Immigrants' access to health care services in Italy:

New evidence from survey data*

Carlo Devillanova

Department of Policy Analysis and Public Management, Econpubblica, and Dondena
Università Bocconi, via Roentgen, 1, 20136 Milano, Italy
Tel. +39 0258365342; Fax +39 0258365318
carlo.devillanova@unibocconi.it

Abstract
This study aims to identify any differences between Italians' and immigrants' access to health services that cannot be ascribed to the distinct characteristics of these groups. The study uses the 2005 edition of the Italian National Health Survey to estimate the correlation between being an immigrant and the probability of accessing various health services (e.g., general practitioners, specialist doctors, hospitals, emergency departments, tests for blood cholesterol). Fitted regression models control for various individual characteristics, including socio-economic conditions, demographics, need variables, and lifestyle habits, as well as for territorial characteristics. Immigrants, both first and second generation, are identified by crossing information on citizenship with information on birthplaces. The results show that foreigners and foreign-born people suffer from unequal access to health care services. They are more likely to contact emergency services and less likely to visit specialist doctors and use preventive care. Similar results appear for second-generation immigrants, who display a lower probability of visiting specialist doctors and higher hospitalization rates. Vast heterogeneity across areas of birth also is documented.

Keywords: Health care utilization; Inequities; Immigrants; Italy

JEL classification: F22; I1

1. Introduction

This article deals with differences in access to health services between immigrants and natives of Italy. Access to health care by immigrants may differ from that by nonimmigrants for various, interrelated factors, such as demographic, social, economic, cultural, and institutional elements. In this analysis, I attempt to detect differences that cannot be ascribed to the specific

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characteristics of individual members of the two groups. In so doing, this study touches upon the analysis of the dichotomy between inequalities and inequities in access to health care, which occurs when there are systematic variations in access that are unrelated to health needs. That is, access is equitable if it does not depend on factors such as education, income, type of occupation, geographical distance from the services, and immigrant status (Nørredam and Krasnik, 2011). For the present study, the focus is on the immigrant status.

Ensuring equitable access to health care is a primary goal of the policy agenda in Europe, where "universality, access to high-quality care, equity and solidarity are common values and principles underpinning the health systems in the EU Member States" (European Parliament resolution n. 2010/2089 on "reducing health inequalities in the EU"). Equitable access can be economically efficient too, through lowered risks of spreading infectious diseases and lower costs due to early medical interventions and proper uses of medical services, which result from the provision of "the right services at the right time in the right place" to all members of a society (Rogers et al., 1999: 866). These considerations appeared as early as the 1948 Italian Constitution, which states (art. 32) that "the [Italian] Republic safeguards health as a fundamental right of the individual and as a collective interest, and guarantees free medical care to the indigent." Of course, ensuring equitable access to health care is only one step toward removing inequities between migrants and nonmmigrants, which also depend on the prevailing socio-economic conditions that affect the two groups. For example, a study by the European Commission (2008) concludes that migrants are frequently overrepresented among people living in poverty and are at high risk of social exclusion, which contributes to worsening their general health status and eroding any health advantages (e.g., Cunningham et al., 2008; McDonald and Kennedy, 2004). In fact, immigrants' health is largely shaped by the interaction between their socio-economic conditions and their immigrant status (e.g., Dunn and Dyck, 2000; Malmusi et al., 2010). However, even after controlling for health status, immigrants still may face barriers to access that eventually create additional health disparities (for a discussion of barriers to health care in advanced economies, see Devillanova, 2012).

From a policy perspective, it is important to disentangle the varying access levels linked to immigrant status from any association with other individual characteristics. If substantial variations in access persist after adjusting for individual characteristics—most notably, their

socio-economic conditions—then addressing observable differences between immigrants and natives (e.g., financial barriers to access, economic integration of immigrants into the host country) cannot suffice to guarantee equity. Instead, policies to promote equitable access are needed to overcome the other specific mechanisms of exclusion, such as a lack of information about service availability, application procedures, or other relevant institutional details; language barriers; administrative and bureaucratic difficulties, such as unintended administrative complexities; and discrimination. In general, effective policy measures to remove such barriers have relatively low costs (Huber et al., 2008) and include, for instance, spreading information among ethnic and linguistic minorities, simplifying administrative and bureaucratic procedures, providing cultural mediators in health centers, and establishing training programs for health care professionals. The obstacles to access to health services for migrants also might be intentional, due to eligibility restrictions. Intended institutional barriers are not relevant for the present analysis, as detailed in Section 2.

Substantial literature has addressed the unequal access of immigrants and, more generally, of ethnic and linguistic minorities to health care; an exhaustive review is beyond the scope of this article. Research has mainly focused on long-standing host countries, particularly the United States and Canada, and documented how differences in access between immigrants and natives persist over time (e.g., Akresh, 2009; Asanin and Wilson, 2008; Currie and Hotz, 2004; Dunn and Dyck, 2000; Gaskin et al., 2006; Hargraves and Hadley, 2003; Leclere et al., 1994; Schwartz and Artiga, 2007; Wang et al., 2008; Weinik et al., 2005; The Kaiser Commission on Medicaid and the Uninsured, 2008) and are shaped by the institutional context (e.g., insurance coverage, Siddiqi et al., 2009) and the characteristics of migration flows (e.g., shorter stays and limited language proficiency reduce access; see Lebrun, 2012).

For Europe though, the available evidence is sparser. Rechel et al. (2012) note that in most EU countries information on the health of migrants, including health determinants and their use of health services, is lacking, which limits the possibilities to monitor and improve migrant health. Nørredam and Krasnik (2011) offer an up-to-date review of existing studies on the differences in migrants' access to health services compared with nonmigrants. In general, migrants suffer lower access to specialist and preventive care and higher usage of emergency departments; there is also some evidence of greater use of general practitioners,

especially among migrant women (on barriers to access, see Gravelle et al., 2003; Morris et al., 2005; Smaje and Le Grand, 1997; on the overutilization of emergency services, see Cots et al., 2007; Davies et al., 2010; Ingleby et al., 2005; Sanz et al., 2000). Several recent studies focused on Spain document that non-Spaniards are more likely to be treated in hospitals and to contact emergency medical services but less likely to visit specialist doctors than Spaniards are (see Antón and Muñoz de Bustillo 2010; Hernández Quevedo and Jiménez Rubio, 2009, 2011). Further evidence shows that experience with discrimination is a decisive factors in access to healthcare services (Agudelo-Suárez et al., 2009). These findings are particularly relevant for this present study, because in both Italy and Spain, substantial immigration is a relatively new phenomenon.

Related to Italy, extant literature (e.g., Giannoni and Ismail, 2010) has documented inappropriate uses of emergency services (Bernadotti, 2003; Farchi et al. 2005; Sabbatani et al, 2006; Zaninotto, 2010), lower access to preventive healthcare and specialty medicine (Coffano and Mondo, 2004; Istat, 2008), and lower hospitalization rates, with the exception of specific diseases, such as injuries and traumatic accidents for men and reproductive events for women, which are more frequent among the immigrant population (Baglio et al., 2010; Cacciani et al., 2006; Ministero del Lavoro, della Salute e delle Politiche Sociali, 2008; Spinelli et al., 2005). There is also evidence of language barriers and a lack of knowledge about health care services (Caritas Italiana, 2004). None of these studies addresses the research question for this article though, probably as a consequence of data limitations; the observed differences among immigrants and natives appear to be a joint effect of various individual characteristics. Most studies use discharge data obtained from hospitals and their emergency departments (Baglio et al., 2010; Bernadotti, 2003; Cacciani et al., 2006; Coffano and Mondo, 2004; Farchi et al., 2005; Sabbatani et al., 2006; Zaninotto, 2010); Spinelli et al. (2005) interview 9,154 women who used health services during their pregnancies, of which 76 (74) were (undocumented) immigrants. The Caritas Italiana (2004) survey included 1,836 general practitioners, and Istat (2008) offers a descriptive analysis of the data I used for this study. Although health care usage data are a valuable source of information to monitor the health of the foreign population, they include only those patients who have sought out health services, which means they are unsuitable sources to investigate barriers to access (Rechel et

al., 2012). It is particularly problematic to compute reliable access rates for immigrants, because of the uncertainty surrounding their presence in the geographical area of analysis. Furthermore, Italian hospital discharge records have very limited information on patients' characteristics.

To the best of my knowledge, only two studies provide evidence on inequities linked to immigration status in Italy. Solé-Auró et al. (2011) use data from the Survey of Health, Ageing, and Retirement (SHARE) across 11 European countries and document that older immigrants use more health services than native-born people. However, they find an opposite, though not statistically significant, result for Italy (the sample includes only 37 foreign-born respondents). Giannoni (2010) uses data from the EU-SILC 2007 to estimate the effect of being a non-citizen on the probability of failing to get access medical or dental care. After they controlled for individual characteristics, these authors found that foreigners had a higher probability of not accessing healthcare than did Italian citizens.

To supplement this extant evidence, I rely on the most recent edition of the Italian National Health Survey (INHS), a large, representative survey that contains information on health conditions and health care service utilization, as well as rich socioeconomic and demographic data. To empirically evaluate the presence of inequities associated with immigrant status, I estimate the correlation between the probability of accessing various health services (general practitioners, specialist doctors, hospitals, emergency departments and, in some specifications, blood cholesterol tests) and immigrant status, controlling for a large set of possible confounding factors: socio-economic and demographic characteristics, need variables, lifestyle habits, and territorial characteristics. This methodology is standard and has been adopted recently to estimate how patterns of self-assessed health and health care utilization compare for Spaniards and non-Spaniards(Hernández Quevedo and Jiménez Rubio, 2009). Hernández Quevedo and Jiménez Rubio use nationality to detect migrants and restrict the sample to adults (older than 16 years). For this analysis, I use information on both the nationality and the country of birth and include children. Given the "*Ius sanguinis*" rule for naturalization in force in Italy, which mandates that children of foreign parents born in Italy are not qualified for Italian citizenship until the age of 18 years, it is possible to identify second-generation immigrants (the offspring of immigrant parents, born in Italy), by crossing

information on citizenship with that on the country of birth. Inequities in access to health care services for immigrant children therefore can be addressed. I believe that analyzing health care take-up behaviors by second-generation immigrants is crucial for policy analysis. In 2010, this group accounted for about two-thirds of foreign children and 13.9% of total births (Istat, 2012b).

Results show that foreigners and foreign-born individuals both are associated with unequal access to health care services: They are more likely to contact emergency services and less likely to visit specialist doctors and use preventive care. Second-generation immigrants also are characterized by a lower probability of visiting specialist doctors and higher hospitalization rates. This study documents heterogeneity across areas of birth. These findings align with results obtained for other European countries and can contribute to explaining previous findings for Italy.

The paper proceeds as follows. In Section 2, I briefly present the Italian context, the data, and the methodology. Section 3 illustrates the results, and in Section 4, I discuss the main findings and conclude.

2. Context, data, and methodology

For a long time Italy was a country of emigration. Starting in the early 1990s though, the net migration inflow became become positive and has increased over time. The share of foreigners in the total Italian population was barely 0.63% in 1991, 2.3% in 2001 (Istat 2012b), and 7.5% today (Istat 2012a), close to the average for the European Union as a whole (6.4% in 2009; Eurostat 2011). Although naturalization rules affect these estimates and comparisons across countries, foreign immigrants in Italy clearly have increased in the past 20 years, attracting considerable attention in policy debates and the media. The number of countries of origin is large (194, according to Istat, 2012a), which poses some additional concerns for managing diversity in terms of languages, religions, and cultures.

In Italy, immigrants' access to healthcare services also is a topical issue, because equitable access to health care is a core objective of the Italian National Health Care System (*Servizio Sanitario Nazionale* [SSN]). Anyone residing in Italy is entitled to access the SSN; documented immigrants must register with the SSN, after which they are granted equal

treatment and have the same rights and duties as any Italian citizen. However, according to the last official estimate, only 68% of immigrants are registered (Melis and Valente, 2009). Access for undocumented immigrants is limited (emergency and preventive care, treatments related to communicable disease, pregnancy and childbirth); my analysis is restricted to documented migrants. Health assistance also is granted to dependent minors, regardless of their legal status. Mladovsky (2009) and Vázquez et al. (2011) offer an overview of the health policies addressing immigrant populations in Italy. It also is worth mentioning that the Italian SSN is regionally and locally managed and that the implementation of the national law thus can differ across areas (Geraci et al. 2010).

I use the last edition of the INHS (*Indagine Multiscopo sulle famiglie "Condizioni di salute e ricorso ai servizi sanitari"* 2005), carried out in 2004 and 2005 by the Italian National Institute of Statistics. The first wave of INHS appeared in 1993; since then the survey has been carried out every five years. However, only the 2005 edition reports information on citizenship and more disaggregated details on the country of birth. The next edition of the INHS was not available at the time of this study. The sample consists of 50,474 households (128,040 individuals) randomly selected through a complex, stratified, multistage design within geographic strata (North, Center, South, and Islands), municipalities, and household sizes. The sample is representative of the Italian population. Unfortunately, for migrants, estimates are possible only at the national level, such that the geographical heterogeneity of migration policies cannot be addressed. The survey does provide detailed information about health conditions and the health care services used by individuals in the sample, plus a rich set of socioeconomic and demographic characteristics.

Fitted logit models of the probability of accessing medical care take the general form:

$$\text{Prob}(Y_i = 1 \mid \text{Immigrant}; X_i = x_i), \tag{1}$$

where Y_i is a binary variable equal to 1 if individual *i* has accessed the medical service of interest and 0 otherwise, and X_i is the set of individual and territorial controls. Four outcomes, Y_i, are the focus of this investigation: general practitioners (GPs), specialist doctors, hospitals (stayed overnight in a hospital, including hospitalization episodes linked to births), and emergency departments (EDs). For GPs and specialist doctors, the survey reports

if the respondent has visited a physician in the four weeks before the interview. For access to hospitals and EDs, the reference period is three months before the interview. Some specifications also offer an indicator of preventive care, namely, the frequency of tests for blood cholesterol; this item was addressed to respondents over the age of 18 years. The indicator takes a value of 1 if the respondent checks his or her blood cholesterol at least once every five years, and 0 otherwise.

The main independent variable of interest is immigration status. As is common in large surveys, identifying immigrants relies on either the citizenship or the country of birth of the respondents in the sample. Both measures have pros and cons; therefore, I use both of them and their interaction. The INHS differentiates between people with Italian citizenship and all the others, including stateless persons. The variable *foreigner* is an indicator equal to 1 if the respondent does not have Italian citizenship, and 0 otherwise. The category of foreigners thus does not include migrants who have acquired Italian nationality. The "*Ius sanguinis*" rule in force in Italy mandates that children of foreign parents born in Italy are not qualified for Italian citizenship until the age of 18 years (Law 91/1992). Because of this institutional feature, I can readily identify second-generation immigrants (G2), by crossing the variable *foreigner* with information on the country of birth. The INHS groups countries of birth in 10 areas: 25 countries of the European Union (EU-25); other European countries (Other-EU), with separate information for Albania and Romania; Africa (with separate information for Morocco); East Asia; the rest of Asia; Central and South America; and North America and Oceania. To ensure enough observations each nationality–birthplace cell, my analysis distinguishes foreign individuals born in Italy (G2), in the European Union (EU-25), and outside the EU-25 (Extra-EU25). I also provide more disaggregated evidence on the foreign-born population. Finally, all immigrants in this sample hold a valid residence permit and are fully eligible for public health care programs.

Individual controls in X_i consist of demographic, socio-economic, need, and lifestyle variables. In prior literature, these factors are often grouped as predisposing factors, enabling factors, and need for services, following Aday and Andersen's (1981) categories.

First, demographic and socio-economic characteristics are the person's age (0–9, 10–17, 18–34, 35–44, 45–65, 65–74, and older than 75 years), gender, the interaction between age and gender, marital status (= 1 if married, = 0 otherwise), type of household (single, couples, couples with children, single fathers, and single mothers; the results are unchanged if the number of members in the household is considered instead), education (university, high secondary education, lower secondary education, or less), and employment condition (= 1 if employed, = 0 otherwise). The survey has no direct information about actual income or wealth. To control for the household's economic conditions, I used two variables: a self-reported measure of the family's economic resources in the last 12 months (= 1 if economic means are very good or good, = 0 otherwise) and an indicator equal to 1 if the house is reported to be too small or in bad condition, and 0 otherwise.

Second, the need variables include a self-reported measure of the health status (three categories: good and very good, fine, or bad and very bad); an indicator variable equal to 1 if the respondent has suffered from any chronic diseases[1] in the 12 months prior to the interview; and an indicator variable equal to 1 if the respondent suffers any disability.[2] These controls are standard in prior literature and offer good predictive power with regard to access to health care. An indicator for the occurrence of an accident in the four weeks before the interview also was included, because immigrant workers may be employed more frequently in jobs that create a higher risk of accidents (Baglio et al., 2010; Inail, 2010), which would create differences in admission rates to EDs.

Third, three variables in X_i capture lifestyle habits, which might have an impact on the individuals' health status and/or demand for health services: smoking habits (= 1 if the person is a smoker, = 0 otherwise), physical activity (= 1 if the person engages in any physical activity, = 0 otherwise), and being on a diet. Fourth, to capture cultural aspects, X_i includes a

[1] The questionnaire identifies 25 chronic diseases: asthma, allergic diseases, diabetes, cataract, hypertension, myocardial infarction, angina pectoris, other heart diseases, stroke or brain hemorrhage, chronic bronchitis or emphysema, arthritis, osteoporosis, gastric or duodenal ulcer, cancer including lymphoma and leukemia, migraine and headache, chronic anxiety and depression, Alzheimer's or senile insanity, Parkinson's, other diseases of the nervous system, cholecystolithiasis or kidney stones, liver cirrhosis, diseases of the thyroid, severe skin diseases, and other chronic diseases.

[2] The different kinds of disabilities are: difficulties moving; difficulties of sight, hearing, or speaking; individual confinement and isolation; difficulties in ordinary activities; and physical disabilities.

variable that equals 1 if the respondent trusts alternative medicine, such as acupuncture, homeopathy, phytotherapy, massage therapy, and other non-conventional therapies.

There is an age threshold for three questions in the analysis: trust alternative medicine (14 years or older), employment status (15 years or older), and smoking (14 years or older). Missing values were coded in an additional category for employment condition and trust in alternative medicine; for smoking habits, I assign a value of 0 to all young individuals.

Finally, the territorial variables refer to the macro area of residence (North-West, North-East, Center, South, Islands) and the size of the municipality (up to 10,000 inhabitants, more than 10,000 inhabitants, or metropolitan areas). These variables control for territorial heterogeneity in the provision of healthcare services (see Masseria and Giannoni, 2010) and, possibly, cultural traits that might affect access. The data do not contain more precise geographical information.

3. Results

This section begins with descriptive statistics, followed by the results of the multivariate regression analysis. All statistics were obtained using Stata 9.0, and the sample weights were provided by the INHS.

3.1. Descriptive statistics

Table 1 offers information on foreigners and foreign-born individuals. People without Italian citizenship account for 4.27% of the sample. Remarkably, 14.53% of them (0.62% of the whole sample) were born in Italy and thus constitute the group of second-generation immigrants; 79.06% of non-Italian citizens were born in a country outside EU-25, and the remaining 6.41% were born in EU-25. In terms of birthplace, 5.49% of the sample was foreign-born, in the EU-25 (17.77%), other European countries (35.15%), Africa (19.81%), Asia (13.03%), Central and South America (10.95%), or North America and Oceania (3.3%). About 4.51% of the sample was born outside the EU-25; three countries (Albania, Romania, and Morocco) accounted for about 30.5% of the foreign-born population. A large share of foreign-born individuals (33.51%) has Italian citizenship. The data do not indicate whether they are Italians born abroad or naturalized immigrants.

Table 1 about here

For expositional convenience, the remainder of this section focuses on citizenship and uses the terms “foreigner” and “immigrant” interchangeably. Table 2 provides a first assessment of the percentage of individuals in the two groups who access health care. Immigrants achieve lower access to all considered health services except EDs. In particular, approximately 16.5% of the Italian population has visited specialist doctors or GPs, versus 10.2% of the immigrant population. The same pattern is observed for hospital visits, whereas the percentage of patients who have accessed EDs is higher among immigrants (9.1%) than Italians (7.1%).

Table 2 about here

Table 2 confirms the main findings of prior epidemiological literature for Italy, reviewed in Section 1. This information is certainly important for policy purposes, but it cannot confirm that immigrants and natives have unequal access to health care, because of the large differences between the two groups. Table A1 of the Appendix reports the means and standard errors of all the individual characteristics used in the regression analysis. One of the most remarkable differences between migrants and natives is the age structure: 60% of foreign persons are less than 35 years old, versus only 38% of Italians. The gender composition is balanced in each group, though men are slightly overrepresented among the immigrant population. Immigrants are slightly less educated, which is mainly driven by the higher percentage of children with pre-primary or primary education in that group. The age structure also explains the lower percentage of unemployed individuals among immigrants. As expected (e.g., European Commission, 2008), the percentage of households with very good or good economic resources is significantly higher on average among natives than among immigrants, as is also the case for housing. Immigrants are characterized by better self-reported health conditions and a lower incidence of disabilities or chronic diseases, coherent with their age structure and the “healthy migrant effect” hypothesis. The percentages of Italians who practice sports or are on diets are higher than those of immigrants. The results related to smoking habits do not reveal significant differences though. Immigrants are mostly concentrated in the north of Italy and metropolitan areas.

3.2. Regression results

This section presents the results of the logit regression Model 1. Robust standard errors are clustered at the household levels. All specifications include the whole set of controls. For brevity, tables in the main text report the odd ratios of the immigrant status, based on the citizenship of the respondents (Table 3), the area of their birth (Table 6), and the interaction of these two variables (Tables 4 and 5). The complete regression results are available in Tables A2–A5 of the Appendix and briefly discussed at the end of this section.

Table 3 about here

Table 3 contains the odds ratio for the probability of accessing medical care by non-Italian citizens relative to Italian citizens. Each column corresponds to one of the four outcome variables. Even after controlling for possible confounding factors, immigrants have a lower probability of visiting specialist doctors (odds ratio = 0.658) and a higher probability of accessing EDs (odds ratio = 1.369). There are no statistically significant differences between Italians and immigrants in their probability of visiting GPs or staying overnight in a hospital.

Table 4 crosses the information on citizenship with that on the country of birth. To avoid possible confusion, I denote the first row of Table 4 (and Tables A3 and A4 in the Appendix), who refers to foreigners born in Italy, with the marker G2, for second-generation immigrants, instead of with their country of birth. As Table 4 reveals, second-generation immigrants differ significantly from Italians in terms of specialist visits (odds ratio = 0.6) and hospitalization (odds ratio = 1.65). Similar results (available on request) emerge from restricting the sample to individuals younger than 18 years.

Table 4 about here

There is no statistically significant evidence of unequal access between immigrants born in the EU-25 and Italian citizens (second row of Table 4). However, the number of observations in this cell is low. Foreigners born outside EU-25 show a lower probability of visiting a specialist doctor (odds ratio = 0.62) and a higher probability of accessing emergency rooms (odds ratio = 1.46).

To align with extant literature, Table 5 presents the results for a restricted sample of adults (18 years or older). Moreover, it adds a fifth outcome: the probability of testing blood cholesterol, asked of adults only. The results for foreigners born in Italy (G2) are not reported,

due to the extremely low number of observations in this cell (18 respondents; see Table A4 of the Appendix), confirming that the group mostly consists of immigrants' offspring, who are not qualified for naturalization until 18 years of age.

Table 5 about here

Table 5 also confirms the underutilization (overutilization) of specialist doctors (EDs) by immigrants born outside the EU-25. There is also some evidence that foreigners born in the EU-25 have a higher probability of accessing to specialist visits. Finally, foreigners have a lower probability of testing blood cholesterol levels, independent of their country of birth.

Immigrants have been identified with foreigners thus far in this study, but in this procedure, information on nationality is binary (Italian–other), and Table 3 cannot be replicated for different groups of countries. Nor it is possible to reproduce Tables 4 and 5 by crossing citizenship with more disaggregated areas of birth, because the number of observations in each country–nationality cell shrinks too much, preventing identification. Table 6 provides more disaggregated information on foreign-born individuals, independent of their citizenship. Because second-generation immigrants cannot be identified with this procedure, the sample is restricted to adults. I consider the five outcomes separately: There is evidence of a lover use of GPs by Asians (the estimate for people born in North America and Oceania is only marginally statistically significant). This result might reflect cultural factors (e.g., trust in Western medicine versus other remedies) and the characteristics of the migratory pattern (e.g., the Asian community is relatively well established in Italy and therefore might provide members with alternative resources and health care services). The second column of Table 6 shows lower access to specialist doctors among people born in a European country not belonging to EU-25, and then an opposite pattern for people born in the EU-25. Immigrants from EU-other, Africa, and Central and South America overuse EDs. In general, preventive care, as captured by blood cholesterol tests, is less frequent among all foreign-born respondents.

Table 6 about here

The estimates for the other controls are in Tables A2–A5 of the Appendix, which present the odds ratios for the reference category of each independent variable. The reference individual is a man, aged 45–64 years, who is not married and lives alone, with less than

secondary education. His economic condition is bad/very bad, and he reports no housing problems. He is employed, resides in a town with less than 10,000 inhabitants, in the center of Italy. He is not affected by any chronic disease or disability, he is not a smoker, he has had no recent accident, he is not on diet, and he practices no sport. His self-reported health condition is fine, and he does not trust alternative medicine.

Both individual and area characteristics are of independent interest, but the present analysis cannot establish causality links. In general, estimates appear stable across specifications, with the expected signs. The relationship between age (vs. 45–64 years) and the use of healthcare services is not linear and varies across outcomes. In particular, children (0–9 years) have a lower probability of visiting GPs and a higher probability of accessing other health care services. Being female correlates positively with the probability of visiting GPs or specialist doctors and negatively with the probability of accessing hospitals and EDs. The interaction between age and gender shows a higher probability of women receiving medical care during their fertile years (18–44 years). Being married is associated with a higher probability of specialist visits, hospitalization, and access to EDs. People with a lower level of education are less likely to have visited a specialist doctor but more likely to visit GPs than more educated people. Satisfactory economic conditions are associated with a lower probability of GP and ED visits; being employed correlates with a higher probability of visiting a specialist doctor. As expected, self-reported health status has a significant effect on the probability of accessing medical services. Similar findings result from looking at the variables related to chronic diseases, disabilities, and the occurrence of a recent accident (odds ratio for accessing EDs = 8.365).

Playing sports is associated with a higher (lower) probability of visiting GPs and specialist doctors (hospitals and EDs). Being on a diet is positively correlated with the probability of receiving health care; the relationship is reversed for smoking habits, except for EDs. People who trust alternative medicine also use more GPs, specialist doctors, and EDs. These variables seem to capture some individual heterogeneity in attitudes that affect access to health care. This interpretation is supported by their correlation with the probability of testing blood cholesterol levels.

Finally, the analysis reveals differences in the coefficients of the area of residence. Living in the south of Italy is associated with a lower probability of having contacted GPs or specialist doctors and having accessed EDs.

4. Discussion and conclusions

The results of this study document that, after controlling for possible confounding factors, foreigners and foreign-born individuals have unequal access to health care services. In particular, foreigners from extra–EU-25 countries are more likely to contact emergency services and less likely to visit specialist doctors or use preventive care. Similar findings emerge for second-generation immigrants, who have a lower probability of visiting specialist doctors and higher hospitalization rates. The latter result raises concerns for equity and social cohesion in the long run and is consistent with prior findings (Borjas and Sueyoshi, 1997) that indicate that differences in welfare participation rates among ethnic groups are transmitted to the children in these groups. The observed paths of access might affect the severity of health conditions when health care is accessed or the relative burden in terms of cost and clinical efforts for foreign residents.

However, this study also contains some limitations. The sampling design only ensures that the population of foreigners and foreign-born individuals is representative at the national level, preventing any analysis at the regional level. Furthermore, the available data have no information about insurance coverage, length of stay in Italy, or language proficiency, all of which shape access to health care (e.g., Lebrum, 2012; Siddiqi et al., 2009). Concerning supplementary private insurance, it is not common in Italy. According to the OECD (2007), in 2005 (the year of the survey that provided the data for this study), expenditures on private insurance accounted for only 1% of total health expenditures. Furthermore, Solé-Auró et al. (2011) document that in Italy, the share of older persons covered by supplementary or private health insurance is higher among immigrants relative to the native population, which likely implies higher health care utilization among the former. Regarding language proficiency, the survey questionnaire was in Italian, which might have caused lower response rates among people who felt less than confident in their ability to understand or answer the questionnaire.

If immigrants with poor knowledge of Italian are also more likely to face barriers in access to health services, this sample selection could underestimate the true barriers for them.

Furthermore, my analysis cannot unambiguously identify the underlying mechanisms of unequal access. However, considering the vast set of controls in the regression specification, it seems likely that lack of information, linked to linguistic, administrative, and bureaucratic barriers, plays a major role. Lack of knowledge about how to access health services shapes access to health care among undocumented immigrants in Italy (Devillanova, 2008). Informational barriers might reflect the complex procedures required to access specialist medicine in the Italian SSN, relative to the direct access to GPs, hospitals, and, in particular, EDs. Furthermore, the familiarity of immigrants with similar health services in their country of origin may help explain the documented heterogeneity across areas of birth.

Table 7 provides additional evidence in indirect support of this lack of information hypothesis. A specific module of INSH asked women who had given birth in the six years prior the interview two questions about their sense of any lack of information. The first column of Table 7 reports the percentage of respondents who were not aware that they could undergo a prenatal diagnosis during pregnancy, by nationality. These results make it clear that a lack of information among immigrant women is very high: 36.89% of foreigner women did not know about this opportunity, compared with 11.55% of Italians. The second question asked about attendance at a prenatal class; 19% of immigrant women who did not attend indicated that their reason was because they were ignorant of its existence, relative to only 5% of Italian women.

Table 7 about here

These results support the hypothesis that a lack of information, probably linked to administrative complexities, plays a crucial role in shaping access to health care for the immigrant population in Italy. At the same time, differences in culture, attitudes, referral habits according to nationality, missed appointments, and discrimination are possible influences that cannot be excluded. Further research should try to disentangle these different mechanisms, to build more effective policy measures.

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Appendix: Additional tables

Table A1: Summary statistics of the independent variables

	Italians		Foreigners	
Variable	**Mean**	**Se**	**Mean**	**Se**
Age				
0-8	0.0911	(0.000959)	0.155	(0.00727)
10-17	0.0785	(0.000883)	0.0960	(0.00590)
18-34	0.214	(0.00137)	0.352	(0.00962)
35-44	0.159	(0.00123)	0.237	(0.00832)
65-74	0.108	(0.00103)	0.0124	(0.00196)
75 or older	0.0912	(0.000931)	0.00516	(0.00125)
Female	0.515	(0.00165)	0.489	(0.00998)
Married	0.482	(0.00165)	0.393	(0.00983)
Type of the household				
Couple	0.603	(0.00162)	0.595	(0.00981)
Couple with children	0.174	(0.00125)	0.116	(0.00672)
Single father	0.0141	(0.000406)	0.0193	(0.00264)
Single mother	0.0749	(0.000879)	0.0393	(0.00339)
Education				
University	0.0744	(0.000890)	0.0638	(0.00460)
High/Secondary	0.273	(0.00148)	0.257	(0.00879)
Good economic condition	0.693	(0.00152)	0.449	(0.00995)
Not employed	0.466	(0.00165)	0.253	(0.00840)
Housing problems	0.113	(0.00108)	0.351	(0.00964)
Self-assessed health				
Good/very good	0.648	(0.00157)	0.867	(0.00641)
Bad/very bad	0.0610	(0.000774)	0.0126	(0.00200)
Chronic disease	0.414	(0.00162)	0.161	(0.00700)
Disability	0.0466	(0.000675)	0.00844	(0.00225)
Accident	0.0272	(0.000532)	0.0239	(0.00293)
Smoker	0.189	(0.00130)	0.177	(0.00727)
Sport	0.495	(0.00166)	0.436	(0.00986)
On diet	0.146	(0.00117)	0.0721	(0.00511)
Trust in alternative medicine	0.428	(0.00164)	0.313	(0.00917)
North-West	0.259	(0.00158)	0.371	(0.0102)
North-East	0.184	(0.00119)	0.271	(0.00813)
South	0.249	(0.00131)	0.0864	(0.00489)
Islands	0.118	(0.00107)	0.0325	(0.00346)
Metropolitan area	0.272	(0.00163)	0.313	(0.00992)
> 10,000 inhabitants	0.415	(0.00161)	0.394	(0.00963)

Source: Our calculation on INHS 2005. For all variables, the reference category is not reported. The reference individual is a man, aged 45–64 years, who is not married and lives alone, with less than secondary education. His economic condition is bad/very bad, and he reports no housing problems. He is employed, resides in a town with less than 10,000 inhabitants, in the center of Italy. He is not affected by any chronic disease or disability, he is not a smoker, he has had no recent accident, he is not on diet, and he practices no sport. His self-reported health condition is fine, and he does not trust alternative medicine.

Table A2: Logit analysis, odds ratios: Foreigners

	GPs	Specialist doctors	Hospitals	EDs
Foreigner	1.002	0.658***	1.189	1.369***
	[0.0732]	[0.0476]	[0.162]	[0.120]
Age 0-9	0.691***	3.615***	3.257***	2.829***
	[0.0825]	[0.354]	[0.880]	[0.427]
Age 10-17	0.895	1.591***	1.351	1.642***
	[0.0791]	[0.138]	[0.295]	[0.211]
Age 18-34	0.904**	0.854***	0.910	1.303***
	[0.0453]	[0.0436]	[0.100]	[0.0872]
Age 35-44	0.862***	0.857***	0.721***	1.054
	[0.0404]	[0.0417]	[0.0790]	[0.0684]
Age 65-74	1.383***	1.126**	1.295***	1.114
	[0.0634]	[0.0574]	[0.119]	[0.0756]
Age 75 or older	1.639***	1.088	1.154	1.368***
	[0.0846]	[0.0633]	[0.115]	[0.103]
Female	1.180***	1.171***	0.652***	0.634***
	[0.0400]	[0.0430]	[0.0520]	[0.0359]
Age 0-9*female	0.808**	0.928	1.544***	1.455***
	[0.0838]	[0.0575]	[0.217]	[0.140]
Age 10-17*female	0.889	0.845**	1.000	0.994
	[0.0822]	[0.0651]	[0.241]	[0.128]
Age 18-34*female	1.052	1.552***	2.944***	1.756***
	[0.0610]	[0.0910]	[0.382]	[0.143]
Age 35-44*female	1.138**	1.332***	2.070***	1.445***
	[0.0676]	[0.0825]	[0.290]	[0.130]
Age 65-74*female	0.941	0.817***	0.955	1.098
	[0.0522]	[0.0513]	[0.114]	[0.101]
Age 75 or older*female	0.837***	0.647***	0.914	1.137
	[0.0483]	[0.0444]	[0.109]	[0.105]
Married	1.063	1.113***	1.651***	1.221***
	[0.0419]	[0.0425]	[0.134]	[0.0661]
Couple	0.918*	0.963	0.681***	0.868**
	[0.0416]	[0.0435]	[0.0619]	[0.0541]
Couple with children	0.967	1.024	0.619***	0.834***
	[0.0467]	[0.0505]	[0.0610]	[0.0575]
Single father	1.042	0.816**	0.903	0.833
	[0.0967]	[0.0797]	[0.149]	[0.106]
Single mother	0.936	0.965	0.985	1.026
	[0.0428]	[0.0462]	[0.0897]	[0.0671]
University	0.819***	1.207***	0.904	0.866**
	[0.0351]	[0.0496]	[0.0837]	[0.0538]
High/Secondary	0.949**	1.195***	0.995	1.002
	[0.0243]	[0.0316]	[0.0537]	[0.0365]
Good economic condition	0.875***	1.030	1.109**	0.897***
	[0.0199]	[0.0237]	[0.0485]	[0.0290]
Not employed	0.961	0.880***	1.108*	0.947
	[0.0253]	[0.0239]	[0.0639]	[0.0371]
Housing problems	1.012	0.988	1.048	1.101**
	[0.0364]	[0.0350]	[0.0696]	[0.0523]
Good/very good health	0.550***	0.535***	0.402***	0.659***
	[0.0135]	[0.0135]	[0.0220]	[0.0240]
Bad/very bad health	1.618***	1.988***	2.755***	1.930***
	[0.0568]	[0.0760]	[0.159]	[0.0918]
Chronic disease	1.944***	1.706***	1.403***	1.500***
	[0.0457]	[0.0404]	[0.0706]	[0.0502]
Disability	1.097**	1.120**	1.302***	1.282***
	[0.0466]	[0.0514]	[0.0896]	[0.0725]
Accident	1.827***	2.851***	3.490***	8.365***
	[0.0903]	[0.137]	[0.252]	[0.389]
Smoker	0.916***	0.906***	0.818***	1.082**
	[0.0240]	[0.0247]	[0.0461]	[0.0393]
Sport	1.084***	1.131***	0.694***	0.919***
	[0.0230]	[0.0228]	[0.0301]	[0.0269]
On diet	1.396***	1.560***	1.298***	1.306***
	[0.0340]	[0.0393]	[0.0598]	[0.0460]
Trust in alternative medicine	1.065***	1.221***	0.918**	1.076**
	[0.0227]	[0.0274]	[0.0396]	[0.0324]
North-West	0.875***	1.022	1.094	1.075
	[0.0294]	[0.0332]	[0.0729]	[0.0487]
North-East	1.096***	1.038	1.168**	1.158***
	[0.0353]	[0.0326]	[0.0738]	[0.0491]
South	0.928**	0.837***	1.005	0.687***
	[0.0291]	[0.0257]	[0.0606]	[0.0301]
Islands	0.944	0.906**	1.035	0.790***
	[0.0377]	[0.0354]	[0.0787]	[0.0430]
Metropolitan area	0.928***	1.000	0.991	0.945
	[0.0269]	[0.0278]	[0.0551]	[0.0383]
>10,000 inhabitants	0.915***	0.961*	1.048	0.990
	[0.0211]	[0.0216]	[0.0481]	[0.0316]
Constant	0.187***	0.116***	0.0332***	0.0643***
	[0.0103]	[0.00652]	[0.00371]	[0.00505]
Observations	128,040	128,040	128,040	128,040

Notes: The standard errors (clustered by household) are in brackets. The asterisks indicate significance at the 1% level (***), 5% level (**), or 10% level (*).

Table A3: Logit analysis, odds ratios: Foreigners by region of birth

	GPs	Specialist doctors	Hospitals	EDs
G2	1.013	0.601***	1.647**	1.159
	[0.237]	[0.0937]	[0.388]	[0.213]
EU-25	0.871	1.346	0.824	1.042
	[0.192]	[0.259]	[0.374]	[0.308]
Extra-EU-25	1.014	0.620***	1.094	1.455***
	[0.0789]	[0.0548]	[0.158]	[0.131]
Age 0-9	0.691***	3.628***	3.212***	2.847***
	[0.0829]	[0.355]	[0.867]	[0.430]
Age 10-17	0.895	1.594***	1.361	1.634***
	[0.0791]	[0.138]	[0.297]	[0.209]
Age 18-34	0.904**	0.856***	0.918	1.294***
	[0.0453]	[0.0437]	[0.101]	[0.0867]
Age 35-44	0.862***	0.858***	0.724***	1.051
	[0.0404]	[0.0417]	[0.0793]	[0.0682]
Age 65-74	1.383***	1.127**	1.292***	1.115
	[0.0634]	[0.0574]	[0.119]	[0.0757]
Age 75 or older	1.639***	1.089	1.151	1.370***
	[0.0846]	[0.0633]	[0.115]	[0.103]
Female	1.180***	1.170***	0.653***	0.634***
	[0.0400]	[0.0430]	[0.0520]	[0.0359]
Age 0-9*female	0.808**	0.927	1.548***	1.455***
	[0.0839]	[0.0575]	[0.218]	[0.140]
Age 10-17*female	0.889	0.845**	0.999	0.995
	[0.0822]	[0.0652]	[0.240]	[0.128]
Age 18-34*female	1.053	1.548***	2.943***	1.758***
	[0.0610]	[0.0909]	[0.382]	[0.143]
Age 35-44*female	1.138**	1.332***	2.070***	1.445***
	[0.0676]	[0.0825]	[0.290]	[0.130]
Age 65-74*female	0.941	0.817***	0.954	1.099
	[0.0522]	[0.0513]	[0.114]	[0.101]
Age 75 or older*female	0.837***	0.648***	0.913	1.138
	[0.0483]	[0.0445]	[0.109]	[0.105]
Married	1.063	1.114***	1.664***	1.214***
	[0.0419]	[0.0425]	[0.136]	[0.0659]
Couple	0.918*	0.962	0.674***	0.874**
	[0.0417]	[0.0435]	[0.0616]	[0.0545]
Couple with children	0.968	1.022	0.613***	0.840**
	[0.0467]	[0.0503]	[0.0608]	[0.0580]
Single father	1.042	0.818**	0.898	0.836
	[0.0967]	[0.0798]	[0.148]	[0.106]
Single mother	0.936	0.965	0.981	1.029
	[0.0428]	[0.0463]	[0.0894]	[0.0673]
University	0.819***	1.202***	0.903	0.869**
	[0.0351]	[0.0494]	[0.0836]	[0.0541]
High/Secondary	0.950**	1.194***	0.993	1.005
	[0.0243]	[0.0316]	[0.0537]	[0.0366]
Good economic condition	0.875***	1.028	1.111**	0.897***
	[0.0199]	[0.0237]	[0.0486]	[0.0289]
Not employed	0.961	0.880***	1.108*	0.948
	[0.0253]	[0.0239]	[0.0638]	[0.0372]
Housing problems	1.012	0.992	1.044	1.102**
	[0.0365]	[0.0352]	[0.0694]	[0.0524]
Good/very good health	0.550***	0.535***	0.402***	0.659***
	[0.0135]	[0.0135]	[0.0220]	[0.0240]
Bad/very bad health	1.618***	1.987***	2.756***	1.930***
	[0.0568]	[0.0760]	[.159]	[0.0918]
Chronic disease	1.944***	1.705***	1.402***	1.502***
	[0.0457]	[0.0404]	[0.0706]	[0.0503]
Disability	1.097**	1.120**	1.302***	1.281***
	[0.0465]	[0.0515]	[0.0897]	[0.0724]
Accident	1.827***	2.854***	3.490***	8.366***
	[0.0902]	[0.138]	[0.252]	[0.389]
Smoker	0.916***	0.906***	0.817***	1.083**
	[0.0240]	[0.0246]	[0.0461]	[0.0394]
Sport	1.084***	1.130***	0.695***	0.918***
	[0.0230]	[0.0228]	[0.0302]	[0.0268]
On diet	1.396***	1.561***	1.297***	1.306***
	[0.0340]	[0.0393]	[0.0597]	[0.0460]
Trust in alternative medicine	1.066***	1.220***	0.916**	1.077**
	[0.0227]	[0.0274]	[0.0396]	[0.0324]
North-West	0.875***	1.023	1.093	1.075
	[0.0294]	[0.0332]	[0.0728]	[0.0486]
North-East	1.096***	1.039	1.167**	1.157***
	[0.0353]	[0.0326]	[0.0738]	[0.0491]
South	0.928**	0.836***	1.006	0.686***
	[0.0291]	[0.0257]	[0.0607]	[0.0301]
Islands	0.944	0.905**	1.036	0.790***
	[0.0378]	[0.0354]	[0.0788]	[0.0430]
Metropolitan area	0.928***	0.999	0.992	0.944
	[0.0268]	[0.0278]	[0.0551]	[0.0382]
>10,000 inhabitants	0.915***	0.961*	1.048	0.989
	[0.0211]	[0.0216]	[0.0481]	[0.0316]
Constant	0.186***	0.116***	0.0334***	0.0639***
	[0.0103]	[0.00655]	[0.00373]	[0.00503]
Observations	128,040	128,040	128,040	128,040

Notes: The standard errors (clustered by household) are in brackets. The asterisks indicate significance at the 1% level (***), 5% level (**), or 10% level (*).

Table A4: Logit analysis, odds ratios: Foreigners by region of birth, adults only

	GPs	Specialist doctors	Hospitals	EDs	Cholesterol test
G2	1.382	0.684	2.493	1.922	0.763
	[0.926]	[0.553]	[2.781]	[1.547]	[0.402]
EU-25	0.910	1.493**	0.914	1.197	0.655***
	[0.201]	[0.281]	[0.416]	[0.355]	[0.106]
Extra-EU-25	1.054	0.664***	1.107	1.608***	0.464***
	[0.0815]	[0.0632]	[0.165]	[0.154]	[0.0318]
Age 18-34	0.912*	0.856***	0.936	1.292***	0.400***
	[0.0460]	[0.0442]	[0.104]	[0.0881]	[0.0151]
Age 35-44	0.863***	0.855***	0.725***	1.048	0.644***
	[0.0405]	[0.0417]	[0.0796]	[0.0684]	[0.0241]
Age 65-74	1.381***	1.132**	1.289***	1.116	1.470***
	[0.0635]	[0.0578]	[0.119]	[0.0759]	[0.0814]
Age 75 or older	1.638***	1.098	1.157	1.373***	1.566***
	[0.0846]	[0.0640]	[0.116]	[0.104]	[0.107]
Female	1.177***	1.177***	0.657***	0.635***	1.151***
	[0.0400]	[0.0434]	[0.0523]	[0.0361]	[0.0367]
Age 18-34*female	1.053	1.551***	2.952***	1.764***	1.109**
	[0.0611]	[0.0911]	[0.384]	[0.144]	[0.0468]
Age 35-44*female	1.138**	1.333***	2.067***	1.445***	1.048
	[0.0676]	[0.0826]	[0.290]	[0.130]	[0.0497]
Age 65-74*female	0.941	0.819***	0.960	1.105	1.188**
	[0.0522]	[0.0514]	[0.114]	[0.102]	[0.0847]
Age 75 or older*female	0.837***	0.648***	0.913	1.145	1.003
	[0.0483]	[0.0445]	[0.109]	[0.106]	[0.0802]
Married	1.081*	1.147***	1.871***	1.248***	1.863***
	[0.0449]	[0.0473]	[0.177]	[0.0733]	[0.0584]
Couple	0.898**	0.935	0.599***	0.861**	0.646***
	[0.0426]	[0.0451]	[0.0613]	[0.0572]	[0.0258]
Couple with children	0.951	0.999	0.548***	0.829**	0.823***
	[0.0475]	[0.0515]	[0.0601]	[0.0603]	[0.0395]
Single father	1.063	0.865	1.001	0.886	0.844*
	[0.101]	[0.0914]	[0.168]	[0.118]	[0.0760]
Single mother	0.949	0.983	1.047	1.092	0.830***
	[0.0444]	[0.0490]	[0.0939]	[0.0729]	[0.0386]
University	0.818***	1.196***	0.877	0.864**	1.247***
	[0.0352]	[0.0493]	[0.0813]	[0.0539]	[0.0482]
High/Secondary	0.949**	1.194***	0.975	1.002	1.167***
	[0.0244]	[0.0319]	[0.0529]	[0.0368]	[0.0278]
Good economic condition	0.879***	1.006	1.106**	0.882***	1.138***
	[0.0205]	[0.0251]	[0.0492]	[0.0296]	[0.0297]
Not employed	0.960	0.868***	1.108*	0.936*	0.872***
	[0.0254]	[0.0239]	[0.0646]	[0.0372]	[0.0197]
Housing problems	1.029	0.989	1.048	1.119**	0.916**
	[0.0384]	[0.0393]	[0.0714]	[0.0573]	[0.0356]
Good/very good health	0.551***	0.543***	0.423***	0.657***	0.692***
	[0.0138]	[0.0144]	[0.0236]	[0.0251]	[0.0176]
Bad/very bad health	1.621***	2.011***	2.768***	1.920***	1.314***
	[0.0570]	[0.0778]	[0.163]	[0.0932]	[0.0774]
Chronic disease	1.973***	1.742***	1.449***	1.540***	1.500***
	[0.0482]	[0.0448]	[0.0782]	[0.0556]	[0.0344]
Disability	1.088**	1.145***	1.349***	1.344***	1.227***
	[0.0456]	[0.0546]	[0.0950]	[0.0790]	[0.0825]
Accident	1.809***	2.928***	3.592***	8.536***	0.869**
	[0.0945]	[0.150]	[0.269]	[0.421]	[0.0501]
Smoker	0.921***	0.913***	0.817***	1.078**	0.835***
	[0.0243]	[0.0252]	[0.0463]	[0.0395]	[0.0191]
Sport	1.076***	1.205***	0.794***	1.008	1.243***
	[0.0238]	[0.0277]	[0.0369]	[0.0325]	[0.0271]
On diet	1.394***	1.537***	1.262***	1.294***	2.239***
	[0.0342]	[0.0401]	[0.0591]	[0.0468]	[0.0769]
Trust in alternative medicine	1.067***	1.215***	0.906**	1.077**	1.144***
	[0.0231]	[0.0276]	[0.0396]	[0.0331]	[0.0252]
North-West	0.898***	1.049	1.057	1.039	0.753***
	[0.0308]	[0.0367]	[0.0708]	[0.0491]	[0.0291]
North-East	1.107***	1.067*	1.167**	1.144***	0.981
	[0.0363]	[0.0365]	[0.0738]	[0.0507]	[0.0379]
South	0.969	0.923**	1.025	0.720***	0.917**
	[0.0311]	[0.0304]	[0.0617]	[0.0325]	[0.0342]
Islands	0.956	0.959	1.016	0.798***	0.601***
	[0.0387]	[0.0405]	[0.0775]	[0.0454]	[0.0260]
Metropolitan area	0.954	1.016	1.014	0.927*	1.344***
	[0.0282]	[0.0306]	[0.0566]	[0.0394]	[0.0434]
>10,000 inhabitants	0.949**	0.953*	1.051	0.978	1.117***
	[0.0225]	[0.0236]	[0.0486]	[0.0326]	[0.0281]
Constant	0.177***	0.108***	0.0309***	0.0610***	3.128***
	[0.00986]	[0.00632]	[0.00352]	[0.00492]	[0.182]
Observations	105,844	105,844	105,844	105,844	105,844

Notes: The standard errors (clustered by household) are in brackets. The asterisks indicate significance at the 1% level (***), 5% level (**), or 10% level (*).

Table A5: Logit analysis, odds ratios: Foreign-born individuals, adults only

	GPs	Specialist doctors	Hospitals	EDs	Cholesterol test
EU-25	0.931	1.253**	0.937	1.128	0.834**
	[0.0920]	[0.123]	[0.214]	[0.156]	[0.0717]
EU-Other	1.021	0.769***	1.027	1.630***	0.540***
	[0.0914]	[0.0738]	[0.176]	[0.175]	[0.0453]
Africa	1.141	0.833	1.307	1.538***	0.576***
	[0.131]	[0.106]	[0.274]	[0.231]	[0.0621]
Asia	0.549***	0.657	0.707	0.991	0.355***
	[0.120]	[0.172]	[0.261]	[0.224]	[0.0553]
Center/South America	1.190	0.985	1.643*	1.528*	0.664***
	[0.179]	[0.157]	[0.476]	[0.343]	[0.0874]
North America/Oceania	0.582*	0.715	2.220*	1.492	1.126
	[0.180]	[0.211]	[1.005]	[0.539]	[0.228]
Age 18-34	0.921	0.850***	0.939	1.304***	0.400***
	[0.0465]	[0.0439]	[0.104]	[0.0885]	[0.0151]
Age 35-44	0.867***	0.853***	0.725***	1.048	0.645***
	[0.0407]	[0.0416]	[0.0797]	[0.0685]	[0.0241]
Age 65-74	1.380***	1.133**	1.292***	1.114	1.474***
	[0.0634]	[0.0579]	[0.119]	[0.0758]	[0.0818]
Age 75 or older	1.637***	1.100	1.158	1.370***	1.571***
	[0.0846]	[0.0642]	[0.116]	[0.104]	[0.107]
Female	1.177***	1.177***	0.656***	0.633***	1.150***
	[0.0400]	[0.0434]	[0.0524]	[0.0360]	[0.0367]
Age 18-34*female	1.050	1.552***	2.944***	1.763***	1.105**
	[0.0610]	[0.0911]	[0.382]	[0.144]	[0.0467]
Age 35-44*female	1.137**	1.331***	2.062***	1.447***	1.044
	[0.0676]	[0.0825]	[0.289]	[0.131]	[0.0495]
Age 65-74*female	0.941	0.820***	0.960	1.104	1.192**
	[0.0522]	[0.0515]	[0.114]	[0.102]	[0.0851]
Age 75 or older*female	0.837***	0.649***	0.914	1.145	1.007
	[0.0483]	[0.0446]	[0.109]	[0.106]	[0.0805]
Married	1.088**	1.140***	1.875***	1.255***	1.861***
	[0.0452]	[0.0470]	[0.176]	[0.0734]	[0.0583]
Couple	0.891**	0.945	0.599***	0.853**	0.652***
	[0.0422]	[0.0455]	[0.0610]	[0.0563]	[0.0259]
Couple with children	0.945	1.008	0.548***	0.822***	0.829***
	[0.0472]	[0.0520]	[0.0597]	[0.0595]	[0.0396]
Single father	1.060	0.869	0.998	0.879	0.848*
	[0.101]	[0.0919]	[0.168]	[0.117]	[0.0764]
Single mother	0.945	0.988	1.048	1.084	0.840***
	[0.0442]	[0.0492]	[0.0939]	[0.0723]	[0.0389]
University	0.817***	1.199***	0.872	0.858**	1.245***
	[0.0352]	[0.0495]	[0.0810]	[0.0535]	[0.0480]
High/Secondary	0.948**	1.196***	0.973	0.996	1.167***
	[0.0243]	[0.0320]	[0.0529]	[0.0366]	[0.0277]
Good economic condition	0.879***	1.009	1.108**	0.881***	1.144***
	[0.0205]	[0.0252]	[0.0492]	[0.0296]	[0.0298]
Not employed	0.959	0.869***	1.107*	0.934*	0.873***
	[0.0253]	[0.0239]	[0.0645]	[0.0371]	[0.0197]
Housing problems	1.033	0.981	1.047	1.131**	0.907**
	[0.0384]	[0.0390]	[0.0714]	[0.0577]	[0.0351]
Good/very good health	0.553***	0.543***	0.422***	0.658***	0.691***
	[0.0138]	[0.0144]	[0.0235]	[0.0251]	[0.0176]
Bad/very bad health	1.622***	2.014***	2.768***	1.919***	1.316***
	[0.0571]	[0.0778]	[0.163]	[0.0932]	[0.0774]
Chronic disease	1.970***	1.746***	1.449***	1.535***	1.503***
	[0.0481]	[0.0449]	[0.0782]	[0.0552]	[0.0345]
Disability	1.087**	1.145***	1.349***	1.342***	1.228***
	[0.0456]	[0.0544]	[0.0951]	[0.0789]	[0.0824]
Accident	1.809***	2.922***	3.591***	8.542***	0.868**
	[0.0945]	[0.150]	[0.269]	[0.421]	[0.0500]
Smoker	0.918***	0.914***	0.817***	1.071*	0.837***
	[0.0243]	[0.0253]	[0.0464]	[0.0393]	[0.0192]
Sport	1.074***	1.206***	0.793***	1.004	1.243***
	[0.0237]	[0.0277]	[0.0368]	[0.0324]	[0.0270]
On diet	1.394***	1.538***	1.261***	1.292***	2.246***
	[0.0342]	[0.0401]	[0.0591]	[0.0467]	[0.0771]
Trust in alternative medicine	1.067***	1.218***	0.906**	1.076**	1.150***
	[0.0231]	[0.0277]	[0.0396]	[0.0331]	[0.0253]
North-West	0.896***	1.047	1.055	1.042	0.750***
	[0.0308]	[0.0366]	[0.0706]	[0.0491]	[0.0291]
North-East	1.106***	1.066*	1.166**	1.141***	0.981
	[0.0363]	[0.0365]	[0.0739]	[0.0506]	[0.0379]
South	0.965	0.925**	1.024	0.716***	0.922**
	[0.0310]	[0.0305]	[0.0617]	[0.0323]	[0.0343]
Islands	0.953	0.960	1.015	0.795***	0.602***
	[0.0385]	[0.0406]	[0.0774]	[0.0452]	[0.0260]
Metropolitan area	0.955	1.015	1.013	0.931*	1.341***
	[0.0282]	[0.0305]	[0.0565]	[0.0397]	[0.0434]
>10,000 inhabitants	0.949**	0.953*	1.051	0.979	1.118***
	[0.0225]	[0.0236]	[0.0486]	[0.0326]	[0.0281]
Constant	0.178***	0.107***	0.0308***	0.0615***	3.091***
	[0.00992]	[0.00624]	[0.00351]	[0.00495]	[0.180]
Observations	105,844	105,844	105,844	105,844	105,844

Notes: The standard errors (clustered by household) are in brackets. The asterisks indicate significance at the 1% level (***), 5% level (**), or 10% level (*).

Tables in the main text

Table 1: Nationality and country of birth

		Country of birth			
		Italy	EU-25	Extra-EU	Total
Nationality	Italian	93.89%	0.7%	1.14%	95.73%
	Foreigner	0.62%	0.27%	3.38%	4.27%
	Total	94,51%	0.98%	4.51%	100%

Table 2: Access to health services

	Italians		Foreigners	
	Mean	Se	Mean	Se
General practitioners	0.164	(0.00121)	0.102	(0.00577)
Specialist doctors	0.165	(0.00123)	0.102	(0.00590)
Hospitals	0.033	(0.00058)	0.027	(0.00298)
Emergency departments	0.071	(0.00085)	0.091	(0.00546)
Cholesterol test (18 or older)	0.761	(0.00154)	0.503	(0.48032)

Table 3: Logit analysis, odds ratios: Foreigners

VARIABLES	(1) GPs	(2) Specialist doctors	(3) Hospitals	(4) EDs
Foreigner	1.002	0.658***	1.189	1.369***
	[0.0732]	[0.0476]	[0.162]	[0.120]
N	128,040	128,040	128,040	128,040

Notes: The standard errors (clustered by household) are in brackets. The asterisks indicate significance at the 1% level (***). All regression models include a constant and the whole set of individual, household, and geographic characteristics described in Section 2. The regression results for the remaining control variables used in the econometric estimations are presented in Table A2 in the Appendix.

Table 4: Logit analysis, odds ratios: Foreigners, by region of birth

VARIABLES	(1) GPs	(2) Specialist doctors	(3) Hospitals	(4) EDs
G2	1.013	0.601***	1.647**	1.159
	[0.237]	[0.0937]	[0.388]	[0.213]
EU-25	0.871	1.346	0.824	1.042
	[0.192]	[0.259]	[0.374]	[0.308]
Extra-EU-25	1.014	0.620***	1.094	1.455***
	[0.0789]	[0.0548]	[0.158]	[0.131]
N	128,040	128,040	128,040	128,040

Notes: The standard errors (clustered by household) are in brackets. The asterisks indicate significance at the 1% level (***) or 5% level (**). All regression models include a constant and the whole set of individual, household, and geographic characteristics described in Section 2. The regression results for the remaining control variables used in the econometric estimations are presented in Table A3 in the Appendix.

Table 5: Logit analysis, odds ratios: Foreigners, by region of birth, adults only

VARIABLES	(1) GPs	(2) Specialist doctors	(3) Hospitals	(4) EDs	(5) Cholesterol test
EU-25	0.910	1.493**	0.914	1.197	0.655***
	[0.201]	[0.281]	[0.416]	[0.355]	[0.106]
Extra-EU-25	1.054	0.664***	1.107	1.608***	0.464***
	[0.0815]	[0.0632]	[0.165]	[0.154]	[0.0318]
Observations	105,844	105,844	105,844	105,844	105,844

Notes: The standard errors (clustered by household) are in brackets. The asterisks indicate significance at the 1% level (***) or 5% level (**). All regression models include a constant and the whole set of individual, household, and geographic characteristics described in Section 2. The regression results for the remaining control variables used in the econometric estimations are presented in Table A4 in the Appendix.

Table 6: Logit analysis, odds ratios: Foreign-born individuals, adults only

VARIABLES	(1) GPs	(2) Specialist doctors	(3) Hospitals	(4) EDs	(5) Cholesterol test
EU-25	0.931	1.253**	0.937	1.128	0.834**
	[0.0920]	[0.123]	[0.214]	[0.156]	[0.0717]
EU-Other	1.021	0.769***	1.027	1.630***	0.540***
	[0.0914]	[0.0738]	[0.176]	[0.175]	[0.0453]
Africa	1.141	0.833	1.307	1.538***	0.576***
	[0.131]	[0.106]	[0.274]	[0.231]	[0.0621]
Asia	0.549***	0.657	0.707	0.991	0.355***
	[0.120]	[0.172]	[0.261]	[0.224]	[0.0553]
Center/South America	1.190	0.985	1.643*	1.528*	0.664***
	[0.179]	[0.157]	[0.476]	[0.343]	[0.0874]
North America/Oceania	0.582*	0.715	2.220*	1.492	1.126
	[0.180]	[0.211]	[1.005]	[0.539]	[0.228]
N	105,844	105,844	105,844	105,844	105,844

Notes: Standard errors (clustered by household) are in brackets. The asterisks indicate significance at the 1% level (***), 5% level (**), or 10% level (*). All regression models include a constant and the whole set of individual, household, and geographic characteristics described in Section 2. The regression results for the remaining control variables used in the econometric estimations are presented in Table A5 in the Appendix.

Table 7: Women giving birth in the past six years, by region of birth

VARIABLES	(1) Not informed on prenatal diagnosis	(2) Not informed on prenatal course
Italian female	11.59%	5.13%
Foreigner female	36.89%	18.97%
N	5812	4081

Source: Our calculation, based on INHS 2005.