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HOW DOES IMMIGRATION AFFECT NATIVE INTERNAL MOBILITY? NEW EVIDENCE FROM ITALY

by Sauro Mocetti [§] and Carmine Porello *

Abstract

This paper investigates the relationship between native internal mobility and immigration in Italy, in order to gain a better understanding of the impact of immigration on local labour markets and to gauge the consequences for the socio-demographic composition of the local population. Native mobility is examined both with respect to residential displacements across regions and the demographic evolution of local labour markets. Endogeneity issues related to immigrant geographical distribution are addressed using proximity to "gateways" as the instrumental variable. We find that immigration is positively associated with inflows of highly-educated natives, suggesting the existence of potential complementarities. The impact is concentrated among young adults and is higher in more urbanized areas. We also find a displacement of low-educated natives; in particular, immigrant concentration in the northern regions has partially substituted the traditional South-North mobility of less-skilled natives.

JEL Classification: J61, O15, R23.
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Contents

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1. Introduction [§]

Most of the empirical studies regarding the labour market impact of immigration exploit the geographic clustering of immigrants. In these studies, a measure of native outcomes (e.g. wages) in a locality is usually regressed on the stock of immigrants in that locality. One important drawback of these "spatial correlations" is that labour markets are assumed to be closed, thus ignoring potential selective out-migration and in-migration of natives in response to immigration from abroad. We address this issue, examining the relationship between immigration and the location choices of natives in Italy. On the one hand, our empirical findings cast doubt on spatial correlation exercises if the selective migration of natives is at work; on the other, it enables us to test, to some extent, whether natives and immigrants are complements or substitutes by looking at how they "vote with their feet". Examining the link between immigration and the location choices of natives is also interesting for socio-demographic issues, since the geographical relocation of labour inputs affects the human capital composition and the age structure of the local labour force.[1]

Previous research on the relationship between native internal mobility and immigration has produced conflicting results. In the 1990s this topic was studied by literature on demography and on economic geography. Frey (1996) reported a strong correlation between immigrant inflows and native outflows in US metropolitan areas, and argued that this behaviour was bringing about a "demographic balkanization". By contrast, Wright *et al.* (1997) show that immigrant inflows are unrelated to native outflows in large metropolitan areas.[2] More recently, labour economists have entered this field. Card and DiNardo (2000) find that increases of the immigrant population in specific skill groups lead to small increases in the population of native-born

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[1] We look at residential mobility *between* labour markets and not *within*, say, a city. The latter is related to phenomena like urban segregation, the rise of ghettos and the so-called white flight in metropolitan areas (Cutler *et al.*, 1999; Card *et al.*, 2007). Indeed, focusing on mobility between labour markets, we put more emphasis on the externalities in production and on the effects on local labour force composition.

[2] See also Filer (1992), Walker *et al.* (1992) and Kritz and Gurak (2001).

individuals in the same skill group; Card (2001) shows that inflows of new immigrants to cities did not generate large offsetting mobility flows by natives. In contrast, Borjas *et al.* (1997) report a strong negative correlation between native net migration and immigration from abroad; Borjas (2006) finds that immigration is associated with lower in-migration rates, higher out-migration rates, and a decline in the growth rate of the native workforce. The empirical evidence for Europe is much more limited than that available for the US. Examining the relationship between immigration and interregional mobility in Britain, Hatton and Tani (2005) find a negative displacement effect. A recent working paper by Brűcker *et al.* (2009) find that foreign immigration replaces native internal mobility in Italy. Unfortunately, both of these studies consider overall native mobility without investigating differential impact by, say, skill levels.

In this paper we investigate the impact of immigration on natives' location choices in Italy through two empirical exercises. In the first, we use data on the interregional migration of natives drawn from the General Population Register (GPR) and examine how they respond to the incidence of immigration across regions. In the second, we use census data on the population growth of Local Labour Markets (LLMs) and examine how this is related to immigration growth. Identifying the effects of immigration on natives' location choices is particularly challenging since the location of immigrants is itself the outcome of an economic decision. To address the endogeneity problem we rely on an IV strategy. Our instrumental variable is built using the distance between localities and the gateway through which immigrants enter Italy as the exogenous determinant of their distribution over the territory. Italy is located at the crossroads of the main international migration flows that have involved Europe in recent decades. Moreover, immigrants tend to be relatively more concentrated in areas close to the port of entry they use to enter Italy. We believe that geographical distances from the borders and changes in international migratory trajectories (which, in turn, are associated with changes in the relative importance of each border), are arguably exogenous with respect to unobserved determinants of natives' location choices.

We find that immigration has a negligible impact on overall native mobility while it does have a significant impact on its skill composition. Immigration leads to a displacement of low-educated natives; in particular, immigrant clusterization in the northern regions has partially substituted South-North mobility flows of less-skilled natives. By contrast, immigration is positively associated with highly-educated native

inflows. The impact is concentrated among the young population and is somewhat stronger in more urbanized areas. Yet it is not clear how these results may be interpreted. If we consider the arguments in the literature on labour, we should read these findings as evidence of the substitution effect for low-educated natives and of complementarities for highly-educated ones. Task specializations and complementarities between immigrants and highly-educated natives might induce higher demand (and productivity) for natives in areas with a higher share of immigrants; having said this, if low-educated natives and foreign workers compete for the same jobs, then immigration might have a depressive effect on labour demand for natives. However, the impact of immigration on natives' location choices might also work through other channels such as the housing market and the preferences for ethnic composition of the local context. In this respect, we include house prices in the regressions to control for the effects through the real estate market; regarding "racial" preferences, they are likely to affect neighbourhood choice within a city rather than displacements across regions. Therefore, we argue that our estimates can be reasonably interpreted as the result of the interaction between immigrants and natives in the labour market.

Our empirical findings add to the existing literature in several ways. First, as already mentioned, we examine whether internal migration is one of the mechanisms through which local labour markets adjust to immigration shocks. This is also important to fully understand the impact of immigration on other labour outcomes of natives (employment rates, wages, etc.). For example, our results indicate that spatial correlations might underestimate the impact on labour outcomes of low-educated natives. Second, whereas most of the existing empirical literature concerns the US (or other Anglo-Saxon countries), we provide evidence for a country with interesting institutional traits. Italy is traditionally characterized by the presence of powerful trade unions, centralized bargaining, and a strong regulation of the labour market in general. It is therefore reasonable to expect that adjustments to labour shocks occur more on the quantity side rather than for wages. Third, with respect to previous research we develop the analysis from different perspectives. In our data, native flows can be disaggregated by educational level, age and gender. Thus we take account of individual heterogeneity in migration choices and estimate the response of specific groups to immigration. We distinguish between push and pull effects and, to strengthen our results, we also conduct two empirical exercises based on two different definitions of the local labour market. Finally, we contribute to the literature

on internal migration, emphasizing immigration as a further engine of local labour force adjustments.[3]

The rest of the paper is structured as follows. In section 2 we present some theoretical arguments on the relationship between immigration and natives' location choices. In section 3 we provide descriptive evidence of immigration in Italy. In section 4 we examine the impact of immigration on the interregional mobility of natives. In section 5 we analyze the effect of immigration growth on the native population growth of LLMs. In section 6 we summarize our conclusions.

2. The impact of immigration on native mobility

The literature on migration has been traditionally focused on the impact on wages or employment opportunities of natives. The usual assumption is that the entry of immigrants into the labour market of a certain area should lower the wage of competing workers (workers who have the same type of skills), and increase the wage of complementary workers (workers whose skills become more valuable due to immigration). Yet the empirical evidences show that these effects are small and often not significant.[4] A drawback of many of these studies is that selective out-migration by natives may cancel out the immigrant inflows; that is, if the arrival of one unskilled immigrant leads one unskilled native to leave then immigrant inflows will have no detectable impact on local labour supply. As a result, a comparison of the wages of native workers across regions with different incidence of immigrants might show little or no difference because the effects of immigration are diffused throughout the national economy, and not because immigration had no economic effects (Borjas, 2003).

In the present paper we examine whether this kind of labour market adjustment is at work in Italy. If this is the case, it casts some doubts on spatial correlation exercises. However, the analysis of native location choices in response to immigration from abroad can still provide some evidence interpretable in terms of complementarity and substitution effects. After all, from Harris and Todaro (1970) on, migration decisions are seen as motivated by expected earnings differentials, i.e. the wage differential between home and destination regions, adjusted for the

[3] See Faini *et al.* (1997) for a critical analysis of labour mobility in Italy. See Mocetti and Porello (2009) for more recent evidence.
[4] Card (1990) is probably the most known article on this topic. See Okkerse (2008) and the works cited therein for a review of the literature.

probability of finding employment. Thus, if immigration impacts on natives' labour market opportunities in home and destination region then it also impacts on their migration decisions. In this framework, if we observe that a larger fraction of foreign-born people in a labour market is associated with higher out-flows (and/or lower in-flows) of natives, this would mean that immigrants compete with natives. If the opposite is true then foreigner workers and natives would be complements.

Whether immigration harms, improves or has no effect on natives' labour opportunities is a complex and debated issue in literature. Ottaviano and Peri (2006a) allow for imperfect substitution between native and foreign workers, within homogenous groups in terms of observable characteristics, and emphasize the role of the degree of substitutability to determine whether immigrants increase or depress the demand for native workers. For a large degree of substitutability, low-skilled immigration mostly depresses the demand for low-educated natives and increases the demand for high-educated ones. By contrast, for a smaller degree of substitutability, immigrants have a much smaller negative effect on the demand for low-educated natives while still increasing the demand for high-educated ones. Peri and Sparber (2009) examine how natives and immigrants can be imperfect substitutes. They show that immigrants take manually-intensive jobs and natives respond by specializing in communication-intensive jobs. This, in turn, increases overall efficiency by promoting specialization and skill variety. Until recently, little was known about the impact of immigration on Italian labour market. Gavosto *et al.* (1999) find a complementarity effect between natives and foreign workers, especially in the northern regions of the country. According to their interpretation, immigrants undertake jobs which natives refuse, thus addressing specific labour shortages and allowing firms to expand their output. D'Amuri and Pinotti (2009) find a positive effect of immigration on employment opportunities for females and high-educated natives and (if any) a modest negative effect on low-educated natives. Barone and Mocetti (2010) show that higher concentration of immigrants who provide (informal) domestic services leads high-educated women to increase their labour supply. Accetturo *et al.* (2009) examine the firms' reaction to immigration and find that firms' investment rates rise in response to immigration from less developed countries.

However, immigration may affect natives' location choices also through other channels, other than those inherent the labour market. The two most obvious are the impact on the housing market and the preferences for ethnic composition of one's

place of residence. Saiz (2007) find that immigration is associated with an increase in rents and housing prices in U.S. destination cities. If the same is true for Italy, then immigration might hamper mobility inflows through higher real estate prices. Native mobility choices can also be affected by personal attitudes toward immigrants (Mayda, 2006). Individuals might prefer to live in neighbourhoods with lower concentrations of immigrants and modify their location choice accordingly – a sort of "decentralized racism" in the definition of Cutler *et al.* (1999). There is no way to properly identify these separate effects. However, we include house prices in some specifications thus controlling for the effect through the housing market. As far individual attitudes towards immigrants, we believe that they are likely to affect neighbourhood choice rather than displacement across distant labour markets. Therefore the impact through racial preferences is arguably negligible as far as mobility between labour markets is concerned.

It is worth noting that both the effect through the housing market and through individual preference for one's neighbourhoods imply a negative (positive) relationship between immigration and native inflows (outflows). Therefore, if any, our estimates represent a sort of lower bound to the labour market effect.

3. Immigrants in Italy

Italy has been a country of emigration for a long time. However, in the last decades the flow has reversed and it has reached a positive migration balance. Starting from the second half of the 90s, Italy and Spain have become prime destinations in the EU (see Table 1). The percentage of foreign-born individuals increased from less than 1 percent at the beginning of the 90s to about 6 percent in 2008.[5]

Looking at the distribution of immigrants by source country two main features arise. First, Italy is characterized by a high degree of ethnic fractionalization, though it has weakened across time. In 2006 the first 10 countries represent slightly more than half of the total number of immigrants (see Table 2). This is partly due to the great exposure of Italy towards the main international migration routes. Second, the composition of immigrants by source countries has significantly changed. With the

[5] During this period Italy implemented several regularizations that gave irregular immigrants the possibility to obtain a residence permit. The regularizations of 1995, 1998 and 2002 involved about 246, 217 and 700 thousands individuals, respectively.

exception of Morocco, the ranking of the first 5 countries is now different from that of 1991. The incidence of immigrants from Middle and Eastern Europe increased from around 10 percent at the beginning of the 90s to more than 40 percent in 2005; during the same period, the fraction of immigrants from Africa has decreased from 35 to 23 percent (see Figure 1). Generally speaking, in the past the international migration flows were mainly South-North. From the 90s, due to the fall of communist regimes in Central and Eastern Europe, the dissolution of former Yugoslavia and the Soviet Union, and the EU enlargement process, intra-European East-West migrations have become predominant.

We believe that the (exogenous) variation in the composition of immigrants affected their geographical distribution over the territory. In Figure 2 we report the distribution of immigrants across provinces in 1991 and 2005. In 1991 the incidence of immigrants was relatively homogenous across provinces and there was not a clear territorial pattern. If any, immigrants tend to be relatively more concentrated in some southern provinces and in the North-West. In 2005 the North-South divide is noticeable and immigrants tend to be more clustered in the North-East. In these 15 years, there was not any economic shock that can account alone for these different patterns. Looking for an explanation we investigate the geographical distribution of immigrants by source country. We build a specialization index obtained as the ratio between the fraction of immigrants of nationality n who live in province i and the fraction of all immigrants living in that province. For a sample of countries from each continent, we report in Figure 3 a graphical representation of this index. The chosen countries are Albania, Former Yugoslavia (Bosnia, Croatia, Macedonia, Serbia-Montenegro, Slovenia), Indian subcontinent (Bangladesh, India, Sri Lanka, Pakistan), Ecuador and Peru from South America and Tunisia. Moreover, we calculate the same index for 1990 and 2005. From these data two main facts arise. First, for each country of immigration the distribution across provinces is relatively stable across years. This would suggest that immigrant settlements are driven by some time-invariant variable. Second, the geographic clusterization is greatly differentiated by country. The concentration of Albanians is relatively higher in Apulia, the closest region from a geographical point of view. People from the Balkans are more concentrated in the North-East and in the provinces along the Adriatic Sea. Migrants from Indian subcontinent are clustered in metropolitan provinces and in the coastal provinces of Sicily, Calabria and Apulia. People from Ecuador and Peru are relatively more concentrated in Liguria. Finally, migrants from

Tunisia (and more generally, from Africa) are clustered in the southern regions (especially in Sicily). This sketched representation of the distribution of immigrants over the territory clearly shows that their location choices are not driven only by local economic conditions, but that proximity to the frontiers (that, in turn, is differentiated by countries and migration trajectories) plays a key role. Therefore, it is likely that the shift in the ethnic composition of immigrant inflows has affected the distribution of immigrants over the territory. We will exploit this feature to address endogeneity in the empirical section.

In Table 3, we report occupation and sector distribution of natives and immigrants by educational level. Nearly half of foreign workers are low educated – with at most lower secondary education. However, the occupation and sector distribution of immigrants is not markedly different by educational level, contrary to what happens to natives. Four immigrants out of five are blue-collar workers; they work in the industrial and construction sectors and usually take jobs avoided by natives (e.g. personal services). Moreover, they are usually employed in occupations that are lower ranked, in terms of skill content and wages, than native-born workers with the same level of education.[6] Therefore immigrants, almost independently from their educational level, stay at the bottom of the employment ladder.

4. Analysis of interregional mobility

4.1 Data and empirical approach

In this section we examine the impact of immigration on native interregional mobility. Data on native internal migration are drawn from the GPR.[7] Internal migration is defined as the residential move that occurs when a native changes his place of residence within the same country (about 2 percent of the population each year). We refer to displacements across Italian regions disaggregated by socio-demographic characteristics. Namely, we consider three educational levels (at most compulsory school, upper secondary school and university degree), two age brackets

[6] See also Brandolini *et al.* (2005) and Münz (2007).

[7] The GPR records the universe of residential movements in Italy. This measure of residential mobility should be accompanied by two main caveats. First, there may be a time lag between the actual migration and its registration. Second, it does not take into account all the possible types of regional mobility. For example, some people may transfer to another municipality without formalizing it at the register offices.

(young, between 15 and 45, and old, with more than 45) and gender. The knowledge of these individual characteristics allows us to take account of individual heterogeneity in migration choices and to look for a differential impact of immigration depending on the socio-economic group that natives belong to. We refer to the period 1995-2005 for reason of data availability. This provides us with a perfectly balanced panel with more than 50,000 observations.

Perhaps the most striking feature of internal mobility in Italy is the persistent net outflow from the South to the Centre-North. This flow was significant during the 1960's, when a considerable number of people were leaving the southern regions in favour of the northern (more developed) regions. The phenomenon lost strength in the 70's and in the 80's. In the middle of the 90s the migration flows from the South started to grow again, attracting new attention from researchers. In the 1995-2005 period, the net native migration rate was positive in all central and northern regions and negative in those of the South (see Figure 4). The highest net rate is recorded in Emilia-Romagna, with 4.7 persons per 1,000 inhabitants, per year. With respect to the past, the (human capital) composition of native migrants is changed since the fraction of those with a university degree has increased substantially, even controlling for the general rising schooling of the population. Considering high-educated natives, the southern regions loss was even more intense. The lowest net rates are recorded in Basilicata, Apulia, Calabria and Campania, with values ranging from -6.3 to -8.8 graduates per 1,000 inhabitants with the same educational level. From a microeconomic point of view, young adults and highly educated are the most mobile groups; no significant differences arise between males and females.[8]

Data on immigrants are drawn from the Ministry of the Interior and they refer to the number of residence permits. Both immigration and internal mobility has significantly affected population growth across areas (see Table 4).[9] Other explanatory variables are used to control for further factors that may affect our outcomes of interest. The unemployment rate and GDP per worker are the covariates traditionally used in the literature as main determinants of the migration flows. They measure the job opportunities in a region and clearly affect the expected income. The

[8] See Mocetti and Porello (2009) for a detailed description of internal migration in Italy.

[9] Between 1995 and 2005, the population growth was 5 percent in the Centre-North and only 0.4 percent in the South. In the former, more than 90 percent of population growth was due to immigration and about one third to internal native mobility; by contrast, the natural balance was negative. The southern regions were characterized by strong native outflows and a lack of attractiveness to immigration from abroad; the positive natural balance has kept broadly unchanged the level of the population.

cost of houses is introduced since it reasonably "deflates" the income prospect in a region. See Table 5 (panel *A*) for descriptive statistics.

In order to explore the relationship between immigration and native internal mobility we examine migration net-flows between each of the 20 Italian regions. Our estimating framework is similar to the one adopted by Hatton and Tani (2005) and can be expressed as follows[10]:

$$m_{ijkt} = \beta_1 IMM_{ijt-1} + \beta_2 UNR_{ijkt-1} + \beta_3 GDP_{ijt-1} + \beta_4 HOUSE_{ijt-1} + FE_{ijk} + D_t + \mu_{ijkt} \qquad (1)$$

where the dependent variable represents the net migration rate between regions *i* and *j*, of individuals with characteristics *k* at time *t*.[11] IMM_{ijt} is the incidence of immigration[12]; UNR_{ijkt} is the unemployment rate of individuals with characteristics *k*; GDP_{ijt} is the GDP per worker; and $HOUSE_{ijt}$ is the house price. All the covariates are expressed as differences between region *i* and *j*. To avoid simultaneity effect and to account for information on which natives base their decisions to moves, we relate *current* migration flows to *lagged* values for all the explanatory variables. Panel analysis allows us to control for fixed effects FE_{ijk} varying by origin-destination pairs and characteristics *k* (4,560 fixed effects). Finally, we include year dummies (D_t) to take out the effects of economy-wide conditions on internal mobility.

4.2 Endogeneity

Research on the impact of immigration on location decisions of natives presents several challenges. First, there are a number of possible omitted variables that makes it difficult to isolate the effect of immigration on natives from other related phenomena. Expectations of future economic growth and occupational opportunities and improved available amenities might attract both immigrants and

[10] Hatton and Tani (2005) examined net internal migration between 11 regions of Britain over two decades. This panel approach is quite standard in studies of migrations; see, among the others, Mayda (2008) and Pedersen *et al.* (2008).

[11] Net migration is the difference between inflows and outflows of natives with characteristics *k* between regions *i* and *j*. Characteristics *k* include educational level, age and gender. Net migration rate is calculated by dividing net migration by half the combined populations (with the corresponding characteristics) of the sending and destination region, and multiplying the resulting figure by 1,000.

[12] Residence permits refer only to regular immigrants. To find some evidence on irregular immigrants we use data from regularization acts. They provide snapshot on the irregular component of immigration since these acts provide a clear incentive to report one's status. We find that irregularity rate varies by regions and by years; however, when we include regions and years fixed effects, regular and irregular immigrants tend to vary one-to-one. Therefore, regular immigrants are a reliable proxy of total immigrants in our empirical framework.

natives. If this was the case, the estimates of the relation between immigrants' and natives' inflows are *upward* biased. However, local demand shocks not observed by the researcher could work in opposite directions for immigrants and natives. There might be an increase in the demand for jobs that attract immigrants and are avoided by natives (e.g. domestic services, construction) and, together, economic slowdown in sectors traditionally filled by natives. In this case the estimated impact of immigration on native mobility is *downward* biased. Moreover, the bias should be more severe for natives whose degree of substitutability is lower, i.e. who work in sectors markedly different from those of immigrants. Finally, it is also possible, although less likely, that a reverse relationship is at work. That is, immigrants go where natives' outflows are larger.

To address the endogeneity issue we should use variation in immigration that is plausibly exogenous to the evolution of native internal migration. To this scope we exploit the distance between each province and the gateway through which immigrants enter Italy. Angrist and Kugler (2003) and Ottaviano and Peri (2005 and 2006b) use a similar approach. Unlike these papers, we consider all the main countries of immigration to Italy and we differentiate them by port of entry.[13]

To identify the main gateways through which immigrants enter Italy and to assign to each of them one (or more) country of immigration, we make some assumptions on migration trajectories. These assumptions are based on: *i*) geographical reasons, especially for those countries that are close to the Italian borders; *ii*) a survey among immigrants in which they declare the frontier used to enter Italy; *iii*) information on migration routes gathered from official reports by the Ministry of the Interior and field studies (Monzini *et al.*, 2004; European Migration Network, 2005). Namely, all the countries close to the Italian border are assigned to the gateways in terms of geographical proximity: the Albanians are assumed to enter from Apulia (through the Otranto Canal); immigrants from the Balkans and from other East-Europe countries are assumed to enter from the Italian-Slovenian border (Trieste); Tunisians and other migrants from North Africa are assumed to enter from West-Sicily. For countries that are far away Italians border, we rely on information

[13] We consider the first 30 countries in terms of residence permits (excluding countries from Western Europe and North America). They are in alphabetical order: Albania, Algeria, Argentina, Bangladesh, Bosnia, Brazil, Bulgaria, China, Colombia, Croatia, Dominican Republic, Ecuador, Egypt, Philippines, Ghana, India, Macedonia, Morocco, Moldavia, Nigeria, Pakistan, Peru, Poland, Romania, Russia, Senegal, Serbia, Sri Lanka, Tunisia, and Ukraine. In 2005, immigrants coming from these 30 countries represent more than 80 percent of residence permits.

drawn from field studies on international migration and from the ISMU survey.[14] These evidences support the following assumptions. The northern-west border (e.g., Ventimiglia) is crossed by immigrants coming from the Maghreb and the Latin America. Milan and Rome are the first destination for all immigrants coming from more distant countries (e.g., South America and Asia) due to the presence of the two main international airports.[15] The Mediterranean coastline (Sicily, Calabria and Apulia) is the first destinations of many immigrants coming from Indian subcontinent (through the Suez Canal).

Formally our instrumental variable is built as follows:

$$\overline{IMM}_{it} = \sum_{n=1}^{N} dist_{ni} \lambda_{nt} \qquad (2)$$

where $dist_{ni}$ is the distance between locality i and the gateway through which immigrants from country n enter Italy; λ_{nt} is a weight varying by country of immigration and year, used as aggregating rule for distances.[16]

A more traditional approach to address endogeneity is relying on the instrument *a la* Card which exploits previous enclaves as exogenous source of variation. However, we believe that our instrument is arguably more exogenous. A threat to the validity of the instrument *a la* Card is that if local economic shocks are sufficiently persistent across time then previous enclaves cannot be considered truly exogenous. This problem is mitigated if there is a sufficiently large time lag with respect to first settlements. This is not possible in our case since we have this information only since 1990. As far as the validity of our instrument is concerned, we are confident to have isolated the "exogenous" component of immigrants'

[14] ISMU is an autonomous and independent organization promoting studies, research and projects on multi-ethnic society and on international migrations. It conducts a survey every year on a sample of immigrants living in Lombardy. In 2002 survey there was a question in which immigrants were asked to declare the region of entry in Italy. This information has to be interpreted with some caution since they refer to a selected sample of immigrants, those living in Lombardy; therefore there is plausibly a "northern bias" in the declaration of the region of entry. However, we built a specialization index – defined as the ratio between the fraction of immigrants coming from country *n* entering in region *i* and the corresponding fraction calculated for all immigrants – that partially net-out this problem.

[15] According to the data by the Ministry of Interior, in 2005 the terrestrial frontiers with the highest number of immigrants were Malpensa and Fiumicino – the airports of Milan and Rome, respectively – and the frontier of Trieste (in the North-East).

[16] Distance between each province and each gateway is in (log of) kilometres. When immigrants from country *n* are assumed to enter Italy from more than one gateway, the minimum distance between the province and each gateway is considered. The weights are built on the basis of population size of immigrants from country *n* at time *t*.

location choices since distance from the gateways is clearly unrelated to current local economic conditions.

4.3 Results

As a general strategy, we run the regressions on all, low- and high-educated natives to consider overall and differential effects of immigration on natives, depending on the skill group they belong to.

In Table 6 we report OLS estimates. Most of the control variables are "correctly" signed. More employment opportunities (i.e., a lower unemployment rate in the home region with respect to a rival one) are positively associated with net-flows. High-educated natives seem to be more responsive to employment prospects than low-educated ones. *GDP* has the expected positive sign for low-educated while enters with a negative sign for high-educated; the ambiguous sign of the variable can be partly due to the fact that *GDP* is invariant to the educational attainment and it does not capture different income prospects for different individuals. *HOUSE* enters with a negative sign in all the specifications thus confirming that higher housing costs hamper labour mobility and deflate income prospects in a region. Turning to our key variable, a larger incidence of immigrants is associated to lower net-flows of natives. The displacement effect concerns both low- and high-educated natives. However, as discussed before, there might be several sources of endogeneity that can bias the OLS estimates; moreover, the direction of the bias is not clear a priori.

To address endogeneity, as anticipated above, we rely on a IV strategy. The estimates obtained from the first stage are displayed in Table 7. The instruments proposed are strongly correlated with our endogenous variables. The first stage F-statistics are well above the rule-of-thumb of 10 in both the specifications adopted, thus suggesting that the weak instrument problem is not an issue in our case. The second stage IV estimates (reported in Table 8) are partly reversed with respect to OLS. Broadly speaking, the displacement effect on low-educated native is strengthened whereas immigration and high-educated native net-flows are positively associated. Therefore, OLS estimates are upward biased for low-educated natives and downward biased for high-educated ones, suggesting the existence of (unobserved) omitted variables that are positively correlated with immigration and that, in turn, attract low-educated natives and repel high-educated ones. According to our estimates, a 1 standard deviation increase in *IMM* leads to a decrease of 1 standard deviation of low-educated net-flows; for high-educated net-flows we record

an increase of 75 percent of one standard deviation.[17] These results point to the fact that low-educated natives are adversely affected by immigration; instead there appears to be a pattern of complementarity with high-educated natives, since they move to the same locations.

In Table 9 we explore whether the impact of immigration is through the push- or pull-side. We define out-flows as the migration flows from one region to any of all the other regions. Similarly, in-flows are the migration flows in one region from any of all the other regions. Results for gross out-flows and in-flows are consistent with those for the net flows. Immigration negatively affects low-educated native flows in both destination and home regions. Thus, low-educated natives leave areas of immigrant destinations and they do not move to places of immigrant concentration. According to these estimates, a 1 percent increase of immigration incidence leads to 0.9 percent increase of low-educated native outflows and to 0.6 percent decrease of their inflows. For high-educated natives, a 1 percent increase of immigration incidence leads to 1.1 percent increase of inflows.

In Table 10 we examine whether the impact of immigration varies for some subgroups of population. The impact is positive for young adults and negative for natives with more than 45 years old. The impact of immigration on both low- and high-educated is stronger (in absolute terms) for younger individuals than for older ones. This is an expected result since older workers have a smaller expected lifetime gain from moving and are less responsive to differentials across regions. Younger natives are also expected to interact more in the labour market with foreign workers. No detectable differences arise between males and females; the effect is somewhat stronger for females when only high-educated natives are considered.

The impact of immigration on both low- and high-educated natives is stronger if we consider only South-North net flows. Most of the foreign workers are blue-collars, employed in manual tasks. Therefore, it is likely that immigrants have met the demand for low-skilled workers of industrial firms located in the Northern regions, a labour demand that in the past was partly met by the low-educated natives coming from the South. In fact, the share of workers in the industrial sector among South-North native migrants has more than halved over the period. As far as high-skilled natives are concerned, a higher supply of immigrants is likely to require workers in jobs where they perform supervisory, training, and coordinating tasks.

[17] In unreported evidence, we test the robustness of our results introducing further controls like GDP growth rate, share of industry sector and other socio-economic variables. Our results are confirmed.

Moreover, gains from agglomeration and diversity are more evident in the northern regions. Finally, it is likely that the population growth driven by immigrants inflows has increased the demand for graduates in the service and in the public sector.

5. Analysis of the demographic evolution of LLMs

The empirical analysis presented in the previous section has several advantages. One of the most important is that we can take account of individual heterogeneity controlling for a large number of fixed effects (varying by origin-destination region pairs and main socio-demographic characteristics). However, region is not completely satisfactory as definition of local labour market because it is based on administrative reasons. Even though regions are very large areas, there is the risk of confusing commuting with migration. In practice, people might move from a municipality to another to avoid immigrant concentration, even if they continue to work in the same labour market. To minimize this risk, in this section we use the definition of local labour market adopted by Istat. LLMs are clusters of municipalities defined on the basis of the degree of work-day commuting by the residents. Therefore they can be considered as self-contained labour markets (i.e. areas where people live and work) and they represent the appropriate laboratories to examine externalities in production. Moreover, it is worth noticing that immigration is massively directed to cities, especially large metropolitan areas.[18] Therefore, to examine the impact of immigration on local labour markets one might need to look at a finer partition of the territory (Italy is portioned in 686 LLMs).[19]

5.1 Data and empirical approach

Our empirical strategy is similar to the one adopted by Card and DiNardo (2000), Card (2001) and Card (2009), based on US metropolitan areas. Formally, we run the following regression:

$$ITA\_GR_{le} = \beta_1 IMM\_GR_{l} + \beta_2 X_{l} + \beta_3 X_{le} + \mu_{le} \qquad (3)$$

[18] In 1991, the 29 percent of all foreigners lived in cities with more 500,000 inhabitants (Rome, Milan, Turin, Genoa, Naples and Palermo). Fifteen years later, the respective figure was 17 percent.
[19] Ottaviano and Peri (2005 and 2006b) find that cultural diversity (based upon immigrants' countries of origin) affects spatial development and cities' growth.

where *ITA_GR* is population growth of Italians in LLM *l*. We consider the overall population growth, and that referred to low- and high-educated natives (subscript *e*). *IMM_GR* represent the immigrant growth in the same LLM. X_l and X_{le} are covariates that vary by LLM and by LLM and educational level, respectively. Data on population growth by educational level of the LLMs are available only through census data (1991 and 2001). See Table 5 (panel *B*) for details.

As in the previous section, unobserved determinants of population are likely to be correlated with immigration, leading to a biased estimate of β_1. To isolate the causal effect of immigration on native population growth, we have to find an instrumental variable that induces more immigrants to move to a certain LLM but is not directly related to its population growth. We rely on the geographical distance between each LLM and the immigrants' port of entry.

5.2 Results

For each dependent variable (overall, low- and high-educated native population growth) we present two econometric specifications: in the first we consider only demographic controls; in the second we add variables capturing the economic features of the LLMs. Table 11 reports both OLS and IV estimates.

Population size (*LNPOP*) and the share of low- and high-educated natives (*SHARE_EDUC*) are introduced to account for heterogeneity in initial conditions. The population growth in the previous decade (*PAST_TREND*) controls for trend effects in the growth pattern; again we distinguish between overall, low- and high-educated growth rates in the previous period, according to the dependent variable. The share of older people in 1991 (*SHARE_65+*) is, as expected, negatively associated to population growth because it implies a lower natality and a higher risk of mortality. The population density of LLMs in 1991 (*DENSITY*) enters positively, thus suggesting that agglomeration effects prevail on potential congestion effects. As far as the economic features of the LLMs, the unemployment rate (*UNR*) is negatively associated with overall population growth, thus suggesting that LLMs with better employment prospects are those who experienced a positive demographic evolution. However, *UNR* enters positively for high-educated population growth. To explain this apparently striking result one may argue that youngsters living in a depressed area would be more inclined to acquire further education rather than quit school and endure a spell of unemployment. The occupation growth in the service sector (*SER_EMP_GR*) is positively linked to the population growth and the impact

is stronger for high-educated natives. Finally, we include dummies for the productive specialization of the LLM.

As in the previous section, we rely on a IV strategy to identify the causal effect of immigration on native population growth. The direction of the bias, for both low- and high-educated natives, is confirmed also in this empirical exercise. IV estimates strengthen the composition effect of the demographic evolution of LLMs. The effect on overall native population growth is (if any) negative. This result is driven by that on low-educated natives. On the contrary, the impact of immigration growth is positive when high-educated natives are considered. The coefficients vary between 0.06 and 0.09. Taken literally, estimates of this magnitude imply that an increase by 10 percent in immigrant population growth in a LLM lead to an increase between 6 and 9 percent in the high-educated Italian growth in that LLM. If we restrict the sample to the larger LLMs (those with more than 100,000 inhabitants) the impact is of a higher order of magnitude.

6. Conclusion

This paper investigates the link between immigration and natives' location choices. From a labour marker point of view the analysis is interesting since internal mobility is one possible mechanism through which local labour markets adjust in response to immigration shocks. Natives may attenuate any negative impacts of immigration by, say, leaving the area of immigrant impact. Alternatively, where immigrants and natives complement one another in the labor market, destination areas of immigrants might attract the natives. An equally important impact, which is given much less emphasis, involves the social and demographic effects of immigration on the national geographic landscape.

Our findings show that there is a displacement effect of immigration on less skilled natives; in particular, immigrant concentration in the northern regions has partially substituted the South-North flows of low-educated natives. In contrast, immigration is positively associated to high-educated native inflows; the impact is somewhat stronger in more urbanized areas. The impact is also concentrated on young population; therefore immigration not only mitigates the ageing of the population of the destination region per se but it also contributes to attract younger natives from other regions.

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Appendix – Tables

Table 1: Migration balance into the EU

	1950-1960	1961-1970	1971-1980	1981-1990	1991-2000	2001-2005
France	973 (2.1)	2,033 (4.2)	605 (1.2)	494 (0.9)	227 (0.4)	718 (2.4)
Germany	1.011 (1.4)	1,488 (2.0)	1,505 (1.9)	2,022 (2.6)	3,347 (4.1)	799 (2.0)
Italy	-1,014 (-2.0)	-972 (-1.9)	-84 (-0.2)	-132 (-0.2)	410 (0.7)	1,889 (6.6)
Spain	-796 (-2.6)	-608 (-1.9)	144 (0.4)	-227 (-0.6)	1,302 (3.3)	2,967 (14.2)
Sweden	85 (1.1)	223 (2.9)	84 (1.0)	172 (2.1)	200 (2.3)	140 (3.2)
UK	-539 (-1.0)	-49 (-0.1)	-235 (-0.4)	-2 (0.0)	634 (1.2)	906 (3.0)
EU 25	-2,284 (-0.6)	148 (0.0)	3,078 (0.7)	2,926 (0.7)	7,343 (1.7)	8,786 (3.8)

Cumulative net flows (inflows – outflow) in thousands; annual rate ‰ in parenthesis. Source: Münz (2007).

Table 2: Immigrants by source country

1991			2001			2006		
Morocco	63,806	11.6	Morocco	162,254	11.8	Romania	271,491	11.9
Tunisia	31,881	5.8	Albania	146,321	10.6	Albania	256,916	11.2
Philippines	26,166	4.8	Romania	69,999	5.1	Morocco	239,728	10.5
Yugoslavia	22,335	4.1	Philippines	65,073	4.7	Ukraine	115,087	5.0
Senegal	21,073	3.8	China	60,143	4.4	China	114,165	5.0
Q5		*30.1*			*36.5*			*43,6*
Q10		*40.4*			*50.3*			*57,4*

Residence permits by source country. Q5 (Q10) represents the share of the first 5 (10) countries with respect to the total number of the residence permits. Source: Ministry of Interior.

Table 3: Occupation and sector distribution of natives and immigrants by educational level

	Natives			Immigrants	
	All sample	Low-educated	High-educated	All sample	Low-educated
Percentage:	*100,0*	*39,7*	*15,2*	*100,0*	*48,5*
Occupation:					
Executive employee	7,9	0,8	31,0	1,5	0,1
White collar	31,8	12,3	37,5	5,6	2,5
Blue collar	32,1	55,7	1,6	76,5	81,3
Self-employee	28,3	31,1	29,9	16,5	16,0
of which:					
Unskilled jobs	16,4	29,4	0,7	42,8	48,4
Sector of activity:					
Agriculture	4,3	7,9	0,8	3,9	5,0
Industry	21,8	26,3	9,8	23,7	24,5
Construction	7,7	13,1	1,1	17,2	21,2
Commerce, restaurants, etc.	25,7	29,7	9,7	22,4	22,1
Other private services	13,9	6,0	27,3	8,0	5,1
Public sector	21,1	9,6	47,6	4,3	2,0
Other social & family services	5,6	7,3	3,9	20,5	20,2

Source: authors' elaborations on data from Istat (LFS, year 2006).

Table 4: Demographic evolution by areas

	Population growth rate 1995-2005	Contributions to population growth *		Incidence of immigration	
		Native internal mobility	Immigration	1995	2005
North West	4,5	0,8	5,0	1,6	6,3
North East	7,0	2,7	5,6	1,4	6,6
Centre	3,9	1,9	3,8	2,1	5,7
South	0,4	-3,0	0,9	0,6	1,6

* The two columns identify the contributions of native internal mobility and immigration to overall population growth. Namely, they represent the cumulative net migration of natives and the change of foreign-born resident, each divided by the initial population stock. The residual component of population growth includes the natural balance and the outflows of both natives and immigrants from Italy to other countries. Source: authors' elaborations on data from Istat

Table 5: Definition and descriptive statistics of the explanatory variables

	***A* – Empirical exercise on natives interregional mobility**		
Name	*Description [source]*	*Mean*	*St.dev.*
IMM	Difference of the incidence of immigration between region pairs; incidence of immigration is defined as the (log of the) ratio between the number of residence permits and population [Ministry of Interior].	0.49	0.716
UNR	Difference of unemployment rate between region pairs; unemployment rate varies by region, educational level, age bracket and gender [ISTAT].	-0.04	0.083
GDP	Difference of the (log of) GDP per worker between region pairs [ISTAT].	0.07	0.107
HOUSE	Difference of the (log of) house price between region pairs [Bank of Italy].	0.14	0.355
	***B* – Empirical exercise on LLMs' demographic evolution**		
IMM_GR	Immigrant growth rate between 1991 and 2001 [ISTAT].	3.53	2.632
LNPOP	Log of population in 1991 [ISTAT].	10.5	1.147
SHARE_65+	Share of population aged 65 or more in 1991 [ISTAT].	0.15	0.036
DENSITY	Log of density (inhabitants per squared kilometre) in 1991 [ISTAT].	5.84	1.144
PAST_TREND	Overall (low-educated and high-educated) population growth rate between 1981 and 1991 [ISTAT]. We report here mean (and standard deviation) for overall population growth.	0.01	0.046
SHARE_EDUC	For low-educated: share of Italians with at most compulsory school in 1991. For high-educated: share of Italians with a university degree in 1991 [ISTAT]. We report here mean (and standard deviation) for high-educated.	0.02	0.011
UNR	Unemployment rate in 1991 [ISTAT].	0.19	0.123
SER_EMP_GR	Employment growth in the service sector between 1991 and 2001 [ISTAT].	0.02	0.088
LLM TYPE:			
NO_SPEC	Dummy equal to 1 if the LLM has not a prevailing specialization (reference category) [ISTAT].	0.32	0.467
NON_MANIF	Dummy equal to 1 if the LLM is mainly non-manufacture [ISTAT].	0.19	0.394
MADE_ITALY	Dummy equal to 1 if the LLM is specialized in made-in-Italy production [ISTAT].	0.34	0.473
HEAVY_IND	Dummy equal to 1 if the LLM is specialized in heavy-industry production [ISTAT].	0.08	0.274
URBAN	Dummy equal to 1 if the LLM is highly urbanized [ISTAT].	0.07	0.250

Table 6: Natives interregional net flows (OLS estimates)

	All sample		Low-educated		High-educated	
IMM	-0.076***	-0.067***	-0.071***	-0.082***	-0.129***	-0.087***
	(0.010)	*(0.008)*	*(0.007)*	*(0.008)*	*(0.029)*	*(0.023)*
UNR	-0.715***	-0.663***	-0.412***	-0.450***	-1.367***	-1.092***
	(0.069)	*(0.059)*	*(0.039)*	*(0.038)*	*(0.222)*	*(0.179)*
GDP		-0.489***		0.610***		-2.123***
		(0.117)		*(0.058)*		*(0.324)*
HOUSE		-0.126***		-0.042***		-0.287***
		(0.022)		*(0.012)*		*(0.064)*
Fixed effect *ijk*	YES	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES	YES
Obs.	50,160	50,160	16,720	16,720	16,720	16,720

The dependent variable is the natives' interregional migration net flow. The explanatory variables are: the incidence of immigrants (IMM), the unemployment rate (UNR), the GDP per worker (GDP), the house prices (HOUSE). All the explanatory variables are expressed in difference between destination and source region, and they are lagged by one year. Panel analysis with fixed effects destination-source region pairs × educational level × cohort × gender (20×20×3×2×2) and YEAR dummies (period 1995-2005). We consider total, low- and high-educated net flows, respectively. Clustered standard errors in parenthesis. *, **, *** significantly different from zero at the 10, 5 and 1 percent level, respectively.

Table 7: First-stage estimates

Distance	-0.914***	-0.786***
	(0.135)	*(0.137)*
UNR	0.086	0.033
	(0.166)	*(0.166)*
GDP		0.720***
		(0.130)
HOUSE		0.031
		(0.045)
Fixed effect *ij*	YES	YES
YEAR	YES	YES
First-stage F-statistics	45.9	32.9
Obs.	4,180	4,180

The dependent variable is the incidence of immigrants (IMM), The explanatory variables are: the unemployment rate (UNR), the GDP per worker (GDP), the house prices (HOUSE). The instrumental variable is the predicted incidence of immigrants (distance), built using distance from gateways as source of exogeneity. All the variables are expressed in difference between destination and source region. Panel analysis with fixed effects destination-source region pairs (20×20) and YEAR dummies (period 1995-2005). Clustered standard errors in parenthesis. *, **, *** significantly different from zero at the 10, 5 and 1 percent level, respectively.

Table 8: Natives interregional net flows (IV estimates)

	All sample		Low-educated		High-educated	
IMM	0.013	0.004	-0.251***	-0.238***	0.335***	0.318***
	(0.023)	*(0.022)*	*(0.018)*	*(0.017)*	*(0.067)*	*(0.065)*
UNR	-0.697***	-0.640***	-0.403***	-0.454***	-1.040***	-0.744***
	(0.033)	*(0.033)*	*(0.022)*	*(0.022)*	*(0.108)*	*(0.111)*
GDP		-0.572***		0.782***		-2.626***
		(0.047)		*(0.036)*		*(0.137)*
HOUSE		-0.125***		-0.044***		-0.281***
		(0.014)		*(0.011)*		*(0.039)*
Fixed effect *ijk*	YES	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES	YES
Obs.	50,160	50,160	16,720	16,720	16,720	16,720

The dependent variable is the natives' interregional migration net flow. The explanatory variables are: the incidence of immigrants (IMM), the unemployment rate (UNR), the GDP per worker (GDP), the house prices (HOUSE). All the explanatory variables are expressed in difference between destination and source region, and they are lagged by one year. Panel analysis with fixed effects destination-source region pairs × educational level × cohort × gender (20×20×3×2×2) and YEAR dummies (period 1995-2005). We consider total, low- and high-educated net flows, respectively. Instrumental variable is built using distance from gateways. Clustered standard errors in parenthesis. *, **, *** significantly different from zero at the 10, 5 and 1 percent level, respectively.

Table 9: Natives interregional gross inflows and outflows (IV estimates)

	Inflows			**Outflows**		
	All sample	Low-educated	High-educated	All sample	Low-educated	High-educated
IMM	-0.128	-0.619***	1.088***	0.320***	0.901***	-0.223
	(0.137)	*(0.157)*	*(0.247)*	*(0.121)*	*(0.164)*	*(0.234)*
Full set of controls	YES	YES	YES	YES	YES	YES
Fixed effect *ik*	YES	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES	YES
Obs.	2,640	880	880	2,640	880	880

The dependent variables are the natives' inflows and outflows from region *i*. The key explanatory variable is the incidence of immigrants (IMM). Control variables include the unemployment rate, the GDP per worker and the house prices. All the explanatory variables refer to the source region in case of outflows and in the destination region in case of inflows; they are lagged by one year. Panel analysis with fixed effects source (or destination) region × educational level × cohort × gender (20×3×2×2) and YEAR dummies (period 1995-2005). We consider total, low- and high-educated inflows and outflows. Instrumental variable is built using distance from gateways. Clustered standard errors in parenthesis. *, **, *** significantly different from zero at the 10, 5 and 1 percent level, respectively.

Table 10: Natives interregional net flows (IV estimates)

	Net flows by age		**Net flows by gender**		**Net flows South-North**	
	Age 15-44	Age 45+	Male	Female	Low-educated	High-educated
IMM	0.078*	-0.043***	-0.021	0.043	-0.248***	0.522***
	(0.041)	*(0.014)*	*(0.033)*	*(0.030)*	*(0.024)*	*(0.097)*
Full set of controls	YES	YES	YES	YES	YES	YES
Fixed effect *ijk*	YES	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES	YES
Obs.	25,080	25,080	25,080	25,080	8,448	8,448

The dependent variable is the natives' interregional migration net flow. The key explanatory variable is the incidence of immigrants (IMM). Control variables include the unemployment rate, the GDP per worker and the house prices. All the explanatory variables are expressed in difference between destination and source region, and they are lagged by one year. Panel analysis with fixed effects destination-source region pairs × educational level × cohort × gender (20×20×3×2×2) and YEAR dummies (period 1995-2005). We split the sample by age in the first two columns and by gender in the second two columns; in the last two columns we consider only net-flows between South and Centre-North, distinguished by educational level. Instrumental variable is built using distance from gateways. Clustered standard errors in parenthesis. *, **, *** significantly different from zero at the 10, 5 and 1 percent level, respectively.

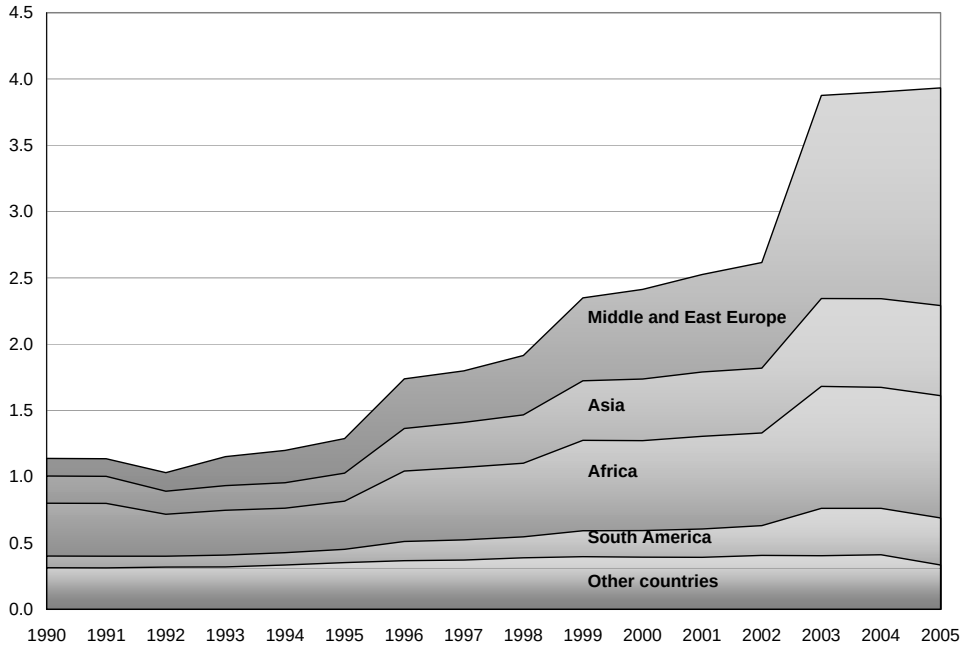
Table 11: Native population growth in LLMs

	Panel *A*: OLS estimates					
	Overall		Low-educated		High-educated	
IMM_GR	0.001***	0.001***	0.001**	0.001*	-0.003	-0.001
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.005)*	*(0.005)*
Demographic controls:						
LNPOP	-0.002	-0.001	-0.005**	-0.002	-0.000	0.016
	(0.002)	*(0.002)*	*(0.002)*	*(0.002)*	*(0.023)*	*(0.025)*
SHARE_65+	-0.241***	-0.250***	-0.344***	-0.344***	-1.827***	-1.130
	(0.054)	*(0.052)*	*(0.062)*	*(0.059)*	*(0.639)*	*(0.722)*
DENSITY	0.005**	0.005**	0.008***	0.009***	0.050**	0.031
	(0.003)	*(0.002)*	*(0.002)*	*(0.002)*	*(0.022)*	*(0.021)*
PAST_TREND	YES	YES	YES	YES	YES	YES
SHARE_EDUC			YES	YES	YES	YES
Economic controls:						
UNR		-0.080***		-0.124***		0.499**
		(0.028)		*(0.032)*		*(0.219)*
SER_EMP_GR		0.108***		0.067***		0.706***
		(0.017)		*(0.017)*		*(0.152)*
LLM TYPE		YES		YES		YES
Obs.	686	686	686	686	686	686
	Panel *B*: IV estimates					
	Overall		Low-educated		High-educated	
IMM_GR	-0.001	-0.007**	-0.006**	-0.014***	0.063***	0.088***
	(0.002)	*(0.003)*	*(0.002)*	*(0.003)*	*(0.019)*	*(0.028)*
Demographic controls	YES	YES	YES	YES	YES	YES
Economic controls		YES		YES		YES
Instrumental variables:	Distance	Distance	Distance	Distance	Distance	Distance
First stage t-statistics	-5.47	-4.31	-5.79	-4.47	-5.67	-4.39
First stage F-statistics	29.9	18.5	33.5	20.0	32.2	19.3
Obs.	686	686	686	686	686	686
	Panel *C*: IV estimates (larger LLMs)					
	Overall		Low-educated		High-educated	
IMM_GR	-0.007	-0.011	-0.016	-0.022**	0.208**	0.198**
	(0.008)	*(0.008)*	*(0.010)*	*(0.011)*	*(0.099)*	*(0.093)*
Demographic controls	YES	YES	YES	YES	YES	YES
Economic controls		YES		YES		YES
Instrumental variables:	Distance	Distance	Distance	Distance	Distance	Distance
First stage t-statistics	-2.66	-2.50	-2.67	-2.54	-2.18	-2.17
First stage F-statistics	7.1	6.3	7.1	6.5	4.7	4.7
Obs.	125	125	125	125	125	125

The dependent variables are overall, low- and high-educated population growth. The key explanatory variable is immigrant population growth (IMM_GR). See Table 5 (panel B) and the text for a description of other covariates. We also include area fixed effects (dummy variables for Centre-North and South). The set of economic and demographic controls in panel *B* and *C* is similar to the one presented in panel *A*. Instrumental variable is built using distance from gateways; summary results for first-stage regressions include t-statistics, F-statistics and Anderson Rubin test. Larger LLMs are those with more than 100,000 inhabitants in 1991. Robust standard errors in parenthesis. *, **, *** significantly different from zero at the 10, 5 and 1 percent level, respectively.

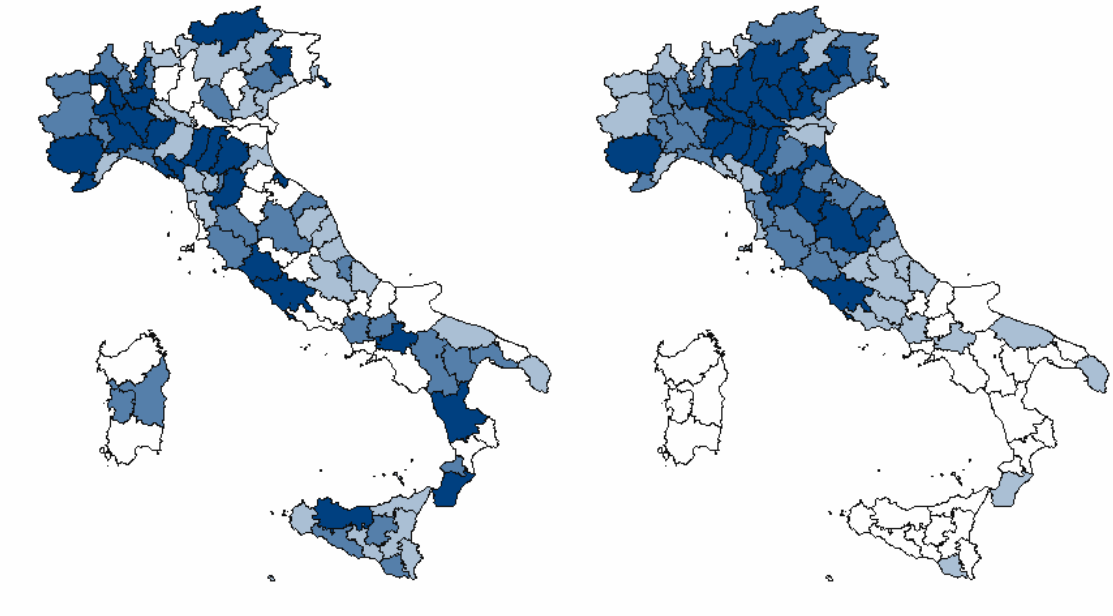
Appendix – Figures

Figure 1: Immigrants by area of origin



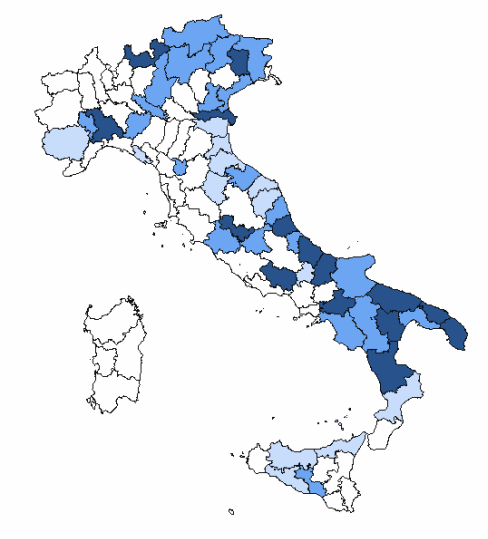
Immigrants over population by area of origin.
Source: authors' elaborations on data drawn from Istat.

Figure 2: Distribution of immigrants across provinces

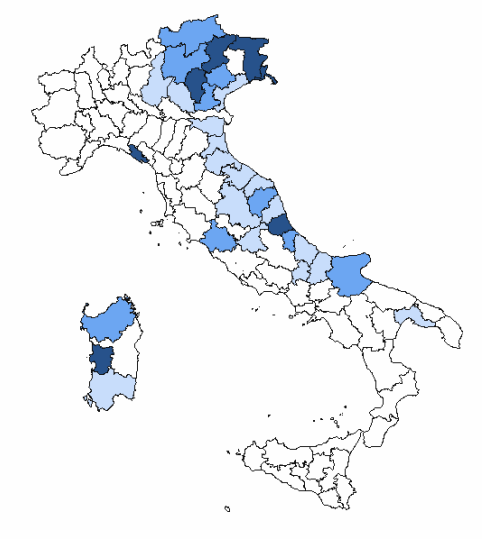


Italian provinces are divided in quartiles according to the incidence of immigrants (those with a darker blue have higher incidence)
Source: authors' elaborations on data drawn from Istat.

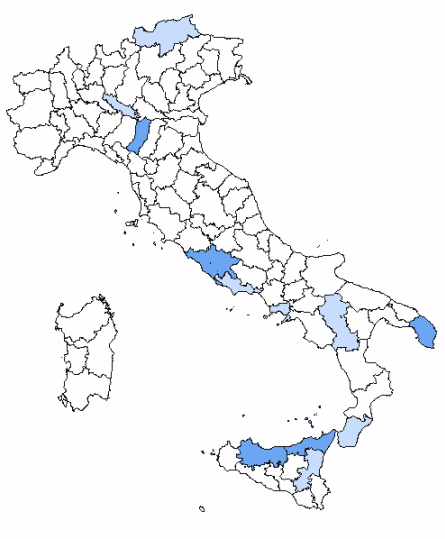
Figure 3: Distribution of immigrant across Italian provinces



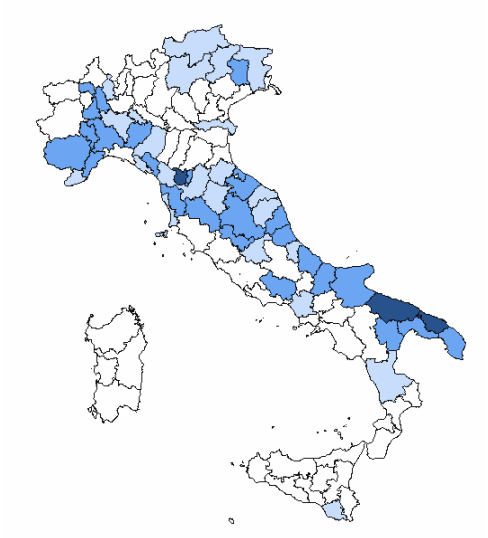
Albania 1990



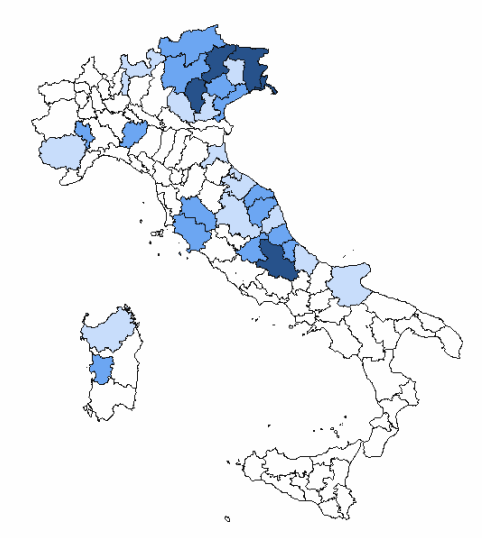
Former Yugoslavia 1990



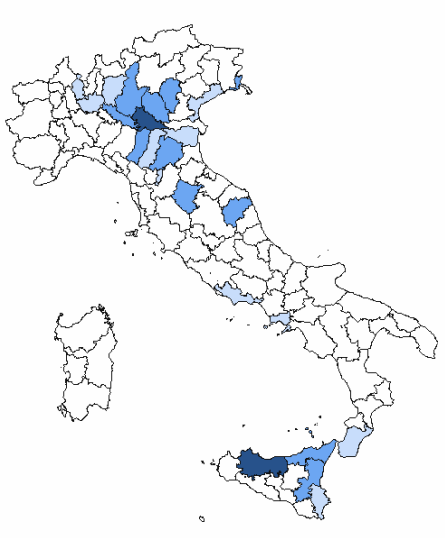
Indian Subcontinent 1990



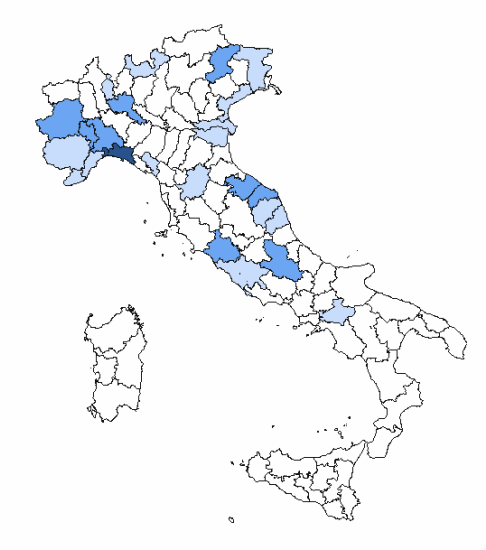
Albania 2005



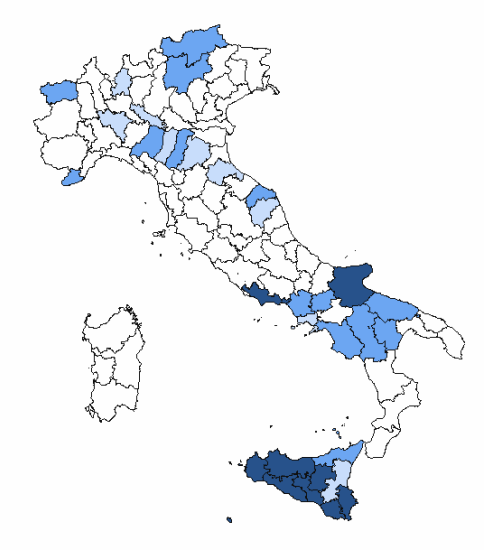
Former Yugoslavia 2005



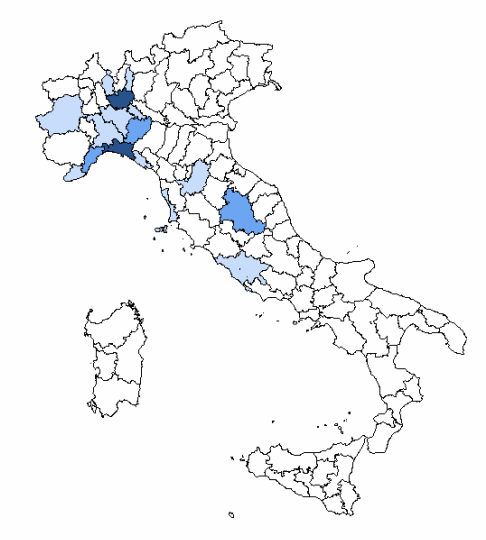
Indian Subcontinent 2005



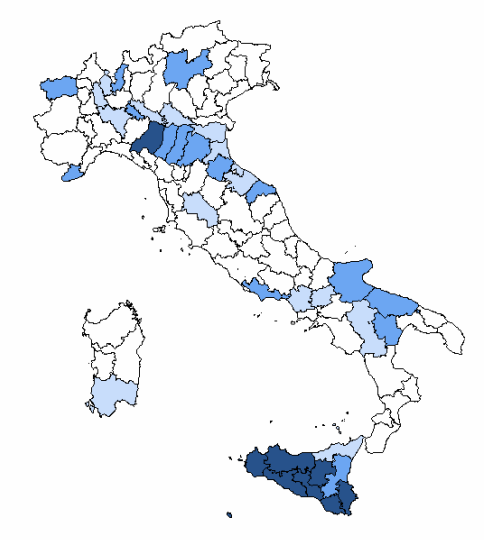
Ecuador and Peru 1990



Tunisia 1990



Ecuador and Peru 2005



Tunisia 2005

Source: Authors' elaborations on residence permits provided by Ministry of Interior.

The figures represent the geographical specialization index, obtained as the ratio between the fraction of immigrants of nationality *n* who live in province *i* and the fraction of all immigrants living in that province, in a given year. Formally:

$$I_{in} = \frac{IMM_{in} \Big/ \sum_i IMM_{in}}{\sum_n IMM_{in} \Big/ \sum_i \sum_n IMM_{in}}$$

$I \leq 1$

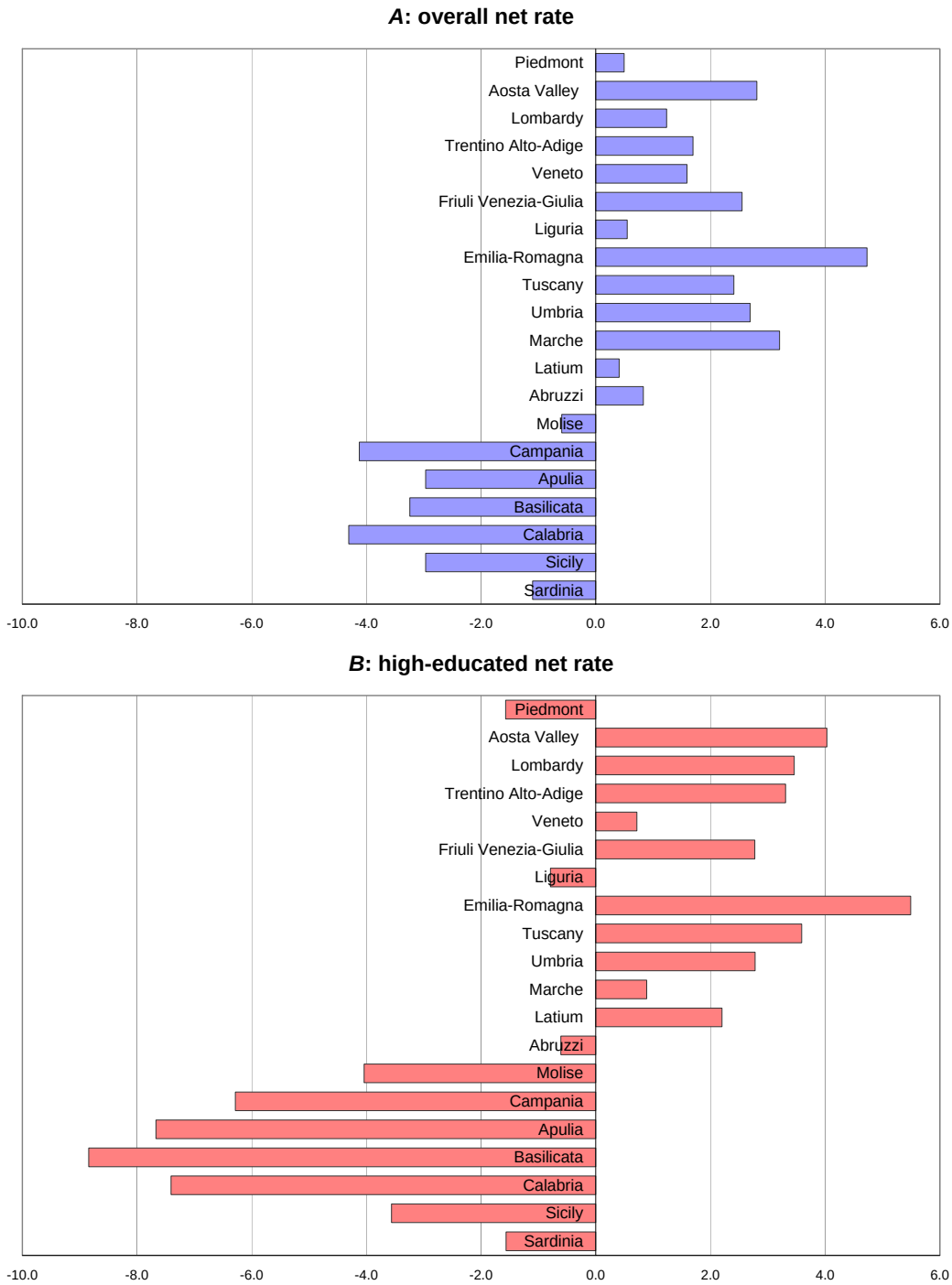
$1 < I \leq 1.5$

$1.5 < I \leq 3$

$I > 3$

Note: Former Yugoslavia includes Bosnia, Croatia, Macedonia, Serbia and Slovenia; Indian subcontinent includes Bangladesh, India, Pakistan and Sri Lanka.

Figure 4: Native internal mobility: net rates by region



Net migration is the difference between inflows and outflows between each region and all the other regions. Net migration rate is calculated by dividing net migration by population and multiplying the resulting figure by 1,000. Net migration rate of high-educated natives refer to migration flows of native with a university degree and it is normalized by the population with the corresponding level of education. The figures refers to annual average for the period 1995-2005. Source: authors' elaborations from ISTAT.

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