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The Impact of Migration Flows on Well-Being of Elderly Natives and Migrants: Evidence from the Survey of Health, Ageing and Retirement in Europe

Sacit Hadi Akdede

Izmir Bakircay University, Faculty of Economics and Administrative Sciences
Department of Economics, Menemen, İzmir, Turkey

sacithadi.akdede@bakircay.edu.tr

Eleftherios Giovanis (Corresponding Author)

Aydin Adnan Menderes University, Nazilli Faculty of Economics and Administrative Sciences, Department of Public Finance, Cumhuriyet, 09800 İsabeyli/Nazilli/Aydın, Turkey

giovanis95@gmail.com and egiovanis@adu.edu.tr

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The Impact of Migration Flows on Well-Being of Elderly Natives and Migrants: Evidence from the Survey of Health, Ageing and Retirement in Europe

Abstract

Immigration has been a long-standing contentious issue across the globe. According to a recent report published by the International Organization for Migration (IOM) in 2015, the majority of people in the Northern and Western European countries report positive perceptions towards immigration compared to those of the Southern European countries. However, little is known about how migration affects the well-being of old aged people. The main aim of this study is to examine the association between net migration rates and the subjective and objective well-being of old-aged natives in Europe, using the Survey of Health, Ageing and Retirement in Europe during the period of 2004-2017. The estimates will also take place across different regions and across various groups such as gender, age, education level, and first- and second-generation migrants. In addition to the conventional methods, such as the ordinary least squares (OLS) used to analyse the relevant associations, we also apply an instrumental variables (IV) approach to account for possible endogeneity in migration. The results are mixed as we find a positive impact of migration on the subjective well-being and wages of natives and second-generation immigrants in the Northern/Western and Eastern European countries, and a negative impact in the Southern region.

Keywords: Employment; Life Satisfaction; Instrumental Variables; Migration; Objective and Psychological Well-Being; Wages

1. Introduction

International migration, especially over the recent years, has reached to the top of the national and global policy agendas. The number of international immigrants in 1960 was 75 million across the globe. In 2000, 173 million people were classified as international migrants, reaching 250 million in 2017. In the same year, almost 67 percent of the international migrants were living in only 20 countries, and Europe was the continent hosting the second largest number of international migrants following Asia (United Nations, 2017).

Although Europeans have been travelling for hundreds of years through conquests, colonization, and settlements in other lands around the globe, the prevailing course of world migration in the second half of the twentieth century was partly changed from a European perspective. Following the decolonization, demographic changes, such as low fertility rates and ageing population, strong economic growth and the creation of the European Union (EU), Europe has emerged as a major international migration destination (Castles et al., 2014).

Migration in Europe consists of four phases. The first phase includes post-world War II investments and expansion of production in the developed countries, resulting in rapid economic growth, demographic changes, and increased levels of education, which reduced the labour supply for low skilled jobs. This caused an increase in the demand for migrant labour in order to cover these shortages (Castles and Kosack, 1973; Castles et al., 2014). The second phase, starting in 1970s, was characterized by family reunion policies and dominated by economic deregulation, such as privatization of state companies and "flexibilization" of labour markets. All these led to the mass dismissal of factory and mining workers, increasing the demand for temporary recruitment of migrant workers to reduce the production costs (Entzinger, 1985; Castles et al., 2014). This has led to the third phase which ended with the great economic recession of 2008. This was a period of further economic deregulation and liberalization, which was also coupled with the enlargement of the EU, increasing the migration flows from Eastern Europe to Northern/Western Europe, and from North-West Africa and Latin America to Europe (Kosic and Triandafyllidou, 2004; Castles et al., 2014).

The fourth phase, which started with the great economic recession of 2008, was marked by high unemployment, economic stagnation and slow recovery, an increasing movement of migrants from the Southern European countries to North Europe, and increasing migration flows from Africa and the Middle East and North Africa (MENA) region to Europe. Both intra-EU and extra-EU

migration rebounded since 2012, mainly as the result of the resumed economic growth in the countries of Northern/Western Europe and because of the conflicts and civil wars in the Middle East and Africa (De Hass et al., 2018).

According to the projections of the United Nations (UN), in 2015, the age-dependency ratio in EU was 29.2 percent, second to Japan at 42.7 percent. The age-dependency ratio will further increase in the EU by 25 percentage points by 2070 reaching the 54.2 percent, the highest among large countries. The main motivation of focusing on the elderly people is based on numerous studies examining the potential impact of the ageing process on the sustainability of the pension systems, fiscal outcomes, and economic growth (European Commission, 2018). In the face of the intensifying international migration and a declining working-age population, measures to promote immigration of foreign workers could provide an option of a promising policy for mitigating the impact of the ageing process on the economy. Therefore, exploring the impact of migration on the labour outcomes will provide insights about whether old natives and old first generation and second-generation immigrants may benefit from migration inflows, because there is no clear evidence, in different regions of Europe, on whether and how migration affects the well-being of both elderly migrants and natives, particularly based on a large-scale sample survey. The aim of this study is to explore the impact of migration on the objective and subjective well-being of both natives and migrants using a high level of geographical disaggregation.

Earlier studies show that elderly people constitute one of the groups displaying the highest levels of opposition to migration (Mayda, 2006; Card et al, 2012). Regarding the labour market outcomes, this fact seems to be striking, because elderly people are less likely to be subjected to the potential adverse short-term negative effects of immigration, since they tend to not participate in the labour force. Given the decisive role played by individual preferences in the policy agenda, these patterns raise concerns about the future of immigration policies in an ageing world, as the elderly represent an increasingly larger share of the voting population. Furthermore, even though we explore only the working-age population, regarding the labour market outcomes, the analysis will also reflect the old aged retired people, as the accumulation of pensions depends on the employment opportunities and wages. The elderly people not only differ from the younger people in terms of age, but they were also born and raised in a different economic and institutional context in a different time. The patterns observed could indeed reflect different cohorts and generations of preferences. For example, if old cohorts grew up in a context characterized by lower levels of

international immigration than their younger counterparts, then their perceptions about immigration could be very different and may remain fixed over their lives.

Moreover, although there are potential benefits and skills immigrants may bring to the host country, there are also other factors that may affect the natives' attitudes towards migration and their Subjective Well-Being (SWB), such as ethnic prejudice and opposition to different social values and norms that immigrants bring. While economic issues refer mainly to labour market outcomes and material deprivation, compositional issues refer to changes in the composition of the local population in terms of social norms and culture that natives derive from their workplace, schools and neighbourhoods. According to Card et al. (2012) although concerns about the effects of immigration on wages and taxes are important, compositional differences explain most variations in attitudes of different native demographic groups towards migration.

The impact of migration, not only on native populations, but also on immigrants, is important, because, in the case of being overlooked, it may perpetuate vulnerabilities and inequalities. In particular, the impact varies depending on whether migrants are substitutes or complements to the native workers. Hence, we also aim to explore whether migration affects the well-being of old aged first-generation migrants, depending on whether the newcomers are substitutes or complements. The same argument holds for the second generation immigrants, therefore, we further aim to explore the latter group to identify whether there are inequalities between natives and the second generation immigrants. This is a highly important topic, as any current debate on the implementation of migration policies revolves around the eventual immigration effects on both native and migrant populations.

However, there are two major limitations in this study. First, we do not consider the respondent's ethnic background, as SHARE does not record this information. This would be extremely valuable to our analysis, to investigate whether respondents belonging to certain ethnic minorities are more likely to experience discrimination that affect their well-being. Second, due to data unavailability from the European Statistical Office (EUROSTAT) statistics, we aggregate the net migration rates, implying that we cannot distinguish them by the racial or ethnic background.

The empirical analysis relies on the Survey of Health, Ageing and Retirement in Europe (SHARE) over the period 2004-2017, which is a unique micro-level cross-country panel dataset. We perform several panel data models we discuss in the methodology section and investigate the

impact of immigration by socio-economic groups, such as gender, education, and migrant population density recorded at Nomenclature of Territorial Units for Statistics (NUTS) 3 area level.

The remaining sections are organised as follows: In section 2 we briefly discuss the earlier literature on the relationship between the well-being and immigration. In section 3 we present the methodology applied, while section 4 describes the data employed in the empirical work. In section 5 we report the main findings and in section 6 we discuss the main concluding remarks and policy implications of the migration effect.

2. Literature Review

2.1 Objective Well-Being

Numerous studies have used objective measures, especially labour market indicators, such as wages and employment, to examine the impact of international migration on the natives' well-being (Butcher and Card, 1991; LaLonde and Topel, 1991; Gang and Rivera-Batiz, 1994; Card, 2001; Dustmann et al., 2016). Economists have long employed the neoclassical labour market models to evaluate immigration's distributive impacts in the host nations. The possible negative impact of migration on employment and labour markets has been the main contested questionable issue among policy makers and thus, several studies have attempted to investigate this connection showing mixed findings.

In particular, under the assumption of a perfectly competitive labour market, the effect of the migration will depend on whether immigrants substitute the native workers or are complements in the production process (Dustmann et al., 2016). In the case of where immigrants are complete substitutes to natives, there will be an excessive labour supply, increasing the competition, resulting in reduction in natives' wages and possible rise in unemployment. On the other hand, if the migrants are willing to accept jobs that natives reject or have complementary skills then the labour demand will increase, raising wages and employment opportunities for both natives and immigrants. However, due to growing tendency of the ageing population in Europe, the labour demand may not be covered by the existing labour supply, implying an increasing demand for migrants, especially in areas and industries with relatively labour shortage. In one of the first studies in migration, Grossman (1982) explored the impact of migration on labour market outcomes

in the USA, and the results show that the wages of natives have fallen by 3 percent for 1 percent increase in the share of the migrant workers employed. This is also supported by Longhi et al. (2005) who applied a meta-analysis illustrating a decline on wages by 0.119 percent for a one percent increase in the migrant worker share. Numerous studies followed Grossman's approach and they found mixed results, revealing either a positive or negative effect (Butcher and Card, 1991; LaLonde and Topel, 1991; Gang and Rivera-Batiz, 1994; Borjas, 1997; Card, 2001; Chassamboulli and Palivos, 2013; Dustmann et al., 2016).

Apart from the impact of migration on wages, other studies have attempted to explore its impact on other objective indicators, such as public finances and fiscal burden, finding minor negative effects in Denmark (Borjas, 1994; Wadensjö, 2007) and in France and Germany (OECD, 2013), while other studies found that migrants contribute positively to the public finances in the UK (Dustmann et al., 2010), Austria (Mayr, 2005) and France (Chojnicki, 2013).

2.2 Subjective Well-Being

Behavioural economists and psychologists have questioned the neoclassical model and its narrow notion of measuring well-being on pecuniary terms and they have argued that quality of life does not depend only on objective measures, such as labour market outcomes and material deprivation, but it is a broader concept (Easterlin, 1974; Kahneman et al., 1997; Helliwell and Barrington-Leigh, 2010). Easterlin (1974) in his seminal study tried to identify the various dimensions of well-being and since then there is a well-documented literature attempting to explore the relationship between well-being and various factors, such as unemployment, income, and crime (Clark and Oswald, 1994; Blanchflower and Oswald, 2004; Dolan and Kahneman, 2008; Ozdamar, 2016). Such methods should not be regarded as substitutes for traditional objective economic indicators, but they can provide a supplementary strategy for examining the non-labour market effects of migration on both native and immigrant communities.

Nevertheless, there are few studies exploring the impact of migration on SWB. Betz and Simpson (2013) used data derived from the European Social Survey (ESS) covering 26 European countries over the period 2002-2010 and they found that the association between the natives' subjective well-being and the one year lagged migration inflows is positive, while the effects of

migration in the longer term becomes insignificant. However, their analysis is based on cross-sectional data and the migration flows are aggregated at the country level.

To overcome these aggregation issues, Longhi (2014) has employed panel data from the 'Understanding Society, the UK Household Longitudinal Survey (UKHLS)' using a higher level of geographically disaggregated data, in particular, 327 local authority districts in England. The findings show lower life satisfaction scores for the white native population in areas characterized by large diversity, but no significant impact was found for the non-UK born and non-white UK-born population. Similarly, Ivlevs and Veliziotis (2018) combined data from the Worker Registration Scheme (WRS) and the British Household Panel Survey (BHPS) to explore the impact of migration flows- disaggregated at local authority district- from the A8 countries (Chezh Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia) and the subjective well-being of the UK natives in the period 2004-2011. Their findings show a negative relationship between natives' well-being and migration flows for certain native groups such as unemployed, elderly people and those with low income. The study by Akay et al. (2014) employed data from the German Socio-Economic Panel (GSOEP) and migration flows in 96 regions over the years 1998-2009. Their findings support a positive impact of migration on the German natives' well-being, and this effect becomes stronger in areas where immigrants are intermediately assimilated. Overall, earlier studies have found mixed results that vary by country, methodology, and period of analysis (Polgreen and Simpson, 2011; Akay et al., 2017; Papageorgiou, 2018).

2.3 Limitations of Prior Research

Nevertheless, there is a number of limitations in earlier studies. The first issue is the cross-sectional analysis based on a low level of geographical aggregation of migration flows at the country level (Betz and Simpson, 2013). To overcome this issue, we employ a panel dataset at the Nomenclature of Territorial Units for Statistics (NUTS) 3 level, which is the highest possible level recorded in the European Statistical Office (EUROSTAT) statistics over the 28 countries explored. To highlight the detail of the geographical aggregation we should notice that NUTS 1 level refers to statistical regions or group of states; NUTS 2 level refers to provinces or counties and NUTS 3 refers to municipalities or communes.

The second issue is that the majority of earlier studies focus only on the effect of migration on well-being of the native populations, while we extend our analysis by examining the possible effects of migration on immigrants as well. In addition, different than most of the previous studies, the entire analysis will be done only for the old-age groups of both natives and migrants. There is an increasing number of older migrants in Europe who can be differentiated in two different groups in our case. The first group, which is the first-generation immigrants, involves two categories. The first category includes individuals who left their home country- either from Europe or from outside Europe- when they were young as labour migrants, and then they aged in the host nation. The second category includes individuals who migrated in Europe later in life.

The second group (second generation) includes those who were born in the host countries we explore, and they have aged there, while their parents are coming from another European or non-European country. Distinguishing these two groups of migrants by the first and the second generation, we aim to understand whether there is an intergenerational difference and whether second generation cohorts of immigrants converge to natives in terms of well-being. Hence, it is of critical importance to explore the well-being on both old aged natives and old aged first- and second-generation immigrants.

Furthermore, earlier studies do not distinguish the analysis by regions of destination countries and they do not explore the impact of migration on different socio-economic groups. Thus, our analysis will further investigate the well-being of natives and migrants classified into 3 main regions; Northern/Western, Eastern, and Southern Europe, where we elaborate in more details the justification of using these groups in the methodology and data sections. Furthermore, Malchow-Møller et al. (2009) suggest that the less educated, low income, and unemployed people are more negative towards immigration. Therefore, we will perform the regressions by demographic and socio-economic groups, such as gender, age, and education level.

Another issue is the possible endogeneity associated with omitted-variable bias, selection bias, “sorting”, and reverse causality. In particular, a major challenge is that immigrants are not evenly and randomly distributed across regions, as they may tend to move into areas with labour market opportunities, high well-being levels, low fertility rates, and large concentration of diaspora. This “sorting” issue is neglected in earlier studies, which may provide biased estimates (e.g. Cortes, 2008; Polgreen and Simpson, 2011; Betz and Simpson, 2013; Ivlevs and Veliziotis, 2018). To account for this endogeneity issue, we will perform regressions by distinguishing regions into high

and low immigration population as natives may locate to areas with low concentration of immigrants. Thus, the possible positive correlation between the migration flows and the decision to relocate will give rise to the selection bias. Hence, we will also estimate the regressions for non-movers and those who have changed their place of residence. Another possible way to mitigate the endogeneity is to perform an instrumental variables (IV) approach and apply the Two Stage Least Squares (2SLS) method.

3. Methodology

3.1 Well-Being measures

In this section we discuss the well-being measures and the econometric specification, while in the appendix we discuss the conceptual framework of our study, which is based on the Set-Point Theory (SPT) and the Social Production Function (SPF).

The standard approach in the economic sphere is to address the impact of migration on natives' utility through labour market outcomes. Thus, areas/regions characterized by high migration shares will tend to have lower wages in the case immigrants are substitutes to native workers, experiencing a decrease in the utility level. On the contrary, regions where migrants are complement to the native population, will have the opposite effect. However, earlier studies have explored the impact of migration on natives, but not on the migrants. Therefore, we argue that regions with high concentration of migrants could have adverse effects on migrants' labour market outcomes. In this case, we defined, in an *ad hoc* fashion, the high density region as the region with values higher than the average net migration rate at country level, and areas with low density as those with values of migration rate equal or less than the average.

According to Kahneman et al. (1997), income alone is not enough to identify utility and well-being, and they have emphasized the importance of the experienced utility, which reflects the evaluation of the current situation depending on the past outcomes. In the case of non-market goods, such as national parks, crime, air quality and immigration in our case, the subjective well-being will represent the effects of the decisions taken in terms of the experienced utility. Thus, the evaluation of public or non-market goods does not rely on the individual's choices and the statistical link between the individual well-being and the migration rates is the only thing that matters. We will explore two measures of the individual SWB: the life satisfaction and the EURO-

D. Life satisfaction, is a measure of cognitive well-being, and it is measured on a 11 point Likert scale between 0-indicating complete dissatisfaction- and 10- denoting complete satisfaction. EURO-D is a measure for the psychological well-being, and it is measured on a Likert depression scale, taking a minimum score of 0 (very depressed) and a maximum of 12 (not depressed). This measure includes 12 symptom domains: appetite, concentration, depression, enjoyment, fatigue, guilty, interests, irritability, pessimism, sleep, suicidality, and tearfulness. This measure was derived by the Geriatric Mental State examination, a popular and common tool for the mental health assessment of old people, as is the case in this study (Prince et al., 1999).

3.2 Empirical Specification

We will estimate the general regression model with fixed effects ordinary least squares (FE-OLS):

$$WB_{ijt} = \alpha + \beta_1 I_{ijt} + \beta' \mathbf{X}_{ijt} + \mu_i + r_j + \theta_t + r_j T + \varepsilon_{ijt} \quad (1)$$

WB denotes the well-being outcome explored for individual *i* resided in area-NUTS 3 *j* and in time-wave *t*. Variable *I* indicates the net migration rate per 1,000 inhabitants, which is defined as the difference between the immigrants entering the area and emigrant people leaving the area divided by the mid-population. **X** includes various control variables, discussed in the next section. Set μ_i is the individual fixed effects, r_j indicates the area-NUTS 3 fixed effects, time dummies expressed by set θ_t and NUTS 3-specific time trends denoted by the term $r_j T$ are also included in regression (1) to eliminate the effect of exogenous factors on changes in the outcomes that cannot be explained by the other variables. We should notice that when we investigate the self-employment and earnings, we also include the International Standard Classification of Occupations (ISCO), which identifies the professional class of the respondent, but we do not present the estimated coefficients as it entails a very long list of categories.

While both SWB indicators are measured on an ordinal scale, we will employ the fixed effects model for the following reasons. First, the previous literature suggests that FE-OLS yields similar results to those obtained by the discrete ordered choice models such as Probit and Logit models (Ferrer-i-Carbonell and Frijters, 2004; Giovanis and Ozdamar, 2018). Furthermore, since only random effects are derived by the ordered choice models, we cannot exploit the benefits of the

fixed effects estimates, discussed below. Nevertheless, we estimate and present the results using the Random Effects Generalized Least Squares (RE-GLS) and the random effects ordered Logit model. Because the OLS may violate the parallel regression assumption, as an additional estimator, we will present the estimates derived by the adapted Probit fixed effects approach developed by van Praag and Ferrer-i-Carbonell (2004), where the dependent variable is transformed into a standardized normally-distributed continuous variable.

We next extend eq. (1) into a dynamic model, where we include the dependent variable lagged by one period that controls for the dependent variable following an autoregressive-AR(1) process. The system Generalized Method of Moments (GMM) is applied, which is suitable for the purpose of our analysis as we employ a large *N* and small *T* panel dataset (Blundell and Bond, 1998). The final method employed for robustness check is the Blow-Up and Cluster (BUC) estimator (for more details on the technical aspects see Baetschmann et al., 2015). While the mechanism behind this method is quite extensive, we only mention its main purpose which is to classify an ordered variable into a binary one. Then the next step is to perform a fixed effects Logit model, which is the ultimate target.

Regarding the objective well-being measures and more specifically the employment earnings, fixed and random effects models suffice for our purposes here. The second variable is a dummy-binary variable taking value 1 if the respondent is employed- both employee and self-employed- and 0 if the respondent is unemployed. The third variable considers only the sample of employed people, taking value 1 if the individual is self-employed and 0 if the respondent is employee-either in private or public sector.

Overall, employing the FE-OLS model, we can identify the model from changes in the migration flows or the net migration rates employed in this study, within individuals rather than between them. If there are unobservable characteristics in the area-NUTS 3 and likely correlated with the net migration rate and the well-being outcomes, then these can be eliminated in the fixed effects model.

4. Data

SHARE is a multidisciplinary cross-national panel database of people aged 50 and over located in 29 European countries. The survey is multidisciplinary in its nature and it collects data in key variables such as health, demographics, income, retirement and other characteristics. Currently, at

the time of this study, seven waves have been conducted; in 2004-2005; 2006-2007; 2008-2009; 2010-2011; 2012-2013; 2015, and 2017 (see Börsch-Supan et al., 2013 for more details). However, we exclude wave 3 (2008-2009) from our analysis, because it refers to a retrospective life history with a different content than the remaining six waves, which does not meet the needs of our empirical work.

We should notice that the analysis is based on unbalanced panel data resulting from the increase in survey participation across countries, from 11 countries in the first wave to 29 countries in the seventh and last wave[1]. Even though our aim is to follow the same individual across the whole period 2004-2017, this does not prohibit us from investigating the impact of immigration across the 28 countries, as we prefer to not limit the analysis only to 11 countries.

Net migration rates are calculated using data from the European Statistical Office (EUROSTAT) and merged with the NUTS 3 area of the SHARE. The regressions include various characteristics of individuals, such as age, household income, education level, marital and employment status, and health conditions. The latter is an index which is derived by a factor analysis using the Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL). The first category includes functional mobility, such as the ability to walk in and out of a bed or a chair; the ability of bathing; the personal care, such as oral, skin and hair care; the ability of dressing and self-feeding. IADL includes measurement on abilities related to activities on housekeeping; shopping; money and medication management; use of computer and/or telephone and meal preparation.

In Table 1 we present the descriptive statistics for the well-being measures and the control variables employed in the regressions by the three groups of host countries. There are clear differences, indicating that not only the characteristics among individuals within the same country may vary, but also, we observe differences between groups of countries. More specifically, the respondents in the Northern/Western Europe group report higher levels of life satisfaction and EURO-D and a higher household income and proportion of employed people, indicating the higher living standards in those countries. Furthermore, both wages and household income are converted into Euros and are based on 2017 values. The minimum value of zero household income refers to people who are at the same time unemployed and single, which are only one percent of the sample.

[1] Israel is the 29th country. However, due to data unavailability for migration rates and instrumental variables, we have excluded it from the analysis.

The proportion of males in all groups is ranging around 43 percent, and the average age is ranging between 62 and 67.

We observe an average net migration rate in Northern/Western Europe at 4.03, significantly higher compared to 1.59 and 0.52 in Southern and Eastern Europe respectively. The minimum value of the first group is -21.60, indicating a higher number of people leaving the area and a maximum value is 40.71. On the other hand, we find high minimum values of the net migration rates in the Southern and Eastern Europe, implying that more people are leaving the NUTS 3 areas in these countries. In Table 1 we observe a large percentage of first and second generation immigrants, in the SHARE sample, in the countries of Northern/Western Europe at the rates of 12.62 and 22.50 respectively, followed by Southern Europe with respective values of 7.51 and 11.48 percent and Eastern Europe with 4.32 and 8.03 percent.

Based on the International Standard Classification of Education (UNESCO, 1997), a large percentage of respondents in Northern/Western Europe has completed the first stage of the tertiary education (undergraduate and postgraduate education) at 26.65 percent followed by the respondents in the Eastern and Southern Europe groups at 15.59 and 10.57 percent. Furthermore, Southern Europe illustrates a rather low proportion of people who have completed the upper secondary education at 19.04 percent, while in the other two groups the percentage is ranging between 36 and 42 percent. The 75.54 percent of the sample is married in the Southern Europe group, and this percentage is ranging between 66-68 percent in Northern/Western and Eastern Europe. Finally, a significantly higher proportion is retired in Eastern Europe at 66.83 percent followed by Northern/Western Europe at 56.95 percent and Southern Europe at 50.79 percent. Moreover, the 20.03 percent in Southern Europe is homemaker, while in the other two groups this proportion is ranging only between 5 and 6 percent.

(Insert Table 1)

In Table 2 we report the correlations among the outcomes and net migration rates. We observe a positive and significant relationship between life satisfaction and EURO-D as it was expected; however, the correlation is less than 0.5 indicating the differences between these two measures of well-being. As the first evidence, we find a positive and significant relationship between net migration rates and life satisfaction and between net migration rates and EURO-D in Northern/Western Europe and Eastern Europe, and a negative correlation in Southern Europe.

Employed people report higher levels of life satisfaction and psychological well-being indicating that employment is an important determinant of well-being.

We find no correlation between migration rates and wages, except for Eastern Europe, where we find a positive association of migration rates with both life satisfaction and EURO-D. Furthermore, we find a negative association between migration and wages in Eastern Europe, but a higher likelihood of being employed. This may indicate that migration may bring employment opportunities; however, a higher labour supply may suppress the wages. The correlation between net migration rates and being self-employed is positive and significant in the countries of Northern/Western Europe and Eastern Europe, but it becomes insignificant in the Southern European countries. However, the correlation matrix is based on the full sample, considering both natives and migrants.

(Insert Table 2)

Furthermore, we illustrate the net migration rates at country and NUTS 3 level in Figures 1-4 in years 2006 and 2017. The first aim of illustrating the maps in two separate years is to represent the dynamics of migration flows and to highlight the increasing number of net migration, and emigration, where more people are leaving one area. We observe that migration outflows increased in France, Italy and Greece, while the migration inflows increased in Germany, Netherlands and Sweden. Second, we illustrate the net migration rates at NUTS 3 level to highlight the large heterogeneity, not only between countries, but also within countries. Based on the statistics we report in Table 1, the average and minimum-maximum values of net migration rely on the NUTS 3 level, while as we observe in Figures 1-2, the respective values at country level are lower. This is expected, as these are taken as averages of the total NUTS 3 level areas in each country[2].

(Insert Figures 1-4)

An additional part of the analysis involves the regression estimates by groups of host countries. According to Sand and Gruber (2016) the gap in the SWB levels between old natives and old migrants becomes smaller in the Northern European countries compared to the countries of Southern Europe. Hence, based on this study, the statistics in Tables 1-2 and the maps of migration

[2]The data for Turkey in 2006 were unavailable at NUTS 3 level, and hence, that's the reason of the white shaded areas indicating "No data" in Figure 3.

rates in Europe illustrated in fugures1-4, we will perform the regression analysis by three groups IOM (2015)[3]. More specifically, areas with the highest concentration of migrants are reported in the Northern/Western European countries, which can be associated with employment opportunities, economic growth and family reunion policies that allow migrants to move to these countries.

5. Empirical Results

5.1 Benchmark Findings

In this section we report the main findings of the study. In Table 3 we present the fixed effects OLS estimates for the logarithm of the net employment earnings, and for the ordered dependent variables of life satisfaction and EURO-D. For the remaining objective measures of well-being we apply the linear probability model (LPM) with fixed effects. In Table 4 we report the results using the alternative methods we discussed in the methodology section. Overall, the results show that the relationship between net migration rates and life satisfaction is insignificant. On the other hand, we see a negative and significant coefficient of the net migration rate in the EURO-D regression, implying that increases in migration share in the NUTS 3 area reduces the levels of the psychological well-being.

Regarding the objective measures we find no impact on employment, but there is a negative relationship between net migration rates and the probability of being self-employed. We find a positive coefficient of the migration rate in the earnings equation, implying that a one-unit increase in the net migration rate increases the net earnings from employment by 0.90 percent in Table 3, while the effect is higher in the 2SLS estimates as 1.34 percent in Table 4.

It is worthy to mention that the estimates in Tables 3-4 include both natives and migrants, while in later part of the study we will report the findings by distinguishing between native and migrants, as well as, by first and second-generation migrants. The R-Square in all cases is rather low, which is commonly observed in the panel data models, indicating a large individual and regional-NUTS

[3] These groups are defined as: Northern/Western, Eastern and Southern Europe. The group of Northern/ Western Europe consists of Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Ireland, Latvia, Lithuania, Luxembourg, Netherlands, Sweden and Switzerland. The second region comprises of Bulgaria, Czech Republic, Hungary, Poland, Romania and Slovakia, while the third group includes Croatia, Cyprus, Greece, Italy, Malta, Portugal, Slovenia and Spain.

3 level heterogeneity, but it does not imply that our estimates are either biased or inconsistent (Wooldridge, 2010).

(Insert Tables 3-4)

5.2 Groups of Origin Countries

In Table 5 we report the fixed effects model estimates by grouping the respondents into the three main regions mentioned earlier. It is remarkable that the impact of immigration on natives' life satisfaction is positive in Northern/Western and Eastern Europe, but it has a negative impact on EURO-D in the Southern European countries. On the other hand, we find no impact of the migration on the SWB of second-generation migrants in Southern Europe, but we find a positive and significant relationship between migration rates and EURO-D of the second-generation immigrants in Northern/Western Europe.

Regarding employment, the results confirm our earlier findings, indicating that migration increases the employment opportunities for the natives and second-generation immigrants in Northern/Western Europe. Natives in the Northern /Western European countries are less likely to be self-employed due to migration, while the opposite case is found for the second-generation immigrants in Eastern Europe. Our results show a positive effect on the wages of natives and second-generation immigrants in Northern /Western Europe, the natives in Southern Europe and the second-generation immigrants in Eastern Europe.

For the first-generation migrants we also have included the years of the migrant's length of residence in the host country and its interaction with the net migration rates. The estimates are grouped into six regions: Africa, Middle East and North Africa (MENA), Eastern Europe and Balkans, Rest of Europe, Asia and America to control for ethnicity. In the Northern/Western region we find no impact of net migration rates on the well-being of first-generation migrants, except for the years living in the country, which is positive in the life satisfaction, employment and earnings regressions. Moreover, those who were born in the "rest of the Europe group" report higher levels of life satisfaction, while those coming from the MENA region are less likely to be employed.

In the Eastern European countries, we find an insignificant relationship between the migration rates and the well-being measures, while those who live more years in the host country report higher levels of life satisfaction and EURO-D, indicating a gap between those who have migrated many years ago and those migrated in later life. Regarding the group of countries of origin, overall

there are no significant differences in the outcomes, except for the earnings. Those from the rest of the Europe group earn more compared to the other groups, while those who were born in America and MENA region earn less compared to the rest of Africa and the other groups.

Regarding the first-generation immigrants in Southern Europe, additional years of residence are associated with higher levels of life satisfaction, higher earnings, and a higher probability of being self-employed. Furthermore, we find a positive effect of migration rates on their SWB, while the interaction term of years coming to the country and net migration rates is negative, showing that the first-generation migrants living many years in the host country express lower levels of psychological well-being with increases in the migration rates, which we discuss in more details in the next section. Regarding the country of origin, we observe no differences in the SWB, however, we identify inequalities in the case of employment: migrants from MENA and African regions are less likely to be employed, while migrants born in the countries from the Rest of Europe group have higher earning potential.

One important point that we should raise is that we estimate the regressions for the first-generation immigrations using random effects, while for the natives and second-generation we perform the fixed effects model. The main reason for this is that the length of residence and country of origin we include in the first-generation immigrants to control for the ethnic background is time-invariant. Therefore, the fixed effects model will drop the estimated coefficients, implying that we will be unable to identify the differences among respondents with different ethnic background.

In the appendix we discuss the estimates for the control variables, and we report the robustness checks by gender, age, education group, migrant status, and moving status. Furthermore, we report and discuss the estimates derived from the 2SLS.

(Insert Table 5)

6. Discussion and Conclusions

6.1 Objective Well-being

Regarding the labour market outcomes, we find a positive impact of migration on wages and the probability for natives and second-generation immigrants to be employed in the Northern/Western countries, and a positive impact on natives' earnings in Eastern and Southern

Europe. Furthermore, both low and highly educated respondents report higher earnings. Our findings are consistent with the studies by Islam (2007) in Canada and by Jean and Jiménez (2011) in OECD countries who suggest that there is no evidence that migrants displace the native workers. One explanation for the positive effect of migration can be due to the fact that immigrants are complements to the native workers in the production process. This will allow the firms to expand job opportunities across different skills among the natives and immigrants, increasing the investments in new plants, capital, and equipment due to higher demand. Following this growth, new firms may start up, especially in countries and regions within countries that are characterized by an increasing ageing population and shortage of both unskilled and skilled workers. Peri (2007) and Peri and Sparber (2009) suggest that the skills of migrants and natives are not perfectly substitutable, giving motivations to natives to specialize in more skilled jobs and letting migrants to perform more manual tasks or be employed in jobs requiring other skills. Moreover, the positive impact on natives' wages in Southern Europe implies that migration may bring business opportunities, higher demand for goods and services, and tax revenues for the government, implying that the economic issues reported in these countries may not be due to migration flows.

Finally, in most cases we find that the length of stay in the host country is positively correlated with well-being. This is associated with the age of immigrants, as older migrants are more likely to integrate in the socio-cultural norms and values of the host society, such as language, laws and labour market. Furthermore, older immigrants are more likely to gain more experience having a better career prospect leading to higher earnings. Countries that are more open to migrants and implement family reunion policies are more likely to enhance the SWB, which in turn may lead to better labour market outcomes (Bijwaard, 2015).

In our case we find a positive impact of migration rates on the first-generation migrants in Northern/Western Europe, while on the other hand we find no effect in Eastern Europe and a negative and significant effect in Southern Europe. While migration rates imply family reunion, the refuge migration observed over the last 10 years may also have led to the growth of low-wage occupations (Andersson et al., 2019). As we mentioned, the Southern European countries are characterized by large emigration rates of younger populations due to limited employment opportunities at home. Given the negative perception of old natives towards immigration and the potential structural economic problems of those countries, migration flows may affect negatively the earnings of the first-generation immigrants, implying that newcomers are likely substitutes to

them (Andersson et al., 2019). This could be the case where first-generation immigrants may have not been fully or successfully integrated in the host country either because of potential discrimination or due to limited working experience and skills.

Furthermore, the length of stay/living in the country may play a role. It is positively correlated with the earnings in panel C of Table 5, while the interaction of years living in the country and the earnings is positive, which implies that the older migrants or those who have migrated many years ago are less negatively influenced by the migration rates. Our results are confirmed by the average age of the first-generation immigrants: almost 11 percent of the first generation immigrants in Southern Europe are living in the host countries less than 10 years, while the percentages in Northern/Western and Eastern Europe are 3.7 and 2.5 percent respectively.

Even though, there are numerous studies exploring the relationship between migration flows and labour market outcomes, to the best of our knowledge, there is no study exploring the impact of net migration rates on labour market outcomes of both old aged natives and migrants in 28 European countries. As we have discussed before, the effect an ageing population has on a country depends on the age structure of the country. In our case, we explore European countries, where the proportion of elderly people increases and immigration has become increasingly important for the population growth and thus, for economic growth.

We should notice that while we limit the analysis to the people participating in the labour market, this also has implications for the well-being of retired people in two ways. First, increasing the employment opportunities and earnings for the old working-age population may have a positive consequence on the pension system, which contributes to the government revenues and reduces the age-dependency ratio. Apart from the natives, the immigrants are becoming older too, and life expectancy is also increasing every year. Therefore, balancing both increasing life expectancy and an older population would require such levels of immigration that can compensate for the age-related factors. The pension system will not be viable if the rate of decline in population exceeds growth rate in productivity, which consequently will affect the total output and national income. In line with this, immigration may also improve the sustainability of fiscal policy (Storesletten, 2000).

Second, migration has an indirect positive impact on the current old aged working population, including both natives and immigrants, which implies a higher probability of being retired, accumulating a higher saving-retirement pot. However, this is not the case in Southern Europe, except for natives and for first-generation immigrants who reside in the host countries for many

years. This highlights the structural economic problems of those economies, unable to accommodate the migrants and create new business opportunities, given especially that these countries present the highest age-dependency ratio and the lowest fertility rates. In the appendix we discuss our findings according to the conceptual framework and in particular, the Set-Point Theory (SPT) and the Social Production Function (SPF).

6.2 Subjective well-being

As we have discussed earlier, extant research on migration rates and SWB of both natives and immigrants with the focus on old age groups is scarce, at least, to the best of our knowledge, within Europe. Moreover, SWB measures have the advantage of availability for the economically inactive population in later life. The sample of SHARE is special, because it includes old aged first-generation immigrants who, in the majority, have resided in the host countries for a relatively long period of time. This implies that they speak the language proficiently and are exposed to the laws, cultural and social norms of the host country. Hence, the socio-cultural integration may affect directly their SWB, and indirectly through employment opportunities.

According to our benchmarking results, we find an insignificant relationship between migration rates and life satisfaction, using a range of different models. On the one hand, our results contradict the findings from previous studies by Betz and Simpson (2013) and Akay et al. (2014, 2017) who find a positive impact of migration on life satisfaction and happiness, and the studies by Longhi (2014) and Ivlevs and Veliziotis (2018) who suggest a negative impact. On the other hand, our findings are consistent with the studies by Papageorgiou (2018) and Giulietti and Yan (2018) who found an insignificant relationship between migration, life satisfaction, and happiness.

According to Table A1 in the appendix, we find a negative and significant impact on SWB for low educated people and for those living in areas with low concentration of migrants, which is consistent with the studies by Longhi (2014) and Ivlevs and Veliziotis (2018). On the other hand, highly educated people living in high density migrant populated areas are more likely to report higher levels of well-being, similar to the studies by Akay et al. (2014, 2017), who found not only the density, but also the higher diversity enhances the SWB of natives in Germany. We conclude that old aged groups present similar patterns, in terms of educational attainment and employment status, in the perception towards immigration with those belonging to younger age cohorts, as

previous studies suggest. Furthermore, old aged people's SWB due to migration varies by areas within the same host country and by groups of origin countries, confirming earlier studies (Akay, 2014, 2017).

Regarding the first-generation immigrants, we find an insignificant relationship between their SWB and migration rates, when we consider all the countries of our sample. Nevertheless, our estimates by groups of host countries in Table 5 reveal more insights. In that case, we find a positive impact of migration rates on the SWB of natives and second-generation immigrants, except for the countries of Southern Europe and the EURO-D. This highlights the importance of distinguishing our estimates by group of countries. Therefore, the negative impact of migration on EURO-D found in the benchmarking models comes from the higher negative coefficient estimated for the natives in Southern Europe.

Generally, migration affects positively both natives' and migrants' SWB in Northern/Western and Eastern Europe. This may be explained by the openness of the countries, the interaction with people from different backgrounds, and the migrants' contribution to the production system. According to the report by IOM (2015), natives in Northern/Western Europe present at a higher percentage a positive perception towards immigration and they feel more comfortable having social relationships with immigrants, such as friends, neighbours, family members and colleagues. Furthermore, Eastern Europe receives a large number of migrants from EU and non-EU countries, such as Russia and Ukraine (OECD/European Union, 2018) that share similar socio-cultural norms and characteristics, explaining the positive impact on SWB.

On the other hand, Southern European countries exhibit high emigration rates, where mainly younger populations are emigrating to Northern/Western Europe and other countries around the globe. This phenomenon increases the negative perceptions of old natives towards immigration and raise concerns about its impact on shaping social values and demographics of the host countries (Rustenbach, 2010; Tintori and Romei, 2017). Moreover, Southern Europe has received over the last 10 years a large influx of migrants from Africa and the MENA region, making old aged natives to be more skeptical over immigration, compared to younger populations, and in particular, younger than 54, who are generally less negative towards immigration (IOM, 2015). Therefore, the policy makers are advised to develop and present policies that decrease discrimination and counterbalance against an increase in anti-immigrant attitudes, identifying that the economic issues in those countries are structural, and there are other factors affecting the economies of those

countries. These also include educational policies and institutional settings, since we found that low educated people residing in areas with low migrant population density are more likely to report lower levels of SWB, even though they are not affected, or they may even benefit from migration in terms of employment earnings.

We also find a positive impact of migration on well-being of first-generation immigrants, but the mechanism may differ across regions. In particular, we have shown that the SWB of natives and second-generation immigrants is positively influenced by migration rates, which can be owned to the openness of the host countries, the interaction with other cultures and ethnicities, which may reflect the perceived well-being to the first-generation immigrants. According to Sand and Gruber (2016), the gap of SWB between old migrants and natives is smaller in Northern/Western Europe due to migration and family reunion policies. Therefore, migrants who were part of those policies in the past or during the period of the SHARE may recognize the benefits for the new migrants, shaping their perceptions for the host countries and enhancing their well-being. The country of origin in Table 5 highlights the potential well-being inequalities between European and non-European immigrants. This could be the result of different endowment characteristics, regarding education and skills, but it can be also attributed to potential discrimination towards immigrants coming from certain countries and regions (Kampelmann and Rycx, 2016).

Overall, the motivation of this study is to contribute to existing research by analyzing the SWB of older natives and immigrants as groups of increasing importance in the European population structure. Furthermore, we extended the analysis by exploring natives, first and second-generation immigrants to identify potential inequalities in both subjective and objective well-being due to migration rates. This is based on the motivation that the integration of older immigrants, in terms of SWB and labour market outcomes has not yet received adequate attention in the previous literature. Therefore, our findings may provide insights about policies that aim to reduce the inequalities in well-being and foster the long-term integration of immigrants in terms of economic resources, health, and SWB. Identifying an insignificant or even a positive and significant effect of migration flows, then we may conclude that societies have achieved a successful integration of the old aged first- and second-generation immigrants.

6.3 Contributions and Limitations

In this study, we have attempted to contribute to the earlier literature by various ways. First, we have focused on the elderly population for the various reasons we have discussed in the paper. Second, while earlier studies mainly explore life satisfaction and labour market outcomes, especially employment and wages, we have added a new dimension of well-being, the EURO-D, which is a measure of emotional and psychological well-being. Furthermore, we consider the net migration rates, while most of the previous studies explore the impact of migration inflows, neglecting the migration outflows, which may have a considerable impact on labour supply and the shaping of the socio-economic demographics of the host countries.

Third, we assigned the net migration level at a high level of geographical disaggregation, and in particularly at NUTS 3 level. Few studies have assigned the migration flows at such a high level of geographical disaggregation. Mapping the migration rates at NUTS 3 level may provide more precise and robust estimates considering the large heterogeneity we have shown in Figures 3-4 compared to the net migration rates at the country level illustrated in Figures 1-2. Furthermore, the panel structure of the SHARE allows us to control for unobservable heterogeneity at the NUTS 3 level and we may derive a better understanding about the role of migration in the well-being outcomes and provide insights for the formation of immigration policies in Europe.

Fourth, we estimated the regressions considering different groups, such as gender, age groups, education level, areas with low and high concentration of migrants, and moving status. This was based on the assumption that natives may decide to locate in a less diverse area. Furthermore, to rectify the endogeneity issues coming from omitted variables and reverse causality, we applied the 2SLS.

Fifth, we have extended the analysis to migrants by distinguishing between first- and second-generation immigrants to identify any differences in their well-being. Moreover, the analysis may provide the grounds for further research on whether migration affects the natives in terms, not only of labour market and economic outcomes, but also in terms of cultural and social norms. Therefore, investigating the migrants' integration in the host societies, and also the perceptions of natives towards migration may provide valuable insights for migration policies. Finally, for the various reasons we discussed earlier, and according to the statistics and the migration rates mapped in Figures 1-4, we performed the regressions by three groups of host countries.

However, the study is not without drawbacks. First, the regressions do not control for the respondent's race, which could allow us to investigate whether racial and ethnic minorities are more likely to experience discrimination, stigmatization, and negative treatment across various life domains, including income, health and education, which will also have adverse impact on the SWB (Verkuyten, 2008). In order to overcome this issue, for the first-generation migrants, we have controlled for the group of countries, as we have seen in Table 5. Furthermore, ethnicity refers mainly on the culture, language, and nationality, thus, we control in the regressions for the country of origin. However, this is inadequate, as we do not consider for the racial background as well. Surveys recording this information will provide valuable tools for evaluating the relationship between race and other factors, such as well-being. Thus, the second limitation of the study, which is due to data unavailability from the EUROSTAT, is that we aggregate the net migration rates and we do not distinguish those by ethnic or racial background. Therefore, recording the international migration by ethnicity and race will provide valuable inputs for future studies.

Migrants' well-being is likely to be affected in countries, where the structural barriers to their social integration are high. Even though the main aim of this study was to explore the impact of net migration rates on well-being, further studies should consider the role of migration policies and their impact on migrants' integration into the society. This may include policies related to education, political participation, anti-discrimination, policies strengthening the language of the host country, history and culture of the destination country, and to evaluate their effects on both natives' and migrants' well-being.

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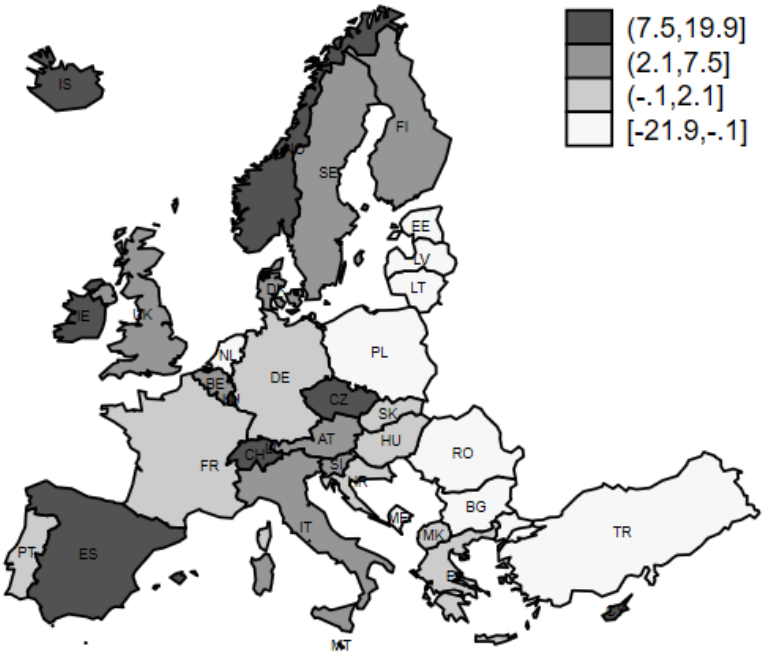
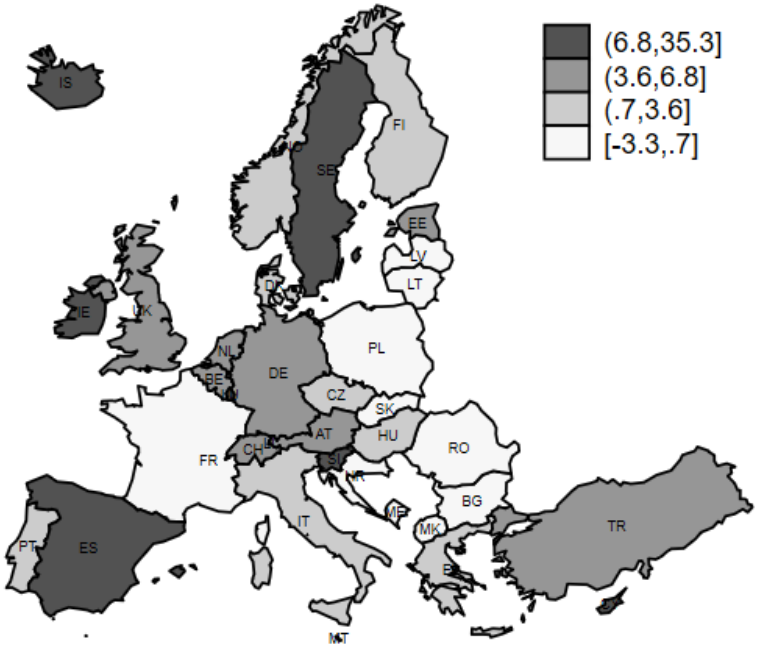
Figure 1. Net Migration Rates in Europe by Country Level in 2006



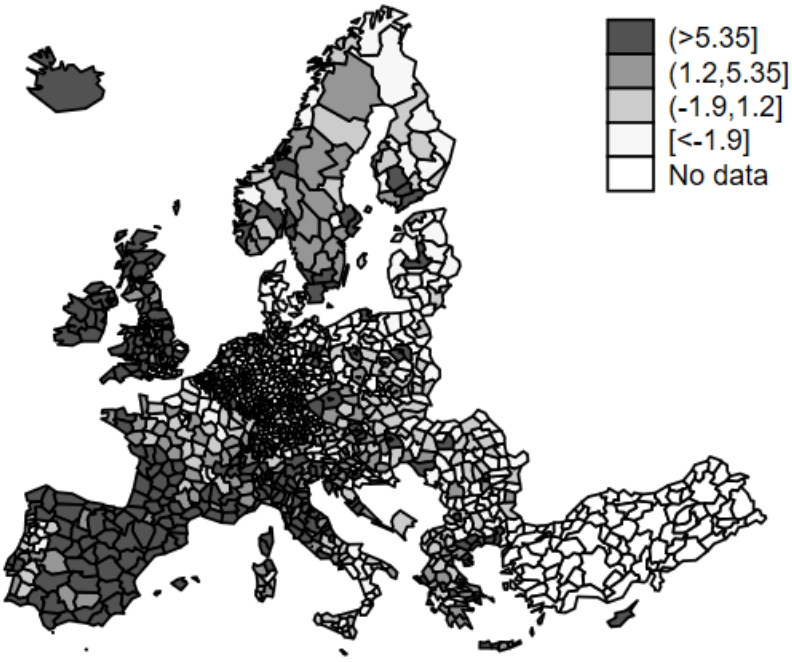
Source: Authors' illustration in STATA using EUROSTAT data

Figure 2. Net Migration Rates in Europe by Country Level in 2017



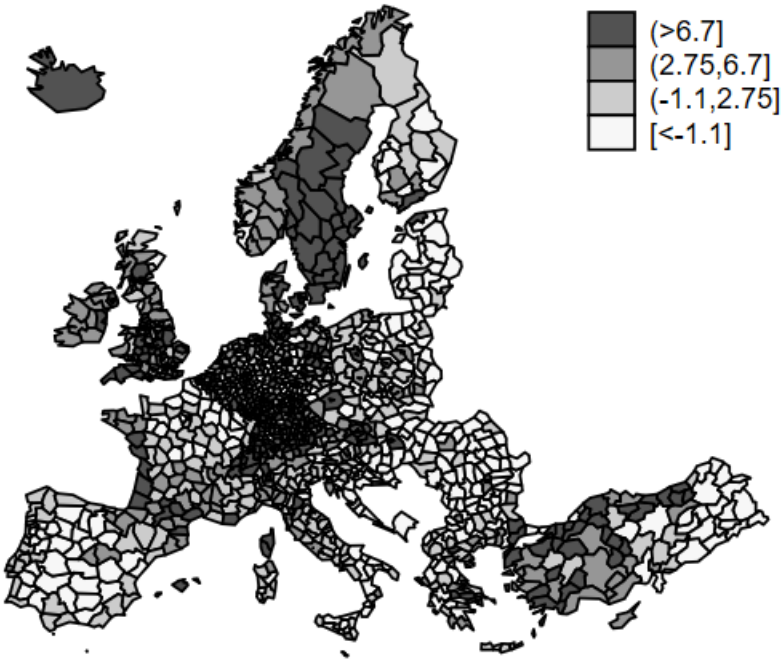
Source: Authors' illustration in STATA using EUROSTAT data
Note: AT stands for Austria, BE for Belgium, BG for Bulgaria, CH for Switzerland, CZ for Czech Republic, DE for Germany, DK for Denmark, EE for Estonia, EL for Greece, ES for Spain, FI for Finland, FR for France, HR for Croatia, HU for Hungary, IE for Ireland, IS for Iceland, IT for Italy, LT for Lithuania, LU for Luxembourg, LV for Latvia, ME for Montenegro, MK for North Macedonia, MT for Malta, NL for Netherland, NO for Norway, PL for Poland, PT for Portugal, RO for Romania SE for Sweden, SI for Slovenia, SK for Slovakia, TR for Turkey and UK for United Kingdom.

Figure 3. Net Migration Rates in Europe by NUTS 3 Level in 2006



Source: Authors' illustration in STATA using EUROSTAT data

Figure 4. Net Migration Rates in Europe by NUTS 3 Level in 2017



Source: Authors' illustration in STATA using EUROSTAT data

Table 1. Descriptive Statistics

Panel A: Northern/Western Europe					
Panel A1: Well-Being Measures	**Average**	**Standard Deviation**	**Minimum**	**Maximum**	
Life satisfaction	7.760	1.762	0	10	
EURO-D	9.663	2.132	0	12	
Wage	32,973.75	50,231.34	0	1,100,000	
Employed	0.924	0.264	0	1	
Self-Employed	0.160	0.367	0	1	
Panel A2: Control Variables					
Net Migration Rate	4.033	7.600	-21.6	40.71	
Gender (1 for Male and 0 for Female)	0.437	0.496	0	1	
Age	66.672	17.333	50	105	
Household Income (Euros)	35,228.28	66,708.88	0	1,200,000	
ISCED 1997 Education Level	**Proportion %**	**Marital status**	**Proportion %**	**Employment Status**	**Proportion %**
Pre-primary education	1.87	Married, living with spouse	65.82	Retired	56.95
Primary education or first stage of basic education	12.96	Registered partnership	1.64	Self-Employed or Employed	30.27
Lower secondary education	15.66	Married, not living with spouse	1.35	Unemployed	2.44
Upper secondary education	35.99	Single-Never Married	6.48	Permanently Sick or Disabled	3.72
Post-secondary non-tertiary education	5.75	Divorced	10.35	Homemaker	6.62
First stage of tertiary education	26.65	Widowed	14.36		
Second stage of tertiary education	1.12				
Percentage of First Generation Migrants		12.62	Percentage of Second Generation Migrants		22.50
Panel B: Eastern Europe					
Panel B1: Well-Being Measures	**Average**	**Standard Deviation**	**Minimum**	**Maximum**	
Life satisfaction	7.289	1.986	0	10	
EURO-D	9.467	2.351	0	12	
Wage	4,245.382	8,348.75	0	160,000	
Employed	0.884	0.320	0	1	
Self-Employed	0.179	0.383	0	1	
Panel B2: Control Variables					
Net Migration Rate	0.5170	4.185	-34.4	28.6	
Gender (1 for Male and 0 for Female)	0.421	0.493	0	1	
Age	67.572	10.215	50	106	
Household Income (Euros)	6,340.143	13,082.8	0	180,000	
ISCED 1997 Education Level	**Proportion %**	**Marital status**	**Proportion %**	**Employment Status**	**Proportion %**
Pre-primary education	2.32	Married, living with spouse	68.77	Retired	66.83
Primary education or first stage of basic education	13.98	Registered partnership	1.34	Self-Employed or Employed	21.48
Lower secondary education	21.51	Married, not living with spouse	1.10	Unemployed	2.81
Upper secondary education	42.38	Single-Never Married	3.17	Permanently Sick or Disabled	3.72
Post-secondary non-tertiary education	4.00	Divorced	7.74	Homemaker	5.16
First stage of tertiary education	15.59	Widowed	17.88		
Second stage of tertiary education	0.22				
Percentage of First Generation Migrants		4.32	Percentage of Second Generation Migrants		8.03

Table 1 (cont.) Descriptive Statistics

Panel C: Southern Europe					
Panel C1: Well-Being Measures	**Average**	**Standard Deviation**	**Minimum**	**Maximum**	
Life satisfaction	7.390	1.838	0	10	
EURO-D	9.309	2.586	0	12	
Wage	21,814.52	32,826.8	0	280,000	
Employed	0.857	0.349	0	1	
Self-Employed	0.292	0.454	0	1	
Panel B2: Control Variables					
Net Migration Rate	1.598	9.639	-36.4	37.70	
Gender (1 for Male and 0 for Female)	0.443	0.497	0	1	
Age	62.116	9.673	50	103	
Household Income (Euros)	24,812.97	36,734.95	0	420,000	
ISCED 1997 Education Level	**Proportion %**	**Marital status**	**Proportion %**	**Employment Status**	**Proportion %**
Pre-primary education	13.44	Married, living with spouse	75.54	Retired	50.79
Primary education or first stage of basic education	34.38	Registered partnership	1.22	Self-Employed or Employed	22.73
Lower secondary education	20.07	Married, not living with spouse	1.06	Unemployed	3.55
Upper secondary education	19.04	Single-Never Married	4.97	Permanently Sick or Disabled	2.90
Post-secondary non-tertiary education	2.03	Divorced	3.29	Homemaker	20.03
First stage of tertiary education	10.57	Widowed	13.92		
Second stage of tertiary education	0.47				
Percentage of First Generation Migrants		7.51	Percentage of Second Generation Migrants		11.48

Table 2. Correlation Matrix

Panel A:Northern/Western Europe					
	Life Satisfaction	**EURO-D**	**Wage**	**Employed**	**Self-Employed**
EURO-D	0.4046*** (0.000)				
Wage	0.0023 (0.6527)	-0.0061 (0.2319)			
Employed	0.1879*** (0.000)	0.1242*** (0.000)	0.2223*** (0.000)		
Self-Employed	0.0462*** (0.000)	0.0395*** (0.000)	-0.0023 (0.6811)	0.0147** (0.0026)	
Net Migration Rate	0.1795*** (0.000)	0.0823*** (0.000)	-0.0037 (0.5081)	0.0397*** (0.000)	0.0670*** (0.000)
Panel B: Eastern Europe					
	Life Satisfaction	**EURO-D**	**Wage**	**Employed**	**Self-Employed**
EURO-D	0.4132*** (0.000)				
Wage	0.1041*** (0.000)	0.0459*** (0.000)			
Employed	0.2325*** (0.000)	0.1863*** (0.000)	0.0268** (0.0308)		
Self-Employed	0.0379*** (0.000)	0.0139 (0.1375)	0.0025 (0.8352)	0.0093 (0.3699)	
Net Migration Rate	0.0529*** (0.000)	0.0708*** (0.000)	-0.0585*** (0.000)	0.0583*** (0.000)	0.0358*** (0.0010)
Panel C: Southern Europe					
	Life Satisfaction	**EURO-D**	**Wage**	**Employed**	**Self-Employed**
EURO-D	-0.4416*** (0.000)				
Wage	0.0047 (0.6516)	0.0074 (0.5592)			
Employed	0.1966*** (0.000)	0.1701*** (0.000)	0.1045** (0.0252)		
Self-Employed	0.0321*** (0.0005)	0.0218** (0.0173)	-0.0041 (0.7768)	0.0238 (0.6928)	
Net Migration Rate	-0.0536*** (0.000)	-0.0254*** (0.000)	-0.0035 (0.8218)	0.1291*** (0.000)	0.0160 (0.1760)

P-Values within brackets, *** and ** denote significance respectively at 1% and 5% level

Table 3. OLS-Fixed Effects for Well-Being of Natives and Migrants

	DV: Life Satisfaction	DV: EURO-D	DV: Employed	DV: Self-Employed	DV: Logarithm of Earnings
Net Migration Rate	0.0060 (0.0117)	-0.0066*** (0.0018)	0.0007** (0.0003)	-0.0017*** (0.0004)	0.0090*** (0.0027)
Age	0.0726*** (0.0181)	0.1635*** (0.0322)	0.0057 (0.0024)	0.0096 (0.0138)	0.3643*** (0.0648)
Age Squared	-0.0006*** (0.00002)	-0.0012*** (0.0001)			-0.0032*** (0.0004)
Logarithm of Household Income	0.0392*** (0.0066)	0.0234*** (0.0084)	0.0686*** (0.0019)	-0.0002 (0.0071)	
Education Level (Reference Category-Pre Primary Education)					
Primary education or first stage of basic education	-0.0605 (0.1216)	-0.2625 (0.2663)	0.0453*** (0.0154)	0.1474* (0.0843)	0.4460 (0.4273)
Lower secondary education	-0.1077 (0.1583)	0.0350 (0.3052)	0.1073*** (0.0144)	-0.0522 (0.0672)	0.5087 (0.4870)
Upper secondary education	0.0257 (0.1503)	-0.1082 (0.2906)	0.1431*** (0.0142)	-0.0427 (0.0764)	0.5386 (0.5182)
Post-secondary non-tertiary education	0.0630 (0.1892)	0.3096 (0.3401)	0.1666*** (0.0145)	-0.0111 (0.0846)	0.4501 (0.7387)
First stage of tertiary education	0.1510 (0.1549)	0.1623 (0.2981)	0.1744*** (0.0142)	-0.0300 (0.0700)	0.4993 (0.5339)
Second stage of tertiary education	0.1777 (0.2402)	0.2271 (0.4151)	0.1790*** (0.0153)	0.1701 (0.1304)	0.6332 (0.5871)
Marital Status (Reference Category-Married, living with spouse)					
Registered partnership	-0.0253 (0.1194)	-0.0092 (0.2104)	-0.0186** (0.0087)	-0.0433 (0.0330)	0.0512 (0.1152)
Married, not living with spouse	-0.2632** (0.1086)	0.1343 (0.1306)	-0.0349*** (0.0103)	-0.0187 (0.0247)	-0.0076 (0.1709)
Single-Never Married	-0.1008 (0.0993)	-0.1486 (0.15005)	-0.0258*** (0.0048)	0.0390* (0.0221)	-0.5171*** (0.1521)
Divorced	-0.1580** (0.0664)	-0.1953** (0.0945)	-0.0358*** (0.0040)	0.0077 (0.0153)	-0.0211 (0.0813)
Widowed	-0.3196*** (0.0385)	-0.6349*** (0.0577)	0.0057 (0.0061)	-0.0279 (0.0239)	-0.3318 (0.1366)
Employment Status (Reference Category-Retired)					
Employed or Self-Employed	0.0163 (0.0183)	-0.0169 (0.0279)			
Unemployed	-0.3679*** (0.0371)	-0.3290*** (0.0527)			
Permanently Sick or Disabled	-0.3285*** (0.0380)	-0.3286*** (0.0562)			
Homemaker	-0.0811*** (0.0265)	0.0505 (0.0412)			
Health Conditions (ADL and IADL)	-0.1032*** (0.0060)	-0.4884*** (0.0168)	-0.0698*** (0.0068)	-0.0153* (0.0070)	-0.0669** (0.0304)
No. observations	206,129	189,740	59,713	53,425	43,198
R-Squared	0.0259	0.0441	0.1231	0.0342	0.0725

Robust standard errors within brackets, ***, ** and * denote significance respectively at 1%, 5% and 10% level

Table 4. Alternative Estimation Models

	DV: Life Satisfaction	DV: EURO-D	DV: Employed	DV: Self-Employed	DV: Logarithm of Earnings
Panel A: Adapted Probit Fixed Effects					
Net Migration Rate	0.0052 (0.0141)	-0.0029*** (0.0008)			
No. observations	206,129	189,740			
R-Squared	0.0311	0.0263			
Panel B: Random Effects					
Net Migration Rate	0.0072 (0.0112)	-0.0073*** (0.0017)	0.00072** (0.0003)	-0.0014*** (0.0004)	0.0081*** (0.0022)
No. observations	206,129	189,740	59,713	53,425	43,198
R-Squared	0.1780	0.1975	0.1136	0.0211	0.1966
Panel C: GMM System					
Net Migration Rate	0.0040 (0.0161)	-0.0032** (0.0013)	0.0101** (0.0040)	-0.0052** (0.0023)	0.0121*** (0.0047)
No. observations	103,064	93,999	26,007	26,619	22,943
Wald Chi Squared	22,004.61 [0.000]	17,736.25 [0.000]	16,664.02 [0.000]	5,859.01 [0.000]	10,501.13 [0.000]
AB Test for AR(1) in first differences	-45.28 [0.000]	-28.04 [0.000]	-23.93 [0.000]	-20.94 [0.000]	-23.72 [0.000]
Sargan Endogeneity Chi Squared Test	59.39 [0.000]	21.61 [0.000]	2.40 [0.889]	16.07 [0.000]	13.23 [0.005]
Panel D: Random Effects Ordered Logit					
Net Migration Rate	0.0045 (0.0130)	-0.0038*** (0.0012)			
No. observations	206,129	189,740			
Wald Chi Squared	20,326.82 [0.000]	17,035.41 [0.000]			
Panel E: BUC					
Net Migration Rate	0.0039 (0.0056)	-0.0127*** (0.0016)			
No. observations	344,167	309,231			
Wald Chi Squared	41,489.42 [0.000]	36,892.23 [0.000]			
Panel F: Fixed Effects Binary Logit					
Net Migration Rate			0.0342*** (0.0052)	-0.0044* (0.0024)	
No. observations			59,713	53,425	
Centered R Squared			1,614.97 [0.000]	1,544.09 [0.000]	
Panel G: 2SLS-FE					
Net Migration Rate	0.0048 (0.0065)	-0.0041** (0.0019)	0.0046*** (0.0016)	-0.0024** (0.0010)	0.0134*** (0.0064)
No. observations	194,952	180,267	58,278	51,419	41,847
R-Squared	0.0127	0.0256	0.0125	0.0125	0.0171
Kleibergen-Paap F-Statistic Weak Instrument Test	854.96 [0.000]	1,367.32 [0.000]	216.15 [0.000]	554.77 [0.000]	506.09 [0.000]
Hansen J-Statistic for Endogeneity	4.249 [0.1439]	0.1760 [0.9160]	1.404 [0.4955]	4.413 [0.1101]	4.078 [0.1790]

Robust standard errors within brackets, P-values within square brackets, ***, ** and * denote significance respectively at 1%, 5% and 10% level.

Table 5. Fixed Effects by Regions, Natives and Migrant Status

	DV: Life Satisfaction	DV: EURO-D	DV: Employed	DV: Self-Employed	DV: Logarithm of Earnings
Panel A: Northern/Western Europe					
Natives -Fixed Effects					
Net Migration Rate	0.0124**	-0.0044	0.0025*	-0.0016**	0.0085**
	(0.0055)	(0.0037)	(0.0013)	(0.0007)	(0.0041)
No. observations	82,985	73,206	25,962	23,193	21,474
R- Squared	0.0250	0.0343	0.0308	0.0331	0.0541
First Generation Migrants-Random Effects					
Net Migration Rate	0.0229***	0.0116	-0.0024	-0.0014	0.0026*
	(0.0077)	(0.0072)	(0.0020)	(0.0021)	(0.0014)
Years Living in the Country	0.0039**	-0.0110	0.0021***	-0.0008	0.0046**
	(0.0016)	(0.0216)	(0.0005)	(0.0006)	(0.0022)
Interaction Term of Net Migration Rate and Years Living in the Country	0.0001	-0.0004	-0.0003	0.0005	0.0013*
	(0.0002)	(0.0003)	(0.0006)	(0.0010)	(0.0007)
Country-Group (Reference Rest of Africa)					242/145
MENA	-0.1772	-0.0837	-0.0952**	0.0148	0.1508
	(0.1380)	(0.1738)	(0.0361)	(0.0413)	(0.1706)
Eastern Europe and Balkans	0.0495	0.0378	-0.0083	0.0176	0.0718
	(0.1321)	(0.1667)	(0.0352)	(0.0393)	(0.1617)
Rest of Europe	0.2072*	0.1674	0.0397	0.0332	0.2253
	(0.1112)	(0.1530)	(0.0315)	(0.0353)	(0.1462)
Asia	0.0204	0.0551	0.0617	0.0024	0.0545
	(0.1539)	(0.1934)	(0.0396)	(0.0438)	(0.1835)
America	0.1909	0.0964	0.0010	0.1227**	0.0853
	(0.1849)	(0.2329)	(0.0453)	(0.0509)	(0.2162)
No. observations	17,031	12,529	4,364	4,382	3,938
R- Squared	0.1744	0.1529	0.0849	0.1276	0.2546
Second Generation Migrants-Fixed Effects					
Net Migration Rate	0.0067	0.0238**	0.0019*	-0.0008	0.0044**
	(0.0053)	(0.0117)	(0.0010)	(0.0022)	(0.0021)
No. observations	18,769	17,122	6,769	5,692	4,830
R- Squared	0.0497	0.0798	0.1034	0.0618	0.1431
Panel B: Eastern Europe					
Natives-Fixed Effects					
Net Migration Rate	0.0230***	0.0159**	-0.0014	-0.0009	0.0142
	(0.0070)	(0.0079)	(0.0021)	(0.0023)	(0.0121)
No. observations	36,692	33,712	7,275	6,055	4,772
R- Squared	0.0432	0.0784	0.0798	0.0830	0.0873
First Generation Migrants-Random Effects					
Net Migration Rate	0.0197	0.0119	-0.0156	-0.0106	0.0220
	(0.0609)	(0.0067)	(0.0203)	(0.0181)	(0.0833)
Years Living in the Country	0.0209**	0.0197**	0.0029	0.0032	0.0089
	(0.0103)	(0.0101)	(0.0027)	(0.0033)	(0.0186)
Interaction Term of Net Migration Rate and Years Living in the Country	0.0015	0.0006	0.0009*	-0.0021	-0.0008
	(0.0011)	(0.0011)	(0.0005)	(0.0020)	(0.0033)

Table 5 (cont.) Fixed and Random Effects by Regions, Natives and Migrant Status

	DV: Life Satisfaction	DV: EURO-D	DV: Employed	DV: Self-Employed	DV: Logarithm of Earnings
Country-Group (Reference Rest of Africa)					
MENA	-0.8393	-0.4228	-0.0746	-0.1742	-2.5052**
	(1.5738)	(1.9627)	(0.1988)	(0.2883)	(1.1621)
Eastern Europe and Balkans	-0.9185	-0.4810	-0.0033	-0.2700	-0.5777
	(1.7975)	(2.0336)	(0.0313)	(0.3770)	(2.1303)
Rest of Europe	-0.7848	-0.6592	0.0068	-0.1321	1.9091**
	(1.8030)	(2.0273)	(0.0319)	(0.3844)	(0.8427)
Asia	-0.4944	3.6126	0.0893	0.3004	-3.6510
	(1.5961)	(0.9339)	(0.2385)	(0.6724)	(2.5461)
America	0.0170	0.5283	0.0880	-0.2056**	-5.3578*
	(2.088)	(2.3919)	(0.1936)	(0.6263)	(3.1830)
No. observations	2,122	1,840	707	591	331
R- Squared	0.1531	0.2209	0.4462	0.2074	0.2563
Second Generation Migrants-Fixed Effects					
Net Migration Rate	0.0273*	0.0083	0.0024	0.0081*	0.0037**
	(0.0147)	(0.0184)	(0.0022)	(0.0048)	(0.0016)
No. observations	7,759	4,010	2,738	2,526	3,830
R- Squared	0.0831	0.0960	0.1712	0.1404	0.2190
Panel C: Southern Europe					
Natives-Fixed Effects					
Net Migration Rate	-0.0037	-0.0445***	0.0002	-0.0009	0.0119**
	(0.0180)	(0.0026)	(0.0006)	(0.0007)	(0.0046)
No. observations	34,661	30,303	9,453	5,902	4,552
R- Squared	0.0446	0.0684	0.0785	0.1015	0.2158
First Generation Migrants-Random Effects					
Net Migration Rate	0.0235	0.0264***	0.0051	0.0092	-0.0139*
	(0.0183)	(0.0107)	(0.0061)	(0.0061)	(0.0073)
Years Living in the Country	0.0139**	0.0062	0.0011	0.0080***	0.0115**
	(0.0062)	(0.0080)	(0.0024)	(0.0029)	(0.0051)
Interaction Term of Net Migration Rate and Years Living in the Country	-0.0011*	-0.0015**	-0.0011	-0.00012	0.0039*
	(0.0006)	(0.0006)	(0.0019)	(0.00018)	(0.0020)
Country-Group (Reference Rest of Africa)					
MENA	0.3468	0.6281	0.0995	0.0385	0.1796
	(0.3537)	(0.5412)	(0.1209)	(0.1744)	(0.4628)
Eastern Europe and Balkans	0.3451	0.0265	0.4013***	0.1345	0.8214
	(0.3924)	(0.6039)	(0.1355)	(0.1858)	(0.5480)
Rest of Europe	0.3527	0.6224	0.3433**	0.5764***	0.9530*
	(0.3846)	(0.5913)	(0.1384)	(0.1921)	(0.5276)
Asia	0.6548	0.4560	0.5444***	0.6109***	0.8193
	(0.4704)	(0.7093)	(0.1548)	(0.1981)	(0.6849)
America	0.3396	0.3475	0.2960**	0.2351	0.6722
	(0.3598)	(0.5587)	(0.1210)	(0.1725)	(0.4670)
No. observations	3,127	2,736	847	569	471
R-Squared	0.1372	0.1628	0.2463	0.2963	0.2529
Second Generation Migrants-Fixed Effects					
Net Migration Rate	0.0053	0.0118	0.0019	-0.0027	0.0164
	(0.0088)	(0.0156)	(0.0025)	(0.0029)	(0.0113)
No. observations	7,445	6,129	2,431	2,065	1,102
R-Squared	0.0665	0.1209	0.1508	0.1815	0.4085

Robust standard errors within brackets, ***, ** and * denote significance respectively at 1%, 5% and 10% level

Notes: We have applied the Fixed Effects model for the natives and second generation immigrants, while we have implemented the Random Effects model for the first generation immigrants.

APPENDIX

A1. Conceptual Framework

In this section we briefly describe the theoretical concepts we apply and the assumptions we test on the association between immigration and well-being. According to the Set-Point Theory (SPT), the SWB levels of individuals remain relatively constant over time and are characterized by personality traits, determined by early life factors. Despite this relative stability, unanticipated pleasant and unpleasant events, such as the death of a family member, lottery win, or migration influx, may lead to deviations from individuals' set point (Headey and Wearing, 1989; Diener et al., 1999; Headey, 2008). Incorporating the SPT within a panel dataset, it is useful to compare the SWB within individuals, before and after an event, as we examine the migration rates, which increased with the EU enlargement in 2004 and 2007 and the Syrian refugee crisis, especially after 2012. Furthermore, it allows us to compare the SWB among different groups, such as the natives, first and second generation immigrants.

Therefore, in this study we assume that while the SWB may remain relatively constant, the migration flows may affect both natives and migrants, not only in terms of economic and labour outcomes, but also on compositional outcomes, such as integration to social norms and values of the host societies, as well as, the openness of the host societies towards immigrants. Moreover, given the old age of the respondents, we assume that migration may have a stronger influence on the EURO-D, a subjective emotional and psychological well-being, compared to life satisfaction, as the latter measures the cognitive well-being and the achievements in life over a long period of time (Maddux, 2018).

The Social Production Function (SPF) theory encompasses SWB-relevant factors that are determined throughout life (Lindenberg, 1968). Ormel et al. (1999) integrate economic and psychological theoretical approaches and they argue that people tend to build their well-being, which is a function of physical well-being, such as security and reduction of material deprivation, and a function of social well-being, such as relationships, social networks and status. Well-being depends on individual and structural constraints and resources. Income, education, health and family-social ties are the most important resources and constraints at the individual level, and their lack may exacerbate social and material deprivation leading to well-being inequalities and social exclusion (Layte et al., 2010). Furthermore, the length of residence in the host country should be

considered for migrants, since the integration process is carried out over time and with increasing exposure to the culture and social values of the host society (Berry et al., 2006).

Even though we argue that we investigate the impact of migration on the well-being of the elderly population, the analysis of labour outcomes will limit the sample only to those aged between 50 years and their retirement age. Nevertheless, exploring only the working-age has implications for the current working-age generation and for the future generations when they will shift to the retirement age. In particular, earlier studies found that migrants contribute positively to the public finances of the host countries (Mayr, 2005; Dustmann et al., 2010; Chojnicki, 2013). This implies that migration can be a policy option for the dependency-age ratio, contributing to the sustainability of the pension systems.

A2. Endogeneity and Instrumental Variables (IV) Approach

Even though the FE-OLS may eliminate the unobservable characteristics that are correlated with migration rates and the well-being outcomes, we argue that this approach cannot totally eliminate the endogeneity issue. In particular, there could be a strong degree of selection bias as a result of the natives' "sorting" behaviour, and possibly of migrants. Hence, we perform separate regressions for stayers- those who had not changed address during the period of the survey, and for movers. The regression analysis for stayers allows us to control for unobservable characteristics at the NUTS 3 area that are potentially correlated with the net migration rates and the well-being indicators that are fixed over time. The panel data analysis will remove the NUTS 3 fixed effects, while the error term for the movers will include the difference in the area fixed effects between the two areas, which is most likely to be correlated with the difference in the net migration rates across both locations (Giovanis and Ozdamar, 2018; Papageorgiou, 2018).

However, this analysis does not account for the sorting process. More specifically, individuals averted to areas characterized by high concentration of migrants, may have already decided to reside in areas with low density of migrant population prior to the first wave of SHARE in 2004. By limiting the analysis to the stayers we may create a selection bias, thus, we perform regressions by areas with high and low concentration of migrants to investigate whether regions with low or high concentration drive our estimates.

To further strengthen our estimates, we attempt to mitigate the endogeneity coming from reverse causality between the main outcomes of interest and net migration rates, by using the Two Stage Least Squares (2SLS) method. Furthermore, another potential concern is that there are unobserved area-NUTS 3 characteristics correlated with both net migration rates and the individual well-being outcomes. Previous studies used as instruments the stock of immigrants derived by national population censuses or the past values of migration flows, arguing that settlement patterns of previous immigrants are the main drivers of immigrants' location choices (Bartel, 1989; Card and Altonji, 1991). However, the no-variation is a major issue of this instrument, since the census is conducted every 10 years and is recorded at the national level. Moreover, there is a concern about the credibility of the lagged migration flows as an instrument, as Betz and Simpson (2013) used this variable to explore the impact on SWB, which poses a threat to the identification strategy. To overcome these issues, we consider variables that are available yearly and can be matched with the timing of the survey. In particular, we employ three variables; the first two refer to the one-year lagged values of birth and death rates recorded at the country level, and the third variable is the one-year lagged fertility rates, available at the NUTS 3 level.

We justify the use of these instruments according to the role of diasporas, as migrants tend to move and relocate to areas with a high presence of diaspora, where past generations of cohorts have already established immigrant enclaves, sharing common cultural and social characteristics (Bartel, 1989; Beine et al., 2011). Diasporas can reduce assimilation and information costs for the migrants, providing support with housing, employment, helping them to adjust to cultural issues and social norms and navigate linguistic gaps and barriers (Beine et al., 2011). Fertility, birth and death rates are more credible than projected-predicted migration flows to measure the trend of migration rates and demographic transitions (Fargues, 2011). Furthermore, immigrants tend to migrate in countries and areas characterized by low native birth and low fertility rates, combined with a low number of deaths, due to expansion of the life expectancy (Fargues, 2011), which is the case of our sample.

Europe is characterized by an ageing population, low rates of birth, death and fertility, and shortage of workers with specific education and skills, which may vary by geographical location. To respond to these challenges, countries implement policies aiming to attract new migrants to increase the labour supply and meet the needs of relative labour shortages in certain professions and industries (De la Rica, 2015). Furthermore, immigrants tend to move to urban areas,

characterized by high living standards and employment opportunities, lower fertility rates, and also because immigrant enclaves have been established in those areas. Furthermore, both internal and international migration have been the main drivers of population growth in urban areas (Kulu, 2013). Van de Kaa and Lesthaeghe (1986) coined the term *second demographic transition*, which refers to the fertility rate being lower than the replacement level due to the postponement of marriage and parenthood, access to birth control, and fostering of women's independence in both labour market and household practices. Evidence shows that migrants, especially from Africa, MENA region and Asia, migrate into countries with low fertility and low birth rates (Genereux, 2007; Fargues, 2011). International migration may further affect the labour supply of native born women, especially the high-skilled, as it decreases the cost of household services (Furtado, 2016).

Therefore, migration flows and patterns, influenced by the instruments we employ, change the labour and capital prices, and factor inputs are reallocated across firms and sectors that adjust the technology and output mix to make a more intensive use of workers. This consequently leads to a response by the labour force to invest in certain skills and upgrading their human capital (Peri, 2007; Peri and Sparber, 2009), which consequently affect the objective well-being measures, such as the employment opportunities and earnings we explore in this study. Therefore, these instruments can be used as a proxy of diasporas, attracting more immigrants to those countries and certain areas and determining the trends in objective well-being measures.

Moreover, migration, can reduce the opportunity cost of care for family members. In particular, increases in the share of low-skilled immigrants in an area's labour force, leads to a reduction of prices and costs in labour-intensive services, such as caring for children, elderly, disabled and housekeeping, apart from other professions. This consequently reduces the conflict that natives, and also second generation migrants, have over work, family care and obligations and housekeeping, increasing their participation in the labour force and high skilled jobs (Cortes, 2008; Furtado, 2016). The sample we explore in this study consists of people in the middle adulthood and old age who have more family obligations, including care for family members. Moreover, the old aged childless couples or old aged people whose children are living relatively far, are more in need for health and social support provided by the migrant care workers.

Therefore, migration rates and patterns correlated with the instruments we employ in the empirical analysis, may determine the employment patterns of the natives and second generation immigrants. This eventually will affect the SWB, as natives and second generation immigrants may

achieve a better family-work balance, having more employment opportunities, being employed in high skilled jobs and receiving social support in terms of caring of elderly and disabled family members.

In line with this, first generation immigrants may also reach higher SWB levels, due to employment opportunities and job security. However, this may vary across countries, because apart from the immigrant enclaves and the employment opportunities, immigrants also search for better social opportunities, especially for females who may prefer destination countries that promote gender equality and non-discrimination in social institutions (Ferrant and Tuccio, 2015). Thus, the justification of expanding our analysis by groups of origin countries lies in the perception of natives towards immigration and institutional settings. This shows that our instruments are correlated with migration flows, affecting the objective and subjective well-being measures, through the process we described above, but they also affect the SWB of the first generation immigrants, through their integration in both economic and socio-cultural dimensions.

A3. Control Variables

For the control variables we get the expected estimated coefficients. In particular, even though we explore old aged people, we find a U-shaped association between age and subjective well-being measures with a turning point around 61. This is worthy of analyzing it, because previous studies have found this relationship presenting a turning point at 40s or 50s (Easterlin, 2006). Regarding education, we find that educated people are more likely to be employed, but the estimated coefficients become insignificant in the remaining regressions. This can be explained by the fact that our sample is focused on people aged 50 and over, and considering the fixed effects estimates, there is no high variation. Furthermore, people who did well already in education and have accomplished more, may tend to be more satisfied with their lives at the first place and the attainment of additional education qualification per se, probably makes little difference (Giovanis and Ozdamar, 2018).

In all cases married people are more satisfied with their lives, while in the EURO-D regression, we observe that there is no difference amongst married, singles and those who live with a partner. On the other hand, divorced and widowed report lower levels of psychological well-being. This

could be due the loss of the spouse having two adverse effects. The first is the case where the spouse who dies is the only or major breadwinner, and consequently the family is experiencing a loss of earnings and decline in living standards. The second is that next to the loss of a child, the loss of the spouse is one of the most dramatic and intensive events a person can experience (Fengler et al., 1982; Ben-Zur and Michael, 2009).

As it was expected people with health problems report lower levels of SWB, earn less and are more likely to be unemployed due to disabilities and long-standing illnesses. This is in line with the employment status, where unemployed and disabled individuals report lower levels of well-being, while there is no difference between employed and the reference category, which is the retired people (Aysan and Aysan, 2017; Tang et al., 2018). While we may argue that health conditions could be an endogenous variable, excluding it does not change considerably the coefficient of our main variable of interest, the net migration rate.

We do not elaborate in more details the findings of the control variables as it is out of the current study's main objective; nonetheless, future studies may explore the role of socio-economic characteristics and demographics on well-being of elderly people using the SHARE.

A4. Robustness Checks

In table A1 we report the estimates by various socio-economic groups for robustness checks. In particular, in panel A we present the estimates by gender and we find a higher negative impact of migration on EURO-D in the males group, while the positive impact on earnings is higher in the females' regression compared to males. In panel B we present the estimates by age groups, and more specifically, we define two groups; those aged between 50 and 64 and those aged 65 and over. Overall, we find a negative relationship between net migration rates and EURO-D in both groups, but an insignificant association with the life satisfaction. Regarding the objective measures of well-being, we find a positive relationship between migration rates, earnings and the probability of being employed in the age group 50-64, while a negative association to the probability of being self-employed and earnings is found in the age group of 65 years old and over. One explanation for the negative impact on earnings could be that immigrants are substitutes to people of the latter group. We should notice that in the objective well-being regressions, the number of observations in the age group 65 and over is small, since the majority of the respondents are either retired or homemakers.

In Panel C we report the estimates by high and low education, where we define high education as those who have completed either a post-secondary non-tertiary education or tertiary education. We observe that while migration has an adverse effect on EURO-D for the low educated individuals, we find no impact for the high educated respondents. Furthermore, even though the former group reports lower levels of psychological well-being due to migration, they present a higher level of net employment earnings.

In panel D we distinguish by areas with high and low density of net migration rates. The results are interesting as we find now a significant negative relationship between life satisfaction and migration in NUTS 3 areas with low migrant population density, while a positive impact on life satisfaction and EURO-D is found in areas with high concentration of migrants. Moreover, respondents in those areas are more likely to be employed and to report higher levels of net earnings due to migration compared to the respondents located in areas with low concentration of migrants, where the estimated coefficients become insignificant. Therefore, this may contradict the beliefs that migration suppresses the wages and employment opportunities.

In panel E we distinguish the results by natives, which also includes the second generation migrants, and then we report the estimates separately by first and second generation migrants. We find no impact of the net migration rates on both objectives and subjective well-being of the first generation immigrants. On the other hand, we find a significant positive impact of migration on EURO-D when we consider only the second generation immigrants, and a positive impact on the net earnings of both natives and second generation migrants.

(Insert Table A1)

However, migrants may choose to locate in areas with employment opportunities, offering higher potential earnings, and higher levels of subjective well-being. To investigate this and provide further insights, we estimate the regressions by native and migrant status and distinguishing between stayers and movers. Furthermore, individuals may decide to move into areas with lower migration flows if they are negatively affected by migration. On the other hand, stayers may decide to stay in the same location whether benefiting from migration or are less risk averted or less affected by migration inflows. In table A2 we present the results by three groups: natives, including the second generation immigrants; only natives and first generation immigrants. In panels A and B we find a negative association between net migration rates and EURO-D, but a positive impact is reported on the net earnings. However, in panel B, when we consider only the natives, the migration

rate coefficient on the net earnings equation is insignificant for the sample of movers. For the first generation migrants we find no impact of the migration, confirming the findings in table A1.

An additional robustness check we considered was the quadratic term of the net migration rates to investigate possible turning points; however, the estimated coefficient was found insignificant in both objective and subjective well-being measures explored. This indicates that there is a linear relationship between net migration rates and well-being measures.

(Insert Table A2)

A5. Instrumental Variables Estimates

In table A3 we perform the 2SLS regressions by migrant status. It is interesting to see that both natives and second generation immigrants experience a raise in the net earnings due to increases in net migration rates, while the negative relationship between psychological well-being, expressed by the EURO-D indicator and the migration rates, is reported in the sample of natives in panel B. Interestingly, even though the natives report lower levels of psychological well-being, due to migration, this is not reflected on the net earnings. Nevertheless, this is explained by the fact that the subjective well-being measures are based on the total sample, while the objective well-being measures of self-employed and net earnings account only for the employed individuals. On the other hand, the EURO-D of second generation immigrants is positively affected by the migration rates. Another interesting point is that we find a significant impact of the net migration rates on the employment probability in the sample of the natives and the second generation immigrants.

Regarding the validity of our instruments, we need to test whether these are weak and good predictors of the endogenous variable; the net migration rates. In particular, in panel G of table 4 of the main text and in table A3 we report the Kleibergen-Paap *F-statistic* test from the first stage regression, where we regress each outcome explored (well-being) on the instruments discussed earlier. In line with the evidence and according to the rule of thumb that the value of *F-statistic* should be more than 10, we conclude that the instruments employed turn out to be strong predictors of the well-being outcomes in all regressions. Second, we report the Hansen J over-identification test derived from the 2SLS method. The joint null hypothesis is that the instruments used are valid, implying that they are exogenous, uncorrelated with the error term and thus, are correctly excluded

from the estimated regressions. According to the *p-value* associated with the Hansen J test we accept the null hypothesis in all cases and therefore, we conclude that the instruments are valid.

Overall, the 2SLS estimates are higher compared to those derived by the rest of the methods in tables 3-4 in the main text, indicating that our benchmark panel data models may exhibit some degree of downward bias. One explanation is that immigrants tend to sort themselves into areas characterized by strong performance of labour outcomes, bringing rise to demand, which further increases profits and job creation. This is likely to bias the true effect of migration on employment and wages and both net migration rates and labour outcomes may be correlated with unobserved economic characteristics in the area. However, in all cases we derive the same direction, which implies that the bias is due to magnitude. Regarding the negative impact of migration on natives' psychological well-being and the underestimation in the benchmarking regressions, it can be due to unobserved factors that affect well-being, such as social norms and culture. In particular, the omission of variables related to the culture and ethnic diversity, may lead to a downward bias of the migration impact on well-being, either negative for natives or positive for migrants. However, as we have seen in table A1, migration rates in areas with high density of immigration have a positive impact on well-being. Thus, to shed more insights we performed our regressions in the main text by groups of host countries.

(Insert Table A3)

A.6 Set-Point Theory (SPT) and Social Production Function (SPF) theory

As we have discussed in the conceptual framework in section A1, Set-Point Theory (SPT) argues that the well-being stays relatively stable, unless unanticipated events in life take place. Our findings are consistent with the SPT as we find a significant impact of the net migration rates on both objective and subjective well-being measures. Moreover, the SPT is based on assumptions and evidence that individuals have their own set-point of SWB and revert to that set-point once the psychological effects of major life events have dissipated (Headey, 2008; Easterlin and Switek, 2014). Therefore, it is argued that these unanticipated events, and also intervention polices, will have no lasting effects on well-being. However, this does not hold according to our findings, since we find an impact on both EURO-D and life satisfaction. In particular, while we found an impact on the EURO-D of natives and first generation immigrants in Southern Europe, a positive impact

on life satisfaction is reported in the Northern/Western and Eastern European countries. Hence, contrary to the SPT, net migration rates and migration integration policies and their impact on well-being can be of major importance and could potentially have a long-lasting impact.

Our findings confirm the Social Production Function (SPF) theory, since the objective well-being of old aged natives and second generation immigrants is influenced by the net migration rates. However, the impact on SWB varies, indicating the potential impacts of migration in terms of diversity, socio-cultural norms and the perception of the natives towards immigration, which differs across the groups of countries we explore. The findings also confirm the SPF theory when we consider the first generation immigrants, as the length of residence in the host country is positively correlated with well-being, given the fact that socio-economic and cultural integration process takes place over time with increasing exposure to the language and social norms of the host country (Berry et al., 2006). Furthermore, immigrants may improve their job skills, and over time are more likely to experience improvements in their occupational status and employment earnings (Banerjee and Phan, 2014; Kaushal, 2016), which in turn have a positive effect on SWB (Clark and Oswald, 1994; Blanchflower and Oswald, 2004). This is also shown by the positive coefficient of the interaction of the length of residence in the host country and migration rates, indicating that migration also brings benefits to the first generation immigrants in terms of economic growth, and in terms of diversity, social and cultural networks affecting their SWB.

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Table A1. Fixed Effects and Robustness Checks

	DV: Life Satisfaction	DV: EURO-D	DV: Employed	DV: Self-Employed	DV: Logarithm of Earnings
Panel A: Gender					
Male					
Net Migration Rate	0.0012 (0.0019)	-0.0038** (0.0017)	0.0005 (0.0004)	-0.0011* (0.0006)	0.0032** (0.0014)
No. observations	91,906	82,749	27,903	26,640	20,874
R-Squared	0.0413	0.0621	0.0299	0.0306	0.0592
Female					
Net Migration Rate	-0.0001 (0.0017)	-0.0015 (0.0018)	0.0002 (0.0003)	-0.0005 (0.0004)	0.0078** (0.0032)
No. observations	114,905	106,991	31,810	26,783	22,324
R- Squared	0.0342	0.0471	0.0264	0.0269	0.0402
B: Age Groups					
50-64 years old					
Net Migration Rate	-0.0827 (0.0656)	-0.0093** (0.0044)	0.0044** (0.0019)	-0.0129 (0.0130)	0.0108** (0.0047)
No. observations	92,347	84,456	55,787	42,475	33,051
R- Squared	0.0427	0.0370	0.0406	0.0383	0.0723
65 years old and over					
Net Migration Rate	0.0401 (0.0631)	-0.0042* (0.0022)	-0.0485 (0.0004)	-0.2021** (0.0912)	-0.0054* (0.0028)
No. observations	112,699	104,439	3,871	5,186	4,310
R- Squared	0.0361	0.0427	0.5141	0.1291	0.1743
Panel C: Education					
High Education					
Net Migration Rate	0.0017 (0.0022)	0.0016 (0.0039)	0.0011 (0.0035)	-0.0014** (0.0006)	0.0070* (0.0036)
No. observations	54,273	69,379	21,616	22,823	16,476
R- Squared	0.0400	0.0534	0.0234	0.0303	0.0543
Low Education					
Net Migration Rate	0.0005 (0.0015)	-0.0035** (0.0015)	0.00047 (0.0004)	-0.0005 (0.0004)	0.0059** (0.0029)
No. observations	151,856	120,361	38,097	30,602	26,722
R- Squared	0.0359	0.0502	0.0285	0.0216	0.0456
Panel D: Migration Density					
High Density					
Net Migration Rate	0.0042** (0.0020)	0.0034* (0.0019)	0.0013*** (0.0004)	-0.0011* (0.0006)	0.0109*** (0.0036)
No. observations	0.0209	0.0326	30,584	29,283	22,953
R- Squared	99,127	94,175	0.0175	0.0126	0.0429
Low Density					
Net Migration Rate	-0.0077** (0.0039)	-0.0007 (0.0006)	0.0004 (0.0006)	0.0004 (0.0012)	-0.0012 (0.0094)
No. observations	107,002	95,565	29,129	24,142	20,245
R- Squared	0.0437	0.0562	0.0336	0.0280	0.0511

Table A1 (Cont.) Fixed Effects and Robustness Checks

	DV: Life Satisfaction	DV: EURO-D	DV: Employed	DV: Self-Employed	DV: Logarithm of Earnings
Panel E: Natives and Migrants					
Natives and Second Generation Migrants					
Net Migration Rate	0.0004 (0.0014)	0.0024 (0.0015)	0.00068* (0.00036)	-0.0019*** (0.0005)	0.0091*** (0.0030)
No. observations	194,054	177,957	55,115	49,062	39,110
R- Squared	0.0348	0.0470	0.0421	0.0410	0.0792
First Generation Migrants					
Net Migration Rate	-0.0052 (0.0049)	-0.0041 (0.036)	0.0010 (0.0012)	0.0003 (0.0019)	-0.0060 (0.0125)
No. observations	19,180	17,481	5,424	4,885	4,088
R- Squared	0.0698	0.0863	0.1145	0.1469	0.1558
Second Generation Migrants					
Net Migration Rate	0.0029 (0.0038)	0.0086** (0.0033)	0.0018** (0.0009)	0.0005 (0.0016)	0.0084** (0.0038)
No. observations	36,133	35,132	11,827	10,272	7,857
R- Squared	0.0686	0.0887	0.1269	0.1084	0.1707

Robust standard errors within brackets, ***, ** and * denote significance respectively at 1%, 5% and 10% level

Table A2. Fixed Effects and Moving Status

	DV: Life Satisfaction	DV: EURO-D	DV: Employed	DV: Self-Employed	DV: Logarithm of Earnings
Panel A: Natives and Second generation					
Stayers					
Net Migration Rate	0.0004 (0.0015)	-0.0053*** (0.0015)	0.0004 (0.0003)	-0.0021*** (0.0005)	0.0067* (0.0036)
No. observations	168,900	156,427	49,096	43,902	35,416
R- Squared	0.0353	0.0487	0.0442	0.0436	0.0845
Movers					
Net Migration Rate	0.0006 (0.0052)	0.00938 (0.0056)	0.0007 (0.0011)	-0.0013 (0.0019)	0.0211* (0.0118)
No. observations	18,049	15,832	5,193	4,885	3,694
R- Squared	0.1179	0.1445	0.2457	0..2490	0.2694
Panel B: Only Natives					
Stayers					
Net Migration Rate	-0.0007 (0.0016)	-0.0074*** (0.0016)	0.0002 (0.0004)	-0.0023*** (0.0005)	0.0051* (0.0026)
No. observations	121,825	112,847	37,747	40,354	27,786
R- Squared	0.0329	0.0493	0.0452	0.0542	0.0802
Movers					
Net Migration Rate	-0.0032 (0.0056)	0.0022 (0.0097)	0.0003 (0.0011)	-0.0001 (0.0019)	0.0119 (0.0105)
No. observations	21,886	18,582	3,889	8,186	3,467
R- Squared	0.1118	0.1459	0.2260	0.2504	0.2556
Panel C: First Generation Migrants					
Stayers					
Net Migration Rate	-0.0048 (0.0053)	-0.0013 (0.0038)	-0.0002 (0.0012)	0.0008 (0.0024)	-0.0082 (0.0127)
No. observations	16,453	15,274	4,886	3,987	3,423
R- Squared	0.0761	0.0891	0.1363	0.1585	0.1957
Movers					
Net Migration Rate	0.0113 (0.0196)	0.0044 (0.0302)	0.0021 (0.0038)	0.0079 (0.0065)	-0.0522 (0.0711)
No. observations	2,727	2,207	558	898	665
R- Squared	0.2211	0.3374	0.3989	0.4253	0.5347

Robust standard errors within brackets, *** and * denote significance respectively at 1% and 10% level

Table A3. 2SLS Fixed Effects by Natives and Migrant Status

	DV: Life Satisfaction	DV: EURO-D	DV: Employed	DV: Self-Employed	DV: Logarithm of Earnings
Panel A: Natives and Second Generation Migrants					
Net Migration Rate	0.0068 (0.0080)	-0.0072 (0.0062)	0.0041* (0.0022)	-0.0015 (0.0010)	0.0108*** (0.0038)
No. observations	170,178	157,946	52,156	47,264	38,821
R- Squared	0.0150	0.0254	0.0118	0.0199	0.0242
F-Statistic Weak Instrument Test	464.713 [0.000]	1,157.387 [0.000]	154.598 [0.000]	458.387 [0.000]	432.997 [0.000]
Hansen J-Statistic for Endogeneity	3.816 [0.1484]	0.088 [0.9568]	4.088 [0.1311]	3.750 [0.1533]	5.052 [0.0766]
Panel B: Only Natives					
Net Migration Rate	0.0065 (0.0077)	-0.0115** (0.0056)	0.0044** (0.0018)	-0.0016 (0.0010)	0.0112*** (0.0028)
No. observations	137,044	127,678	42,583	38,065	31,224
R- Squared	0.0103	0.0256	0.0138	0.0103	0.0219
F-Statistic Weak Instrument Test	455.997 [0.000]	1,023.828 [0.000]	142.723 [0.000]	407.797 [0.000]	417.602 [0.000]
Hansen J-Statistic for Endogeneity	4.370 [0.1125]	2.700 [0.2593]	3.480 [0.1756]	3.223 [0.1978]	5.262 [0.0812]
Panel C: First Generation Migrants					
Net Migration Rate	-0.0185 (0.0233)	0.0054 (0.0196)	-0.0066 (0.0056)	0.0081 (0.0111)	-0.0058 (0.0117)
No. observations	24,774	22,321	6,122	4,155	3,026
R- Squared	0.0160	0.0361	0.0147	0.0290	0.0152
F-Statistic Weak Instrument Test	90.801 [0.000]	220.230 [0.000]	34.452 [0.000]	75.670 [0.000]	59.400 [0.000]
Hansen J-Statistic for Endogeneity	4.122 [0.1251]	2.982 [0.2782]	4.392 [0.1115]	3.588 [0.1723]	4.988 [0.0925]
Panel D: Second Generation Migrants					
Net Migration Rate	-0.0067 (0.0350)	0.0141** (0.0063)	0.0028* (0.0015)	0.0193 (0.0137)	0.0069* (0.0037)
No. observations	33,134	30,178	9,573	9,199	7,597
R- Squared	0.0390	0.0345	0.0267	0.0216	0.0957
Kleibergen-Paap F-Statistic Weak Instrument Test	47.176 [0.000]	148.505 [0.000]	20.293 [0.000]	74.768 [0.000]	71.638 [0.000]
Hansen J-Statistic for Endogeneity	1.615 [0.4461]	3.763 [0.1424]	0.565 [0.7940]	0.800 [0.6972]	4.574 [0.1080]

Robust standard errors within brackets, ***, ** and * denote significance respectively at 1%, 5% and 10% level