Elementary Facts about Immigration in Italy. What Do We Know About Immigration and Its Impact

Rama Dasi Mariani, Alessandra Pasquini and Furio Camillo Rosati

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Abstract

In the recent past, in Italy, immigration has been at the centre of academic and policy debates. Nonetheless, the still growing literature has focused mainly on the experience of old settlement countries and has mainly looked at single aspects of the phenomenon. In order to guide effective policy intervention, we offer an exhaustive view of immigration in Italy. We combine the presentation of stylized facts from available data, based on descriptive analyses, with a review of existing studies. Our conclusions tell that evidence available for Italy does not match the policy relevance of an issue that has been dominating the public debate in the last years and also identify areas where solid evidence or analysis is needed.

1. Introduction

Migration has been at the centre of academic and policy debates, especially in the recent past. Several studies on this topic have been developed and they have generated substantial evidence on the impact of migration on countries of origin and destination and on migrants' welfare.[1]

The still growing body of evidence, however, is based on analyses focusing on the experience of a relatively small number of countries and has mainly looked at single aspects of the phenomenon, often guided by data availability and by policy relevance. While such an evidence increases our general knowledge on migration, it does not offer an exhaustive view with reference to individual countries. In fact, the external validity of the existing studies remains an open question.

Especially for policy purposes, a systematic overview of the different aspects of migration in a single country would be particularly useful. It would allow to assess if and to what extent the different effects identified in the literature are actually at stage and, consequently, it can offer the basis for a better assessment of the changes and adjustments induced by immigration.

This paper attempts to fill this gap by providing a survey of the evidence and analyses of different aspects of immigration in a specific country: Italy. To our knowledge, such an analysis has never been carried out for Italy or other countries. In fact, existing surveys focus on a specific aspect and not with reference to a specific country.

We combine the presentation of stylized facts from available data, based on descriptive analyses, with a review of existing studies. In order to have on objective criteria for the selection of the papers to be considered, we will present only papers published in peer reviewed journals. This also allows to identify areas where solid evidence or analysis is lacking. Given that the distribution of immigrants over the territory is far from homogeneous (as are likely to be its effects) in the descriptive analysis we use the most disaggregated data. The latter are at the municipality level (LAU2) or at the local labour market level (LAU1), when relevant[2].

The choice of the country is determined by the fact that Italy is a country in which immigration has become a relevant phenomenon only in the recent past, getting a great relevance in the political debate.[3]

The paper is divided in three parts. In the first, we present the basic facts about immigration in Italy. We also briefly discuss some issues relative to the definition of immigrants and its implication for the

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[1] For a recent review, see World Bank (2018).

[2] The descriptive statistics relative to human capital are an exception since data are available at provincial level (NUTS3) only.

[3] There is also evidence that immigration has an impact on voting outcomes (Barone et al., 2016).

empirical analysis. We then focus, in Section 3, on the integration of immigrants in the Italian economy. According to the Common Basic Principles for immigrant integration adopted by the EU, "Integration is a dynamic, two-way process of mutual accommodation by all immigrants and residents of Member States"[4]. In order to achieve a satisfactory level of integration, a common culture – mainly spread by the education system –, equal employment opportunities and living conditions are necessary. Therefore, we focus on the three fundamental aspects pointed at by the EU: geographical distribution, labour market and education. The last section discusses the impact of immigration on the native population along the same three dimensions: geographical displacement, human capital and labour market. By doing so, hopefully we cover most of the potential effects of immigration on the destination economy identified by the literature.

2. The basic facts

2.1 Data and definition of the immigrant

From a statistical point of view, there are two main ways to define an immigrant: with respect to her citizenship or with respect to her country of birth. In the analysis, we follow the official definition used by Istat (the National Statistical Office) and identify immigrants according to citizenship[5]. Therefore, the immigrants group includes all individuals who are not Italian citizens, are legally residing in Italy and are registered in a municipality. This excludes two important categories of immigrants: those who live in Italy without a work permit and those who are not registered in any municipality.

Differently, the definition based on country of birth includes individuals born abroad who became Italian citizens and excludes individuals born in Italy who are not citizens. Because of the *Jus Sanguinis*, individuals born in Italy by foreign-born parents acquire the Italian citizenship only after turning 18. Therefore, while the foreign-born definition is the most appropriate in countries where the *Jus Soli* holds, the choice of the best immigrant definition is not straightforward in the case of *Jus Sanguinis* countries. Beside the quantitative implications, it is an open question which definition does capture better the status of immigrant in socio-economic terms.

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[4] https://www.eesc.europa.eu/resources/docs/common-basic-principles_en.pdf
[5] For the analysis on education, instead, we define immigrants with respect to the country of birth. For more details on data used in this paper see Appendix A.

In the case of Italy, the stock of immigrants computed on the basis of the country of birth exceeds by less than one million that obtained using the citizenship criteria (see table 1). A difference that almost coincides with the stock of citizenships granted from 2002 (see figure 1).

Table 1: Immigration in Italy in 2018

	Country of Birth		Citizenship	
	Stock (thousand)	Rate	Stock (thousand)	Rate
Italy	5883	9.78	4983	9.03
North-West	1830	11.45	1681	11.76
North-East	1444	12.50	1189	11.48
Centre	1448	12.09	1280	11.96
South	805	5.76	599	4.47
Islands	356	5.35	233	3.63

Source: Authors' elaboration on Labour Force Survey (LFS) data.

Figure 1: Stock of population of foreign origin in Italy from 2012 to 2018
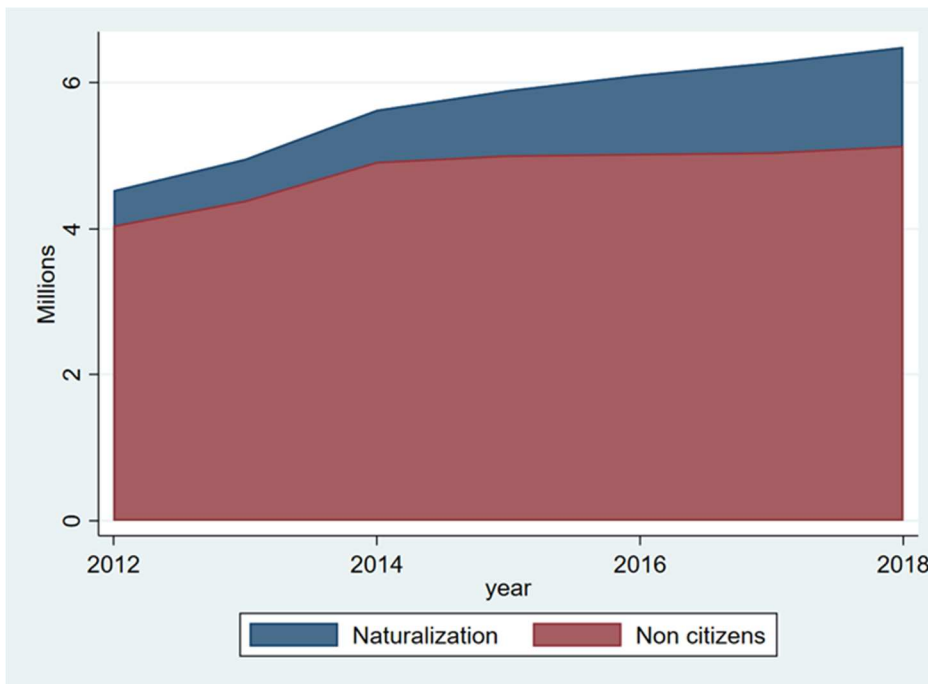
Source: Authors' elaboration on ISTAT data.
Notes: The stock of naturalized immigrants is computed starting from 2000 because of data availability.

In recent years, in fact, the acquisition of citizenship has become an increasingly important phenomenon and for this reason we briefly discuss its characteristics and its implications for the analysis we carry out.

There are four main channels of naturalization in Italy: residency along with work experience, marriage, when individuals of foreign origin born in Italy turn 18 years old and when foreign-born parents of children under 18 acquire the citizenship. All four have played an important role in the

process of naturalization (see table 2) and, apart from marriage, they depend directly or indirectly by the length of stay in the country.

Figure 2 presents the number of citizenships granted in Italy in 2012 and 2018 by province.[6] The high variability in the naturalization rate across provinces can reflect either a different composition of immigrants (e.g., with respect to their time of arrival or to the rate of Italian-born children of foreign origin) or different attitudes and efficiency of the local administration. To the best of our knowledge, the existing literature did not investigate whether the naturalization process depends on local administrations or immigrants' characteristics. This issue deserves further research. In particular, it would be important to understand whether the naturalization rate depends on rational choices of the local administration driven by political economy.

Table 2: Share of naturalizations by channel of acquisition

	2012			2018		
	Residence	Marriage	Other	Residence	Marriage	Other
Italy	**0.38**	**0.31**	**0.31**	**0.35**	**0.21**	**0.43**
North-West	0.38	0.31	0.31	0.36	0.21	0.43
North-East	0.39	0.26	0.35	0.40	0.19	0.41
Centre	0.39	0.34	0.27	0.32	0.24	0.44
South	0.28	0.46	0.26	0.26	0.22	0.51
Islands	0.26	0.42	0.33	0.21	0.29	0.49

Source: Authors' elaboration on ISTAT data.
Notes: Data by year and geographical macro-area. Residence refers to naturalizations due to long-term permanence in Italy. Marriage refers to naturalizations due to marriage with an Italian citizen. Other refers to all other reasons, mainly Italian born of foreign origins turning 18 years old.

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[6] Naturalization rate is calculated over the number of non citizens.

Figure 2: Naturalization rate by province
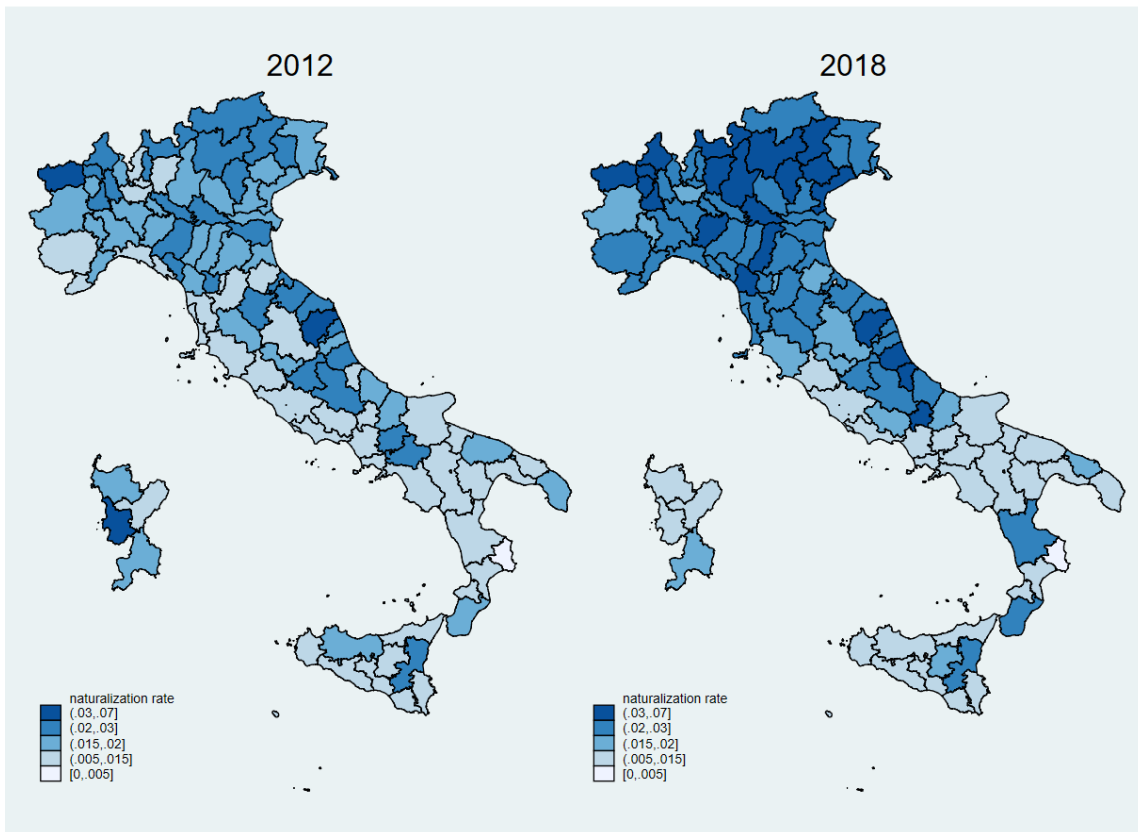
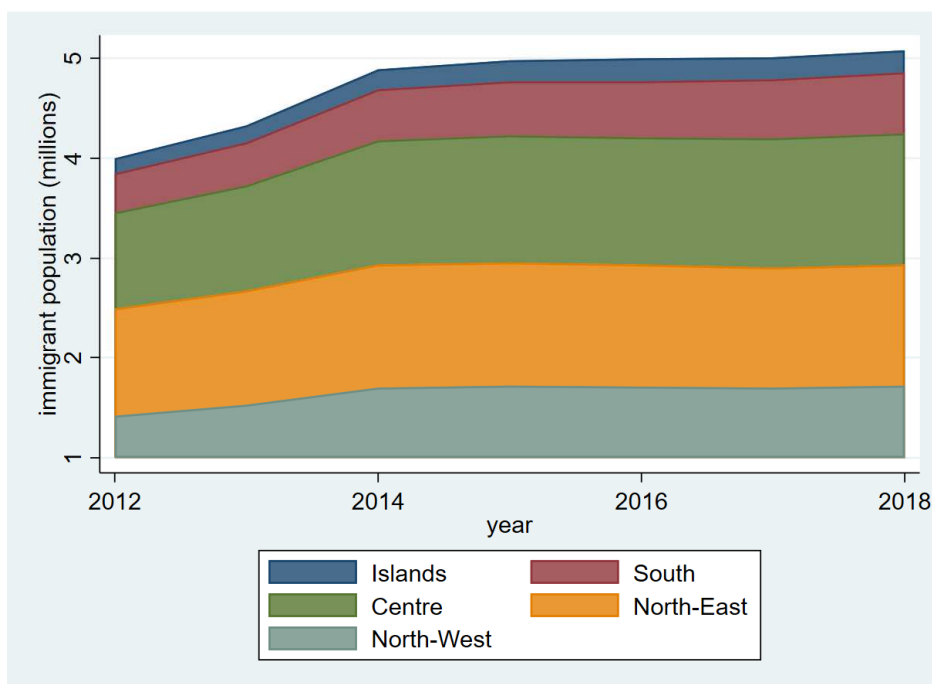Source: Authors' elaboration on ISTAT data.
Notes: Naturalization rate is computed as the number of new citizens over non citizens.

2.2 The overall picture

In the recent past, the stock of immigrants living in Italy has reached the all-time high of just over 5 million. At the same time, the growth rate of the stock, albeit high in the earlier decades, substantially decreased since 2014 (see figure 3).

In 2018, the share of the immigrant population with respect to the native population was about 9 per cent, with a relative higher concentration in the North and in the Centre (see table 3). During this period the presence of immigrants increased relatively faster in the areas where they were less present – namely, in the South and in the Islands. Therefore, while in the years 2012-2018 there was a reduction in the rate of growth of immigration, the period was also characterized by a diffusion of the phenomenon over the Italian territory.

Figure 3: Immigrant stock by area from 2012 to 2018

Source: Authors' elaboration on ISTAT data.
Notes: Areas are classified according to NUTS 1 level.

Table 3: Immigration rate in Italy

	2012	2018
Italy	7.32	9.33
North-West	10.02	12.08
North-East	10.62	11.91
Centre	9.16	12.33
South	2.88	4.64
Islands	2.44	3.86

Source: Authors' elaboration on ISTAT data.
Notes: Immigration rate is computed as share of native population. Areas are classified according to NUTS 1 level.

The composition by area of origin of immigrants has been fairly stable in the recent past (see last row of table 4). About half of the immigrants comes from East-European countries – mainly new EU member states – while individuals from Africa and Asia represent about 20 per cent each of the total stock. Furthermore, there are no substantial differences in the distribution of immigrant groups across macro regions, with the only exception of individuals from South America that are concentrated in the North-West.

Also, the composition of immigrants by country of origin has remained rather stable (see table 5). Romanian, Albanian and Moroccan represented the largest communities in both 2012 and 2018, and the relative ranking in the top 10 countries of origin presents only minor changes. Altogether,

immigrants from the top 10 countries account for about 65 per cent of the total immigrant population. This suggests that immigration in Italy is relatively concentrated in terms of countries of origin with respect to old settlement countries, e.g. USA and Canada (OECD 2019).

Moreover, thanks to disaggregation of our data, we can observe that immigrants are relatively more concentrated in the largest municipalities, where they accounted for about 14 per cent of the native population in 2018 – a substantial increase with respect to the 9 per cent observed in 2012 (see table 6).

Table 4: Share of immigrants by area of origin and residence

| | 2012 | | | | | |
	North-West	North-East	Centre	South	Islands	Italy
Africa	0.25	0.24	0.13	0.17	0.28	0.21
Asia	0.18	0.17	0.20	0.14	0.21	0.18
South America	0.13	0.04	0.07	0.04	0.03	0.08
Europe	0.41	0.53	0.55	0.62	0.42	0.50
High-income Countries	0.04	0.03	0.05	0.04	0.06	0.04
	2018					
	North-West	North-East	Centre	South	Islands	Italy
Africa	0.25	0.22	0.14	0.22	0.32	0.21
Asia	0.20	0.19	0.23	0.19	0.21	0.20
South America	0.11	0.04	0.07	0.03	0.02	0.07
Europe	0.41	0.53	0.51	0.52	0.40	0.48
High-income Countries	0.04	0.03	0.05	0.03	0.04	0.04

Source: Authors' elaboration on ISTAT data.
Notes: The shares are computed as the number of the ethnic group over the total immigrant population on the area. High-income countries include: EU15, EU EFTA, North America and Oceania. Europe includes all EU countries excluding those in EU15. Areas are classified according to NUTS 1 level.

Table 5: Composition of Italian Immigration by nationality (top 10 countries of origin)

	2012		2018
Romania	20.90	Romania	23.30
Albania	11.20	Albania	8.60
Morocco	10.20	Morocco	8.20
China	4.90	China	5.70
Ukraine	4.50	Ukraine	4.60
Moldova	3.30	Philippines	3.30
Philippines	3.20	India	3.00
India	3.00	Moldova	2.60
Peru	2.30	Bangladesh	2.60
Poland	2.10	Egypt	2.30
Total	65.60	Total	64.20

Source: Authors' elaboration on ISTAT data.

Table 6: Immigrant share in Italy by municipality size

| Panel A		
Municipality population	2012	2018
Italy	7.32	9.33
Less than 100000	6.76	7.45
Up to 250000	7.06	9.06
More than 250000	9.52	14.04
Panel B		
Municipality population	2012	2018
Less than 100000	29.20	24.41
Up to 250000	51.97	53.13
More than 250000	18.83	22.16

Source: Authors' elaboration with ISTAT data.
Notes: In Panel A the immigrant share by municipality size is computed as the percentage of the native population in the municipalities. In Panel B it is computed as the percentage of the total number of immigrants.

In figure Figure *4* we plot the partial correlation between the share of immigrants and the per-capita income of Local Labour Markets (LLMs)[7]. The concentration of immigrants from no high-income countries is correlated with the per capita income of their area of residence. Albeit small, the positive correlation indicates that immigrants do not tend to concentrate in the more deprived areas of the country. Similarly, from figure 5 we can see that immigrants' net flows from other LLMs are positively correlated with those of natives. This suggests that internal movements of immigrants after arrival contribute to the demographic concentration already in place for natives. In figure 6 we show, instead, the immigrant distribution across municipalities by area of origin. Percentages are computed as the number of immigrants in a municipality over the total immigrant population from the same area of origin living in Italy. The figures show, once again, that immigrants from every area of origin allocate mostly in big cities.

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[7] The partial correlation has been obtained conditioning the share of immigrants on the public budget, natural population increase, year and geographical macro area.
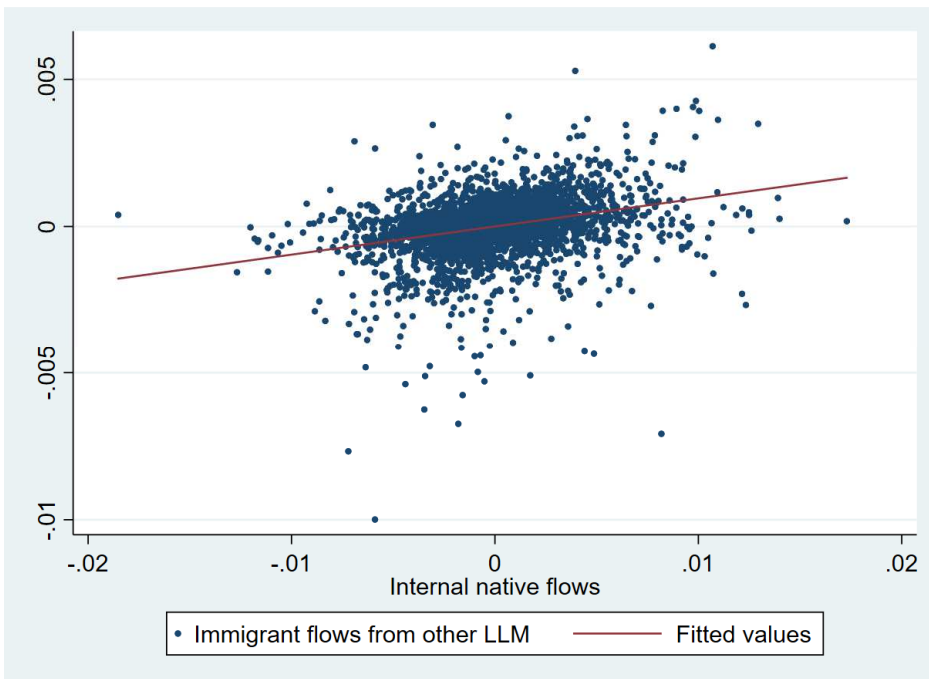
Figure 4: Partial correlation between per-capita real income and immigrant share (LLM)
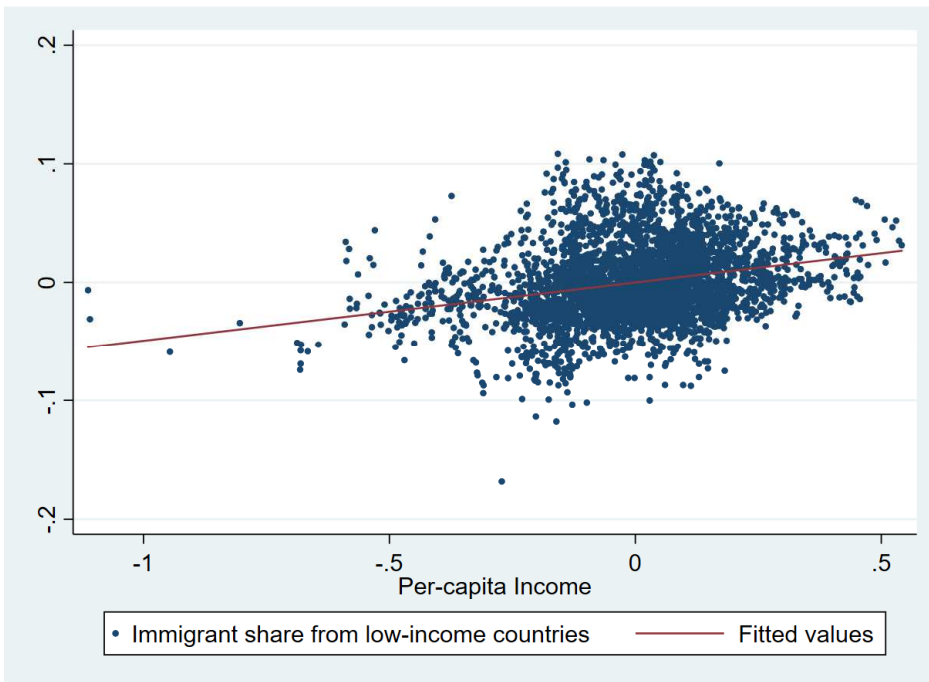
Source: Authors' elaboration with ISTAT data.

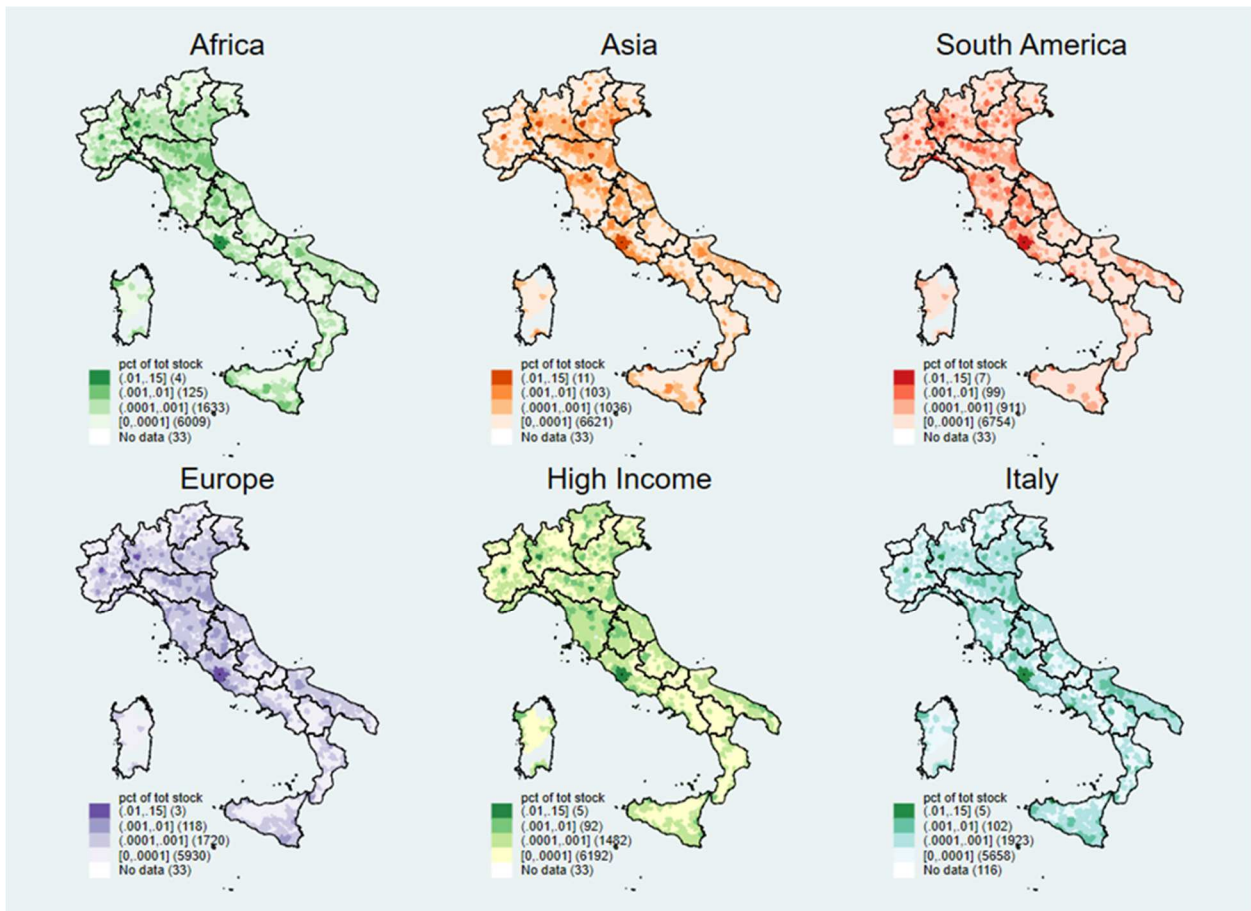Notes: Income data are available only for the years from 2012 to 2016.

Figure 5: Residual correlation between internal immigrant and native flows (LMM)

Source: Authors' elaboration with ISTAT data.

Notes: Income data are available only for the years from 2012 to 2016.

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Figure 6: Immigrant distribution by area of origin across municipalities

Notes: Authors' elaboration with ISTAT data

Some of the characteristics of the immigrant distribution over the territory are discussed in Mocetti and Porello (2010). The authors built a specialization index, calculated as the ratio between the share of immigrants from a given nationality living in a province (NUTS 3) and the share of all immigrants living in that province. They show that areas of residence are highly differentiated across nationalities and stable over time. Immigrants' choice about the province of destination, therefore, appears not driven by local economic conditions alone. According to Mocetti and Porello (2010) the proximity to the frontiers played a key role, as most nationalities concentrated close to their gateways of entry.

3. Integration

The arrival of a new group – ethnically distinguished, as in the case of immigration – inside an existing community opens to two alternative patterns: the new group can be segregated or a process

of integration can start. A successful integration process implies the disappearance over time of differences in socio-economic outcomes – such as education and labour market outcomes – between the two groups (Alba and Nee, 1997).

Previous literature has generally measured the degree of integration, in Europe and in Italy, by the distance between (median or mean) income of natives and migrants (see e.g. Storm et al., 2018). Nonetheless, other socio-economic dimensions – i.e. health, consumption, type of labour contract and education – are important, since they help to identify the policies needed to overcome the disadvantages.

As already mentioned in the introduction, the EU has endorsed a list of Common Basic Principles for immigrant integration according to which employment is central, as it is necessary for immigrants' participation and contribution to the host society[8]. Furthermore, "Basic knowledge of the host society's language, history, and institutions is indispensable"[9]. Lastly, "stimulating living conditions in urban environments enhance the interactions […]" which are fundamental for integration[10].

In the current section, we give a broad picture on the level of integration of immigrants living in Italy, focusing on three fundamental aspects pointed at by the EU institutions – the territory, the education and the labour market.

3.1 Geographical Allocation and Internal Mobility

Geographical allocation is an important indicator of social integration. If two groups of the population allocate in different areas the so called *balkanisation* can arise. The term balkanization is used to describe the process of fragmentation of a region into smaller regions inhabited by segregated populations.

With data from Istat at municipality level, we can look in more detail at the geographical segregation of immigrant population living in Italy. To this purpose, we compute the following Duncan Segregation Index:

$$S = \frac{1}{2} \sum_m \left| \frac{R_m^I}{R^I} - \frac{R_m^N}{R^N} \right| \tag{1}$$

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[8] https://www.eesc.europa.eu/resources/docs/common-basic-principles_en.pdf
[9] Common Basic Principle n. 4.
[10] Common Basic Principle n. 7.

where R_m^I is the number of resident immigrants in municipality m and R^I is total number of immigrants in Italy. R_m^N is the number of resident natives in municipality m and R^N is the total number of natives living in Italy. The index ranges from 0 (no segregation) to 1 (complete segregation) and table 7 presents the Duncan Segregation Index computed for the years 2012 and 2018. The level of geographical segregation between immigrants and natives does not appear to be particularly high, indicating that both tend to concentrate in the same areas. The index is constant over time showing only a marginal decrease from 0.28 in 2012 to 0.26 in 2018.

Figure 7 shows the municipalities where immigrants are overrepresented relatively to natives. In purple are indicated the municipalities where the share of immigrants is higher than the share of natives. Immigrants concentrate more, with respect to the native population, in the Centre-North of Italy. The number of municipalities where they are overrepresented decreased from 2012 to 2018.

Even if, on average, migrants do not appear to be geographically segregated with respect to natives, individuals from different areas of origin tend to concentrate in different areas of the country. The segregation index for each pair of area of origin (see table 8), it is around 0.4 for most of the pairs indicating a substantial degree of geographical segregation across nationalities.

Table 7: Geographical segregation index of immigrants with respect to native, by year

Year	Duncan Index
2012	0.28
2018	0.26

Source: Authors' elaboration on ISTAT data

Figure 7: Immigrant overrepresentation by municipality
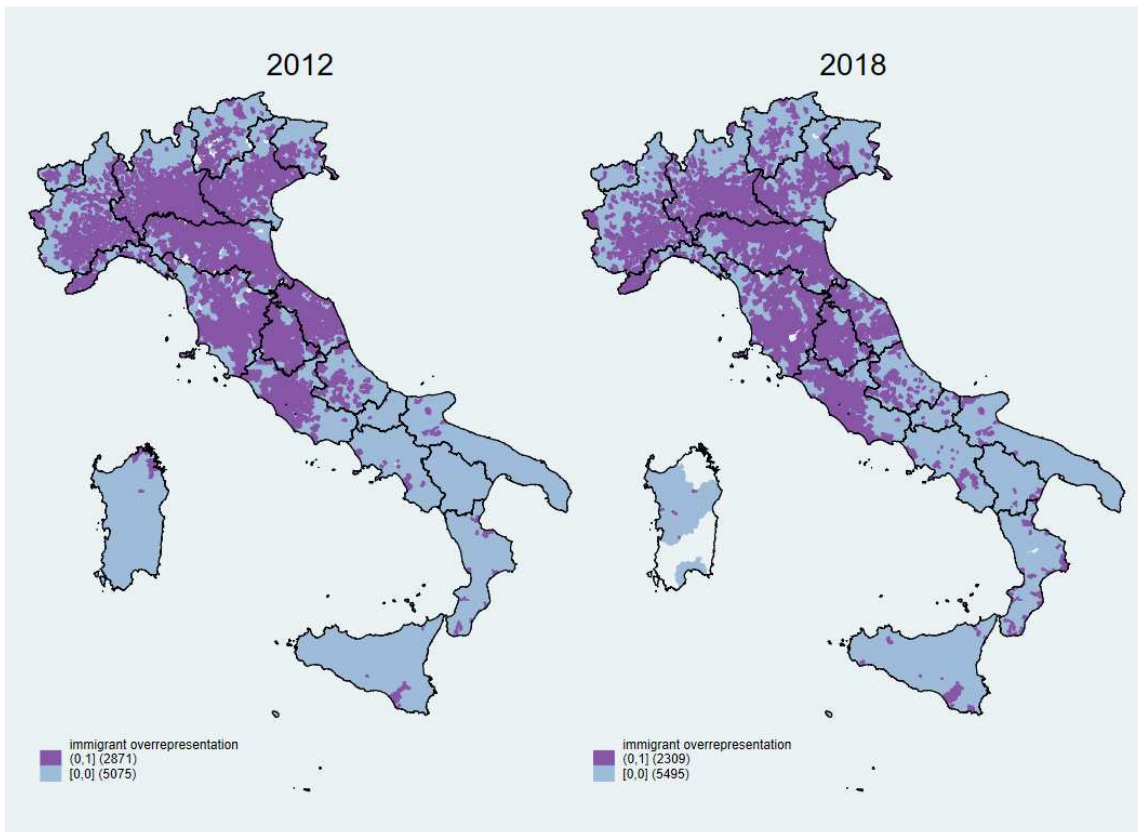
Source: authors' elaboration on ISTAT data.
Notes: In purple municipalities where the share of residing immigrants with respect to the total of immigrants is higher than the natives' equivalent.

Table 8: Pairwise Duncan Segregation Index by area of origin

|	Africa	South America	Asia	Europa	High Income	Native
Africa	0					
South America	.409	0				
Asia	.376	.377	0			
Europe	.283	.424	.4	0		
High Income	.415	.372	.378	.367	0	
Native	.315	.468	.423	.261	.38	0

Source: authors' elaboration on ISTAT data.
Notes: The reference year is the 2018. High-income countries include: EU15, EU EFTA, North America and Oceania. Europe includes all EU countries excluding those in EU15.

In order to get a better picture of the distribution and concentration of immigrants over the Italian territory, we computed the Lorenz curves relative to the share of immigrants by municipality of residence by area of origin (see figure 8). The cumulative proportion of individuals from a given geographical area is plotted against the proportion of municipalities where the individuals reside. The gap between the red and the blue lines shows the level of concentration of immigrants from a specific

geographical area. From it, we can conclude immigrant groups from any geographical area present a high level of concentration. Furthermore, immigrants from any origin are substantially more concentrated than natives. For example, while 80 per cent of natives are distributed in about 60 per cent of the municipalities, 90 per cent of immigrants from South America are concentrated in just 20 per cent of the municipalities and 90 per cent of Africans in about 40 per cent of the municipalities. Along with immigrants from Asia, South Americans are the most concentrated group.

Figure 8: Lorenz curves by geographical area of origin

Source: Authors' elaboration on ISTAT data
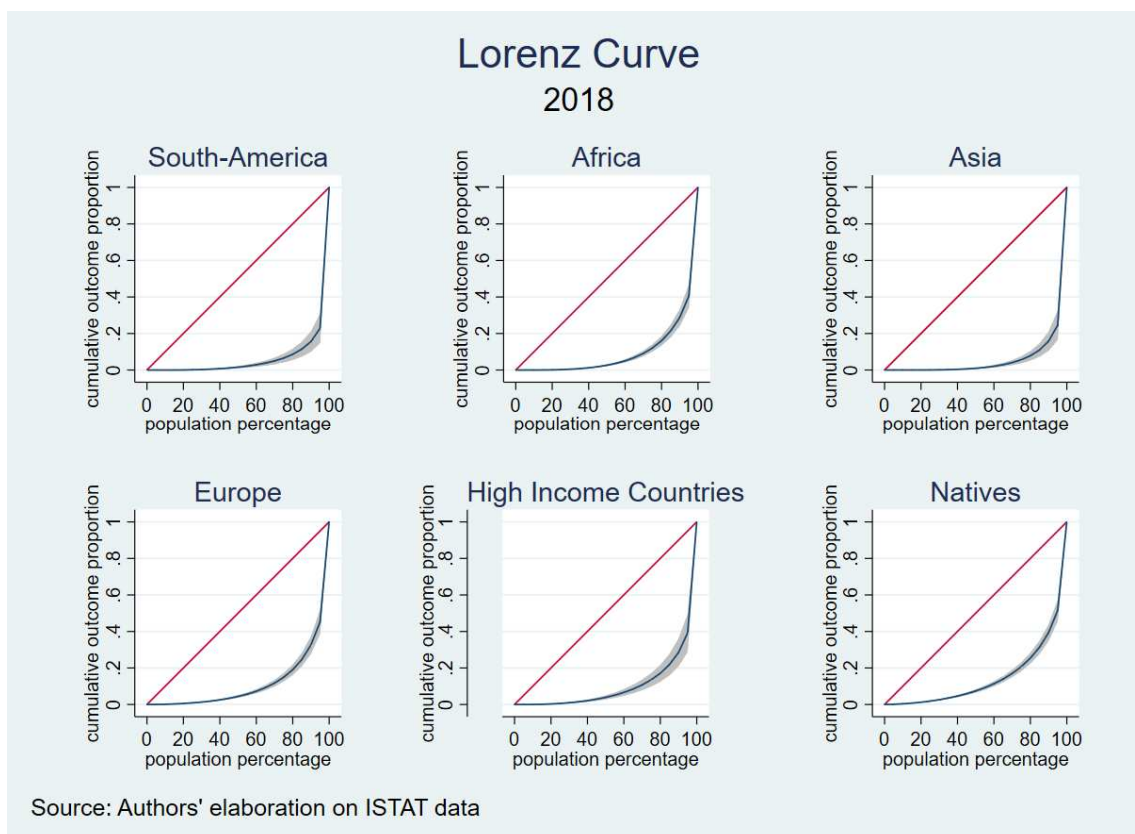
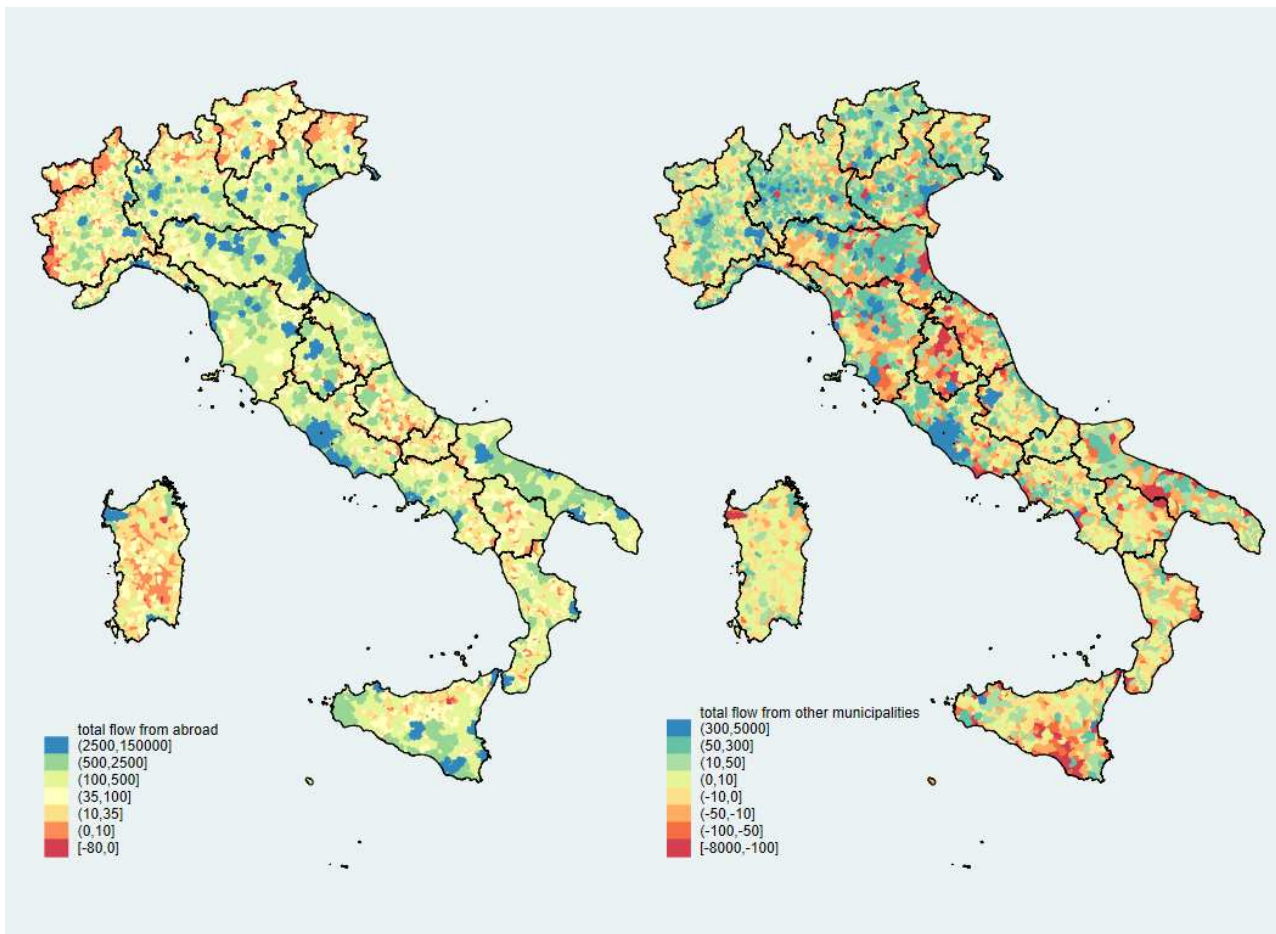Source: authors' elaboration on ISTAT data.
Notes: Reference year is 2018. High-income countries include: EU15, EU EFTA, North America and Oceania. Europe includes all EU countries excluding those in EU15. The shaded-gray area represents the confidence interval.

Once in Italy, immigrants show a higher internal mobility than natives. Figure 9 illustrates the size and direction both of immigrants' net flows across Italian municipalities (figure 9, right panel) and immigrants' net flows from abroad (figure 9, left panel) over the period 2012-2018. In most of the municipalities of the Centre and North of Italy, where the number of immigrants arrived from abroad has already increased from 2012 to 2018, internal net flows are positive.

Most of the largest metropolitan areas and the surrounding municipalities present high net inflows, both internal and international. Among them Rome, Turin, Genoa, Venice, Florence. Milan are

characterized by a negative net flow, differently from its surrounding municipalities, suggesting a movement of the population to the suburbs. Negative internal net flows (on the right panel) are experienced in the municipalities of Puglia, Calabria and Sicily that are often a port of entry for immigrants, as evident from the left panel of figure 9.

Figure 9: Immigrant flows from abroad (left) and from other municipalities (right). 2012 to 2018

Source: Authors' elaboration on ISTAT data

In table 9 inflows, outflows and net flows of natives and immigrants across macro areas are reported separately. The immigrants' in- and out-flows are approximatively the double of those of natives in most of the areas. The gross (in or out) flows are of an order of magnitude larger than the net flows. However, they decreased sharply between 2012 and 2018 – a possible explanation is that the reduction of net flows from abroad in the period, reduced the need for subsequent reallocation across macro areas. Table 10 presents the internal migration flows (as the share of the relevant population group) by municipality size for 2018. The net flows of immigrants are negative for large

municipalities,[11] while they are positive for small and midsize municipalities.[12] Again, immigrants flows are larger than those of natives'.

Table 9: Internal flows by macro area, citizenship and year

Area	Flow	Immigrants		Natives	
		2012	2018	2012	2018
North-West	In	7.58	5.31	3.27	2.92
	Out	7.18	5.05	3.12	2.75
	Net	0.40	0.26	0.15	0.17
North-East	In	7.04	5.68	2.90	2.75
	Out	6.88	5.18	2.76	2.54
	Net	0.16	0.50	0.14	0.21
Centre	In	6.24	3.77	2.68	2.01
	Out	6.02	3.84	2.44	2.00
	Net	0.22	-0.07	0.24	0.01
South	In	6.56	4.08	1.95	1.57
	Out	6.51	5.04	2.25	1.94
	Net	0.05	-0.96	-0.30	-0.37
Islands	In	6.18	3.87	2.04	1.60
	Out	6.30	4.58	2.21	1.92
	Net	-0.12	-0.71	-0.17	-0.32

Source: Authors' elaboration on ISTAT data.
Notes: Native flows are expressed as a percentage of the geographical area's native population. Immigrant flows are expressed as a percentage of the geographical area's immigrant population.

Table 10: Internal flows by municipality size and citizenship (2018)

Municipality type	Flow	Immigrants	Natives
Less than100,000	In	7.09	2.64
	Out	6.97	2.71
	Net	0.12	-0.07
Up to 250,000	In	4.93	2.22
	Out	4.67	2.23
	Net	0.27	-0.01
More than 250,000	In	1.88	1.57
	Out	2.47	1.62
	Net	-0.59	-0.05

Source: Authors' elaboration on ISTAT data.
Notes: Native flows are expressed as a percentage of the geographical area's native population. Immigrant flows are expressed as a percentage of the geographical area's immigrant population.

[11] Note that the group of larger municipalities in the table is broader than those of the big metropolitan areas experiencing positive net flows according to figure 9.
[12] Contrary to what expected, the net internal flows are not zero for Italy, since the observation of the inflow and that of the outflow are not simultaneous (see https://www.istat.it/it/archivio/226919).

To summarize, immigrants have a higher tendency to move with respect to natives, nonetheless, given the smaller size of immigrant population, the number of natives moving across areas is much larger than that of migrants. This is a phenomenon observed in several countries (see, among others, Cadena and Kovak 2016 and Basso et al. 2019).

Only a few studies are devoted to analyse the differences between immigrant and native internal movements in Italy. The study of Mocetti and Porello (2010) on the internal movements of immigrants across Italian provinces for the period 1995-2005 reaches conclusions substantially in line with those presented in this section, that is a large mobility of immigrants after their arrival. Also the directions of flows are confirmed – the net flows are positive in the North-West, the North-East and the Centre and negative in the South and the Islands. Incentives to migrate internally also depends on the circumstances of immigrants, especially as far as their legal status is concerned. Using data from Italian National Institute of Social Insurance (INPS) on employees contracts and social insurance services, Cozzolino et al. (2018) study the probability of moving across provinces of three groups of workers: immigrants who entered the formal labour market in 2000 or 2001, immigrants hired for the first time in 2002 thanks to an amnesty,[13] and the natives hired for the first time in 2002. According to their results, the *amnestied* immigrants show the highest probability of moving. Nonetheless, the difference with respect to the other groups is small, especially with respect to other immigrants. The authors suggest that the higher mobility of immigrants could imply a more efficient allocation of them and, as a consequence, a higher permanence in the formal labour market. They also speculate that immigrants' higher mobility could be the consequence of lower family ties and of the necessity to avoid the exit from the labour market not to lose the work permit.

3.2 Human capital

Immigrants' education gap provides another dimension of integration. Human capital is fundamental for labour market outcomes, as differences in human capital level will translate in different labour market outcomes, even in absence of discrimination. Clearly, the gap between native and immigrant educational outcome can be due to a different composition of the two groups (i.e. different socio-economic background, school type, age, gender, etc.). Or, it can be due to the immigrant status *per se*. The immigration status can be penalizing in education, especially because of the linguistic

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[13] In 2002 the Italian government implemented an amnesty program aiming at regularize immigrant workers employed in the informal labour market from at least three months (D.L. 195/2002).

obstacle, but also because of cultural barriers[14]. The integration process should alleviate the disadvantage of immigrants in education and this is of particular importance also to create equality of opportunities in the labour market.

Based on INVALSI data[15], table 11 gives a first look at the characteristics of immigrant students. The table presents the distribution of immigrant children enrolled in the Italian education system by area of origin. About a quarter belongs to EU-member countries, another quarter to non-EU European countries and the rest to non-European countries. The shares are fairly stable over time and across grades. Nonetheless, these numbers should be taken with caution, given that information on the country of origin is missing for a relatively large number of students.

Table 11: Distribution of immigrant students by area of origin (area of birth for first generation children) by grade and academic year

Year	Grade 2			Grade 10		
	EU	European non-EU	Others	EU	European non-EU	Others
2012/13	0.24	0.22	0.54	0.23	0.26	0.52
2017/18	0.21	0.23	0.56	0.25	0.27	0.48

Source: authors' elaboration on INVALSI data.
Notes: EU refers to all Countries belonging to the European Union. Other European refers to all countries belonging to Europe although not to the EU. Others refers to all non-European Countries.

A first indicator of lack of integration is given by the distribution of native and immigrant students across grades. Following Murat (2012), we compute the ratio between the share of immigrants (separately for the first and the second generation) and the share of natives in the same grade. Table 12 shows the results for grade 2 and 10. The relative distribution of first generation immigrants is strongly skewed towards secondary education (Grade 10), most likely because they tend to be relatively older than natives. On the contrary, the relative distribution of second-generation students is very similar to that of natives (the values of the indicator are close to 1).

Immigrants' school performances, as measured by the INVALSI test scores, show substantial differences among the three groups. Table 13 presents the difference in test scores between immigrants and natives as a percentage of natives' scores. Immigrants' is relatively large and remains relevant, albeit slightly lower, also for second generation students.

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[14] See Borjas (1992) for a more accurate discussion about the *ethnic capital.*
[15] See Appendix A for more detailed information on the data used.

These differences do not appear to be linked to the characteristics of immigrants' area of residence. As table Table *14* shows at provincial level the correlation between migrants' and natives' test scores is close to one, with the observed difference mainly explained by the constant term. This also implies that the gap with respect to natives' test scores is relatively larger in low performing provinces.

Table 12: Ratio between the share of immigrant and native students by grade, generation and academic year

Year	Grade 2		Grade 10	
	First	Second	First	Second
2012/13	0.64	1.29	1.45	0.64
2017/18	0.53	1	1.50	1

Source: Authors' elaboration on INVALSI data.
Notes: The share of immigrant students is computed with respect to the total amount of immigrants in all grades. The share of native students is computed with respect to the total amount of native students in all grades.

Table 13: Difference between native and immigrant students' reading scores by generation, grade and year

Year	First Generation		Second Generation	
	Grade 2	Grade 10	Grade 2	Grade 10
2012/13	-15.1	-15.0	-8.7	-12.3
2017/18	-19.5	-10.5	-12.7	-9.0

Source: Authors' elaboration INVALSI data.
Notes: Differences are expressed as percentage of native students' scores.

Table 14: Relationship between migrants' and natives' test scores by province.

	Reading Scores	Mathematics Scores
Natives' scores	0.919***	
	(0.00274)	
Natives' scores		0.922***
		(0.00237)
Constant	-3.394***	-2.458***
	(0.214)	(0.174)
Observations	1,506	1,506
R-squared	0.987	0.990

Source: authors' elaboration on INVALSI data.
Notes: the reference academic year is the 2016/17. Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

A number of studies analyses the immigrant education gap in Italy. Most of them focuses on test scores in standardized assessment tests. Murat (2012) uses the 2006 test scores collected by the Programme for International Student Assessment (PISA). The program assesses 15-years-old children's cognitive skills in reading, mathematics and science. According to the unconditional regression – i.e. without controls for socio-economic background and school types – Murat (2012) finds a disadvantage for immigrant students in science, mathematics and reading equal to 58.36 per cent, 42.06 per cent and 58.06 per cent of the score standard deviation. Once Murat (2012) controls for students' socio-economic characteristics, school type (lyceums, technical and vocational schools) and the interaction between the two, the educational gap reduces to 3.17, 0.59 and 12.84 respectively. The result suggests that immigrants with the same socio-economic background and attending the same school type of the native group experience a very small learning gap.

Di Liberto (2015) tries to assess in more details the characteristics associated with immigrants' education gap. The author uses data on reading test scores from INVALSI (2010/2011) for grades fifth, sixth and tenth. She finds that the length of stay in Italy greatly affects the school performance of immigrants' children. Once controlled for area, school, family and children's characteristics (including a dummy variable identifying children's speaking a foreign language at home and a dummy identifying children speaking a regional dialect at home), the largest learning gap with respect to natives is observed for students who have been in Italy for one year or less. For the others the learning gap is substantially reduced, but not fully eliminated.[16]

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[16] In particular, at the fifth (tenth) grade first generation immigrants obtained test scores 4.76% (4.22%) lower than natives, while second generation immigrants obtained test scores 3.12% (2.08%) lower. For children arrived by less than two years in Italy the test scores are 7.95% and 10.12% lower, respectively, in the fifth and in the tenth grade. This negative gap persists but it is substantially reduced for children arrived in Italy 2-4 years before the test (scores were

We replicate one of the regression by Di Liberto (2015) with more recent data from INVALSI[17]. The coefficients, estimated separately for first- and second-generation immigrants, are presented in figure 10[18]. The dependent variable is the standardized reading test score, ranging between 0 and 100. Therefore, the immigrant gap can be interpreted as a percentage gap with respect to the maximum score. The values of the coefficients for the first-generation immigrant students are U-shaped – decreasing until academic years 2013/14-2014/15 and increasing afterwards[19]. All the coefficients are negative and significant, indicating that there is a gap between natives' and immigrants' outcomes even after background characteristics are controlled for. Furthermore, the recent increase in the coefficients differs from the unconditional means presented in table 13 that show, if anything, a tendency to decrease. As shown in Appendix B, children's educational performance improves with their permanence in Italy, but a permanence of seven years or longer is not sufficient to close the educational gap.

Figure 10: Coefficients of first- and second-generation immigrant status
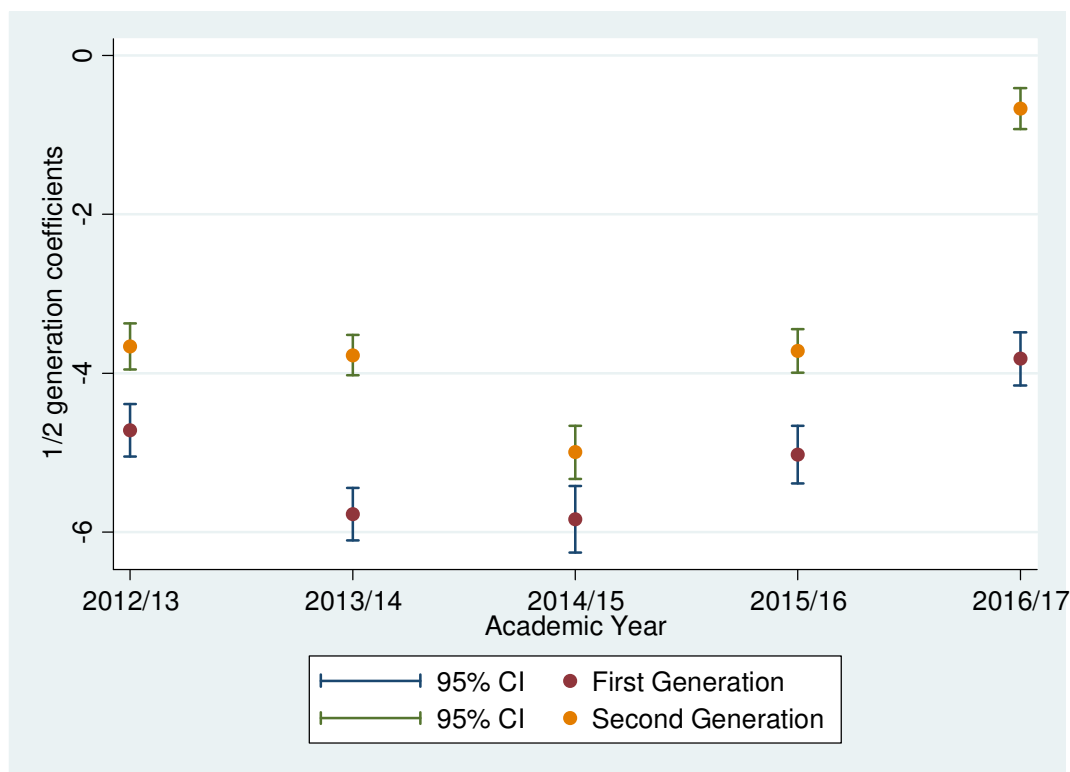
Source: authors' elaboration on INVALSI data.
Notes: The outcome is reading test scores and the reference grade is 10th.

0.83% and 4.55% lower, respectively, in fifth and tenth grades). It is eliminated for those enrolled since the beginning of primary school.

[17] For additional details on the empirical specification see Appendix B.

[18] In Appendix B we also present estimates by length of stay in Italy.

[19] The coefficient relative to year 2011/2012 is close to that found in Di Liberto (2015) for 2010/11.

Barban and White (2011) add evidence about the heterogeneity of the learning gap by ethnicity, using the ITAGEN2 survey for the period 2005/2006. Controlling for background characteristics, the authors show that the results at the middle-school final exam, are lower only for recently arrived immigrant children. The gap is especially large for children coming from Yugoslavia, Morocco, Tunisia and Macedonia, while children coming from China perform better than natives, independently from the length of time spent in Italy. However, their results should be taken with caution since the final exam is not perfectly standardized at the national level.

As already mentioned, an important dimension of the discrepancy in human capital accumulation between natives and immigrants concerns the choice of the school type. Italy is a country of early tracking – at age 13, pupils choose between different school types (lyceums, technical schools and vocational schools). Lyceums are more academically oriented. They provide the children with the tools to continue their studies at the tertiary level. Vocational schools are work-oriented, they can last two years less than the other types and prepare children for a specific job. Technical schools are in-between lyceums and vocational schools, offering children a more technical background together with a basic readiness for tertiary education. Table 15 presents the distribution of native and immigrant students across high school types and its change over time.

Table 15: Distribution of native and immigrant students across different high-school types

Academic	Natives			First Generation			Second Generation		
Year	Lyceum	Technical	Vocational	lyceum	Technical	Vocational	lyceum	Technical	Vocational
2012/13	53%	30%	17%	24%	35%	41%	46%	31%	23%
2017/18	55%	30%	15%	34%	36%	30%	39%	34%	27%

Source: authors' elaboration on INVALSI data.
Notes: Data are disaggregated by academic year and immigrant status. Values are expressed as percentages.

Natives have the highest percentage of enrolment in lyceums, followed by second-generation immigrants, while first-generation immigrants are more likely to be enrolled in vocational or technical education. Furthermore, this distribution is stable across years with the exception of the first generation, whose enrolment in lyceums increases at the expenses of vocational schools[20].

Several studies have analysed immigrant children's high-school choice. Barban and White (2011) show that first-generation students have the lowest probability to be enrolled in technical schools or

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[20] See Appendix B to have an overview on the distribution of native and immigrant students across the different school types disaggregated by province.

lyceums. Bertolini et al. (2015) compare natives' and immigrants' determinants of upper-secondary school choice. They use data from the Ministry of Education and the Italian National Institute of Statistics (Istat) for 2007 and focus on students from 14 to 19 years old. Controlling for socio-economic characteristics of the area of residence, they find that immigrants have a lower probability to be enrolled in upper-secondary school in general. Moreover, they show a lower probability to be enrolled in lyceums and a higher probability to be enrolled in vocational schools.

Azzolini et al. (2017) use quarterly data from the Italian Labour Force Survey (LFS) for the period 2005-2015 and focus on 15-19 years old students to look at the relation between parents' immigrant status and the choice of the upper-secondary school type. They find no significant differences between the enrolment rates of immigrant children of different generation[21].

Both our analysis and the literature suggest that immigrant children perform worse than natives, both before and after controlling for socio-economic background and other characteristics. Moreover, immigrant children tend to prefer high school types that are typically associated with lower probability of attending tertiary education.

3.3 Labour market and economic conditions

As previously stated, employment is fundamental for immigrants' integration. From 2012 to 2018, in Italy, immigrant workers concentrated mostly in Agriculture Construction, Accommodation, and Other services (table 16, first two columns). The latter includes also services to the households. As shown in the last two columns of table Table *16*, instead, immigrants represent a relatively high share of total employment in Manufacturing and, again, Other services. As shown in table 17, where we present the ratio of white-collar workers over blue-collar workers, immigrants are concentrated in relatively low skilled sectors. Transportation and storage is the only exception.

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[21] Only children from mixed unions with a mother from non-western Countries have a 3% lower probability to be enrolled in lyceums, while those from both non-western parents have a 6% lower probability.

Table 16: Immigrants in employment

	Immigrants distribution by Sector		Share in Total Employment	
	2012	2018	2012	2018
Agriculture, forestry and fishing	12.90	15.66	5.02	5.92
Manufacturing	8.25	9.50	19.32	19.27
Construction	17.69	15.58	15.55	9.74
Wholesale and retail trade	4.83	6.26	8.12	9.08
Accommodation and food service activities	14.73	16.85	8.44	9.69
Transportation and storage	9.22	9.83	4.94	4.73
Information and communication	1.34	3.08	0.40	0.80
Financial and insurance activities	0.28	0.54	0.09	0.16
Real estate activities	6.97	6.11	7.99	7.08
Public administration and defense	0.00	0.00	0.00	0.00
Education, human health and social work activities	3.14	3.05	5.41	4.98
Other services	30.19	36.69	24.73	28.53

Source: Authors' elaboration on LFS data.
Notes: Sectors are defined as in NACE rev.2 classification and aggregated into 12 categories by ISTAT.

Table 17: Share of white collars by NACE sectors

	2012	2018
Agriculture, forestry and fishing	8.16	5.98
Manufacturing	32.71	31.81
Construction	17.91	18.35
Wholesale and retail trade	55.92	54.74
Accommodation and food service activities	28.95	20.74
Transportation and storage	50.35	44.60
Information and communication	93.50	93.44
Financial and insurance activities	98.86	99.42
Real estate activities	63.17	60.38
Public administration and defense	93.02	94.72
Education, human health and social work activities	85.08	82.72
Other services	32.28	27.07

Source: Authors' elaboration on LFS data.
Notes: The share is computed as ratio of white collars to blue collars by sector. Sectors are classified by NACE rev.2 classification and aggregated into 12 categories by ISTAT.

Some studies have analysed more in detail the labour market integration of immigrant workers compared to natives. They focus on the difference between labour market outcomes not explained by differences in education or experience. For example, Fullin and Reyneri (2011) describe immigrant workers as not penalized with respect to the employment rate, but segregated in manual jobs even after controlling for formal education.

Other studies have looked to the gap between immigrant and native wages as a measure of economic integration. Ceccarelli et al. (2014) used data from the Italian Labour Force Survey (LFS) for 2007 and 2012. They divide their sample into natives and immigrants of first and second generation, using the ANOVA and the ANOGI methods to determine whether the second-generation immigrants could be assimilated to natives or to first-generation immigrants. They consider the first case as evidence for integration (defining therefore integration as a long-term process which needs a whole generation to be achieved). Both decompositions show that second-generation immigrants perform more similarly to first generation than to natives in 2012 than in 2007. Therefore, the authors conclude that the integration process slowed down in the period under analysis.

The same methodologies (ANOVA and ANOGI) are used by D'Agostino et al. (2016) with different data and following a different perspective. The authors drew the data for native income from the European Survey on Income and Living Conditions (EU-SILC), and data on immigrant income from

an ad-hoc survey conducted by Istat in 2009. They apply the ANOVA to different ethnic groups of immigrants. They find that nearly all the inequality is explained by the within-group component, suggesting that the within groups inequality should be a major concern with respect to the between groups inequality. They also observe that, among the immigrant population, the median income is the highest for Filipinos, but it is not significantly different from Albanians, Moldovans and Moroccans' income. On the contrary, the Ukrainians have the lowest median income.

D'Agostino et al. (2016) also evaluate the determinants of the observed inequality, obtaining results in line with Berti et al. (2014). The latter focus on a measure of poverty risk based on more than one dimension: basic lifestyle, consumer durables, financial situation, environment, work and education, health and household disposable income. They find the highest gap between immigrant and native populations when it comes to basic life-style, consumer durables, financial situation, work and education. Therefore, these should be the areas of intervention in order to reduce the risk of marginalization and social conflict. Furthermore, according to Berti et al. (2014), the policy interventions should be aimed in particular to alleviate the disadvantage of new comers, of households with many members and of those living in the Southern regions of Italy.

Over-education is a well-documented characteristic of immigrant workers. In a framework of asymmetric information, the education achieved abroad can be a signal of the unobserved productivity weaker than the education acquired in the country of residence. Another explanation is that formal education can be poorly transferable across countries, mainly because of linguistic barriers. In both cases, years of experience in the destination country should reduce the immigrant-native gap in over-education. This is analysed by Dell'Aringa and Pagani (2011) using data from the Italian Labour Force Survey from 2005 to 2007. In particular, they focus only on years since immigration and job experience as affecting the probability of being overeducated. They exclude from the analysis the educational level. Endogeneity issues can arise since those who are better valued in the labour market are likely to remain longer in the destination country. Therefore, they instrument the period of stay in the destination country with the GDP at origin, as a proxy for the quality of institutions that can affects the decision to out-migrate. A potential issue with this approach is that it relies on the implicit hypothesis that conditions at origin affects the decision of immigrants to live in Italy, but not the probability to be overeducated. The conclusion by Dell'Aringa and Pagani (2011) is that the probability of being over-educated, as defined by having an educational level higher that the modal level of the occupation, for immigrants relative to natives is not affected by years spent in Italy. Fellini et al. (2018), however, observe that especially for highly educated immigrants from new

EU member States experience tends to reduce overeducation relatively quickly, as shown by the upward mobility of this group.

What stands out from the existing literature is the lack of integration of immigrants in the labour market. First generation immigrants differ from natives both in terms of wages and in terms of basic life-style, consumer durable, financial situation and work. Recently, the absence of integration in wages has become a relevant issue even for second generation immigrants. The literature agrees that the best way to tackle inequality is to focus on helping the new comers, particularly large households and households in the *Mezzogiorno* area. Nonetheless, additional analysis should be performed to determine to what extent the results are due to differences in workers characteristics rather than specifically to immigration status. Indeed, there is few evidence on this topic.

4. The impact of immigration

In this section, we discuss the impact of immigration on the native population, focusing on the same three outcomes already explored in the analysis on immigrant integration – i.e. geographical displacement, human capital and labour market.

4.1 Geographical displacement

A few papers have analysed the impact of immigration on native internal movements. Mocetti and Porello (2010) look at the impact of the presence of immigrants on natives' interregional mobility for the period 1995-2005. The estimates are disaggregated for different skill groups of natives and obtained by regressing the net migration rate between pairs of regions on the lagged share of immigrants in both regions. As additional control they also include some (lagged) characteristics of the regions (such as the unemployment rate and the GDP per worker), regional and socio-economic group fixed effects and year dummies. Endogeneity issues can arise, since some omitted variables can serve as pull factors of both natives and immigrants. Therefore, they instrument the incidence of immigrants with the weighted sum of the distance between the region of residence and immigrants' gateways. The weights reflect the number of immigrants of a specific nationality entering preferentially from that gateway. Data on natives' internal migration come from the General

Population Register. Data on international immigrants come from the Ministry of the Interior. They identify a displacement effect on low-educated natives, while highly educated individuals are attracted by regions with a higher immigration rate. They repeat the analysis at Local Labour Market level, finding a similar effect.

In addition to Mocetti and Porello (2010), also Brücker et al. (2011) look at the impact of immigrants on the internal mobility of natives. They build a simple theoretical model with both natives and immigrants moving from South to North on the basis of wage and unemployment differentials. The model suggests that a larger stock of immigrants in the North might affect the incentive for natives to move through its effect on wages, unemployment, house prices, congestion and criminality. The empirical estimation confirms that a higher immigrant share in Northern regions reduces natives' internal migration to these areas for a subset of regions in the North-West and in the Centre, while complementarity in migration appears to be at place in the regions of the North East.

4.2 Human Capital

The presence of immigrant students lagging behind (see section 3.2) can have an impact on native peers as well. For example, immigrant students can require additional efforts from teachers (i.e. because of higher linguistic difficulties or to foster integration), who have then less remaining time for the other students. Moreover, in presence of several students lagging behind, teachers can decide to lower the standard of the whole group. Contini (2013) estimates the impact of having immigrant peers on children educational outcome using INVALSI mathematics and reading test scores. To overcome the issue of endogenous allocation of immigrant students across schools, the author considers only within-school variation. To overcome the problem of endogenous allocation across classroom groups, she focuses on schools where the assumption of random allocation of immigrant children is satisfied[22]. The analysis focuses on North and Centre macro areas and models pupils' performances as dependent on their socio-economic characteristics and those of their peers, their gender and whether they are in a lower grade with respect to their age. Contini (2013) finds a small negative impact of the share of immigrants in the classroom on children's reading scores and no significant impact on mathematics scores. At the same time, she finds a positive impact of the presence of second-generation immigrant peers. However, both the positive and the negative effects

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[22] The latter is identified testing for random assignment of immigrant children.

are small compared to the average test scores. The author shows that at least 40 per cent of the negative impact of the first-generation immigrants is due to peer characteristics rather than peer achievements.

Using INVALSI data for the period 2008/2010, Tonello (2016) obtains similar results. The author employs a non-linear model to describe the relation between the share of non-native students and natives' performances. To overcome the endogeneity due to sorting across classrooms, the author carries out the estimation at a school level. Moreover, he uses school fixed effects to avoid omitted variable bias. He adds also school district by year fixed effects to capture time variant changes and sorting across school districts due to residential location decisions. The author shows that the negative effect of non-native students is particularly small if the number of non-natives is small enough. Furthermore, the low performing children are especially negatively affected by the number of immigrants in the same classroom. He concludes that the relation between native and non-native children can be summarised by an integration model: native students' behaviours have a positive impact on non-native peers, attenuating their propensity to be harmful. Nonetheless, integration requires an active effort from native students. The effort is bigger as the number of non-natives in the classroom group is higher. Therefore, the propensity to be harmful is extremely small as long as the number of non-native students is low enough.

Ballatore et al. (2018) show that Contini's and Tonello's approaches can not be sufficient to tackle the endogeneity issues. An attenuation bias can persist in the effect of immigrants on their native peers. They study the impact of pure ethnic composition (PEC) defined as the switch of a native with an immigrant under no variation in classroom size and in the average scholastic abilities of each ethnic group. To overcome the potential endogeneity in the number of children in the classroom, the authors exploit the fact that classroom composition is defined by principals during students' pre-enrolment. After enrolment, the actual classroom composition can change because classroom size cannot exceed the number of 25 pupils. This induce an exogenous variability. They use data from INVALSI for the academic year 2009/2010 and find a negative and significant PEC effect of 16 percent of native scores standard deviation for reading scores and similar results for mathematics scores.

Frattini and Meschi (2019) estimate the immigrant peer effect in vocational schools. This is a case of particular relevance, given the large share of immigrants attending vocational schools, along with a higher concentration of low performing students (Pasquini and Rosati, 2019). Indeed, as showed in Tonello (2016), low performing students are particularly vulnerable to the negative externalities due to classroom composition. To overcome the identification issues mentioned above, the authors

estimate the treatment effect for the schools where, according to a Pearson Chi-squared test, the allocation of students in classrooms is random. The authors regress the learning value added[23] on students and classroom characteristics (size and share of females), the share of immigrant in final year, school and cohort fixed effects. They find no effect on reading scores and a small effect on mathematics scores for the group of natives and a larger effect for native students in the lowest half of the ability distribution. The results also point at a non linear effect that appears to be significant only in groups with a large share of immigrants and linked to the average linguistic distance between foreign-born and native students. They conclude that native students can benefit by a more even distribution of immigrants across schools and more investments in linguistic support to immigrant students.

Evidence by Tonello (2016) shows that the low performing children are more likely to be negatively affected by the presence of immigrant peers. At the same time, the literature agrees on the strong association between low socio-economic background and lower cognitive performance (see, among others, Corak, 2013). Therefore, we expect children with a lower socio-economic background to show on average lower performances and, consequently, being the most affected by the presence of immigrant peers. In figure Figure *11*, the share of classroom by number of immigrants is presented separately for the average socio-economic index of the natives in the classroom: lower than the first tercile (low-ESCS classes), between the first and the second (middle-ESCS classes) and higher than the second (high-ESCS classes). The lowest socio-economic level are associated with the highest immigrants' presence. Therefore, immigrants tend to concentrate in the classrooms where their impact is higher. Similarly, table 18 displays the number of immigrant students by socio-economic category of the classroom. The average number of first-generation immigrant students clearly varies inversely with respect to the average socio-economic status of the group.

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[23] Measured as the difference between the standard test scores provided at the end of the education cycle and at the beginning.

Figure 11: Immigrant students presence by socio-economic level
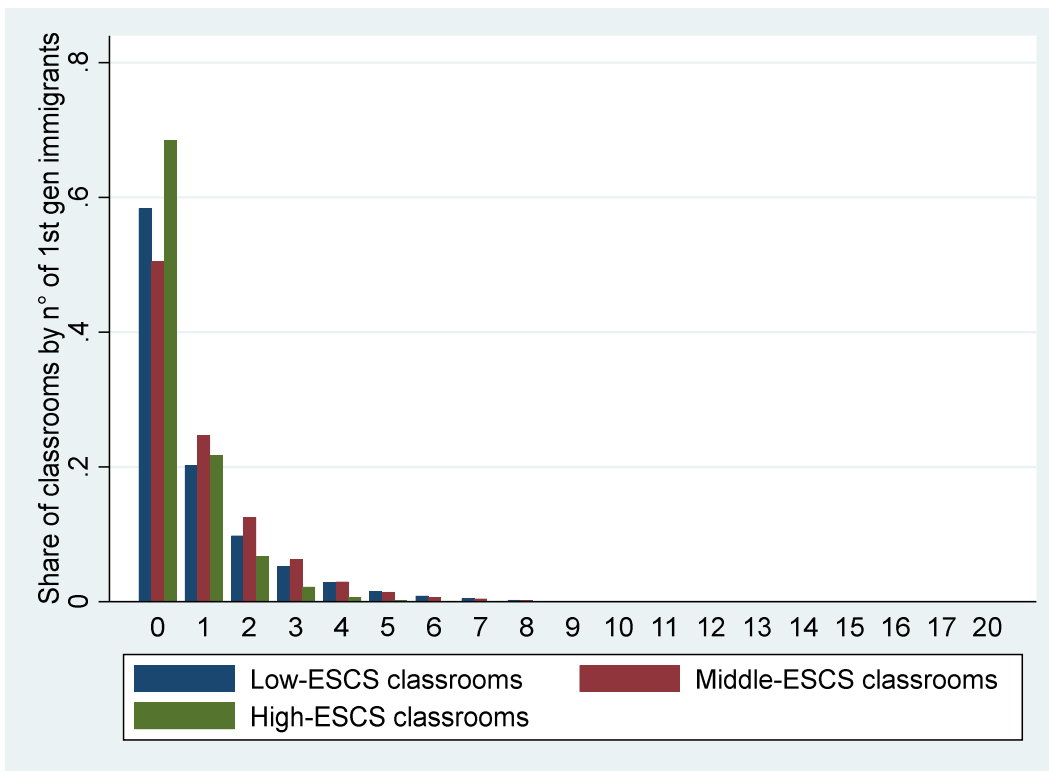
Source: authors' elaboration on INVALSI data.

Data: The average ESCS was calculated excluding immigrant children. On the horizontal axis we report the number of immigrant students of 1st generation in the classroom. Average over the period 2011-2016 (data did not differ much between one year and the others). Reference Grade: 10th.

Table 18: First-generation students by socio-economic level

Socio-economic level (ESCS)	Average number of 1st generation immigrants	Average number of 1st generation immigrants (excluding 0)
Low	0.88	2.12
Middle	0.99	2.01
High	0.46	1.45

Source: authors' elaboration on INVALSI data.
Notes The average ESCS was calculated excluding immigrant children. Average across years 2011-2016 (data did not differ much between one year and the others). Reference Grade: 10th.

To conclude, the existing literature suggests that the presence of immigrant peers in a classroom slightly affects native students' outcomes. The negative impact – often underestimated by the literature – is higher when the number of immigrant students is particularly high and for low-performing natives. Together with the fact that the number of immigrants is higher in groups with

more disadvantaged natives, the latter suggests that a more accurate distribution of immigrant children across classroom groups could reduce the inequality of Italian education system in general.

4.3 Labour market and productive structure

According to the theoretical framework of Hanson and Slaugher (2002), the labour market can absorb a labor-supply shock, like the arrival of new immigrants, through three non-mutually exclusive mechanisms: a change in wages, a change in the output composition, and a change in technology. More specifically, following a shift in the labour supply, the market can adjust by reaching a new equilibrium along the labour demand – with higher employment and lower wage – or the supply shock can induce a shift in the labour demand, leading to an ambigous effect on wages and employment. The shift in the demand curve can occour through a change in the output mix and/or in technology – the output of more labour-intensive firms increases and/or every production unit uses labour in a more intensive way.

In open economies, if *factor price equalization* holds, we would observe an adjustment based only on employment. Therefore, it's more likely that firms operating in the tradable accommodate the increased supply by a change in the output or a change in the technology, while firms operating in the non tradable sectors adjust by a change in wage.

The effect of immigration on natives' wages has been the core subject explored by labour economists[24]. Nonetheless, differently to other countries, analyses of the Italian case are rather scant. Gavosto et al. (1999) and Venturini and Villosio (2006) are among the few studies that try to assess the effect of immigrants on natives' labour market outcomes. Both refer to a period earlier than 1996, when immigration was a less relevant phenomenon in Italy. More in details, Gavosto et al. (1999) regress the mean wage of a specific industrial sector in a given region, conditional on a vector of individual characteristics, on the share of foreign workers in the same industry and geographical area. The total effects on natives' wages are never significant. Similarly, Venturini and Villosio (2006) estimate separate regressions for industry-region specific groups to evaluate the marginal effect of immigrants on the conditional probability of being unemployed. Results are puzzling and heterogeneous, since they also change across years, showing some competion between natives and

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[24] For a comprehensive review of the existing studies on the labor market effect of immigration see Dustmann et al. (2016).

immigrants at the end of the period. Centralised wage bargaining, still very relevant during the years of the study, could have attenuated any effect of migrant inflows on native wages.

A more recent work tries to add some empirical evidence to the debate on the wage effect of immigration in Italy. According to the results by Staffolani and Valentini (2010), immigrants never reduced native daily wage across sectors and regions during the years 1995-2004. Natives are considered together or divided by occupation and the regression is estimated also at the national level. As a final exercise, natives' wages are regressed on the overall variation of immigrants at the regional level. According to Dustmann et al. (2016), this total effect is expected to be more negative, since a *pure spatial approach* does not consider the complementarity between different workers. Surprisingly, the estimated positive coeffients are instead larger for all groups of workers.

A serious caveat is associated with all the aforementioned studies as none of them convincingly address the endogenous allocation of immigrants workers across geographical areas or industrial sectors. One important concern regarding the identification of the wage effect of immigration is that workers decide to locate in regions or industries where labour market opportunities are growing. Therefore, the results might be biased and must be considered only as descriptive of the stylized facts characterizing Italian immigration.

One exception is the work by Labanca (2014) studying the effect of immigration on Italian native employment. The empirical strategy relies on an instrumental variable approach aimed to capture only the exogenous variation in the foreign labour supply. Similarly to most of the studies analysing the effect of immigration on native labour market outcomes, Labanca (2014) uses the shift-share instrument, initially proposed by Altonji and Card (1991). The instrument is a weighted sum of the current aggregate migration inflows by nationality, weighted according to the distribution of the same nationality across areas. The underlying hypothesis is that newly arrived immigrants tend to locate where people from the same country already live in order to more easily integrate and to reduce the cost of immigration. If the past distribution is uncorrelated with the current local labour market outcomes, the instrument is able to effectively identify the causal impact of immigration.[25]

The period considered by Labanca (2014) encompasses the years of severe political instability in North-Africa – known as the Arab Spring – that pushed a sizeable share of the population to migrate toward Europe, in particular toward the Mediterranean Countries. The crisis began at the end of 2010, in the middle of the period considered in the study that ranges from 2009 to 2012.

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[25] For a detailed discussion on the validity of the shift-share instrument in different research designs see Goldsmith-Pinkham (2019).

According to the estimates, the effect of migration inflows on native employment is negative, but not significantly different from zero. Nonetheless, this result hides substantial heterogeneity across sectors. Workers in mining, hotels and restaurants, and wholesale trade are those more negatively affected by the arrival of migrants, while workers in construction and educational services are positively affected.

The quarterly nature of the data allows the author to estimate also the dynamics of the impact. The estimated coefficients are larger for the 3-month-change variation of employment, but they converge to zero after one year indicating that immigration produces only short run effects.

Two recent works have emphasized the heterogeneity of the immigration effect over time (Jaeger et al., 2019; Levi et al., 2019). Both recommend the introduction of current and lagged immigrant share of the population – or, alternatively, the introduction of both the flow and stock of immigrants – as to simultaneously elict the effect of the newly arrived individuals and of those already settled at destination. The integration process of foreigners can take time and this underlying pattern can arise only from the proper model specification.

Assuming *factor price equalization*, the other two adjustment channels of the labour market – pointed at by Hanson and Slaugther (2002) – have to be assessed. Some papers have analysed the potential impact of immigrants on the Italian production structure. De Arcangelis et al. (2015) – in a study of the Italian provices (NUTS3) from 1995 to 2006 – find a positive effect of the share of immigrant workers on the value added of the manufacture relatively to services. A cross-sectional analysis on the manufacture sector only, developed by Bettin et al. (2014), indicates that a larger share of foreign workers is associated with an increase in the output of firms using relatively more labour-intensive production technologies. Finally, Etzo et al. (2017) analise the evolution of the value added per workers of the manufacturing sector. Using data on Italian provinces for the period 2008-2011, they conclude that – at least in a subset of manufacture sectors – an increase in immigration induced an increase in value added per capita, mainly due to an increase of total factor productivity.

Finally, two papers investigated the specific link between immigrant and native female labour supply. Barone and Mocetti (2011) show that an increase in the number of immigrant women employed in household services increases the hours worked by native women already employed. This effect is present only for high-skilled women and for those more involved in housekeeping duties – i.e., women with children under 3 years old or living in households with old members. Peri et al. (2015) find also that women over 55 with old persons at home delay their retirement decisions in areas where the supply of immigrant services is higher. Additionally to Barone and Mocetti (2011), they find no effect of immigrant labour supply in the child-care sector.

To summarize, the literature suggests that Italian labor market responds to labor supply shock due to immigration both reshaping the productive structure towards more low-skilled sectors and displacing native employment in low-skilled sectors. Nonetheless, the evidence on the topic is rather scarce, as most of the literature does not addess endogeneity and reverse causality issues satisfactorily.

5. Summary and conclusions

In this paper we have presented the stylized characteristics and the existing empirical analyses on several aspects related to the relatively recent growth of immigration in Italy.

In the recent past the immigrant flows to Italy substantially declined and the ratio of non citizens to the native population stabilized around 9 per cent. At the same time the number of naturalizations has shown an upward trend, so that foreign-born population has been increasing and has reached about 10 per cent of the native population.

Immigrants are not significantly segregated in terms of spatial distribution with respect to the native population, but tend to relatively concentrate by area of origin. They show a high rate of internal mobility that generates a non-negligible territorial redistribution of their presence after arrival. Immigrants tend to move towards areas characterised by higher per capita income and their movements are positively correlated with those of the natives. The presence of immigrants appears to affect natives internal movement, albeit the results of the analyses present in the literature are quite scarce. In particular, there is some evidence that immigrants reduce the internal mobility especially of low-skilled natives.

Immigrants are mainly concentrated in Agriculture, Construction, Accomodation and food services. Household services is where 60 per cent of the immigrants work and where they represent about one third of the total labour force. These sectors are characterized by the use of relatively low-skilled labour force. Clearly, the concentration of immigrants in low-skilled sectors reflects the level of human capital accumulated before the arrival. Overeducation also plays a role in determining the concentration of immigrants in low-skilled jobs. As shown, overeducation is significantly present in immigrants employment and does not appear to decrease substantially with the length of permanence in Italy.

Little evidence is available in terms of wage discrimination. It appears that the wage distribution of second-generation immigrants tends to converge to that of natives, albeit the process of convergence might have slowed down in the recent past. On the other hand, first-generation immigrants appear to

be relatively more disadvantaged. However, the issue of wage discrimination between immigrants and natives has not been analysed in detail by the existing literature.

Apparently, the large inflow of immigrants had not a substantial impact on natives employment and wages nor on the productive structure. In fact, most of the studies show no impact on employment or wages, with some possible negative effects on natives employment in the service sector. However, it should be stressed that there is just an handful of studies in this areas and that most suffers from serious identification problems.

Human capital accumulation is the area where more solid and conclusive evidence is available. The education system appears to be doing a good job in integrating immigrant children. The learning gap of immigrant children with respect to natives is substantially reduced, albeit it still persists, for second generation immigrants, once socio-economic background characteristics have been controlled for. However, as immigrants disproportionately belong to more disadvantage groups, on average a substantial gaps persist between natives and immigrants' children in terms of learning.

The presence of immigrants in the classroom does not appear to affect their natives peers' performances in a relevant way. However, some negative effects can be identified in low performing classrooms if the presence of immigrants, especially first-generation ones, is relatively large.

As we have seen, both the territorial and sectoral distribution of immigrants is relatively concentrated and this can affect different groups of the population in different ways. There is some evidence that in Italy low-skilled workers could have been affected by immigrant flows. Similarly, we have seen that natives children from disadvantaged background are more likely to have immigrant peers in the classroom and that this might have a negative impact on their learning. However, the possible other dimensions of inequality in the impact of immigration like housing prices, congestion of public services remain largely unexplored in the literature.

The evidence available for Italy certainly does not match the policy relevance of an issue that has been dominating the public debate in the recent years. Moreover, if taken at face value, the evidence for Italy does not lead to any conclusion alarming enough to justify the concerns present in the society at large. Therefore, either the analysis of the economic consequences of immigration is not the relevant dimension to focus on or it has not addressed some very relevant issues. Likely both aspects are to some extent true. On the one hand, concerns about factors like cultural identity, fear of crime[26] appear to play a very important role, on the other hand aspects like the "optimal" number of immigrants, the differential impact on public services , house prices etc. have not been addressed.

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[26] see e.g. Bianchi et al. (2012)

As a final remark this review shows how, beside the specific case of Italy, from the current literature, it is difficult to get a picture of the characteristics and impact of immigration in a country detailed enough to guide effective policy interventions.

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Appendix A. The data

Our main data source is the National Institute of Statistics (Istituto Nazionale di Statistica, Istat) that provides several datasets among those listed below.

1.   Administrative data on resident population

Administrative data are collected by local statistical offices and elaborated by Istat every year since 2002. The unit of observation is the municipality – the lowest local administrative unit (LAU2).

2. Labour Force Survey

The Labour Force Survey is collected quartely and is representative of the main characteristics of the labour force at provincial level (NUT3).

3.   Naturalizations

Registered by the Italian Ministry of the Interior and elaborated by Istat. The unit of observation is the individual, but data are available at the province level (NUTS3). Annual naturalizations by province are disaggregated according to the reason of naturalization – Residence, Marriage, Others.

4.   Personal incomes

Information on annual personal incomes are collected by the Italian Ministry of Economics and Finance every year since 2012. Data are aggregated at the municipal level and they include individual income, as well as total profits by small businesses.

5.   Revenues and expenditures of municipalities

Information on municipalities annual revenues and expenditures is collected by the Italian Ministry of the Interior and elaborated by SIOPE (Bank of Italy).

6.   Standardized learning test

The National Institute for the Evaluation of the Education and Training System (INVALSI) submits, each year since 2011, standardized test to children in different educational levels in all schools over Italian territory (with the exception of some particular types of secondary upper schools). The tests are accompanied by some questions on children socio-economic background and on demographic information. The latter include information on the Country of origin and on parents' Country of origin. The database contains individual data and geographical indentifier at provincial level.

Appendix B. Human Capital

B.1. Replication of Di Liberto (2015) regression model

B.1.1. Model Specification

Following Di Liberto (2015), we have used the following regression model:

$$Y_{ij} = \alpha + \beta first_{ij} + \gamma second_{ij} + X'_{ij}\delta + Z_j'\theta + \varepsilon_{ij}$$

where i is a student identifier and j is a school identifier. On the left hand side we have the normalized reading test scores. On the right hand side, $first_{ij}$ and $second_{ij}$ are dummy variables identifying, respectively, children belonging to the first and the second generation of immigrants. X'_{ij} is a set of covariates at individual level. It includes the following variables:

- a dummy identifying child's gender (i.e., it takes value 1 if the child is a female and 0 otherwise),
- the variable ESCS, which is a measure of children socio-economic background built by INVALSI according to the occupational and educational level of student's parents and some measures of educational and cultural resources in his/her house (such as the number of books available),
- a dummy identifying children whose families speak a dialect at home,
- a dummy identifying children whose families speak a foreign language at home,
- a series of variables measuring, respectively, the number of students in child's classroom and the number of siblings he/she has,
- a dummy identifying children whose families owns more than 100 books at home.

Z_j', instead is a set of covariates defined at school level. It includes the following variables:

- a variable measuring school size,
- a variable measuring the school average of ESCS,
- two dummies, one identifying lycea and one identifying vocational schools,
- some macro-area dummies (to identify whether the school belongs to the North-East, North-West, Centre, South areas of Italy or to the Islands).

Finally ε_{ij} is the error term. Standard errors were clustered at school level.

In the second regression, we have used the following model:

$$Y_{ij} = \alpha + \beta years'_{ij} + \gamma second_{ij} + X'_{ij}\delta + Z_j\theta + \varepsilon_{ij}$$

where $years'_{ij}$ measures the number of years child i of school j resided in Italy and the rest of the notation is as before.

B.1.2. Regression results

In tTable *19* and Table *20* we report, respectively, all coefficients values for the first and the second regression model.

Table 19: Results of the first regression model.

VARIABLES	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
gender	1.725***	1.396***	1.099***	1.733***	2.817***	3.549***
	(0.0900)	(0.0926)	(0.0870)	(0.126)	(0.105)	(0.102)
escs	0.434***	0.331***	0.392***	0.0991**	0.223***	0.268***
	(0.0301)	(0.0330)	(0.0311)	(0.0454)	(0.0362)	(0.0366)
dialect	-0.982***	-1.328***	-1.361***	-1.642***	-1.733***	-1.478***
	(0.102)	(0.102)	(0.106)	(0.0925)	(0.0729)	(0.0716)
foreign language	-3.527***	-3.684***	-3.825***	-3.262***	-3.389***	-5.320***
	(0.159)	(0.158)	(0.160)	(0.187)	(0.158)	(0.151)
no. stud_classroom	0.0962***	0.0728***	0.0739***	0.0695***	0.0328*	0.0644***
	(0.0156)	(0.0161)	(0.0159)	(0.0219)	(0.0178)	(0.0179)
siblings	-0.392***	-0.454***				
	(0.0271)	(0.0298)				
manybooks	1.603***	2.300***	3.036***	3.615***	3.548***	3.540***
	(0.0593)	(0.0643)	(0.0619)	(0.0900)	(0.0724)	(0.0804)
school_size	0.0172***	0.0192***	0.0161***	0.0231***	0.0222***	0.0171***
	(0.00127)	(0.00148)	(0.00137)	(0.00167)	(0.00143)	(0.00137)
school_escs	4.715***	5.818***	6.223***	5.352***	5.833***	4.119***
	(0.246)	(0.272)	(0.282)	(0.376)	(0.319)	(0.362)
foreign 1st generation	-3.691***	-4.720***	-5.778***	-5.840***	-5.028***	-3.821***
	(0.161)	(0.169)	(0.168)	(0.215)	(0.186)	(0.172)
foreign 2nd generation	-5.013***	-3.663***	-3.773***	-4.996***	-3.722***	-0.667***
	(0.150)	(0.149)	(0.128)	(0.170)	(0.140)	(0.131)
Lyceum	4.458***	5.430***	5.142***	6.820***	6.493***	7.486***
	(0.227)	(0.246)	(0.231)	(0.322)	(0.272)	(0.273)
Vocational	-8.598***	-9.418***	-8.564***	-11.25***	-8.891***	-9.244***
	(0.264)	(0.253)	(0.254)	(0.338)	(0.293)	(0.273)
Constant	68.60***	62.70***	63.21***	51.35***	53.75***	51.52***
	(0.397)	(0.410)	(0.396)	(0.538)	(0.441)	(0.466)
Macro area dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	382,496	388,414	378,040	219,993	348,724	392,053
R-squared	0.322	0.337	0.344	0.320	0.310	0.308

Source: authors' elaboration of INVALSI data. Outcome: standardized reading test scores. The regression model is a replication of Di Liberto (2015) ones. Robust standard errors in parentheses (clustered at school level). *** p<0.01, ** p<0.05, * p<0.1

Table 20: Results of the second regression model.

VARIABLES	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
gender	1.763***	1.354***	1.058***	1.679***	2.779***	3.554***
	(0.102)	(0.0922)	(0.0866)	(0.126)	(0.104)	(0.101)
escs	0.615***	0.306***	0.358***	0.0682	0.195***	0.294***
	(0.0424)	(0.0328)	(0.0310)	(0.0454)	(0.0363)	(0.0363)
dialect	-1.110***	-1.306***	-1.359***	-1.671***	-1.755***	-1.590***
	(0.124)	(0.102)	(0.106)	(0.0922)	(0.0731)	(0.0718)
foreign language	-2.206***	-2.214***	-2.230***	-2.005***	-2.207***	-3.295***
	(0.175)	(0.156)	(0.157)	(0.182)	(0.155)	(0.143)
no. stud_classroom	0.118***	0.0725***	0.0728***	0.0685***	0.0320*	0.0640***
	(0.0171)	(0.0161)	(0.0158)	(0.0218)	(0.0178)	(0.0179)
other European	0.983***	0.795***	-0.202	1.361***	1.069***	-2.017***
	(0.270)	(0.232)	(0.212)	(0.272)	(0.229)	(0.182)
non Europe	-2.129***	-1.658***	-3.716***	-2.631***	-1.855***	-4.238***
	(0.247)	(0.204)	(0.187)	(0.252)	(0.222)	(0.221)
siblings	-0.454***	-0.400***				
	(0.0371)	(0.0297)				
manybooks	1.551***	2.338***	3.035***	3.589***	3.569***	3.422***
	(0.0837)	(0.0642)	(0.0616)	(0.0896)	(0.0722)	(0.0788)
school_size	0.0187***	0.0191***	0.0160***	0.0229***	0.0219***	0.0171***
	(0.00137)	(0.00147)	(0.00138)	(0.00166)	(0.00142)	(0.00136)
school_escs	5.020***	5.833***	6.245***	5.336***	5.832***	4.139***
	(0.271)	(0.271)	(0.281)	(0.375)	(0.318)	(0.358)
foreign 2nd generation	-1.966***	-2.881***	-2.516***	-4.066***	-3.038***	-0.268*
	(0.182)	(0.170)	(0.143)	(0.192)	(0.167)	(0.143)
1 year	-10.12***	-10.19***	-11.61***	-12.49***	-9.601***	-9.849***
	(0.435)	(0.445)	(0.439)	(0.548)	(0.493)	(0.652)
2-4 years	-7.890***	-10.39***	-10.99***	-12.44***	-12.53***	-10.29***
	(0.288)	(0.275)	(0.290)	(0.428)	(0.446)	(0.374)
5-7 years	-2.980***	-6.083***	-6.041***	-7.514***	-7.427***	-5.178***
	(0.234)	(0.240)	(0.256)	(0.351)	(0.330)	(0.306)
7+ years	-1.008***	-3.306***	-3.059***	-4.327***	-3.779***	-2.519***
	(0.126)	(0.152)	(0.147)	(0.198)	(0.161)	(0.159)
Lyceum	4.337***	5.424***	5.129***	6.803***	6.491***	7.422***
	(0.245)	(0.244)	(0.230)	(0.320)	(0.271)	(0.271)
Vocational	-8.556***	-9.299***	-8.438***	-11.13***	-8.773***	-9.093***
	(0.275)	(0.251)	(0.253)	(0.335)	(0.291)	(0.271)
Constant	66.63***	62.78***	63.39***	51.60***	53.94***	51.79***
	(0.442)	(0.408)	(0.395)	(0.536)	(0.440)	(0.464)
Macro area dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	188,612	386,625	376,343	219,062	347,227	391,375
R-squared	0.340	0.341	0.350	0.325	0.315	0.313

Source: authors' elaboration of INVALSI data. Outcome: standardized reading test scores.The regression model is a replication of Di Liberto (2015) ones. Robust standard errors in parentheses (clustered at school level). *** p<0.01, ** p<0.05, * p<0.1

B.2. Distribution of students across high school types

Figure 12: Distribution of native students over different type of high school, disaggregated by province.
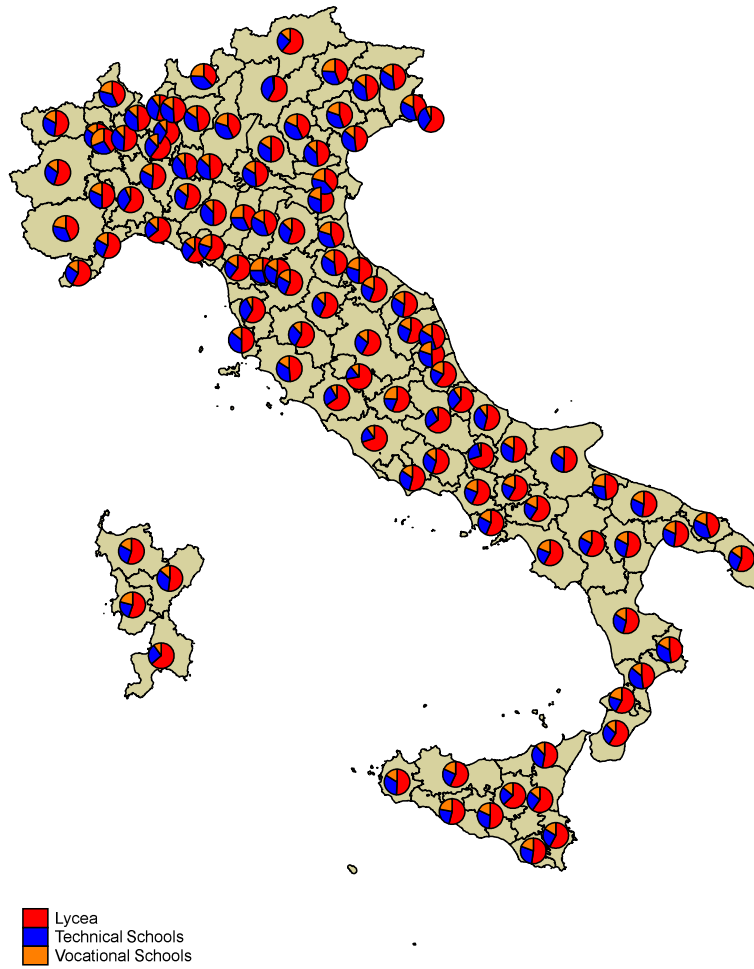
Source: authors' elaboration on INVALSI data. Reference academic year: 2017/18.

Figure 13: Distribution of immigrant students of the first generation over different type of high school, disaggregated by province.
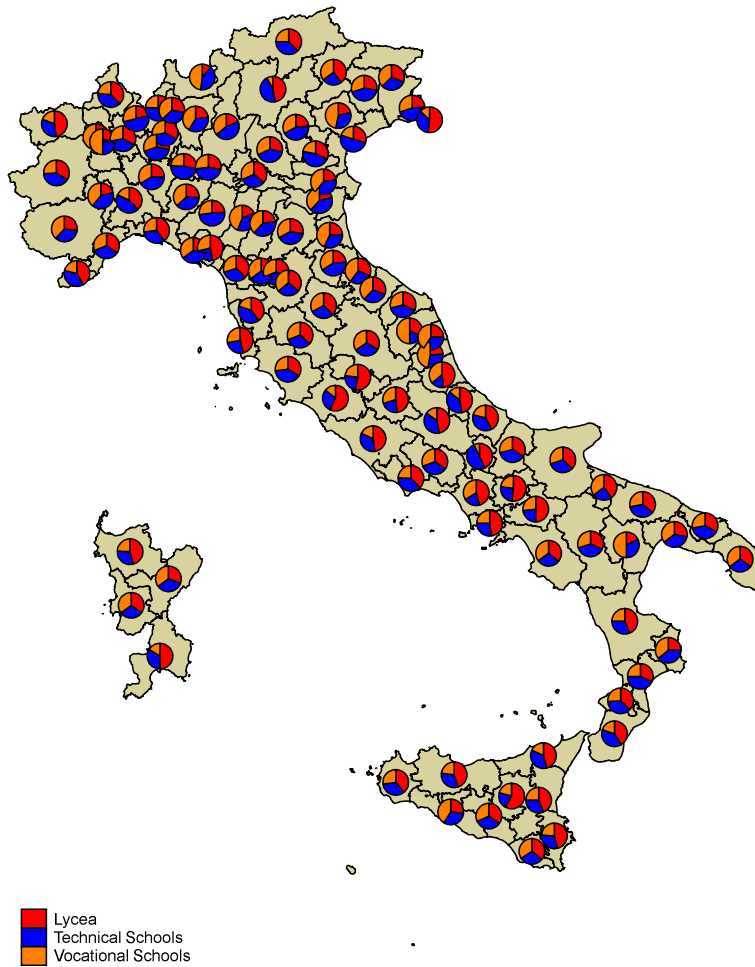
Source: authors' elaboration on INVALSI data. Reference academic year: 2017/18.

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