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Immigration and health outcomes: A study on native health perception and limitations in Europe☆

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ABSTRACT

This study examines the impact of immigration on the self-perceived health of natives in 16 European countries from 2006 to 2018. Utilizing data from the European Union Statistics on Income and Living Conditions (EU-SILC) and the European Union Labor Force Survey (EU-LFS), we focus on two health outcomes: natives' self-perceived health and health-related limitations in daily activities. Contrary to concerns, our findings indicate a positive influence of immigration on natives' health perception and a reduction in health-related limitations. Noteworthy variations by gender and age emerge, with more pronounced benefits in countries with lower human capital. These results underscore the potential health advantages of immigration, emphasizing the necessity for nuanced immigration policies that consider societal impact and call for a comprehensive evaluation of immigration's effects.

1. Introduction

In the last decades, developed countries have experienced an increasing flow of immigrants from less rich nations. According to EUROSTAT (2020), during the year 2018, a total of 3.9 million people immigrated to one of the EU-27 member states, of which 2.4 million immigrants were from non-EU-27 countries. As a consequence of this, a certain concern has grown in the public debate regarding the possibility that immigrants could worsen the living conditions of natives of the host countries.

A growing body of research has focused on understanding the impact of immigration on the health outcomes of native populations in Europe. One of those studies, conducted by Escarce and Rocco (2021) using data from the Study of Health, Ageing, and Retirement in Europe (SHARE), found that immigration leads to improved physical and mental health among older native Europeans. This is attributed to the increased supply and reduced cost of personal and household services needed for the care of the elderly.

Additionally, other studies have examined the impact of immigration on native workers' health. For example, Giuntella and Mazzonna (2015) found that immigration leads to a reduction in negative health outcomes among native Germans over time. Similarly, Giuntella et al. (2015) found that immigrants in the National Health Service (NHS) in England lead to reduced waiting times. In the United Kingdom, Giuntella et al. (2019) found that medium-skilled native workers reallocated towards occupations with a lower injury risk index score and lower physical burden in response to migration inflows between 2003–2013.

In Italy and Spain, Alacevich and Nicodemo (2019) and Bellés-Obrero et al. (2021) respectively, observed that the massive inflow of immigrants significantly reduced the number of workplace accidents. Furthermore, Sarria-Santamera et al. (2016) conducted a literature review on the impact of immigration on the health of native populations, leading to the conclusion that immigration does not worsen natives' health. Overall, the majority of the studies conducted at the country level provide evidence that immigration can have positive effects on the health outcomes of native populations in Europe.

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Importantly, these studies typically assume that immigration impacts native workers' health through the labor market channel. Immigrants often have a comparative advantage in manual-intensive jobs, while native workers have an advantage in communication-intensive jobs due to better language skills. As a result, an expansion in the supply of immigrants increases the relative returns to communication-intensive jobs, pushing native workers towards those jobs (Peri and Sparber, 2009; D'Amuri and Peri, 2014; Ottaviano et al., 2013; Peri, 2012). These labor market adjustments can lead to a reallocation of occupational physical burden and occupational health risks. Importantly, evidence on wages and unemployment outcomes also suggests that immigration does not deteriorate natives' employment conditions (Ottaviano and Peri, 2012; Esposito et al., 2020)

Additionally, immigrants are more likely to work in low-quality jobs with riskier tasks and more difficult work schedules than native-born workers (Giuntella, 2012; García-Serrano and Hernanz, 2022). On the other hand, native-born workers, particularly males with medium levels of education, tend to be pushed towards jobs characterized by lower physical intensity and injury risk (Giuntella et al., 2019).

Furthermore, these studies should consider the fact that immigrants may face additional barriers to accessing healthcare, and may also be less likely to use healthcare services due to a lack of knowledge about the healthcare system or fear of discrimination. These factors can also contribute to the health outcomes of immigrants and native-born populations.

Overall, these studies suggest that immigration can have positive effects on the health outcomes of native populations in industrialized countries, but more research is needed to fully understand the complex relationship between immigration and health and to consider other potential factors that may affect health outcomes.

In this paper, we study how immigration affects natives' self-perceived health in 16 European countries, using data from the European Union Statistics on Income and Living Conditions (EU-SILC) and The European Union Labor for Survey (EU-LFS) from 2006 to 2018. We analyze two health outcomes: the perception of bad health experienced by natives, and if there is any limitation in the performance of daily activities due to health issues. To the best of our knowledge — no study has examined the effect of immigration on the health of the native population at the cross-country level. Therefore, we attempt to fill this gap by focusing on Western European countries and considering the effects of heterogeneity by gender, age, and human capital levels. Native health was measured through the information contained in the EU-SILC self-evaluated Health Status (SHS) based on the Minimum European Health Module (MEHM). Although its subjective nature, SHS is often one of the health outcomes of interest in empirical analyses as it is a valid predictor of morbidity and mortality (Schnittker and Bacak, 2014). Furthermore, some studies showed a significant association between this variable and the employment status of European citizens (Bacci et al., 2017; Tøge and Blekesaune, 2015). Similarly, a remarkable association was also found between activity limitations due to bad health and socio-economic factors. Although this variable is normally used to measure disability and, hence linked to biological characteristics, it may be reasonably related to the mechanisms here considered as well. In fact, some studies showed that persons with a lower socioeconomic position spend more years with activity limitations due to bad health (Nusselder et al. 2020; Cambois et al., 2019).

In order to estimate the causal impact of immigrants on native outcomes we use an instrumental variable (IV) approach. We employed an IV widely used in the immigration-impact scholarship (e.g., Peri and Sparber (2009) and Cattaneo et al. (2013)) and initially proposed by Altonji and Card (1991). This instrument is based on the assumption that the distribution of immigrants of different nationalities across countries derives from historical settlements. Specifically, since information on host countries circulates better within ethnic networks and immigrants generally prefer to live near nationals, new immigrants are more likely to move to the same country in which previous immigrants of the same nationality reside. Therefore, assuming that annual levels of the natives' poverty risk measured in Western Europe over the 2006–2018 period do not vary systematically with foreigners' early settlements, the instrument can be used as a reliable predictor of the proportion of immigrants observed year by year in each country.

We found that immigration improves natives' health perception and reduces health limitations. Also, the effects on health perception vary by gender and age. In particular, the evidence presented in this paper suggests that immigration can have a positive impact on the health perception of native populations, particularly in countries with lower levels of human capital. This highlights the importance of considering the potential health benefits of immigration when making decisions about immigration policy and the importance of looking at the bigger picture when evaluating the overall impact of immigration on society.

The paper is organized as follows. Section 2 provides a discussion of the data, variables, and identification strategy. Section 3 presents the main results of the paper. Concluding remarks are given in Section 4.

2. Data and identification strategy

2.1. Data and variables

To study the impact of immigration on health, we assemble an aggregate panel dataset composed of EU-15 countries (namely, Austria, Belgium, Germany, Denmark, Finland, France, Greece, Italy, Netherlands, Portugal, Spain Sweden, and the United Kingdom)[1] plus Iceland, Norway, and Switzerland, annually observed for the period 2006–2018.

The health outcomes come from the European Union Statistics on Income and Living Conditions (EU-SILC). More precisely, we focus on the health module called the Minimum European Health Module (MEHM) which collects information on self-perceived health and activity limitations due to bad health. We focus on the self-perceived health concept which is operationalized by a question on how a person perceives their health, in general, using one of the answer categories: very good/good/fair/bad/very bad. The activity limitation concept is operationalized by using the Global Activity Limitation Indicator (GALI) to observe limitations in activities people usually do because of one or more health problems. The limitation should have lasted for at least the past six months and is based on three categories: 'severely limited', 'limited but not severely', or 'not limited at all'. Our main outcomes are the percentage of people reporting (i) bad/very bad health and (ii) severely limited/limited but not severely.[2] These percentages were first computed for the whole population of natives and then broken down by gender (woman and man) and age groups (working-age 16–64 and old and retired, over 65).

On the other hand, we have employed the harmonized European Union Labor Force Survey (EU-LFS) as our data source for constructing explanatory variables. This survey contains harmonized country-specific labor force surveys at the European level (for more information see Eurostat 2019). Our key explanatory variable is based on the

[1] From the EU-15 cluster we excluded Ireland and Luxemburg due to small sample sizes and imprecise figures.

[2] GALI is an indicator of participation restriction, which refers to a limitation in the performance of roles and social involvement in activities such as work, leisure, parenting, housework, and social life. Some papers used as a broad indicator of disability, see Nusselder et al. (2021).

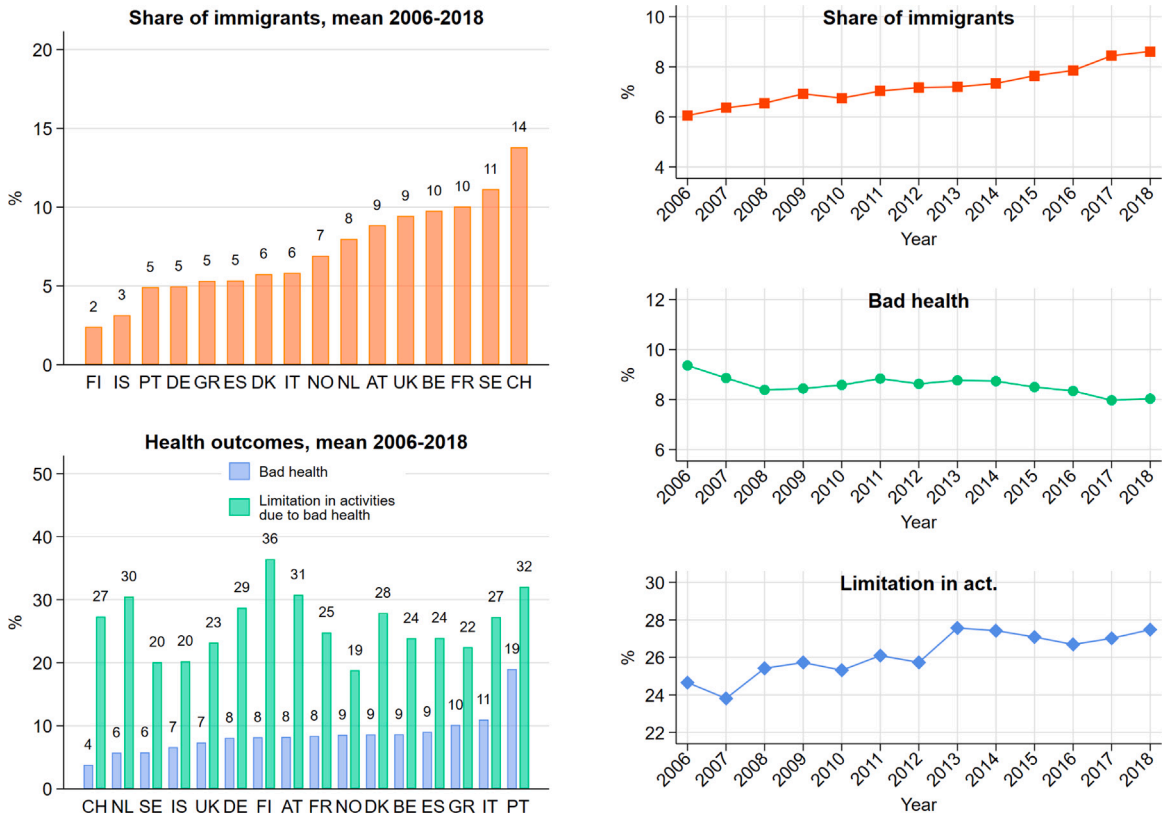

Fig. 1. Descriptive statistics.

overall proportion of immigrants by country of origin (individuals born abroad) present in the host country. Both outcome and explanatory variables were computed from individual micro-data and aggregated into country-year percentages employing their corresponding survey weights. Furthermore, we have also included six time-variant control variables related to socio-economic and age-demographic changes in the host countries. Namely, (i) the dependency ratio, i.e. the proportion of older individuals in relation to the working-age population, derived from EU-LFS; (ii) the employment protection legislation index which captures the rigidity of the labor market and the possibility of migrants working in the host country, obtained from the Organization for Economic Co-operation and Development database (OECD, 2019); (iii) a human capital index based on years of schooling and returns to education; (iv) the number of persons engaged in economic activities; (v) the average annual hours worked by persons; (vi) share of household consumption adjusted for the purchasing power parity. The last four variables were obtained from the Penn World Table version 10.0, which is one of the richest harmonized databases containing information on relative levels of income, output, input, and productivity for cross-country comparisons (see Feenstra et al. (2015)). The linkage of these different data sources was performed using the country and year variables.

The upper panel of the left side of Fig. 1 shows the percentage of immigrants in each country for the mean of the period 2006–2018. The countries with the highest number of immigrants are Switzerland, Sweden, France, Belgium, and the United Kingdom. On the other end of the spectrum, those with the lowest number of immigrants are Finland, Iceland, and Portugal, followed by Greece, Spain, and Germany.

Interestingly, when we examine health outcomes in the lower panel of the left side of Fig. 1, we find that Switzerland, Sweden, and the United Kingdom also have low levels of self-reported poor health. However, Mediterranean countries such as Portugal, Italy, Greece, and Spain have the highest levels of poor health. When we examine limitations in health activities due to poor health, we observe a different pattern. Countries with the highest levels of limitation in activities due to poor health are Finland, Portugal, Austria, and the Netherlands.

In terms of changes over time, as seen on the right top side of Fig. 1, there is an increasing trend in the overall percentage of immigrants in these countries from 2006 to 2018. Additionally, there is a decreasing percentage of people reporting poor health, but an increasing percentage of people experiencing limitations in activities due to poor health, as seen on the right side of Fig. 1.

Moreover, we also look at the (unconditional) correlation between the two health outcomes and the share of immigrants. Fig. 2 shows a negative correlation between the share of immigrants and bad health (left side panel) and limitation in activities due to bad health (right side panel). The largest is the share of immigrants in the sample, the lower is the probability of reporting bad health. This descriptive evidence already indicates that the largest numbers of immigrants might not have any negative consequence on the self-reported health of natives. At best, it could actually improve their health. In the next section, we estimate the impact of immigration on health outcomes through OLS regression with country–year fixed effects and Instrumental Variables.

2.2. Identification strategy

Our identification strategy consists of a time-series analyses with country and year-fixed effects. That is, we first estimate the following OLS regression:

$$y_{c,t} = \phi + \beta f_{c,t} + \phi_c + \gamma_t + \delta X_{c,t} + u_{c,t} \quad (1)$$

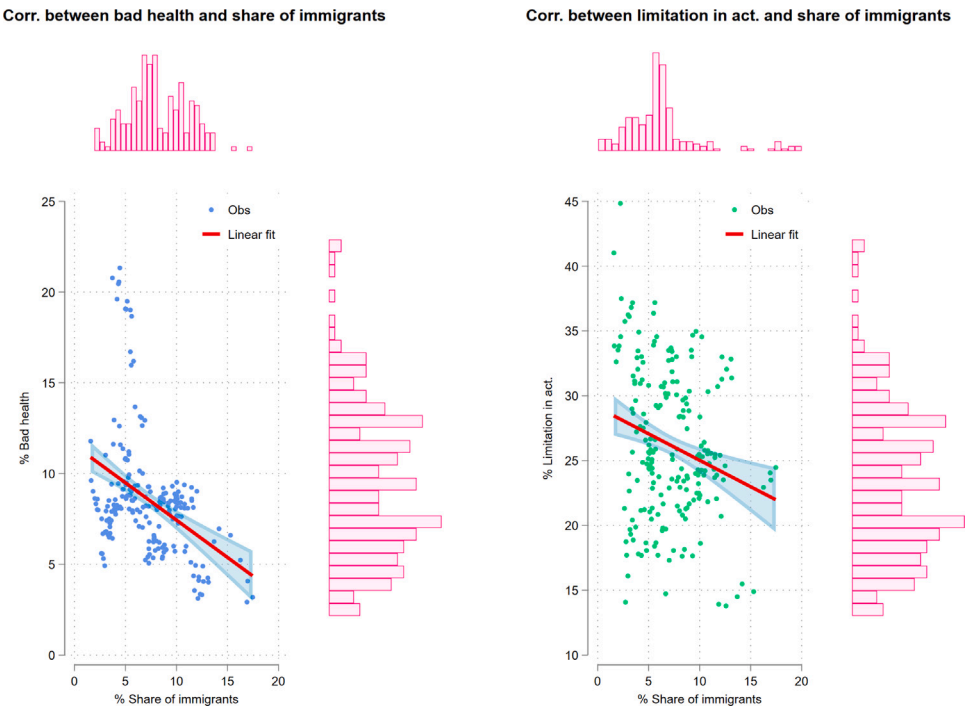

Fig. 2. Correlation between health outcomes and share of immigrants.

where $y_{c,t}$ indicates the health outcome and $f_{c,t}$ the key explanatory variable in the country (c) and year (t) while ϕ_c and γ_t are country and year fixed effects, respectively, $\delta X_{c,t}$ is a vector with time-variant control variables, and $u_{c,t}$ is the error term. However, the OLS estimator could be biased due to omitted variables, measurement error, or reverse causality. Migrants may choose to settle in certain administrative provinces based on factors related to the level of occupational health and safety in those regions. For example, areas that experience a growing demand for labor may attract more migrants, but this may also be associated with a higher proportion of workers that use the health system more. These factors may contribute to crowding effects on the health system for example. It is possible that the correlation between immigration and health outcomes is not causal but a common factor that makes both happen. In this way, the propensity of migrants to locate in certain administrative provinces could be influenced by the level of health and safety in those regions. It is important to note that this can be a complex relationship and it is crucial to consider the potential endogeneity issues when analyzing the relationship between migrant settlement and occupational health and safety. In order to address the issue of endogeneity in our analysis of the relationship between the share of resident migrants in the local labor market and the local labor market conditions, we use a strategy known as 'shift-share instrumentation'. This approach, which was first proposed by Altonji and Card (1991), Peri and Sparber (2009), and Cattaneo et al. (2013), and since that moment has been widely used in the literature, involves using historical patterns of settlement and migration networks as an instrument for the current share of migrants in the local labor market.

Hence, the idea behind this approach is that the initial distribution of migrants across different regions is not related to current labor market conditions, and therefore does not reflect any potential bias in our analysis. By constructing an instrumental variable based on historical patterns of settlement by area of origin, we are able to capture variation in the share of migrants that is driven by migration networks rather than by current location-specific characteristics. This allows us to estimate the causal effect of the migrant share on local labor market outcomes with less bias.

Therefore, we also estimated the following structural regression:

$$\hat{f}_{c,t} = \phi + \beta \hat{z}_{c,t} + \phi_c + \gamma_t + \delta X_{c,t} + u_{c,t} \tag{2}$$

$$y_{c,t} = \phi + \beta \hat{f}_{c,t} + \phi_c + \gamma_t + \delta X_{c,t} + \epsilon_{c,t} \tag{3}$$

where our shift-share instrument $z_{c,t}$ is derived as follows:

$$\begin{aligned} \hat{F}^o_{c,t} &= F^o_{c,2007} + \sum_{s=2008\ldots t}^{\left(\Delta F^o_{c,t}\right)} \Delta F^o_{c,s} \\ \hat{F}^o_{c,t} &= \hat{F}^o_{c,t} * sh^o_{c,2006} \\ \hat{F}_{c,t} &= \sum_o \hat{F}^o_{c,t} \\ z_{c,t} &= \left(\hat{F}_{c,t} / \mathrm{Pop}_{c,t}\right) \end{aligned} \tag{4}$$

The shift-share IV was derived by combining EU-LFS data with information from OECD International Migration Database. We collected from OECD the stock of foreign people by nationality between 2006 and 2018 and from EUROSTAT the stock of native people in 2006. Hence, we computed the population of immigrants by area of origin in 2007 using eight large geographic groups, o. Specifically, (i) Africa; (ii) Asia; (iii) Central and South America; (iv) North America; (v) Oceania; (vi) Eastern Europe; (vii) Western Europe; (viii) Middle east. Then, we used the data on the aggregate yearly stock of immigrants from those eight areas of origin into the 16 considered European countries, c, available until 2018, and we constructed the overall growth rates of each area-of-origin immigrant group, $\left(\Delta F_{c,t}\right)$. We then multiply the initial (2006)

Table 1
Bad health and immigration results.

	(1) All	(2) Woman	(3) Man	(4) Age 18–64	(5) Age +65
OLS	0.05	0.07	0.04	0.04	0.10
	(0.05)	(0.06)	(0.06)	(0.04)	(0.14)
IV	−0.11	−0.13	−0.10	−0.10	−0.14
	(0.14)	(0.16)	(0.13)	(0.10)	(0.30)
N	208	208	208	208	208
Underidentification	42.9	42.9	42.9	42.9	42.9
Weak identification	61.1	61.1	61.1	61.1	61.1

Heteroskedastic and autocorrelation-consistent standard errors in parentheses.
More precisely, we employed panel-corrected standard errors (PCSE) with first-order autocorrelation AR(1) within panels.
OLS & IV models include country-year fixed effects and time-variant controls.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 2
Limitation in activities due to bad health and immigration results.

	(1) All	(2) Woman	(3) Man	(4) Age 18–64	(5) Age +65
OLS	−0.70***	−0.76***	−0.65***	−0.51**	−1.15***
	(0.26)	(0.27)	(0.25)	(0.20)	(0.43)
IV	−1.34***	−1.50***	−1.21***	−0.94***	−2.62***
	(0.39)	(0.41)	(0.38)	(0.34)	(0.65)
N	208	208	208	208	208
Underidentification	42.9	42.9	42.9	42.9	42.9
Weak identification	61.1	61.1	61.1	61.1	61.1

Notes: Heteroskedastic and autocorrelation-consistent standard errors in parentheses.
Precisely, we employed panel-corrected standard errors (PCSE) with first-order autocorrelation AR(1) within panels.
OLS & IV models include country-year fixed effects and time-variant controls.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

number of immigrants in each country by the overall growth rate of that area-of-origin immigrant group. Finally, we aggregated across areas of origin within each country to calculate the total imputed number of immigrants in the country in that year, $\hat{F}_{c,t}$. This number is divided by the total (initial natives plus imputed migrants) population, $Pop_{c,t}$ to obtain the imputed migrants' share.

To understand the impact of immigration on natives' self-perceived health, we are particularly interested in looking at the sign of the coefficients and their magnitude. Negative effects will indicate that natives are benefiting from migrants while null effects will indicate no change in the health conditions of natives; while positive effects will indicate a deterioration of the health conditions. Therefore, negative and null effects will suggest that migrants do not worsen the health conditions of natives. However, Jaeger et al. (2018) have recently contended that this instrumental variable may be biased because of the intertwining of short-term and long-term effects due to a delayed adjustment in the labor market caused by lagged mobility. As a robustness check, in the Appendix (Figs. A.1 and A.2) we run a series of OLS and IV models using lagged immigration shares. Due to the limited observation window, we lag this variable between 1 and 5 years. The results remain very similar to those presented in the main text, although the strength of the IV diminishes as the number of lagged years increases.

3. Results

In Table 1 we show the main results for the bad health outcome. The upper part of the table reports the coefficients of the OLS model while the lower part those for the IV. The first column (1) is the change in the percentage of people reporting bad health for the whole population of natives, the second column (2) for women, the third (3) for men, and the last two columns (4 & 5) for natives in the age groups 18–64 (working-age population) and over 65 (retired and old age populations), respectively. In the bottom part of the table, we also reported the number of country-year (N), the under-identification, and weak identification tests of our IV, which in both cases (Kleibergen-Paap rk LM statistic = 42.9 and Cragg-Donald Wald F statistic = 61.1) indicate that shift-share instrument is a good predictor of migration. All the presented coefficients in the table represent percentage changes (i.e., both outcomes and explanatory variables are expressed in percentages). Overall our OLS models with country and year–fixed effects show extremely small positive effects on immigration on the probability of reporting bad health (all = .05; woman = .07; man = .04; age 18–64 = .04 and age over 65 = .10) and none of these are statistically significant. The IV estimates point in a different direction with small negative effects (all = .11; woman = −.13; man = −.10; age 18–64 = −.10; and over 65 = −.14) and as before none of them were statistically significant. Overall, these results suggest that higher levels of immigration do not affect natives' health.

We then look at the limitation in activities due to bad health results which are displayed in Table 2. The first column (1) is for the whole population of natives, the second (2) and third (3) for gender (woman and man), and the fourth (4) and the fifth (5) for the working age groups 18–64 and over 85. As before, the OLS results are displayed in the upper part of the table while the IV ones are in the lower part. In this case, we found a reduction in the percentage of people reporting limitations in activities due to bad health for the overall population (OLS = −.70, IV = −1.34) and significance at the 95% of confidence for both coefficients. Further, we find a larger and statistically significant reduction in women (OLS = −.76, IV = −1.50) than in men (OLS = −.65, IV = −1.21) although standard errors show some potential overlaps between these. Finally, in terms of age, we observe that for the age group 18–64, the OLS is −.51 and IV = −.94 while for those aged over 65 OLS is −1.15 and IV = −2.62, suggesting that older people, compared to a working-age group, considerably reduced their limitation in activities due to bad health, although both groups seem to benefit from migration. Importantly, the IV shows larger negative effects than the OLS one and is quite substantive in magnitude. For example, the average for the whole population in limitation in activities due to bad health is 26%, a change of 1.34% in the IV corresponds to a 5% reduction.

In addition, we explored potential mechanisms that could explain our results. In other words, we also investigated whether the reduction in the self-reported health issues could be stronger in countries with lower/higher levels of human capital/skills. The idea behind this hypothesis is that immigration should have more beneficial effects on natives' health in countries where the level of human capital and skills are lower because migrants are more likely to take more risky and unhealthy jobs pushing natives towards better occupational positions and this should be particularly important for old people because migrants are also more likely to take jobs in the care sector. That is, we hypothesize that in lower human capital countries, there is more room for natives' occupational mobility towards less risky jobs while, in countries with high levels of human capital, this is not the case because they are already employed in high-skilled jobs. For this purpose, we re-run our OLS models for the whole population of natives stratifying by a

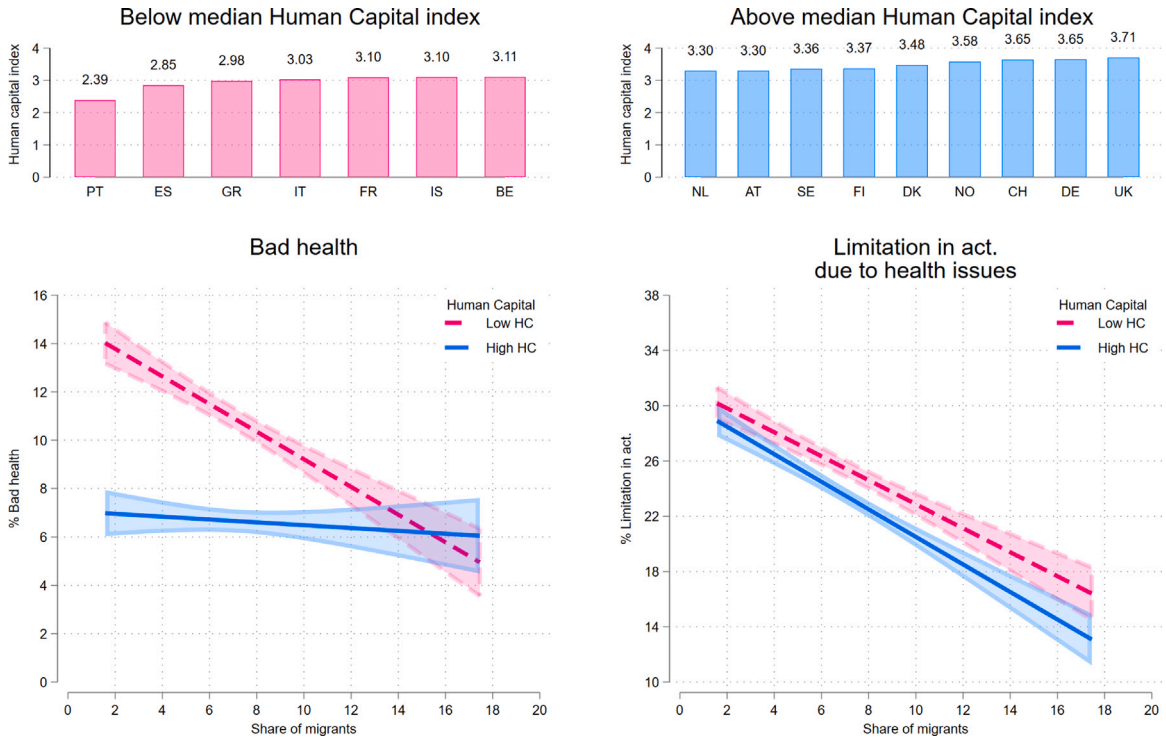

Fig. 3. Health outcomes results stratified by human capital index, OLS models.

dummy variable that identifies countries below and above the median of the human capital index. Fig. 3 in the upper panel shows the ranking of countries in the low (pink bars) and high (blue bars) human capital clusters. Those countries with lower levels of human capital are the Mediterranean ones plus Belgium and Iceland, while those with higher levels are Austria, the Netherlands, Germany, Switzerland, the United Kingdom, and the Nordic countries: Sweden, Finland, Denmark, and Norway. Overall, we do find that immigration has a stronger effect on the perceived health outcomes in countries with lower levels of human capital than in countries with higher levels. However, for limitation in activities due to bad health, immigration seems to have very similar beneficial effects for both clusters of countries.

We now investigated these heterogeneities through the IV approach. Table 3 shows the results for bad health for low and high human capital (HC) clusters (columns 1 and 2) and limitation in activities due to bad health again for low and high human capital clusters (columns 3 and 4). Despite having a weaker IV due to the small sample sizes in each human capital cluster, these results confirm the pattern observed in the OLS models of 3 but with larger effects. In the case of bad health, for low human capital countries, we find a reduction of −1.24 (significant at 95% level) compared to −0.01 (not significant) in the high human capital countries. While for limitation in activities, we find a reduction of −2.21 (significant at 90% level) for low human capital and −1.51 (significant at 95% level) for high human capital countries.

Next, we focus on the differences in health outcomes across age groups for each cluster of countries defined by their levels of human capital. This indicator is already harmonized for cross-country comparison by the Penn World Table and it is based on the average years of schooling from Barro and Lee (2013) and Cohen and Leker (2014) and the rate of return to education, obtained from Mincer equation

Table 3
Health issues and immigration results stratified by low and high human capital clusters. IV models.

	(1) Bad health low HC	(2) Bad health high HC	(3) Lim act. low HC	(4) Lim act. high HC
IV	−1.24**	−0.01	−2.21*	−1.51**
	(0.51)	(0.14)	(1.21)	(0.65)
N	91	117	91	117
Underidentification	14.9	15.8	14.9	15.8
Weak identification	16.6	17.1	16.6	17.1

Notes: Heteroskedastic and autocorrelation-consistent standard errors in parentheses. Precisely, we employed panel-corrected standard errors (PCSE) with first-order autocorrelation AR(1) within panels.
OLS & IV models include country-year fixed effects and time-variant controls.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

estimates around the world (Psacharopoulos, 1994). This indicator captures differences in terms of qualifications and skills for a given country and year, representing the productivity and economic growth of a given country. The upper panel of Table 4 shows the results for the bad health outcome for the working-age (16–64), in low and high human capital countries (columns 1 and 2) and old age (over 65) populations in countries with high levels of human capital (columns 3 and 4). The lower panel of Table 4 shows instead the results for the limitation in health outcomes for the working-age (16–64), in low and high human capital countries (columns 5 and 6) and old age (over 65) populations in countries with high levels of human capital (columns 7 and 8).

These analyses show that countries with low levels of human capital exhibit beneficial effects for both the working age group (−.64) and

Table 4
Bad health and limitation in activity due to bad health across age groups and immigration stratified by low and high human capital clusters. IV models.

	(1) Bad health age 16–64 low HC	(2) Bad health age 16–64 high HC	(3) Bad health age +65 low HC	(4) Bad health age +65 high HC
IV	−0.64**	−0.06	−3.38***	0.14
	(0.31)	(0.12)	(1.20)	(0.26)
N	91	117	91	117
Underidentification	14.9	15.8	14.9	15.8
Weak identification	16.6	17.1	16.6	17.1
	(5) Lim. act. age 16–64 low HC	(7) Lim. act. age 16–64 high HC	(8) Lim. act. age +65 low HC	(6) Lim. act. age +65 high HC
IV	−0.59	−1.00*	−6.66***	−3.08***
	(1.07)	(0.55)	(2.25)	(1.06)
N	91	117	91	117
Underidentification	14.9	15.8	14.9	15.8
Weak identification	16.6	17.1	16.6	17.1

Notes: Heteroskedastic and autocorrelation-consistent standard errors in parentheses.
Precisely, we employed panel-corrected standard errors (PCSE) with first-order autocorrelation AR(1) within panels.
OLS & IV models include country-year fixed effects and time-variant controls.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

old age groups (−3.38), both effects are significant at 95% level of confidence. However, these effects are consistently larger for the old age group. On the other side, for high human capital countries, we do not find any evidence that the working-age and old-age groups benefit or worsen their perceived health. Interestingly, for the limitation in activity due to health outcomes we find a significant reduction for both clusters of countries and the old age groups (low HC = −6.66; high HC = −3.08); although the effects are larger for the old age people in the low human capital group. We also find a smaller reduction for the working age groups in both clusters but not statistically significant at conventional levels for the low human capital (low HC = −.59) and only significant at the 10% level for the high human capital group (high HC = −1).

4. Discussion and conclusions

The study's findings support the idea that immigrants improve the health status of natives. However, the relationship between immigration and health perception and activity limitation due to bad health is complex and multidimensional and other factors such as socio-economic status, access to healthcare, and cultural factors may also play a role. Overall, the study provides important insights into the relationship between immigration and health perception and limitation in the European Union after accounting for the endogeneity and exploring heterogeneity by gender, age groups, and human capital. In particular, our results indicate that immigration does not worsen the self-perceived health of native-born individuals and can improve the conditions of those who experience limitations in daily activities due to health problems, suggesting that policies that support the integration of immigrants may lead to improved health outcomes for all members of society.

Therefore, our analysis of sixteen European countries has revealed that immigration can have beneficial effects not only on the labor market but also on the health outcomes of native populations. These results are in line with those presented by Escarce and Rocco (2021). However, we have also found that these effects can vary depending on the age composition and level of human capital. In countries with low levels of human capital, all natives seem to improve their health from immigration but it is particularly important for old age people.

However, further research is needed to fully understand the mechanisms that drive these results. Unfortunately, aggregate data does not allow us to deeply delve into why countries with low levels of human capital experienced larger beneficial effects in health outcomes than those with high levels. One potential explanation could be that in these countries, many immigrants work in the care and service sector rather than in manufacturing, leading to an increase in leisure time for natives and a reduction in family duties. This could be a factor that contributes to the improvement of health outcomes for the native population, especially those in old age.

In sum, the findings of this study show that concerns regarding the deterioration of natives' health due to immigration are not supported by our empirical analysis. Actually, migrants seem to be an important factor, especially in improving the health conditions of old people. Therefore, in an increasingly globalized and multicultural context, it would be important that governments implement more efficient policies to foster integration.

Declaration of competing interest

The authors declare none conflict of interest.

Data availability

The authors do not have permission to share data.

Replication Package Immigration & Health (Original data) (Mendeley Data).

Appendix

See Figs. A.1 and A.2.

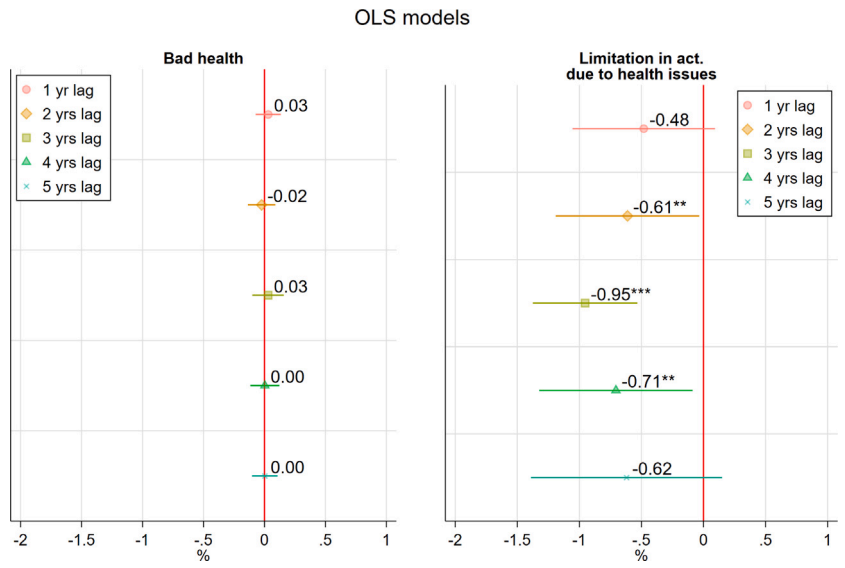

Fig. A.1. Robustness check, Lagged OLS models. Notes: Heteroskedastic and autocorrelation-consistent standard errors in parentheses. Precisely, we employed panel-corrected standard errors (PCSE) with first-order autocorrelation AR(1) within panels. OLS models include country-year fixed effects and time-variant controls. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. 1 yr lag N = 192; 2 yr lag N = 176; 3 yr lag N = 160; 4 yr N = 144; 5 yr N = 128.

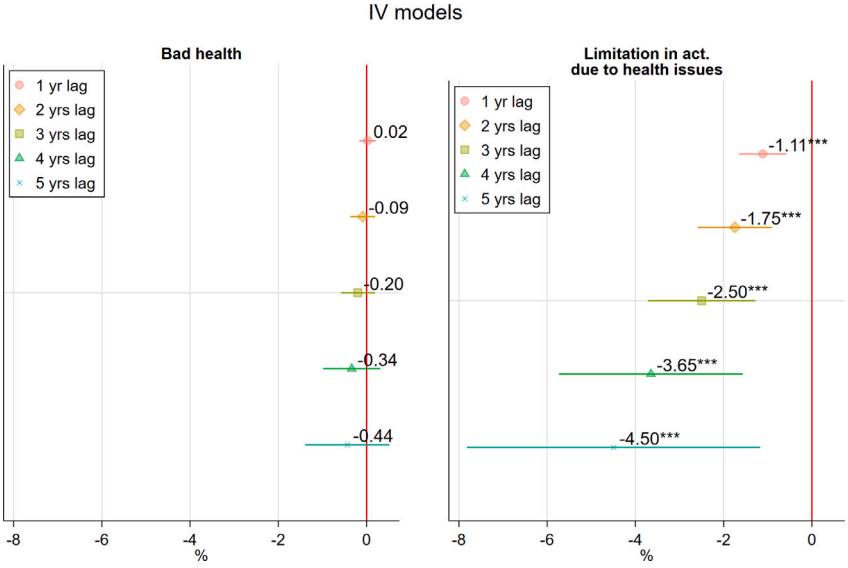

Fig. A.2. Robustness check, Lagged IV models. Notes: Heteroskedastic and autocorrelation-consistent standard errors in parentheses. Precisely, we employed panel-corrected standard errors (PCSE) with first-order autocorrelation AR(1) within panels. IV models include country-year fixed effects and time-variant controls. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Cragg-Donald Wald F stat and N: 1 yr lag = 122.75, N = 192; 2 yr lag = 34.3, N = 176; 3 yr lag = 18.7, N = 160; 4 yr = 9.9, N = 144; 5 yr = 4.7, N = 128.

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