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Research Article

The effect of migration and time spent abroad on migrants' health: A home/host country perspective

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Abstract

BACKGROUND
It is widely recognized that migrants are generally healthy upon arrival, but for several reasons, a longer length of stay abroad can have detrimental effects on health. Empirical evidence suggests the use of different comparison groups (natives in the destination country; co-nationals in the origin country) to analyse migrants' health, depending on research aims and data availability.

OBJECTIVE
Using data from two nationally representative surveys, the Italian survey Social Condition and Integration of Foreign Citizens (2011–2012) and the Albanian Living Standard Measurement Survey (2012), this study aims to (1) analyse health differences between migrants abroad and non-migrants in their origin countries, focusing on the Albania–Italy migration corridor; and (2) assess health differences among Albanian migrants living in Italy according to their length of stay.

METHODS
We apply propensity score matching analysis to compare health outcomes between the two groups and use logistic regression models to investigate the effect of the length of stay in Italy on migrants' health.

RESULTS
Our findings show that migrants exhibit poorer health compared to their co-nationals in the origin country and, in line with previous studies, that longer residence in Italy is associated with health deterioration.

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CONTRIBUTION

This study is the first in Italy to contribute to a more comprehensive understanding of the relationship between migration and health. It does so by adopting a comparative home/host country perspective.

1. Introduction

Migration is a life event that generates constraints and opportunities. Apart from those who move for humanitarian reasons, migrants are a selected group of their origin populations, and upon arrival they are in better health than the host population. However, over time their health tends to deteriorate due to several constraints encountered in the destination country (Beiser 2005; Jasso et al. 2004). Since the early American studies in the 1990s addressing the Hispanic paradox[4] among Latino migrants (Abraído-Lanza et al. 1999), the intersection of health and migration has been broadly analyzed in the literature. Many studies have relied on cross-national data comparing migrants with natives in the host countries to explain migrants' health advantage (Aldridge et al. 2018; Shor and Roelfs 2021). Although the native population is a useful comparative group with which to examine migrants' adaptation and potential health care discrimination against them in the host country, it is not the most appropriate counterfactual when analysing the effect of being a migrant on health (Arsenijevic and Groot 2018; Diaz, Zeng, and Martinez-Donate 2018; Rubalcava et al. 2008). A few studies have specifically analysed differences between migrants abroad and their co-nationals in the origin countries, and the findings point to mixed conclusions (Delaney, Fernihough, and Smith 2013; Jasso et al. 2004; Kennedy et al. 2015; Rubalcava et al. 2008; Gruber 2020).

In the research reported in this paper, we followed the latter approach, focusing on the health status of Albanians residing in Italy and comparing it with that of their co-nationals residing in Albania.

Italy is an interesting case study. It changed into an immigration country in the early 1990s and experienced a sharp increase in migrant numbers, from 356,159 migrants in 1991 (0.6% of the total population) to 5,171,894 in 2021 (8.7%) (ISTAT 2022). Nonetheless, research on migrants' health in Italy is still very limited. Most of the existing studies have focused on mortality and have found that, despite migrants' poor socioeconomic conditions, they are characterized by lower all-cause mortality rates than those of Italians (Alicandro et al. 2020; Fedeli et al. 2015; Pacelli et al. 2016; Trappolini et al. 2021). Some scholars have found evidence for the salmon bias – the tendency of

[4] The fact that all-cause mortality rates are lower among Hispanic migrants than among non-Hispanic whites despite their worse socioeconomic and health statuses.

older individuals with disproportionately poor health to return to their countries of origin[5] – showing differences in mortality rates at older ages between Italians and some specific migrant communities (Romanians, Albanians, and Moroccans). Fewer studies have examined health care service utilization (Di Napoli et al. 2020; Rimoldi and Terzera 2022; Trappolini et al. 2020), and they have shown heterogeneity among migrant groups. Research has also focused on multiple health outcomes (self-rated health [SRH], chronic illnesses, and functional limitations) of migrants versus Italians, highlighting better health and fewer chronic diseases for migrants and a health convergence process over time (Caselli, Loi, and Strozza 2017; Loi and Hale 2019; Trappolini and Giudici 2021). To the best of our knowledge, research that compares migrants with non-migrants in the origin country is still lacking in the Italian context.

Using two nationally representative surveys – the Italian Social Condition and Integration of Foreign Citizens (SCIF, 2011–2012) and the Albanian Living Standard Measurement Survey (LSMS, 2012) – the aim of this study is twofold: first, to measure health differences between Albanian migrants living in Italy and their co-nationals living in Albania; second, to assess health differences among Albanian migrants living in Italy according to their length of stay. Our study contributes to the existing literature on migrants' health in two ways. First, it provides a comparative analysis between health of migrants in a destination country and health of non-migrants in the country of origin; the latter group is considered by the literature to be the most appropriate one for when analysing the effect of being a migrant on health (Arsenijevic and Groot 2018; Constant and Milewski 2021; Diaz, Zeng, and Martinez-Donate 2018; Rubalcava et al. 2008). We then investigate the health of Albanians living in Italy, who represent an important and neglected migrant group in health research. Indeed, to the best of our knowledge, this is the first study that investigates their health conditions.

The rest of this paper is structured as follows. Section 2 describes the Albanian context and the process of immigration to Italy. Section 3 provides an overview of the literature on health differences between migrants abroad, natives, and non-migrants in the origin country. Section 4 describes data and methods. It is followed by empirical results in section 5. The last section discusses our findings and draws conclusions.

[5] This involves a negative selection in return migration, meaning that unhealthy and older migrants tend to return to their countries of origin upon retirement, when illness becomes serious, or in anticipation of death. Return migration events or deaths occurring in the origin country are not always reported by immigrants in host countries. Consequently, the individuals still appear in the population registers of the host country and become "statistically immortal," thus reinforcing health advantage or reducing mortality rates for immigrants in the host country (Andersson and Drefahl 2017; Wallace and Kulu 2014). It is worth mentioning, however, that the salmon bias can only partially explain migrants' mortality advantage, which in many cases persists anyway (Di Napoli et al. 2021; Wallace and Wilson 2021).

2. The Albanian context and migration

Before the collapse of the communist regime and throughout the communist era, Albania was a predominantly rural country (64% of the population was classified as rural in the 1989 census) characterized by limited economic growth compared to other European countries. Nonetheless, "significant advances were made on the social agenda of health care, education, and social security" (Gjonça, Wilson, and Falkingham 1997: 587). As in other communist countries, improving health and reducing illiteracy were priorities of the regime. For example, entitlement to care became universal and health care services were made available in remote areas, with special attention to maternal, infant, and child health. One of the major achievements of the regime's public health care system was a marked reduction in (especially adult) mortality (Gjonça, Wilson, and Falkingham 1997; Gjonça, Genc, and Alban 2021).

Another important achievement during the communist era concerned education, which is also a significant determinant of health. In this respect, the regime addressed illiteracy, which was particularly prevalent in the country's rural areas (95% in some places) (Gjonça, Wilson, and Falkingham 1997), through the expansion of educational facilities, although the quality of the school system remained poor. Equal access was provided to boys and girls, which for a patriarchal, male-dominated society was an innovative feature, causing a fall in female illiteracy from 92% in the 1950s to less than 5% in 1990 (Gjonça, Genc, and Alban 2021).

During the post-communist era, the country experienced economic chaos and decline, followed by a period of economic growth from 1993 to 1996 and then another financial and political crises in 1996–1997. Despite the economic slowdowns of that decade, associated with the transition from a centralized to a market economy, life expectancy continued to increase, unlike in other Eastern European countries. Gjonça, Genc, and Alban (2021: 15) call this situation the Albanian paradox, reflected by "good health at low cost" – that is, the good health of the population despite the low economic development of the country.

One of the main effects of the fall of communism was the huge amount of emigration, which was also a major cause of the rapid aging of the population. Nonetheless, Albanians lived longer and were healthier, and by 2018 Albania had one of the lowest adult mortality rates in Europe and a life expectancy of 80.6 years for females and 77.4 years for males (Gjonça, Genc, and Alban 2021).

Migration was a key coping strategy for Albanian families during the transition period. Remittances generated by such mass emigration acted as a buffer against the economic shocks faced by families left behind in this period and had a positive impact on family members' health and well-being. Albanian migration was one of the most iconic mass migrations of post-socialist Eastern Europe in the early 1990s (Gjonça 2007;

King and Mai 2002). Thereafter, and in a very short period of time, more than a quarter of the Albanian population emigrated, mainly to Greece and Italy. Just two decades later, by 2011, around 1.4 million Albanians were living abroad, equalling 45% of the population living in Albania (3.2 million) (INSTAT 2012; World Bank 2011). In relative terms, Albania ranks 12th in the world ranking of emigration countries, being preceded by mainly small island states in the Caribbean and the Pacific (IOM 2020: 27). The high level of emigration and large amount of remittances sent back to families in Albania make the country unique in Eastern Europe (Konica and Filler 2009).

Between 1990 and 2001, about 750,000 people left the country, a number equalling 25% of the 1989 census population (Gjonça, Genc, and Alban 2021). Barjaba and King (2005) describe these flows as spontaneous, intense, and concentrated in time (a few years) and space (Italy and Greece). These irregular flows were driven by curiosity to see the Western capitalist world; they were "uncoordinated, spontaneous expressions of Albanians' desire to exercise their fundamental human right to leave their country . . . and by the need for economic survival, given that their country's post-communist transition was mired in political chaos and due to the collapse of most of the state structures which had assured them at least a minimum of work, income and welfare" (King, Uruçi, and Vullnetari 2011: 271). Among the determinants of the decision to migrate in the early transition period during the 1990s, Konica and Filler (2009: 79) stress in particular the importance of wage differentials compared to the neighbor countries Greece and Italy; these countries' official unemployment rates were similar to those in Albania, but "the purchasing-power-parity adjusted mean monthly earnings of full-time workers were approximately $200 in Albania as compared to over $1,800 in Greece and $2,600 in Italy." This huge difference, alongside geographical proximity to Italy and Greece and knowledge of their languages among many Albanians, reduced the typical psychological barriers to migration and sustained intense flows from Albania. A wave of economic and political crises occurred in 1996–1997, triggering a new mass exodus to Italy and Greece.

In Italy, Albanians are now the second-largest migrant group after Romanians, and they form the most important extra-EU community in the country. Thanks to regularization schemes in the late 1990s and early 2000s, the initial wave of irregular migration was followed by family reunifications (Cela et al. 2022). Albanian migrants in Italy in the 1990s were subject to a strong process of stigmatization and discrimination; they were portrayed as criminals, thieves, and prostitutes. This campaign of xenophobia and "albanophobia," as King and Mai (2009) called it, was triggered by right-wing political forces and endorsed by the mass media. During the 2000s, this racist process slightly decreased as media attention moved to new immigrants from Eastern Europe, such as Romanians. Thanks to their proficiency in Italian and their somatic similarity to Italians, Albanians integrated into Italian society, maintaining a low and hard-working

profile (Cela et al. 2022; King, Uruçi, and Vullnetari 2011). As argued by Romania (2004), they adopted a silent process of social mimesis and ethnic invisibility to overcome prejudice, a strategy that translated into atomized family networks and a lack of community identity and involvement.

3. Literature review

The literature on international migrants' health has focused mainly on comparisons between native-born and foreign-born individuals in host societies. In some cases, due to data shortage, the analysis has focused on regular migrants only.

One of the main findings of this strand of research is that migrants have a health advantage upon arrival with respect to the host population in high-income receiving countries. This is the healthy immigrant effect (HIE) (Kennedy et al. 2015; Sander 2007; Wallace, Khlat, and Guillot 2019).

The common explanation for this pattern is that international migrants are not a random sample of the population of their home countries but instead are a group selected on the basis of certain characteristics. This self-selection can be positive, as in the case of economic migrants, who are healthier and wealthier than those who stay behind and are more likely to migrate because they possess the necessary (health, economic, and personality) resources to undertake the risks of the migration journey and to overcome the many challenges and constraints of the migration experience (Constant 2017; Jasso et al. 2004; Wallace and Kulu 2014). The selection of migrants may also be negative, as happens, for example, in cases of family reunification (Khlat and Guillot 2017) or forced migration (Hollander et al. 2012; Nørredam et al. 2012). The positive or negative selection process gives rise to health conditions (both physical and psychological) better or worse than those of natives in the receiving societies (Aldridge et al. 2018).

The HIE has been broadly analysed in the United States. In Europe, the empirical evidence shows a diversified situation depending on the hosting country and the migrant group considered. For example, Moullan and Jusot (2014), comparing the HIE in Belgium, France, Spain, and Italy, reported a north–south health gradient dependent on the length of stay. In countries with a long immigration history, such as France and Belgium, migrants are more likely to declare worse SRH, while the opposite is true for more recent immigration countries, such as Italy and Spain. It is worth noting, however, that opposite results might be found due to heterogeneous groups of recent and long-term migrants, reflecting the different composition of migration flows over time (Gee, Kobayashi, and Prus 2004). But other studies have found either worse SRH among migrants as compared to natives (Nielsen and Krasnik 2010; Solé-Aurò and Crimmins

2008), no evidence of the HIE, or at most weak support for the HIE (Rubalcava et al. 2008; Solé-Aurò and Crimmins 2008).

Many authors argue also that in almost all Western countries, the health advantage of migrants persists even at older ages, generating the mortality paradox, wherein migrants record a longer life expectancy despite their socioeconomic disadvantages and worse health status compared to natives (Markides and Rote 2019; Vang et al. 2017; Wallace and Darlington-Pollock 2020).[6] In the United States, this phenomenon is known as the Hispanic paradox (Abraído-Lanza et al. 1999; Riosmena, Wong, and Palloni 2013; Ruiz, Steffen, and Smith 2013). Similar patterns of this paradox are also observed in various EU countries, especially in relation to some diseases, such as cardiovascular ones among migrants from Mediterranean countries (Khlat and Courbage 1996; Khlat and Darmon 2003; Razum et al. 1998; Uitenbroek and Verhoeff 2002; Wallace and Kulu 2014). This paradox might be partly explained by the "data artefact" generated by data quality and errors in the registration system due to migrants' unreported returns to their countries of origin, as explained earlier in regard to the salmon bias.

Over time and across generations, however, migrants' health advantage tends to diminish, a phenomenon known as the migrant exhausted effect (Bollini and Siem 1995). This effect primarily occurs for the following three reasons (Beiser 2005):

1. "Negative acculturation in health" (Abraído-Lanza et al. 2006): Migrants tend to abandon initial protective health behaviours typical of their origin cultures. Instead, they adopt unhealthy lifestyles, including a high-fat diet, sedentary habits, smoking, and alcohol consumption. Consequently, their health tends to converge towards the average health of the native population (Abramitzky, Boustan, and Eriksson 2013; Jasso et al. 2004; Kennedy et al. 2015; Loi and Hale 2019; Moullan and Jusot 2014; Popovic-Lipovac and Strasser 2015). This effect appears even more pronounced in second and subsequent generations as they become more acculturated (Beiser 2005).
2. Resettlement stresses: Migrants' health deteriorates because of stresses associated with resettlement, including risky working environments, unemployment, poor living conditions, limited social networks, barriers and limited access to health care services, and fewer coping strategies and resources during challenging times (Derose, Escarce, and Lurie 2007; Ronellenfitsch and Razum 2004; Wilkinson and Marmot 2003).
3. The interaction of migrants' characteristics (such as genetic predisposition) with pre- and post-migration stresses (such as cultural and language barriers, discrimination, homesickness, uprootedness, and loss of social networks) (Borrell

[6] However, a longer life does not mean a healthier life. Indeed, higher rates of disability and depression have been found among older migrants (Reus-Pons, Kibele, and Janssen 2017; Vonneilich et al. 2021).

et al. 2015; Cela and Barbiano di Belgiojoso 2021; Cela and Fokkema 2017; Jasso et al. 2004; Kristiansen, Mygind, and Krasnik 2007; Saadi and Ponce 2020).

Some studies comparing migrants with co-nationals in the home country point in the opposite direction, depending on the context or migrant group under analysis. Some emphasise a strong positive self-selection for physical health – migrants are healthier than the population in sending countries (Jasso et al. 2004; Kennedy et al. 2015; Rubalcava et al. 2008); others find a negative selection for SRH (Delaney, Fernihough, and Smith 2013; Rubalcava et al. 2008) and a positive (Stillman, McKenzie, and Gibson 2009) or negative (Delaney, Fernihough, and Smith 2013) selection for mental health.

Recently, Gruber (2020) has found a negative long-term effect of migration on cognitive health in later life among intra-European migrants. Research carried out by Constant and Milewski (2021) on both physical and mental health in different European countries showed that, with few exceptions, European migrants are positively and significantly self-selected, whereas no evidence of health disruption is found among long-term migrants.

4. Data and methods

4.1 Data

For our analyses, we combined data from two surveys. The SCIF,[7] carried out by the Italian Institute of Statistics (ISTAT) during 2011–2012, provides information on households where at least one member has foreign citizenship, for a sample of more than 25,000 individuals. The LSMS,[8] conducted by the Institute of Statistics of Albania (INSTAT) in 2012, involves a sample of nearly 25,000 individuals.

The SCIF had a two-stage design, with municipalities as first-level units and with households, randomly selected from the population register (*anagrafe*), as second-level units. All members of the selected households were included in the sample. The questionnaire was translated into various languages, one of which was Albanian. For the purpose of this paper, we restricted the Italian sample to migrants coming from Albania and aged 18 and over (2,088 cases) at the moment of the interview. We excluded from the analysis individuals under the age of 18, since some health measures, such as SRH,

[7] For further details, see https://www.istat.it/en/archive/191097.

[8] For further details, see https://microdata.worldbank.org/index.php/catalog/1970/study-description and INSTAT LSMS 2012, Ref. ALB_2012_LSMS_v01_M_v01_A_PUF, dataset downloaded from https://microdata.worldbank.org/index.php/catalog/1970/get-microdata on March 31, 2021.

are more unstable and easily influenced by parents at younger ages (Breidablik, Meland, and Lydersen 2009; Wade and Vingils 1999).

In the LSMS, a multipurpose household survey, households were randomly selected following a two-step process: first, a random selection of 834 primary selection units (PSUs) representative of the national territory; second, the selection of eight households for each PSU with a systematic sample. This procedure yielded a final sample of 6,671 households. All members of the households selected were included in the sample, but only one member was interviewed (preferably the head of the household).[9] We excluded from the analysis individuals aged less than 18 at the moment of the interview (6,451 cases) and returnees who had stayed abroad for less than one year[10] (354 cases) because they were considered circular migrants. Therefore the final sample for Albania consisted of 18,530 individuals.

In both cases, interviews were carried out through computer-assisted personal interview. To obtain a pooled dataset, we identified and harmonized the same variables available in both surveys. We excluded some common variables due to differences in the phrasing or target population (one member of the family versus all members, age of the respondents, etc.). All the analyses used sample weights.

4.1.1 Outcome variables

Health is a complex and dynamic concept. For this reason, we analysed four health outcomes that refer to different subjective and objective health dimensions[11] and capture different time perspectives: SRH, chronic illnesses, acute illnesses, and hospital stays. In particular, chronic illness and hospital stay questions relate to long-term health problems, whereas those regarding SRH and acute illnesses are better suited to capturing information on shorter-term and temporary illnesses.

In both surveys, SRH was derived from the questions "How is your health in general?" (for LSMS) and "How would you rate your health condition?" (for SCIF). Respondents were asked to rate their health on a five-point scale from "very good" to

[9] As reported in the questionnaire available at https://microdata.worldbank.org/index.php/catalog/1970/related-materials, "Person interviewed: preferably the head of the household. If he/she is not available, the interviewer seeks a 'principal respondent' to answer the questions in his/her place. The person selected should be a household member capable to provide information about other household members." Unfortunately, the dataset does not include information about the respondent (whether he or she was the head of the household or the principal respondent). Therefore we could not identify the specific family member who answered the questionnaire.

[10] For returnees, the LSMS registers only the first and the last migration; we estimated time spent abroad by summing time spent abroad in the first and last migration. Among excluded returnees, the majority had returned from Greece (260).

[11] Further details are available in the Appendix.

"very bad." For analytical purposes, we created the variable "very good SRH," which was coded 0 if the individual declared good, fair, bad, or very bad health (reference category) and 1 if the individual declared very good health. We adopted this dichotomization to have a strong measure of health and to emphasize the optimal aspects, following methodological literature indicating that when rating health status, it is common to find respondents clustered in middle-range options rather than in extreme ones (Bowling and Windor 2008). It has been suggested, for example, that participants might prefer the response category "good" to "very good" to hide reservations about their health status (Fakhoury et al. 2021) or might prefer "good" to "fair" because the latter is perceived as too negative (Perneger et al. 2013). For chronic illnesses, the interviewee reported if he or she had or had not suffered from chronic illness in recent months[12] (the dummy was coded 0 for no, the reference category; 1 for yes). Our third outcome, acute illnesses and injury (henceforth "acute illnesses"), relied on the question "During the last four weeks have you had any acute illness or injury?" The possible answers were no (the reference category, coded 0) and yes (coded 1). Finally, for hospital stays, respondents were asked, "During the last 12 months have you spent at least one a night in a hospital?" (coded 0 for no, the reference category; 1 for yes).

4.1.2 Main predictor and control variables

The main predictor variable was "group." This variable classified individuals according to country of residence, migration experience, and, for migrants only, length of stay in Italy. It thus distinguished five groups: (1) recent migrants from Albania – those living in Italy at the time of the survey with a length of stay of less than five years (273 cases); (2) medium-term migrants from Albania – those living in Italy at the time of the survey with a length of stay between five and nine years (538 cases); (3) long-term migrants from Albania – those living in Italy at the time of the survey with a length of stay of at least ten years (1,277 cases); (4) non-migrants – Albanians living in Albania who had never emigrated (17,734 cases); and (5) returnees – Albanians who at the time of the interview were living in Albania but had previously migrated abroad[13] for at least 12 consecutive months or had emigrated twice, remaining abroad overall for at least 12 months (796 cases).

[12] In the Italian survey, the reference time period was at least six months, whereas in the Albanian questionnaire it was more than three months.

[13] In the returnees' group, we included all migrants who had returned to Albania regardless of their country of destination. Approximately half of them had recently returned home, with 26.3% returning to Albania in the same year as the survey (2012) and 21.3% returning one or two years before the survey.

As control variables, we used a set of demographic, socioeconomic, and lifestyle factors. First, we controlled for age at the time of the interview, treating this variable as continuous (in years) following empirical evidence that shows an association between age and poor health (e.g., Franks, Gold, and Fiscella 2003). To control for the influence that socioeconomic factors may have on health inequalities (Dinesen et al. 2011; Lindström, Sundquist, and Östergren 2001; Williams et al. 2010; Kawachi, Daniels, and Robinson 2005), we included educational level (1 for none or primary; 2 for secondary; 3 for tertiary, the reference category); employment status (1 for employed, the reference category; 2 for inactive; 3 for unemployed); and poor or very poor perceived financial condition[14] (0 for no, the reference category; 1 for yes). Additionally, we considered two lifestyle behaviour variables that have been found to influence health outcomes: smoking (0 for no, the reference category; 1 for yes, occasionally; 2 for yes, every day or almost every day) and drinking (0 for no, the reference category; 1 for yes, occasionally; 2 for yes, every day or almost every day) (Campostrini et al. 2019). We included the variable "having close friends" (for very good SRH only; 0 for no, the reference category; 1 for yes) as a proxy for social support, which has been recognized in the literature as a key factor influencing health and health care service utilisation (Stewart et al. 2010; Warner 2007; Abe-Kim et al. 2007). Lastly, given the impact of the reasons for migrating on migrants' health (Khlat and Guillot 2017; Read and Reynolds 2012), we considered the following variables in our analysis: "migration for economic reasons" (0 for no, the reference category; 1 for yes) and "migration for family reasons" (0 for no, the reference category; 1 for yes").

4.2 Methods

We conducted propensity score matching analysis (PSM) to compare migrants' health with non-migrants' health, following the methodology outlined by Abramitzky, Boustan, and Eriksson (2013), Arsenijevic and Groot (2018), Lee and Chung (2013), and Pongiglione (2014). The propensity score is defined as the probability of being assigned to a particular treatment (T = 1) given a set of covariates (X): $e(X) = P(T = 1|X)$. Several steps are involved in performing PSM: definition of treatment and control group; identification of covariates for the match; calculation of the propensity score and matching between individuals from treatment and control groups; and, finally, estimation of treatment effects on the outcome variable by comparing the matched cases.

[14] In the LSMS, the question about the financial condition of the household was a Likert scale ranging from 1 (very poor) to 10 (very rich). We recoded the original variable (M7_Q09) into a dummy variable with the values (1,2,3,4) = 1, poor or very poor; (5,6,7,8,9,10) = 0, no.

In our analysis, Albanian migrants living in Italy were the treatment group (migrants), whereas Albanians living in Albania were the control group (non-migrants). For the matching procedure, we used three variables: gender, age, and educational level. These covariates were included to balance the treated and control groups. Furthermore, using covariates that are related both to treatment (migration) and outcome (health) and that have been measured prior to the treatment is recommended to minimize the potential influence of the treatment (Harder, Stuart, and Anthony 2010). In our case, these variables were the only ones that met such criteria.

Our decision to employ PSM was based on the following considerations. First, by recognising potential differences between migrants and origin populations on the basis of certain characteristics, PSM ensures an unbiased comparison between the control and treated groups, similar to a randomized study (Rosenbaum and Rubin 1983). Second, as suggested by Amoah and colleagues (2020), PSM analysis becomes particularly useful in scenarios characterized by substantial differences in sample sizes, especially when the unexposed (to treatment) group comprises a larger number of subjects – which was the case in our analysis, where the sample of non-migrants was larger than the sample of migrants. Third, the model searches the data for "twins," consisting of an individual in the treated group and one or more individuals in the control group. Observations lacking at least one twin in the data (outside of the so-called common support) are excluded from the analysis, ensuring greater comparability of the two groups (Schudde and Brown 2019; Harder, Stuart, and Anthony 2010). Moreover, the comparison of means does not require making assumptions about the functional form of the relationship between the variables under analysis (Crown 2014).

We used Stata's command psmatch2 (Leuven and Sianesi 2003) to match a migrant with three controls with similar values for the propensity score. We applied a logistic regression model and a multiple nearest-neighbour approach with replacement assuming dependence in the propensity score match sample (Austin 2011). We estimated the average treatment effect on the treated (ATT) – that is, the average effect of migration on migrants (Table 2).

To verify the quality of our match, we performed the following checks, as done by Pirani, De Santis, and Zanasi (2021): the balancing of the match, the overlap assumption, and the unconfoundedness assumption or conditional independence assumption (Nannicini 2007). (See the Appendix for details.)

Moreover, to examine whether there are health differences among Albanians residing in Italy according to their length of stay, we estimated four logistic regression models using as dependent variables the four health outcomes separately and as control variables the previously described variables.[15] We first estimated the odds ratios and then

[15] Full models are shown in Table A-9 in the Appendix.

computed the predicted probabilities, with 95% confidence intervals,[16] for pairwise comparison. This approach was adopted to mitigate the issue of incomparability among coefficients estimated by means of different logistic regression models and to enhance the interpretability of the results (Figure 1).

4.3 Robustness checks

To ensure the robustness of our results, we performed various checks, as detailed in Table 3. First, we restricted the analysis to migrants who were aged 18 upon arrival in Italy to exclude potential effects of education acquired in the host country. (We deleted 419 cases.) Second, as suggested by Wallace and Kulu (2014), return migrants may bias the analysis. Therefore we performed a consistency check by excluding returnees from the control group; returnees showed a completely different gender composition (80% men) and a better health status compared to Albanians who had never migrated (see Table 1). Third, to explore potential differences between migrants with longer lengths of stay in Italy and recent migrants, we further restricted the Italian sample to recent migrants only – those who had arrived less than four years before the survey (273 cases). We then matched them with non-migrants and estimated the ATT. Fourth, to avoid the effect of an extended duration of stay in Italy, we excluded from the treated group Albanian migrants residing in Italy for more than ten years. Fifth, given that the Albanian survey involved a family member reporting on the health of other members, we replicated the analysis by limiting the Albanian sample to household heads only. Finally, to verify that results for recent migrants did not reflect women's health due to the unbalanced gender composition of this group, we estimated predicted probabilities by interacting gender with migrant groups for the four health outcomes analysed (see Figure A-1 in the Appendix).

5. Results

5.1 Descriptive statistics

As expected, Albanians living in Italy differ from the population left behind (Table 1): Men are overrepresented among Albanian migrants, and they are on average younger than their counterparts in the origin country. Most Albanian migrants (84.9%) have a

[16] Confidence intervals are centered on the predictions and have lengths equal to 2 × 1.39 × standard errors. This approach is essential for maintaining an average Type I error level of 5% in pairwise comparisons of a group of means, as outlined by Goldstein and Healy (1995).

secondary education; only 9.3% have no or only a primary education; and 5.8% have a tertiary education. Conversely, among Albanian non-migrants, most (46.4%) have no or only primary education; 37% have a secondary education; and 17% have a tertiary education. Moreover, occupational status varies in the two groups, with a higher percentage of migrants in employment compared to Albanians in Albania.

Albanian migrants and non-migrants are, in turn, heterogeneous groups (Table 1). Migrants' characteristics differ according to their length of stay in Italy: Among recent migrants, the majority are female, young, and inactive, whereas among long-term migrants (with a length of stay of ten years or more), most are male and employed. Returnees are a selection of the Albanian population too: Eight out of ten are male; they are younger and are more often employed compared to non-migrants.

Table 1: Descriptive statistics by group

Variable	Migrants				Non-migrants and returnees		
	Recent migrants[a]	Medium-term migrants[b]	Long-term migrants[c]	Total migrants[d]	Non-migrants[e]	Returnees[f]	Total non-migrants + returnees[g]
Gender							
Male	34.0	47.6	62.3	54.5	47.1	81.4	48.7
Female	66.0	52.4	37.7	45.5	52.9	18.6	51.3
Age in years (std. dev.)	33.2 (14.6)	34.5 (14.3)	39.0 (11.5)	37.1 (13.0)	45.2 (17.9)	39.2 (11.6)	44.9 (17.8)
Educational level							
None or primary	11.2	11.5	8.1	9.3	46.3	49.1	46.4
Secondary	82.2	84.2	85.7	84.9	36.6	39.6	36.8
Tertiary	6.6	4.3	6.2	5.8	17.1	11.3	16.8
Occupational status							
Employed	37.2	53.9	70.5	61.5	33.5	54.3	34.4
Inactive	49.4	36	20.8	28.8	57.8	30.6	56.6
Unemployed	13.4	10.1	8.7	9.7	8.7	15.1	9.0
Self-rated health							
Very good	47.3	37.1	35.6	37.6	45.5	52.8	45.8
Good	40.2	50.2	52.1	50	36.8	36.9	36.8
Fair	9.6	9.4	9.6	9.5	13.6	7.9	13.3
Bad	2.8	2.8	2.2	2.5	3.7	2.2	3.6
Very bad	0.1	0.5	0.5	0.4	0.5	0.2	0.5
Chronic illnesses							
Yes	11.0	9.6	10.6	10.4	16.0	10.5	15.7
No	89.0	90.4	89.4	89.6	84.0	89.5	84.3
Hospital stays							
Yes	10.8	8.4	6.5	7.6	1.6	1.5	1.6
No	89.2	91.6	93.5	92.4	98.4	98.5	98.4
Acute illnesses							
Yes	8.8	14.2	13.7	13.2	6.2	3.1	6.1
No	91.2	85.8	86.3	86.8	93.8	96.9	93.9
No. of observations	273	538	1,277	2,088	17,734	796	18,530

Notes: [a] Migrants living in Italy for less than five years; [b] migrants living in Italy between five and nine years; [c] migrants living in Italy for ten years or more; [d] Albanians in Italy; [e] Albanians in Albania who never emigrated; [f] Albanians living in Albania at the time of the survey who had previously emigrated for at least 12 months but returned to their country of origin; [g] Albanians in Albania. Table A-3 in the Appendix provides additional descriptive statistics.
Source: Authors' elaboration on SCIF and LSMS data.

As regards the health outcomes, Albanian non-migrants declare a better subjective and objective state of health compared to the other groups, with returnees showing the best health status. Among Albanian migrants (overall), SRH worsens as the length of stay increases, and they are more likely to suffer from acute illnesses than are non-migrants and returnees. Due to the older population structure, Albanians in Albania record a higher rate of chronic illnesses compared to others. Hospitalization is more frequent among migrants, but its duration reduces along with the length of stay. Thus, overall, Albanian migrants tend to have poorer health compared to non-migrants.

5.2 Propensity score matching

Our results show the disruptive effect of the migration process on Albanian migrants' health status. Indeed, as reported in Table 2, migrants (the treated group) have poorer health compared to non-migrants (comprising Albanians in Albania plus returnees) for all the outcomes analysed.

Table 2: Estimates of the ATT effect on very good SRH, chronic illnesses, acute illnesses, and hospital stays; main model

	Treated group	Control group	Very good SRH	Chronic illnesses	Acute illnesses	Hospital stays
			ATT (s.e.)	ATT (s.e.)	ATT (s.e.)	ATT (s.e.)
Main model	Migrants	Non-migrants + returnees	–0.183 (0.011)	0.033 (0.007)	0.070 (0.008)	0.060 (0.006)

Note: (1) ATT refers to Average Treatment effect on the Treated. (2) Robust standard errors in parentheses.
Source: Authors' elaboration on SCIF and LSMS data.

Overall, the robustness checks indicate that the results of PSM analysis remain virtually unchanged (see Table 3): Migrants consistently exhibit worse subjective and objective health compared to non-migrants and returnees.

Table 3: Estimates of the ATT effect on very good SRH, chronic illnesses, acute illnesses, and hospital stays; robustness checks

	Treated group	Control group	Very good SRH	Chronic illnesses	Acute illnesses	Hospital stays
			ATT (s.e.)	ATT (s.e.)	ATT (s.e.)	ATT (s.e.)
Excluding migrants arrived before 18 years old	Adult migrants arrived at 18 or older	Non-migrants + returnees	–0.205 (0.013)	0.039 (0.009)	0.073 (0.009)	0.071 (0.007)
Removing returnees	Migrants	Non-migrants	–0.198 (0.015)	0.033 (0.009)	0.074 (0.010)	0.054 (0.007)
Including only recent migrants	Recent migrants	Non-migrants + returnees	–0.142 (0.018)	0.023 (0.017)	0.045 (0.019)	0.086 (0.019)
Removing long-term migrants	Recent and medium-term migrants	Non-migrants + returnees	–0.182 (0.018)	0.032 (0.010)	0.067 (0.012)	0.074 (0.010)
Removing non–household heads in the control group	Migrants	Non-migrants + returnees heading households	–0.160 (0.031)	0.038 (0.009)	0.029 (0.021)	0.070 (0.006)

Notes: (1) ATT refers to Average Treatment effect on the Treated. (2) Robust standard errors in parentheses.
Source: Authors' elaboration on SCIF and LSMS data.

In particular, when limiting the analysis to recent migrants (third row of Table 3), the results show a smaller difference compared to the control group for all health outcomes analysed. Lastly, when limiting the control group to household heads (last row of Table 3), the results remain stable except for the "acute illnesses" outcome. The ATT for this restricted control group is considerably smaller (0.029) compared to the estimate for the entire sample (0.070) (Table 2), suggesting that household heads may overestimate the presence of acute illnesses. This is probably because hospitalization and chronic illnesses, which are important events, can be accurately reported by proxy respondents. On the other hand, acute illnesses, having a lesser impact on daily life, may be over- or underestimated by proxy respondents.

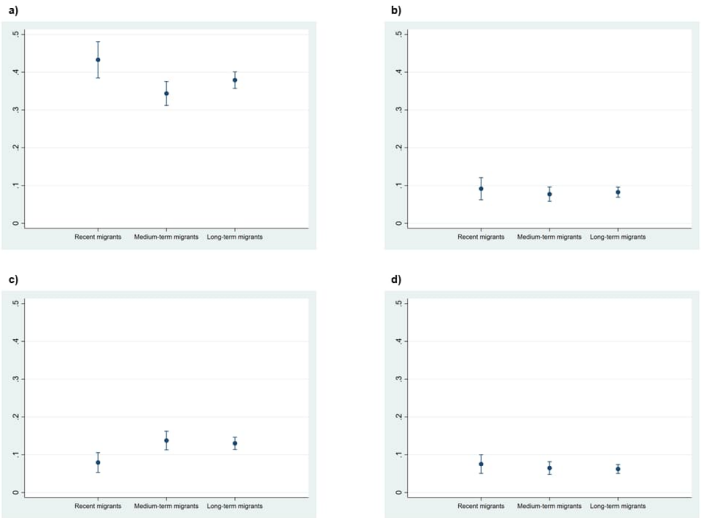
5.3 Logistic regression models

Figure 1 displays the estimated predicted probabilities from the logistic regression models for the four health outcomes analysed, and it highlights health differences among Albanian migrants living in Italy according to their length of stay.

Depending on the selected outcome, recent Albanian migrants (length of stay less than five years) have health that is better or no different than that of long-term migrants in terms of both subjective and objective health. For subjective health, recent migrants are more likely than medium-term migrants to declare very good SRH, while no difference is observed between recent and long-term migrants. As regards objective health indicators, only for acute illnesses did we detect differences between recent migrants and the other two groups: the longer the residence in Italy, the higher the risk of

suffering from acute illnesses. Lastly, neither hospital stays nor chronic illnesses are affected by migrants' length of stay.

Figure 1: Predicted probabilities of very good SRH (a), chronic illnesses (b), acute illnesses (c), and hospital stays (d) by length of stay



Notes: Results from logistic regression models. Control variables included: gender, age, educational level, occupational status, poor or very poor perceived financial condition, smoking, drinking, having close friends (for very good SRH only), and reason for migration. Non-overlapping bars indicate statistically significant difference at $p < 0.05$ level (Goldstein and Healy 1995). Full models are shown in Table A-9 in the Appendix.
Source: Authors' elaboration on SCIF and LSMS data.

As explained earlier, as part of our consistency checks we estimated predicted probabilities by interacting Albanian migrant groups with gender. Overall, the results did not indicate differences by gender (see Figure A-1 in the Appendix). However, among long-term migrants, subtle variations emerged: Men were more likely to positively evaluate their health, declaring very good SRH, while women had a slightly higher probability of reporting acute illnesses and hospital stays.

6. Discussion and conclusion

The core topic of this paper has been an analysis of health differences between Albanian migrants residing abroad and their co-nationals in the origin country. The focus has been

on a particular migration corridor represented by Italy and Albania. Applying propensity score matching analysis, we compared multiple health outcomes of Albanians residing in Italy with those of their counterparts in Albania, using nationally representative datasets collected in each country. To the best of our knowledge, this study is the first in Italy to adopt a host/home country perspective. As indicated by the recent literature, this approach is the one most appropriate for analysing the effect of being a migrant on health. Moreover, this is the first Italian study that has investigated health aspects of the most significant extra-EU community in Italy, the Albanian one.

Our results indicate that, overall, Albanian migrants tend to have poorer health compared to their co-nationals in the origin country, and this was the case with all the health outcomes considered. This result seems to contradict some of the empirical evidence discussed earlier. However, it can be interpreted through two lenses. The first relates to the nature of our data, which provided information on migrants' health at the time of the interview rather than at the moment of migration. Consequently, while migrants may have been positively selected at the time of their departure from Albania, a negative long-term effect of migration (length of stay) may be at work. Our sample was skewed towards long-term migrants, and as discussed in previous empirical studies, a longer length of stay may jeopardize migrants' health due to several constraints faced in the destination country (Constant and Milewski 2021 [on long-term Italian migrants only]; Delaney, Fernihough, and Smith 2013; Gruber 2020). This result held even when, as a robustness check, we excluded returnees from the analysis, confirming the better health status of Albanians in Albania.

The second lens through which to read our results focuses on the distinctive nature of Albanian migration, a point highlighted in the introduction. This migration was characterised by its massive scale over a very short period of time, a phenomenon scarcely matched by any other country (Barjaba and King 2005; World Bank 2011). In addition, geographic proximity and language proficiency reduce the barriers associated with migration, as stated by Feliciano (2020). Hence it may be that individuals choosing to leave Albania were less subject to health selection. Moreover, as described in detail in the front end of the paper, health improvements during the communist regime involved the entire population in every area of the country, even the most remote ones. This suggests that universal health care access and availability until the end of the communist era probably played a significant role in reducing health-related migration selection in the 1990s. Moreover, the regularization schemes implemented in Italy in the late 1990s and early 2000s attracted large inflows of family members, particularly women through family reunification, who are not selected by definition (Antecol and Bedard 2006; Gorman, Read, and Krueger 2010; Khlat and Guillot 2017).

In the analysis of the effect of the length of stay in Italy on the three migrant groups identified (recent, medium-term, and long-term migrants), the results of the logistic

regression models align with the theory of the exhausted migrant effect (Bollini and Siem 1995), suggesting a decline in migrants' health over time. In our analysis, this held true for two out of the four health outcomes considered. Notably, we found that recent Albanian migrants exhibit better health outcomes, displaying better self-rated health compared to medium-term migrants and a lower risk of experiencing acute illnesses compared to both medium- and long-term migrants. Although our data lacked a longitudinal dimension, we can interpret this result within the framework of the large body of empirical evidence documenting the loss of the initial health advantage due to migration stressors associated with challenging working conditions and discrimination (e.g., Beiser 2005; Khlat and Guillot 2017; Trappolini and Giudici 2021). Moreover, in the Italian context, empirical evidence reveals that migrants are mainly employed in low-skilled jobs, with limited opportunities for occupational mobility (Fellini and Guetto 2019), which in turn affects migrants' vulnerability and health risk (Campostrini et al. 2019). Furthermore, research suggests that discrimination can have detrimental effects on both mental and physical health (Borrell et al. 2015; Cela and Barbiano di Belgiojoso 2021), and Albanian migrants, in general, have been one of the most stigmatized and stereotyped groups in Italy (Cela et al. 2022; King and Mai 2008).

Our analysis had some limitations, which were mostly data-driven. First, as already mentioned, the absence of information on Albanian migrants' health before migration and upon arrival in Italy prevented us from verifying the health selection at migration. Second, the lack of longitudinal data limited our analysis because we could neither observe changes in individual health over time nor interpret results in a causal manner. Third, the differing survey designs posed a challenge, particularly in the Albanian survey, where the health status of family members was reported by either the household head or a reference respondent. This difference in strategy may have had an impact on the estimates. The robustness checks showed that proxy respondents tended to overestimate acute illnesses because these were probably less significant events, though other estimates remained relatively stable. Lastly, despite the advantages of using PSM, we acknowledge the use of a limited number of variables for the matching procedure. However, checks performed to assess the quality of the matching procedure confirm the quality and reliability of our approach. Additionally, other methods, such as ordinary least squares and linear probability models, may also be suitable, depending on the research context, and may yield similar results.

Despite these limitations, our study makes an important contribution to the literature on migration and health in the Italian context. It provides evidence supporting the idea that migration plays a key role as a social determinant of migrants' health, as suggested by the International Organisation for Migration (IOM 2009), given that being a migrant is associated with worse health conditions compared to those who live in the country of origin. In addition to this, the length of stay in the destination country could be a crucial

indicator of successful integration, if the receiving context is welcoming and supporting, or it could become a stumbling block to well-being. This distinction has important policy implications, as the former might prompt migrants to make meaningful contributions to their families and society as a whole. Conversely, challenges such as integration difficulties, social and economic inequalities, discrimination, stigmatization, the individualistic and work-oriented culture of the destination country, and lack of social support are all factors that might jeopardise migrants' well-being and increase their health vulnerabilities over time.

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Appendix

Table A-1: Variable selected in the two datasets

Variable	LSMS	SCIF	note
Self-rated health	M9A_Q01	SAL_PER1	
Chronic illnesses	M9A_Q03	SAL_PER2	LSMS period more than three months; SCIF period at least six months
Acute illnesses	M9A_Q11	SAL_ACU1	
Hospital stays last 12 months	M9A_Q64	SAL_RIC2	

Table A-2: Additional descriptive statistics by group

	Migrants[a]	**Non-migrants + Returnees[b]**
Migration for family reason	39.6	-
Migration for economic reason	56.6	-
Smoking		
No	75.3	89.1
Yes, occasionally	2.6	1.7
Yes, every day or almost every	22.1	9.2
Drinking		
No	30.2	83.2
Yes, occasionally	44.6	14.9
Yes, every day or almost every	25.2	1.9
Close friends		
No	15.0	3.3
Yes	85.0	96.7
Poor or very poor perceived financial condition	20.2	47.6
No. of observations	2,088	18,530

Note: [a] Albanians in Italy; [b] Albanians in Albania.
Source: Authors' elaboration on SCIF and LSMS data.

Table A-3: Additional descriptive statistics by group

	Recent migrants[a]	Medium-term migrants[b]	Long-term migrants[c]	Non-migrants[d]	Returnees[e]
Migration for family reason	71.7	48.1	28.5	-	-
Migration for economic reason	37.8	51.1	63.4	-	-
Smoking					
No	79.7	80.8	71.8	89.7	76.1
Yes, occasionally	2.7	2.2	2.7	1.7	3.2
Yes, every day or almost every	17.6	17	25.4	8.7	20.7
Drinking					
No	40.9	36.5	25.0	84.2	62.4
Yes, occasionally	45.7	43.3	44.9	14.0	33.5
Yes, every day or almost every	13.4	20.3	30.4	1.8	4.1
Having close friends					
No	16.2	16.42	14.2	3.4	2.9
Yes	83.9	83.6	85.8	96.6	97.1
Poor or very poor perceived financial condition	18.5	20.8	20.2	48.8	46.2
No. of observations	273	538	1,277	17,734	796

Note: [a] Migrants living in Italy less than five years; [b] migrants living in Italy between five and nine years; [c] migrants living in Italy ten years or more; [d] Albanians living in Albania who never emigrated; [e] Albanians living in Albania at the time of the survey who previously emigrated for at least 12 months but returned to their country of origin.
Source: Authors' elaboration on SCIF and LSMS data.

Checks for propensity score

Balancing of the two groups: To guarantee a high quality of the match between treated and controls, we used the *pstest* command, which allows us to verify if the distribution of covariates is the same in the two groups. As shown in Table A-4, the two groups are balanced according to all covariates.

Table A-4: Test for balancing of the two groups, untreated = non-migrants + returnees

	Unmatched	Mean			%reduct	t-test		V(T)/
Variable	Matched	Treated	Control	%bias	|bias|	t	p>|t|	V(C)
2.gender	U	0.4746	0.5069	–6.5		–2.78	0.005	.
	M	0.4746	0.4744	0.0	99.5	0.01	0.992	.
age	U	38.113	44.682	–41.8		–16.32	0.000	0.57*
	M	38.113	38.113	0.0	100.0	0.0	0.999	1.00
2.education	U	0.8431	0.3567	114.4		44.73	0.000	.
	M	0.8431	0.8431	–0.00	100.0	–0.00	1.000	.
3.education	U	0.05521	0.1606	–34.5		–12.77	0.000	.
	M	0.05521	0.0552	–0.0	100.0	–0.00	1.000	.

* If variance ratio outside [0.92; 1.09] for U and [0.92; 1.09] for M.

Sample	Ps R2	LR chi2	p>chi2	MeanBias	MedBias	B	R	%Var
Unmatched	0.143	1918.72	0.000	49.3	38.1	115.7*	0.56	100
Matched	0.000	0.00	1.000	0.0	0.0	0.0	1.00	0

* If B > 25% and R outside [0.5; 2].

The overlap assumption is that "the range of propensities to be treated is the same for treated and control cases, even if the density functions have different shapes" (Nichols 2007: 516). We used the common option of the *psmatch2* command to impose common support. We kept all the observations in the analysis (Table A-5).

Table A-5: Check for common support assumption, untreated = non-migrants + returnees

Treatment assignment	On support	Total
Untreated	18,530	18,530
Treated	2,065	2,065
Total	20,595	20,595

Unconfoundedness assumption or conditional independence assumption (CIA) (Nannicini 2007): conditional independence of outcomes and treatment assignment given the covariates. To test this assumption, we simulated a potential confounder to check how the results are robust to failure of the CIA assumption. We look for the existence of a set of parameters p_{ij} such that if U were observed, the estimated ATT would be driven to zero. If all the set of parameters leading to such a result could be considered unlikely, the exercise would support the robustness of the estimates derived under the CIA. Killer confounder is therefore the set of parameters that would drive the ATT to zero. Following Nannicini (2007) and Ichino, Mealli, and Nannicini (2008), we used *sensatt* with 200 iterations and tested different solutions:

a) Neutral confounder with p_{11}=0.5 p_{10}=0.5 p_{01}=0.5 p_{00}=0.5
b) Killer confounder – I: low selection and outcome effect h p_{11}=0.8 p_{10}=0.4 p_{01}=0.5 p_{00}=0.4
c) Killer confounder – II: low selection effect and medium-high outcome effect p_{11}=0.8 p_{10}=0.4 p_{01}=0.6 p_{00}=0.3
d) Killer confounder – III: high selection and outcome effect p_{11}=0.8 p_{10}=0.8 p_{01}=0.6 Ap_{00}=0.3

Table A-6 shows the results. Overall, the estimated ATTs are stable.

Table A-6: Sensitivity analyses on unobserved confounder for the estimates of ATT effects on very good self-rated health, chronic illnesses, acute illnesses, and hospital stays

	p_{11}	p_{10}	p_{01}	p_{00}	d	s	Outcome effect Γ	Selection effect Λ	ATT (SE)
Very good SRH									
No confounder	0.0	0.0	0.0	0.0					–0.184 (0.012)
Neutral confounder	0.5	0.5	0.5	0.5	0.0	0.00	0.999	1.005	–0.184 (0.013)
Killer confounder – I	0.8	0.4	0.5	0.4	0.1	0.11	1.505	1.460	–0.193 (0.013)
Killer confounder – II	0.8	0.4	0.6	0.3	0.3	0.11	3.509	1.411	–0.205 (0.013)
Killer confounder – III	0.8	0.8	0.6	0.3	0.3	0.36	3.502	4.706	–0.273 (0.014)
Chronic illnesses									
No confounder	0.0	0.0	0.0	0.0					0.033 (0.008)
Neutral confounder	0.5	0.5	0.5	0.5	0.0	0.00	0.999	1.000	0.033 (0.008)
Killer confounder – I	0.8	0.4	0.5	0.4	0.1	0.12	1.506	1.167	0.032 (0.008)
Killer confounder – II	0.8	0.4	0.6	0.3	0.3	0.15	3.536	1.650	0.023 (0.009)
Killer confounder – III	0.8	0.8	0.6	0.3	0.3	0.43	3.525	8.315	–0.004 (0.010)
Acute illnesses									
No confounder	0.0	0.0	0.0	0.0					0.069 (0.008)
Neutral confounder	0.5	0.5	0.5	0.5	0.0	0.00	1.006	0.998	0.070 (0.008)
Killer confounder – I	0.8	0.4	0.5	0.4	0.1	0.04	1.498	1.133	0.061 (0.008)
Killer confounder – II	0.8	0.4	0.6	0.3	0.3	0.13	3.502	1.767	0.060 (0.008)
Killer confounder – III	0.8	0.8	0.6	0.3	0.3	0.48	3.510	8.614	0.034 (0.009)
Hospital stays									
No confounder	0.0	0.0	0.0	0.0					0.061 (0.006)
Neutral confounder	0.5	0.5	0.5	0.5	0.0	0.00	0.992	0.999	0.061 (0.006)
Killer confounder – I	0.8	0.4	0.5	0.4	0.1	0.03	1.488	1.131	0.063 (0.006)
Killer confounder – II	0.8	0.4	0.6	0.3	0.3	0.12	3.550	1.739	0.059 (0.006)
Killer confounder – III	0.8	0.8	0.6	0.3	0.3	0.50	3.552	9.233	0.051 (0.007)

Source: Authors' elaboration on SCIF and LSMS data.

Table A-7: Results of logistic regression models (full model)

Variable	Very good SRH	Chronic illnesses	Acute illnesses	Hospital stays
Migrant group (ref. recent migrant)				
Medium-term migrant	0.655*	0.829	1.850*	0.849
Long-term migrant	0.777	0.891	1.735*	0.814
Female (ref. male)	0.690*	0.999	1.545*	1.631
Age	0.947***	1.057***	1.020**	1.002
Educational level (ref. none or primary)				
Secondary	2.502**	1.304	1.150	0.876
Tertiary	5.014***	0.986	1.091	0.648
Occupational status (ref. employed)				
Inactive	0.804	1.123	1.354	1.265
Unemployed	1.154	1.098	1.218	1.071
Poor or very poor perceived financial condition	0.866	2.050***	0.877	1.221
Smoking (ref. no)				
Yes, occasionally	0.402*	1.247	4.062***	0.347
Yes, every day or almost every day	0.995	0.908	1.286	0.431*
Drinking (ref. no)				
Yes, occasionally	0.966	0.660*	1.318	0.847
Yes, every day or almost every day	0.825	0.663	1.143	0.694
Having close friends (ref. no)	0.809			
Migration for economic reason (ref. no)	1.163	0.694	0.920	1.325
Migration for family reason (ref. no)	1.279	0.894	0.907	1.310
Constant	2.601*	0.015***	0.024***	0.069***
N	2,075	2,075	2,075	2,055

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.
Source: Authors' elaboration on SCIF and LSMS data.

Figure A-1: Predicted probabilities of very good SRH, chronic illnesses, acute illnesses, and hospital stays by length of stay and gender

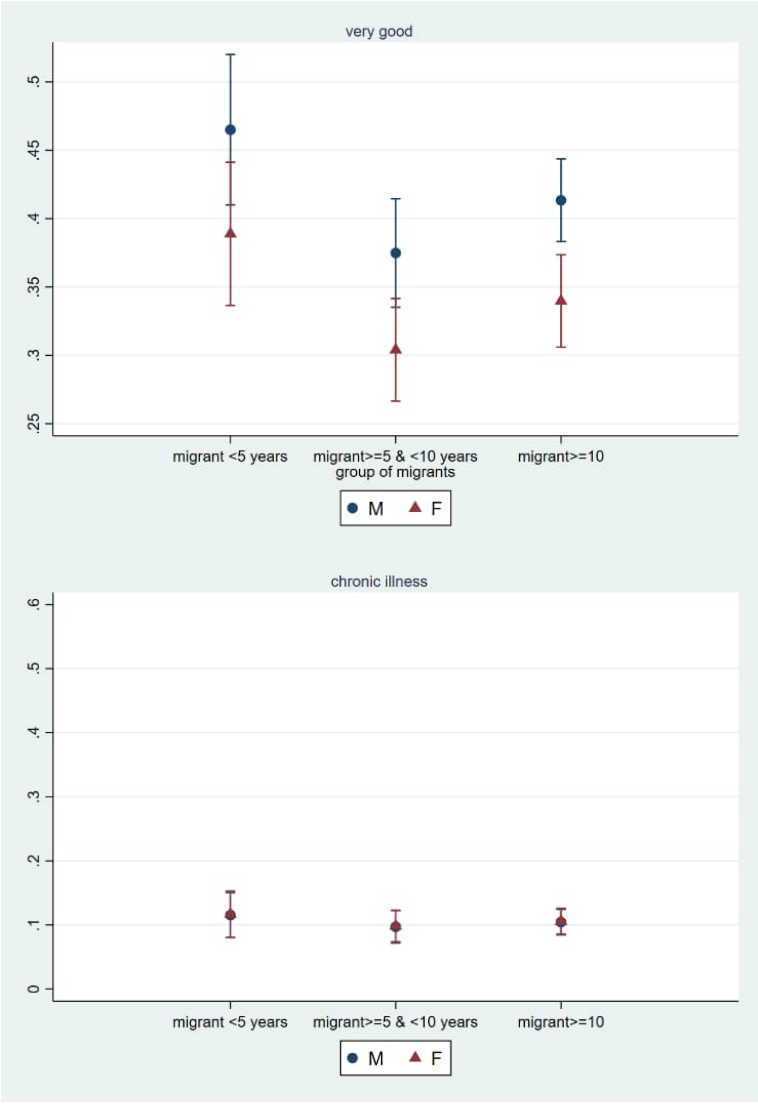
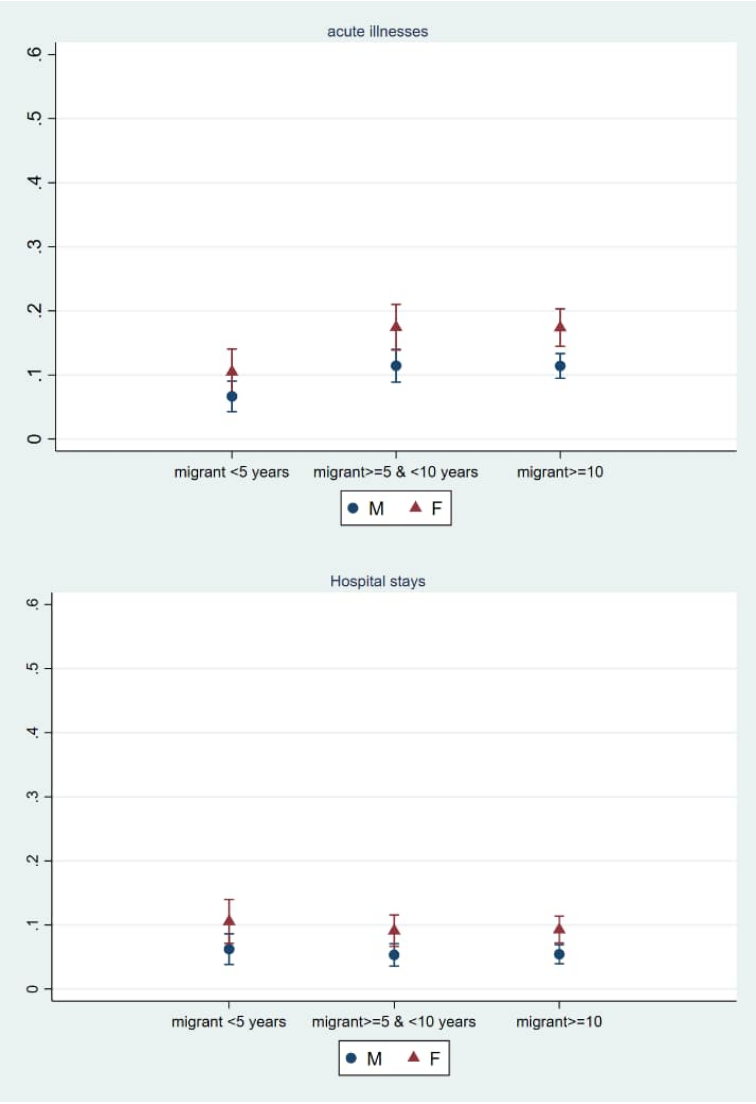


Figure A-1: (Continued)



Notes: Results from logistic regression models. Control variables included: age, educational level, occupational status, poor or very poor perceived financial condition, smoking, drinking, having close friends (for very good SRH only), reason for migration. Non-overlapping bars indicate statistically significant difference at $p < 0.05$ level (Goldstein and Healy 1995).
Source: Authors' elaboration on SCIF and LSMS data.