |
| **Treatment: 50 km - *migration effect*** | -0.196*** | -0.337*** | -0.236*** |
| | (0.0385) | (0.0988) | (0.0515) |
| First stage F-Statistics | 23.43 | 25.97 | 25.86 |
| N | 34,242 | 38,235 | 38,235 |
| **Treatment: distance in km (log)** | 0.0403*** | 0.0583*** | 0.0561*** |
| | (0.0071) | (0.0146) | (0.0116) |
| First stage F-Statistics | 22.10 | 25.32 | 25.30 |
| N | 34,242 | 38,235 | 38,235 |

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors clustered at the PSU level. Specification is Column 5 of Table 4. For details on control variables, see notes to Table 2.

**Appendix Table A.1.a: Descriptive Characteristics – Control Variables, Treatment Defined as 25 km**

| | Treatment Localities (25 km) | | Control Localities (25 km) | |
|---|---|---|---|---|
| | Pre-treatment (2010) | Post-treatment (2016) | Pre-treatment (2010) | Post-treatment (2016) |
| *Control Variables* | | | | |
| Age | 47.22 (16.9) | 48.63 (17.66) | 46.67 (17.7) | 50.13 (17.72) [B] |
| Male | 0.4 (0.49) | 0.46 (0.5) [A] | 0.4 (0.49) | 0.45 (0.5) [B] |
| No Education | 0.04 (0.19) | 0.01 (0.12) [A] | 0.04 (0.2) | 0.02 (0.12) [B] |
| High school degree | 0.36 (0.48) | 0.39(0.49) | 0.35 (0.48) | 0.35 (0.48) |
| Married | 0.58 (0.49) | 0.61 (0.49) | 0.58 (0.49) | 0.52 (0.50) [B] |
| Presence of children (<15 years) | 0.34 (0.47) | 0.45 (0.50) [A] | 0.30 (0.46) | 0.55 (0.5) [B] |
| Unemployment rate | 0.07 (0.25) | 0.04 (0.21) [A] | 0.09 (0.29) | 0.07 (0.26) |
| Self-employment rate | 0.08 (0.28) | 0.05 (0.22) [A] | 0.08 (0.27) | 0.06 (0.24) [B] |
| Employment rate (not self) | 0.38 (0.49) | 0.42 (0.49) | 0.40 (0.49) | 0.43 (0.49) [B] |
| Inactivity rate | 0.47 (0.50) | 0.48 (0.50) | 0.43 (0.50) | 0.43 (0.50) |
| Have a bank account | 0.64 (0.48) | 0.75 (0.43) [A] | 0.66 (0.48) | 0.78 (0.41) [B] |
| Household owns a house | 0.78 (0.41) | 0.74 (0.44) | 0.84 (0.36) | 0.82 (0.38) |
| Household owns a car | 0.56 (0.50) | 0.59 (0.49) | 0.62 (0.49) | 0.61 (0.49) |
| Urban | 0.81 (0.39) | 0.80 (0.40) | 0.86 (0.50) | 0.56 (0.50) |

Notes: Means (standard deviations). Source: Life in Transition Survey, 2010 and 2016. Treatment localities are defined are all the localities that are located no more than 25 kilometres away from the migrant routes.

[A] Superscript A means statistically significant difference *($p < 0.01$)* between the pre- and post-treatment years in treatment localities.

[B] Superscript B means statistically significant difference *($p < 0.01$)* between the pre- and post-treatment years in control localities.

**Appendix Table A.1.b: Descriptive Characteristics – Outcome Variables, Treatment Defined as 25 km**

| | Treatment Localities (25 km) | | Control Localities (25 km) | |
|---|---|---|---|---|
| | Pre-treatment (2010) | Post-treatment (2016) | Pre-treatment (2010) | Post-treatment (2016) |
| *Outcome variables* | | | | |
| Tried to set up a business | 0.14 (0.34) | 0.10 (0.29) [A] | 0.12 (0.33) | 0.12 (0.33) |
| Migrants make a valuable contribution | 0.22 (0.41) | 0.13 (0.34) [A] | 0.25 (0.43) | 0.16 (0.37) [B] |
| Willingness to take risk | 0.27 (0.44) | 0.26 (0.44) | 0.27 (0.44) | 0.27 (0.44) |
| Willing to pay extra tax | 0.61 (0.49) | 0.56 (0.50) | 0.6 (0.49) | 0.56 (0.50) |
| Lots wallet would be returned | 0.32 (0.47) | 0.32 (0.47) | 0.33 (0.47) | 0.37 (0.48) |
| Trust to police | 0.48 (0.50) | 0.50 (0.50) | 0.49 (0.50) | 0.55 (0.50) [B] |
| Most people can be trusted | 0.27 (0.44) | 0.31 (0.46) | 0.32 (0.47) | 0.31 (0.46) |
| *Do not prefer… as neighbours* | | | | |
| … Migrants | 0.17 (0.38) | 0.27 (0.44) [A] | 0.14 (0.35) | 0.26 (0.44) [B] |
| … Homosexuals | 0.50 (0.50) [A] | 0.41(0.40) | 0.52 (0.50) | 0.44 (0.50) [B] |
| … People of different religion | 0.09 (0.29) | 0.07 (0.25) | 0.07 (0.25) | 0.06 (0.24) |
| … People of different race | 0.15 (0.35) | 0.11 (0.33) | 0.12 (0.320 | 0.13 (0.33) |
| … People who speak different language | 0.08 (0.27) | 0.04 (0.22) | 0.05 (0.21) | 0.04 (0.19) |

Notes: Means (standard deviations). Source: Life in Transition Survey, 2010 and 2016. Treatment localities are defined are all the localities that are located no more than 25 kilometres away from the migrant routes.

[A] Superscript A means statistically significant difference *($p < 0.01$)* between the pre- and post-treatment years in treatment localities.

[B] Superscript B means statistically significant difference *($p < 0.01$)* between the pre- and post-treatment years in control localities.

**Appendix Table A.2.a: Descriptive Characteristics – Control Variables, Treatment Defined as 50 km**

| | Treatment Localities (50 km) | | Control Localities (50 km) | |
|---|---|---|---|---|
| | Pre-treatment (2010) | Post-treatment (2016) | Pre-treatment (2010) | Post-treatment (2016) |
| *Control Variables* | | | | |
| Age | 47.21(17.01) | 49.05 (17.66) [A] | 46.68 (17.7) | 5.09 (17.74) [B] |
| Male | 0.41 (0.49) | 0.47 (0.5) [A] | 0.4 (0.49) | 0.45 (0.5) [B] |
| No Education | 0.05 (0.21) | 0.02 (0.13) [A] | 0.04 (0.19) | 0.01 (0.12) [B] |
| High school degree | 0.35 (0.48) | 0.39(0.49) | 0.35 (0.48) | 0.34 (0.47) |
| Married | 0.59 (0.49) | 0.6 (0.49) | 0.57 (0.49) | 0.51 (0.50) [B] |
| Presence of children (<15 years) | 0.34 (0.47) | 0.46 (0.50) [A] | 0.30 (0.46) | 0.55 (0.5) [B] |
| Unemployment rate | 0.07 (0.26) | 0.05 (0.21) [A] | 0.09 (0.29) | 0.07 (0.26) |
| Self-employment rate | 0.09 (0.28) | 0.05 (0.22) [A] | 0.08 (0.27) | 0.06 (0.24) [B] |
| Employment rate (not self) | 0.38 (0.48) | 0.42 (0.49) | 0.40 (0.49) | 0.43 (0.50) [B] |
| Inactivity rate | 0.46 (0.50) | 0.48 (0.50) | 0.43 (0.49) | 0.43 (0.49) |
| Have a bank account | 0.66 (0.48) | 0.76 (0.43) [A] | 0.65 (0.48) | 0.78 (0.41) [B] |
| Household owns a house | 0.82 (0.38) | 0.79 (0.41) [A] | 0.83 (0.37) | 0.82 (0.39) [B] |
| Household owns a car | 0.59 (0.49) | 0.63 (0.48) [A] | 0.58 (0.49) | 0.6 (0.49) |
| Urban | 0.71 (0.45) | 0.71 (0.46) | 056 (0.50) | 0.57 (0.50) |

Notes: Means (standard deviations). Source: Life in Transition Survey, 2010 and 2016. Treatment localities are defined are all the localities that are located no more than 25 kilometres away from the migrant routes.

[A] Superscript A means statistically significant difference *($p < 0.01$)* between the pre- and post-treatment years in treatment provinces.

[B] Superscript B means statistically significant difference *($p < 0.01$)* between the pre- and post-treatment years in control

**Appendix Table A.2.b: Descriptive Characteristics – Outcome Variables, Treatment Defined as 50 km**

| | Treatment Localities (50 km) | | Control Localities (50 km) | |
|---|---|---|---|---|
| | Pre-treatment (2010) | Post-treatment (2016) | Pre-treatment (2010) | Post-treatment (2016) |
| *Outcome variables* | | | | |
| Tried to set up a business | 0.13 (0.34) | 0.10 (0.29) [A] | 0.12 (0.33) | 0.13 (0.33) [B] |
| Migrants make a valuable contribution | 0.21 (0.41) | 0.13 (0.33) [A] | 0.26 (0.44) | 0.17 (0.37) [B] |
| Willingness to take risk | 0.27 (0.44) | 0.26 (0.44) | 0.27 (0.44) | 0.27 (0.45) |
| Willing to pay extra tax | 0.61 (0.49) | 0.56 (0.50) | 0.6 (0.49) | 0.56 (0.50) |
| Lost wallet would be returned | 0.32 (0.47) | 0.32 (0.47) | 0.33 (0.47) | 0.37 (0.48) |
| Trust to police | 0.46 (0.5) | 0.51 (0.50) | 0.5 (0.5) | 0.55 (0.5) [B] |
| Most people can be trusted | 0.26 (0.44) | 0.30 (0.46) | 0.33 (0.47) | 0.31 (0.46) |
| *Do not prefer… as neighbours* | | | | |
| … Migrants | 0.17 (0.38) | 0.26 (0.44) [A] | 0.14 (0.35) | 0.26 (0.44) [B] |
| … Homosexuals | 0.51 (0.50) | 0.41 (0.40) [A] | 0.52 (0.50) | 0.42 (0.50) [B] |
| … People of different religion | 0.09 (0.29) | 0.06 (0.25) | 0.07 (0.25) | 0.06 (0.24) |
| … People of different race | 0.15 (0.35) | 0.11 (0.33) | 0.12 (0.320 | 0.13 (0.33) |
| … People who speak different language | 0.07 (0.27) | 0.04 (0.22) | 0.05 (0.21) | 0.04 (0.19) |

Notes: Means (standard deviations). Source: Life in Transition Survey, 2010 and 2016. Treatment localities are defined are all the localities that are located no more than 25 kilometres away from the migrant routes.

[A] Superscript A means statistically significant difference *($p < 0.01$)* between the pre- and post-treatment years in treatment provinces.

[B] Superscript B means statistically significant difference *($p < 0.01$)* between the pre- and post-treatment years in control

**Variables description from the LiTS data:**

Tried to start a business:

Question: "Have you ever tried to set up a business?"

- Takes a value of 1 if answered "Yes, I have set up my current business" or "Yes, I set up a business in the past but I am no longer involved in it or it is no longer operational" or "Yes I tried to set up a business and did not succeed (in setting it up)".
- Takes a value of 0 if answered "No".

Migrants make valuable contributions:

Question: "Of the following statements, which is the one that is closest to your opinion on immigrants?"

- Takes a value of 1 if selects "Immigrants make a valuable contribution to the national economy of our country".
- Takes a value of 0 otherwise.

Willing to pay extra tax:

Question: "Would you be willing to give part of your income or pay more taxes, if you were sure that the extra money was used to…"

- Takes a value of 1 if answers "yes" to one of the available options: "improve public education", "improve the public health system", "combat climate change", "help the needy".
- Takes a value of 0 otherwise.

Lost wallet would be returned with nothing missing:

Question: "Suppose you lost your (purse/wallet) containing your address details, and it was found in the street by someone living in this neighbourhood. How likely is it that it would be returned to you with nothing missing?"

- Takes a value of 1 if answers "Very likely" or "Quite likely".
- Takes a value of 0 otherwise.

Trust Police:

Question: "To what extent do you trust the following institutions?...Police"

- Takes a value of 1 if the answer is 4 (some trust) or 5 (complete trust).
- Takes a value of 0 otherwise (the scale goes from 1 to 5).

People can be trusted:

Question: "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people? Please answer on a scale of 1 to 5, where 1 means that you have complete distrust and 5 means that you have complete trust."

- Takes a value of 1 if the answer is 4 (some trust) or 5 (complete trust).
- Takes a value of 0 otherwise.

Willingness to take risks:

Question: "Please, rate your willingness to take risks, in general, on a scale from 1 to 10, where 1 means that you are not willing to take risks at all, and 10 and means that you are very much willing to take risks."

- Takes a value of 1 if the answer is 5 or more.
- Takes a value of 0 otherwise.

Prefer not to have people from group X as neighbours:

Question: “On this list are various groups of people. Could you please mention any that you would not like to have as neighbours? Please just read out the letter that applies”

- Takes a value of 1 if the respondent mentions the group X.
- Takes a value of 0 otherwise.

The groups (Xs) are:

- families with children,
- paedophiles,
- drug addicts,
- people of a different race,
- people who have AIDS,
- elderly people,
- immigrants/foreign workers,
- homosexuals,
- gypsies,
- people of a different religion,
- poor people,
- heavy drinkers,
- unmarried couples living together,
- Jewish people,
- people who speak a different language.