




Human capital dynamics: the geographical mobility of high-school graduates towards university in Italy

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ABSTRACT

The paper studies the geographical mobility of high-school graduates who change their residence to enrol in university in Italy, a country with deep geographical socioeconomic cleavages. While the previous literature has mostly focused on interregional mobility, we define mobility at the provincial level in order to observe both long- and short-distance movements. Our descriptive results show that students' geographical mobility follows the distribution of universities, while only long-distance mobility follows the socioeconomic cleavages of the country. Our micro-level model shows a positive effect of students' social class of origin, gender and previous school performance. These effects are stronger in the south, while the effect of social class is the same over geographical areas.

KEYWORDS

geographical mobility; high-school graduates; geographical distance; university choice; Italy; higher education

JEL I23, J24

INTRODUCTION AND MOTIVATION

This paper studies the patterns of geographical mobility of Italian upper secondary graduates who enrol in higher education (HE), observing (1) their probability to choose a university located in a different place from their hometown; and (2) the distance of this movement.


The background of our study is an increasing interest in the geographical mobility of skilled individuals. Since long an important topic for social scientists, it is now increasingly seen by scholars and policymakers as an important factor of territorial competitiveness (Iversen & Soskice, 2017; Moretti, 2012). This is even truer concerning the mobility of students. When high-school graduates decide to move to a new city for their further studies, not only does their human capital benefits the local economy when they graduate, but also their influx brings immediate benefits. The presence of students favours the development of the real estate market and the growth of business activities. More generally, students contribute to enlarge cities' touristic and economic attractiveness.

The case of Italy is quite interesting from this point of view. First, according to comparative analyses, it is a country with deep geographical cleavages: the divide among a more developed North and Centre and South ranks among the larger and more persisting ones to be found in wealthy countries (Felice, 2014). Hence, a constant flux of educated Southerners has been moving to the North since the unification of the country in 1861 (Panichella, 2012, 2014). Second, Italy in comparative perspective still has a relatively low rate of tertiary educated individuals, even among younger cohorts (Bernardi & Ballarino, 2014). This implies that processes of selection in the achievement of a tertiary title might be stronger here than elsewhere, making it easier to identify the key drivers of the selection into student mobility as well. Third, Italian HE policies tried to tackle the low tertiary graduation rates by increasing the number of universities across the country. Hence, students living in marginal areas had a chance to enrol at a university geographically closer to their hometown, possibly decreasing their disadvantage in the probability to obtain a university degree.


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Such a context has since long encouraged the geographical mobility of students. Students who move might reap the short- and long-term advantages provided by studying in a prestigious university, possibly located in a city with well-developed facilities, as well as in a geographical area providing better returns to education. The availability of good occupations is indeed limited and heterogeneous over the country. However, access to such advantages is stratified by social origins, because of the constraints to mobility associated to a disadvantaged family background. Hence, participation in HE remained relatively low and strongly associated with family background. Therefore, students' geographical mobility in Italy has a strong societal impact. While the governments increased the number of universities to expand access to HE, the geographical heterogeneity of returns did not substantially change because of the persistence of the socioeconomic territorial cleavages.

The paper focuses on the factors influencing the probability of the geographical mobility and the distance covered by the movement in the current context. A novel element to this paper is that while previous studies on Italian students' geographical mobility have mostly concentrated on interregional movements, we considered instead all movements implying a change of province of residence (there are about 100 provinces in Italy).

In terms of policy implications, this study can be seen as a background analysis on how Italian HE policies have been effective – or not – in tackling 'brain drain' and 'brain gain' patterns within the country, and to promote a more geographically balanced growth. Our results provide evidence, albeit indirect, that the creation of new universities only to some extent fosters local development. In fact, policies aimed at creating a geographically diffused network of universities and reducing the distance of students' geographical mobility neither equalized occupational opportunities over the country nor substantially increased its university graduation rates. More is needed to foster local development than just increasing the provision of skilled graduates. Indeed, reducing students' mobility by creating new universities could result in just a fleeting 'brain gain' for local economies, since students will move, after graduation, to places providing better employment opportunities.

Approaches to students' geographical mobility

Current studies on students' geographical mobility typically give more attention to international mobility, as opposed to internal mobility, limited to the territory of a single state. However, in countries including large and socioeconomically heterogeneous geographical areas, it is reasonable to think that the key mechanisms shaping the fluxes of geographical mobility do not differ much from the mechanisms shaping international migration (Panichella, 2018). Of course, constraints on mobility over national borders do exist, and might become a substantial part of migration costs. Nevertheless, there is no reason to assume substantial differences in the decision-making process leading to geographical movements. While studies on international geographical mobility mainly focus on the

'brain drain' effect, research on internal geographical mobility often underlines patterns of 'brain gain'; this is only a matter of perspective and policy interest.

In the current literature, internal migration flows are studied in two major ways. In a macro-economic framework, they are conceived as a mechanism for balancing regional development disparities. Hence, more developed regions attract a labour force from the less-developed ones by means of higher expected wages. Migration flows persist as long as a gap in expected earnings exists. Regional economic development, and disparity therein, is then seen as a key factor underlying internal migration flows. Universities, then, might play a role in this process as possible catalysts for 'brain gain' processes, enabling regions to attract students who are then likely to remain after graduation (Dotti et al., 2013). For instance, Faggian and McCann's (2009) study on interregional human capital mobility in the UK finds a cumulative relationship between regional development and the inflow of students in terms of both attraction and retention after graduation. Taking the opposite perspective, several studies have also highlighted the way students' interregional migration might result in a 'brain drain' mechanism perpetuating long-standing disparities of regional development (Fratesi & Percoco, 2014; Gagliardi & Percoco, 2011).

A second stream of studies – the life-course perspective – considers the geographical mobility of students from the micro point of view. According to this stream migration decisions are taken at different phases of the life course, involving different expectations concerning costs, risks and returns (Windzio et al., 2011, p. 297; Impicciatore & Panichella, 2019). Hence, student mobility is seen as particular type of migration – often including long-distance, costly geographical movements, and consequently a higher degree of selectivity – typically providing good occupational returns. Distance is indeed a key variable to determine students' mobility choices. For instance, Sà et al. (2004) studied the decisions of Dutch students to register at a given college, finding that the geographical variation in the provision of HE, and in particular proximity to universities, is a key factor explaining the decision to enrol at university. Frenette (2004) showed that longer distances between home and the nearest university dramatically reduce the likelihood of enrolment among Canadian high-school graduates.

Indeed, because of the educational expansion and the ensuing inflation of credentials (Collins, 1979), many students from wealthy families enrol in higher education institutions (HEIs) located in places different from where their families live in order to achieve a degree possibly providing better occupational returns than those afforded by their local university. Student relocation can then be seen as one of the major forces behind both social and geographical mobility in general (Champion et al., 2017; Fielding, 1992; Holdsworth, 2009; Panichella, 2013; Tosi et al., 2019). According to Becker's (1964) general formulation, individuals with higher levels of human capital are more likely to migrate because they expect better employment returns.

Gender is seldom explored in research on student geographical mobility. In fact, it is well known that geographical mobility in general is a gendered phenomenon, but this mostly depends on the division of labour within the family (Ballarino & Panichella, 2018; Donato et al., 2014). Since student mobility generally precedes family formation, patterns of geographical mobility should be similar over genders. However, strong gender differences still exist concerning employment. A recent study of UK young graduates (Faggian et al., 2007) showed that for women interregional mobility might be a way to look for a wider range of occupational opportunities, overcoming the constraint of local labour markets providing few attracting options for young educated women. For this reason, in the UK female graduates have a higher propensity to interregional mobility than men when searching for a job. This holds especially for those women who previously moved to study.

As a complement to the macro- and micro-perspectives outlined above, it is worth recalling the recent literature related to the concept of 'knowledge spaces'. These studies, mostly in the sociology of education, use this concept as a meso-level key to study students' geographical mobility, following a dynamic approach according to which territories and their socioeconomic features shape both the educational landscape and students' choices (Landri & Neumann, 2014; Seddon 2014). This approach is inspired by the human geography literature, where boundaries of politics and policies are seen as increasingly plural and 'spaces of politics' are described and analysed (Massey, 1999). Far from being shaped by national policies only, knowledge is embedded in specific contexts, and it is both located and enacted through specific geographical patterns.

This literature highlights the variety of the spatial arrangements of knowledge institutions. This refers to both the location of HEIs and their characteristics, among which the available study programmes, their relative reputations as well as their established prestige (Haley, 2017). Within such spaces, students move according to the characteristics of the places (cities, regions and HEIs) and their own socioeconomic conditions, including not only their own economic and cultural capital, deriving from their family and their own previous educational achievements, but also their social networks and their geographical structure (Bourdieu, 1985; 1989). The geographical mobility of students is then the result of the influence of all these factors, which shape students' expectations concerning the opportunities and goals to be achieved by attending specific HEIs in specific places.

Geographical mobility should then be seen as integral to the learning strategies of students. The 'knowledge features' of their destination, including the supply of HE not limited to it, are a key component of their choices.

In sum, the mobility of students is affected by a number of factors, to be found at different levels of analysis (Cattaneo et al., 2017; Ciriaci, 2014; Imeraj et al., 2017): (1) structural factors, that is, the socioeconomic

characteristics of the areas where colleges are, including housing costs, the social and cultural services offered by the cities, and the different occupational opportunities available in the origin and in the destination areas; (2) institutional factors, such as the reputation of the university, its internationalization, educational programmes offer, the level of tuition fees and scholarships; and (3) individual factors, such as family background and school career.

THE ITALIAN CONTEXT

Our description starts with the macro-level 'gravitational' factors, that is, the socioeconomic geographical imbalances pushing towards geographical mobility in general. We then move to the meso-level of 'knowledge spaces', as the structure of the HE system and the features of universities along the national territorial can play a crucial role in defining the mobility choices of students. And finally, we come to the individual level including students' individual and familiar characteristics.

It is well known that Italy is a geographically heterogeneous country in terms of economic performance, development and well-being, as well as in terms of prevailing social norms and values (Ballarino & Schadee, 2005). Most analyses of the Italian economic development pattern picture a 'regionalized' model of capitalism (Colombo & Regini, 2016). On the one hand, this definition refers to the persistent geographical heterogeneity in both the organizational architecture of firms (large and medium corporations, industrial districts, clusters of small firms) and the functioning of local labour markets. On the other hand, it underscores the important role played by several local-level institutions and institutional mechanisms contributing to the governance and the regulation of the economy (Bagnasco, 1977; Trigilia & Burrioni, 2009).

Concerning policies, Italy joined most Continental European countries in developing the set of political and social institutions usually summarized under the heading of the 'European social model'. Nevertheless, institutions designed to create national standards, uniform over territories, for social rights and opportunities have to a good extent failed to effectively correct socioeconomic inequalities among regions (Colombo & Regini, 2016). The resilience of the cleavage might be seen looking at the secular pattern of gross domestic product (GDP) per capita reported in Figure 1. However, Figure 2 shows the detailed geographical pattern of socioeconomic development over Italian provinces, pointing not only to the variation from a more thriving North to a less developed South, but also to the existence of a substantial heterogeneity internal to the different geographical areas.

Such territorial imbalances are associated with a constant flux of migrants from the South to the North. Internal migratory movements have characterized Italy since the Middle Ages (Boattini et al., 2012), but after the Second World War Italy experienced a voluntary mass movement from South to North with no equal in

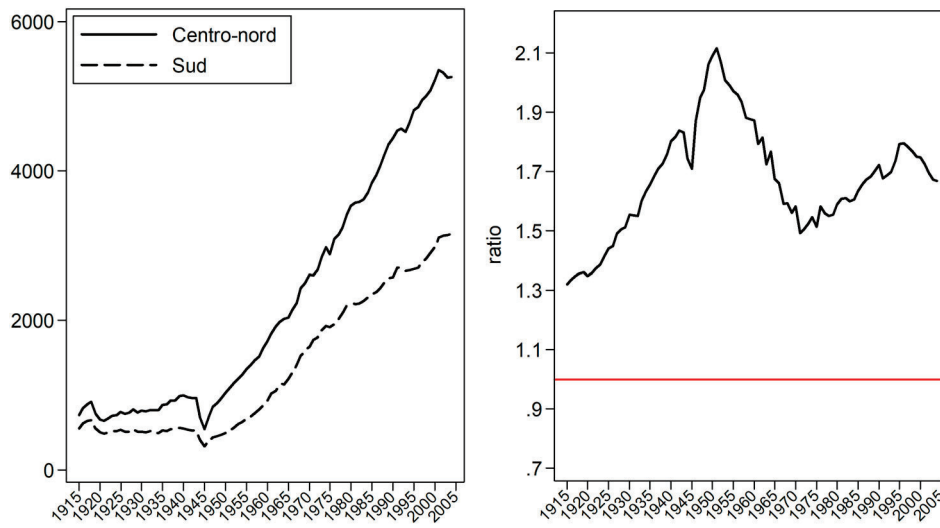


Figure 1. Secular pattern of gross domestic product (GDP) per capita, Centre–North and South Italy (a) and ratio (b). Source: Authors’ own elaboration on data provided by Daniele and Malanima (2007).

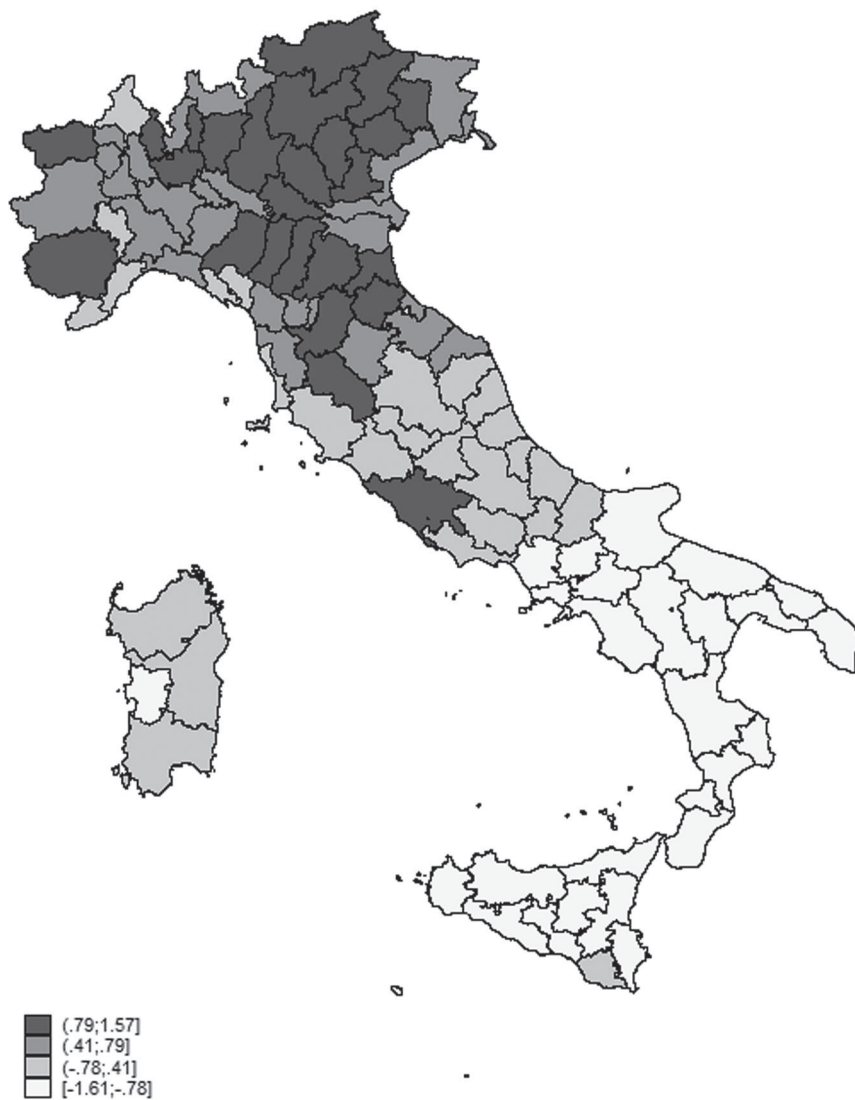


Figure 2. Economic development in Italy, by province. Source: Authors’ own elaboration on ISTAT data (www.istat.it); the score for each province is the standardized average of employment rate and added value per capita (2004 and 2007).

contemporary Europe (Panichella, 2014). Although in this period most of the migrants were low-skilled, attracted by the massive development of manufacturing in Northern regions, many of them nevertheless moved to enrol in Northern universities (Compagna, 1959; Fofi, 1964). General mobility from South to North has then gradually declined since the second half of the 1970s. However, the migration of the highly educated did not stop to the contrary: it has proved to be a structural feature of the Italian geographical mobility regime (Panichella, 2012, 2014). Since this flux has always been one directional, the general mobility patterns of Italian students come quite close to the 'brain-drain' pattern (Panichella, 2009, 2013).

In order to stop such a brain drain, and more generally to favour the convergence of the less developed areas of the country, Italian governments have adopted inclusive HE policies, aiming at spreading HEIs throughout the national territory (Ballarino, 2015). Starting from the 1980s, new universities were created, and many existing ones were expanded into multi-campus colleges (Table 1). Such policies aimed at balancing the geographical structure of the supply of HE education over the country, reversing the historical disadvantage of the South and, more in general, of the smaller towns with respect to the regional capitals.

The rebalancing process was indeed successful, as the current distribution of HEIs over the country is substantially homogeneous despite the socioeconomic territorial divides (Ballarino et al., 2019). Also, recent comparative work has shown that Italy is one of the few European countries with a balanced territorial distribution of tertiary education institutions (Bonaccorsi, 2014). However, the geographical rebalancing of the HE supply did not eliminate the fluxes of students moving through the country. Indeed, the attractiveness of a Northern university for Southern students has even increased in relative terms: the percentage of Southern students who enrolled in a Northern university increased from 17% in the academic year 2003/04 to 24% in 2015/16 (ISTAT, 2016; Impicciatore, 2016; Impicciatore & Tosi, 2018).

In the vein of the 'knowledge spaces' suggestion recalled above, a recent stream of literature has extended the analysis to the meso-level. These studies refer to whether and how the characteristics of individual HEIs have an impact the mobility of students. However, results on this issue are not consistent. Ciriaci (2014) finds some effect of both the supply of teaching and the quality of research, measured at the regional level, on the probability to move to a university located in a different region. Nevertheless, her results refer only to those students who

successfully finished their studies, which makes them hardly reliable because of the high university dropout rate in Italy (Ballarino et al., 2011). Further, Cattaneo et al. (2017) model the competition among universities for students. Defining different spaces of recruitment as segmented HE markets, they find this competition to have been on the rise between 2002 and 2012. The capacity of individual institutions to attract students is related to the local level of competition, that is, the existing supply of HE. However, the results concerning the characteristics of universities are not clear, besides the hardly surprising fact that bigger and more prestigious universities attract more students. Recently, Ballarino et al. (2019) studied the selection process of Italian high-school students into geographical mobility to a different region, and did not find any significant effect of the characteristics of the individual institution, including the composition by field of the teaching offer, the quality of research and the number of patents per researcher. The only significant association was found – again – concerning the size of the university.

Besides describing the fluxes of high-school graduates moving to universities located elsewhere, several papers studied their selection into this movement: high-school graduates whose parents are relatively educated and had a middle-to-upper class occupation have more probability of moving, as do students with good high-school marks. Also, consistently with the general pattern of geographical mobility, the choice to move is more often a male one, despite a higher proportion of female high-school graduates enrolling in college (Ballarino et al., 2019; Panichella, 2009, 2013). The studies that looked for different patterns of selection over geographical areas did not find big differences. They observed a generally stronger selection in the South, particularly concerning class of origin, as more resources are required to finance a longer movement, and gender, as gender stereotypes are likely to be stronger in the South (Ballarino et al., 2019).

RESEARCH HYPOTHESES AND DESIGN

Previous studies have not been very explicit in specifying the mechanisms underlying the geographical mobility of Italian students. We then point out a set of explanatory research hypotheses concerning those individual characteristics that can affect geographical mobility. Following a rational choice framework, we assume that individuals estimate costs and benefits of moving. Moreover, they make the decision to move to a place where the expected net returns in terms of occupational outcomes are higher

Table 1. Higher education supply in Italy, 1985–2009.

	1985	1990	1995	2000	2005	2009
Universities	55	58	60	70	83	89
Towns with a university	42	42	45	50	n.a.	57
Towns where a university course is given	47	62	93	146	237	225

Sources: Ballarino (2015); and Ministry of Education (statistica.miur.it).

(Panichella, 2013, 2014). The individual decision to move from the area of origin to the area of destination is then a positive function of the expected regional occupational opportunities differential, net of migration costs. Thus, if the utility is (1) positive for some potential destination, the actor migrates to this destination; (2) negative, the actor stays in the place of origin; and (3) zero, the actor is indifferent between moving and staying.

Previous research has shown that Italian high-school graduates move with the aim of improving their occupational opportunities, as they know that degrees awarded by Northern universities provide on average better occupational opportunities (Ciriaci & Muscio, 2011). Thus, our first hypothesis is that:

Hypothesis 1: Most of the geographical mobility of Italian students takes place from the South to the North of the country.

The decision of moving, however, is also affected by the costs of mobility. In this perspective, costs include both economic costs, such as those of renting accommodation, and psychological costs. In both cases, the negative effect on the propensity of moving is higher among those coming from a lower family background, who have fewer economic resources to finance geographical mobility and are less incentivized to school achievement (Erikson & Jonsson, 1996). Since the perceived costs of mobility are higher for the lower classes, we also expect that, *ceteris paribus*:

Hypothesis 2: Individuals from an advantaged class background are more likely to move than those coming from the lower social classes.

Similarly, benefits expected from geographical mobility are not homogeneous over individuals. In particular, the occupational benefits expected from the choice of moving might be different according to gender and previous school career. Concerning gender, there are two main reasons behind our expectation. (1) In Italy men enjoy a substantial employment advantage with respect to women, so occupational returns to male migrations should in general be expected to be higher even in the case of study migrations, despite the educational advantage of men having been reversed since the cohorts born in the 1960s (Ballarino & Schadee, 2010). (2) As a related cultural trait, Italian families have traditionally privileged investment in their sons' schooling with respect to their daughters' (Schadee & Schizzerotto, 1990). We then expect:

Hypothesis 3: The likelihood of geographical mobility is higher for male high-school graduates.

Concerning the previous school career, those who had a good one should be more likely to move since (1) they are less at risk of failing in college; and (2) previous school marks might be taken as a proxy for ability and attractivity to employers (Colombo, 2006). We then expect that, *ceteris paribus*:

Hypothesis 4: High-school graduates with good school performance have more probability of moving than those with average or low school results.

It has to be noted that in order to test Hypotheses 2–4, a control is required for the positive correlation between class of origin and school performance (Boudon, 1974).

Finally, two more hypotheses relate Hypotheses 2 and 4 to Hypothesis 1, concerning the interaction between 'gravitational' factors and individual characteristics selecting people into geographical mobility. While we expect the selection into geographical mobility to be similar over geographical areas, as found by previous research, we expect a difference to show up when the distance of the move is taken into consideration. Given that costs increase with distance, and that distances are longer for those coming from the South, the class-related differences in costs will be higher in the South, so that:

Hypothesis 5: For what the distance of the movement is concerned, selection related to family background is stronger in the South.

Similarly:

Hypothesis 6: Selection on gender, to the advantage of men, is stronger in the South

since in the South traditional cultural patterns favouring sons over daughters might be more resilient than in the more developed areas of the country.

DATA, VARIABLES AND METHODS

Data

We used data from four pooled waves of the 'Survey on the Education and Work Patterns of Upper Secondary School Graduates' (SGS), a cross-sectional survey conducted every third year since 1998 by the Italian National Statistics Institute (ISTAT). The survey collects retrospective information on the school and work careers of high-school graduates interviewed three years after graduation. Given our interest in studying the fine-grained geographical mobility of graduates who enrolled in university, we selected those waves including variables of province-level movements. We ended up with four out of six available waves (1998, 2001, 2007 and 2011) and the final sample then included 94,573 individuals, 48% of whom had been enrolled in university at least once.

Dependent variable

The dependent variable was geographical mobility. Indeed, many forms of spatial mobility can be distinguished according to three main dimensions: motivation, distance and duration (Fielding, 2016; Tilly, 1976). Regarding the first aspect, people move for many different reasons related to work, study and family dynamics (Impicciatore & Panichella, 2019). In the case of college-bound mobility, we know from the literature

presented above that people normally move to universities located in places where better job opportunities are available. The weight of the characteristics of the institution, be they related to teaching or research, is less clear. The second dimension is the distance covered by the displacement, distinguishing short-, medium- or long-range mobility, depending on the distance between the places of departure and destination. The third dimension, duration, is connected to distance. On the one hand, there is short-term mobility, when people return to the place of origin just after completing the actions that led them to move. Commuters experience this type of mobility because they live in a place and move daily to reach their place of work or study. On the other hand, there is long-term mobility, involving a change of residence to the place of destination for a relatively long time span.

The three dimensions outlined above have wide social implications. Long-range and long-term mobility tend to have deeper consequences on people's social relations and life opportunities. At the same time, this kind of mobility, especially when driven by work or study reasons, usually is a part of relatively stable macro-level flows going from disadvantaged to wealthy places. When persistent, such 'gravitational' flows have a strong impact in terms of local development, since they might gradually weaken the social and economic structure of the places of origin in favour of the places of destination, according to the 'brain drain' mechanism.

As mentioned above, the distance of the movement is linked to its duration: since the costs of geographical mobility increase with distance, long-distance movements have a longer duration, and often turn into definitive migrations. The conceptual difference is clear between short-distance geographical movements – such as

residential mobility to a different but geographically close neighbourhood or municipality – and what is usually called 'migration', which implies a significant change in the daily lives of individuals involved (Zax, 1994). However, the actual empirical cut-point between residential mobility and migration remains an open issue. In fact, it is difficult to set an arbitrary distance limit identifying the two kinds of movement. For the purpose of this paper we selected provinces, administrative units intermediate between municipalities and regions, currently numbering 107. We define as mobile those high-school graduates who moved to a province different from the one they resided in order to enrol in university (unfortunately, our data do not include residential information at the municipality level). For each moving individual we identified the related provincial capital and assigned the geographical coordinates of its city centre.¹ We then calculated the distance between the capital towns of the two provinces involved in the move. The distribution of the resulting measure is reported in Figure 3. As it appears, long-distance movements made up only a minority of all fluxes of high-school graduates. This broad definition of student geographical mobility was used in the descriptive analyses (Figure 5d), while for our modelling exercises a further variable was created, with a stricter definition of student geographical mobility allowing for a more reliable measurement of its determinants.

Starting from the raw distance, we defined as student geographical mobility any change of residence exceeding 100 km, as below this cut point daily commuting is possible (see Nydomysl et al., 2017, for a similar strategy). In this way, we do not consider as movers those students living in provinces where the HE supply is scarce who are contiguous to other ones where the supply is more

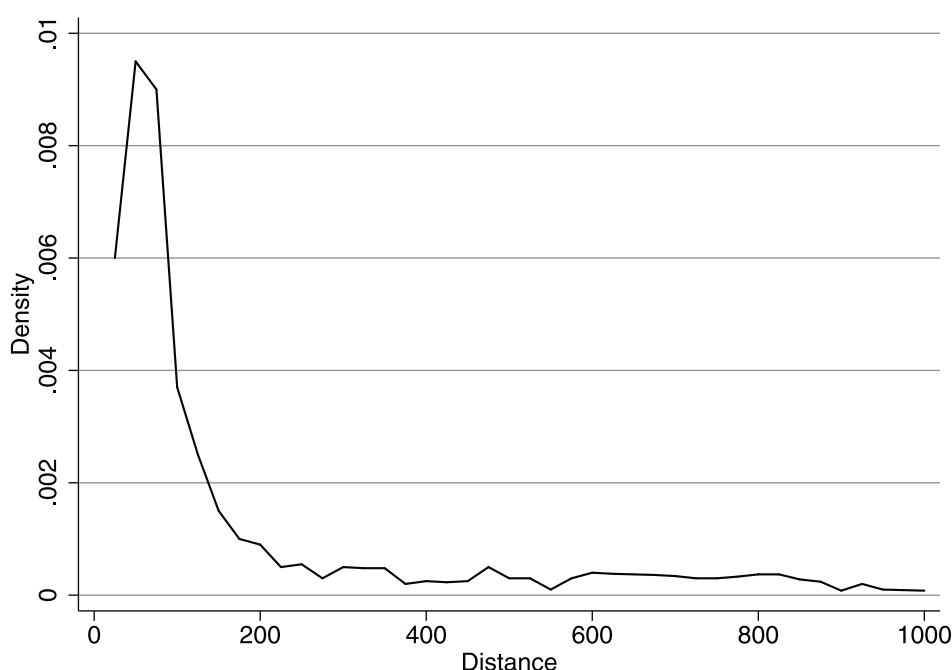


Figure 3. Probability density function of the distance of the geographical mobility of high-school graduates. Source: Authors' own elaboration on ISTAT SGS Surveys, 1998, 2001, 2007 and 2011.

Table 2. Geographical mobility of Italian high-school graduates by social class of origin (%).

Social class	Distance (km)				Total (n)
	0–100	100–250	250–500	> 500	
Bourgeoisie	82.3%	10.0%	4.8%	2.9%	5574
White collar	84.1%	9.0%	4.0%	3.0%	22,607
Petty bourgeoisie	83.9%	9.2%	4.0%	2.9%	4762
Working class	86.1%	8.6%	3.1%	2.2%	10,700
Total	84.4%	9.0%	3.8%	2.8%	43,643

Source: Authors' own elaboration on ISTAT SGS survey, waves 1998, 2001, 2007 and 2011.

abundant. This is, for instance, the case of the provinces bordering Milan, Naples and Rome, from where students can commute to the main urban centres where their university of choice is located.

The dependent variable is then a four-category redefinition of the distance between the two provincial capitals. The first category, from 0 to 100 km, includes those high-school graduates who choose a university in the same province as their high school or in a province nearby; they are defined as non-movers (daily commuters). The further categories indicate the movers, namely high-school graduates who enrolled in a university located in a province > 100 km from their high school.² The second category (100–250 km) includes mid-range mobility, mostly intra-regional. The third category (250–500 km) includes mid- to long-range geographical mobility, mostly across regions, while the fourth category (> 500 km) concerns long-range mobility, where meeting the family requires a costly and time-consuming plane or train travel. Of all graduates enrolled in university in our sample, 84% do not move, or move to a distance allowing daily commuting, up to 100 km (Table 2). The remaining group is split among those making a move between 100 and 250 km (9%), between 250 and 500 (4%), and those migrating > 500 km (about 3%).

Independent variables

The first independent variable is class of origin, measured with the Italian version of the Erikson, Goldthorpe and Portocarero (EGP) scheme (Ballarino & Cobalti, 2003; Cobalti & Schizzerotto, 1994). Respondents are classified into four social classes (Table 2), according to the higher occupation of their parents. The classes are Bourgeoisie (EGP classes I and II); White Collars (IIIa and IIIb, but unskilled non-manual workers are included in the working class); Petty Bourgeoisie (IV abc); and Working Class (V, VI and VIIab). An association is to be seen, but the advantage of the bourgeoisie with respect to the middle classes in both the probability of mobility and the distance of geographical mobility is not strong. Some differences appear, indeed, between the bourgeoisie and the middle classes, on one side, and the working class, on the other, but the differences are not strong. It has to be recalled that since we restrict our observation to those who enrolled in

university, most of the class-based selection has already taken place.

Models then include information concerning previous school career: high-school track, coded in nine categories (vocational; technical – business; technical – surveyor; technical – engineering; teaching (*scuole magistrali*); art (*liceo artistico*); foreign languages (*liceo linguistico*); scientific (*liceo scientifico*); and classical (*liceo classico*)); junior- and high-school final marks; failures (0 = no failure; 1 = one failure; 2 = more than one failure). Other independent variables included in the model are gender, citizenship (1 = Italians); age at enrolment in university (1 = > 22 years old) (Table 3).

It is worth nothing that the selected SGS waves cover a wide period (1995–2008), during which important reforms have been enacted in the Italian HE system. We refer to the introduction of the two-level bachelor's–master's degree in 2001, in the frame of the Bologna process (Ballarino & Perotti, 2012). In order to capture the possible heterogeneity in geographical mobility produced by the changing structure of university careers, our models then include a dummy variable indicating those waves are involved by these processes. Finally, models control for regional dummy variables, and – in the case of the probability of geographical mobility – for the unemployment rate of the province of origin, as of the year before graduation.³ This is useful to control for composition effects related to unobserved heterogeneity (given different business cycles and employment opportunities over regions).

Methods

We estimated two sets of models. First, we estimated a set of binomial logit models of the probability of high-school graduates who enrolled in a university to be geographically mobile (i.e., movers described above). The probability not to move is contrasted with the probability to move (the remaining three categories collapsed into one). Second, we estimated a set of ordered logit models of the distance of the geographical movement, conditional to the movement itself: we then eliminated the first category of the dependent variable, including non-movers and short-distance movers, and used the remaining three as an ordered outcome. As robustness checks, we (1) defined the distance variable with different thresholds; and (2) estimated an ordered probit model with Heckman selection (Heckman, 1976). In the latter, the selection equation modelled the probability of being geographically mobile, while the outcome equation modelled the ordinal distance, with the provincial rate of unemployment as the exclusion restriction variable. Results from these models (available on request from the authors) are substantially identical to those presented in the next section.

RESULTS

We first present our descriptive results, providing a picture of the geographical mobility of high-school students over Italian provinces. We then report the results of our multivariate statistical models of their probability to experience geographical mobility.

Table 3. Summary of variables.

	Mean	SD	Minimum	Maximum
<i>Gender</i>				
Female	0.54	0.49	0	1
<i>Age</i>				
More than 22	0.43	0.49	0	1
<i>Citizenship</i>				
Not Italian	0.005	0.07	0	1
<i>Lower secondary grade</i>				
Sufficiente (sufficient)	0.17	0.37	0	1
Buono (good)	0.29	0.45	0	1
Distinto (very good)	0.27	0.44	0	1
Ottimo (excellent)	0.27	0.44	0	1
<i>High-school grade</i>				
60–69	0.22	0.41	0	1
70–79	0.26	0.44	0	1
80–89	0.23	0.42	0	1
90–99	0.17	0.37	0	1
100	0.12	0.33	0	1
<i>High-school track</i>				
Vocational	0.14	0.34	0	1
Technical (business)	0.13	0.33	0	1
Technical (surveyor)	0.04	0.19	0	1
Technical (engineering)	0.13	0.34	0	1
Academic (scientific)	0.21	0.40	0	1
Academic (humanities)	0.12	0.32	0	1
Foreign languages	0.04	0.20	0	1
Arts	0.05	0.22	0	1
Teaching	0.14	0.34	0	1
<i>Failures in high school</i>				
None	0.89	0.31	0	1
One	0.10	0.30	0	1
Two or more	0.01	0.11	0	1
<i>Class of origin</i>				
Bourgeoisie	0.14	0.34	0	1
White collar	0.51	0.49	0	1
Petty bourgeoisie	0.11	0.31	0	1
Working class	0.24	0.42	0	1
Provincial employment rate	7.9	5.9	1.4	34.4
(N)	43,643			

Source: Authors' own elaboration on ISTAT SGS survey, waves 1998, 2001, 2007 and 2011.

The geography of student mobility

Figure 4 reports the overall population movements among provinces. It shows inbound (a) and outbound (b) mobility by province, as of 2002.⁴ As expected, flows are concentrated inbound in Northern–Central provinces, and outbound in Southern provinces. The map of the inbound fluxes is then quite similar to the one of local development reported in Figure 2. Interestingly, however, the outbound map shows

sizeable outflows also for several Northern provinces, particularly in the North–West.

We then move to the geographical mobility of high-school graduates (Figure 5).⁵ As explained above, geographical mobility here is defined as enrolling in a university located in a province different from the one where the student lived in during high school.

First, Figure 5(a) shows the picture of university enrolment in general, measured by the percentage of

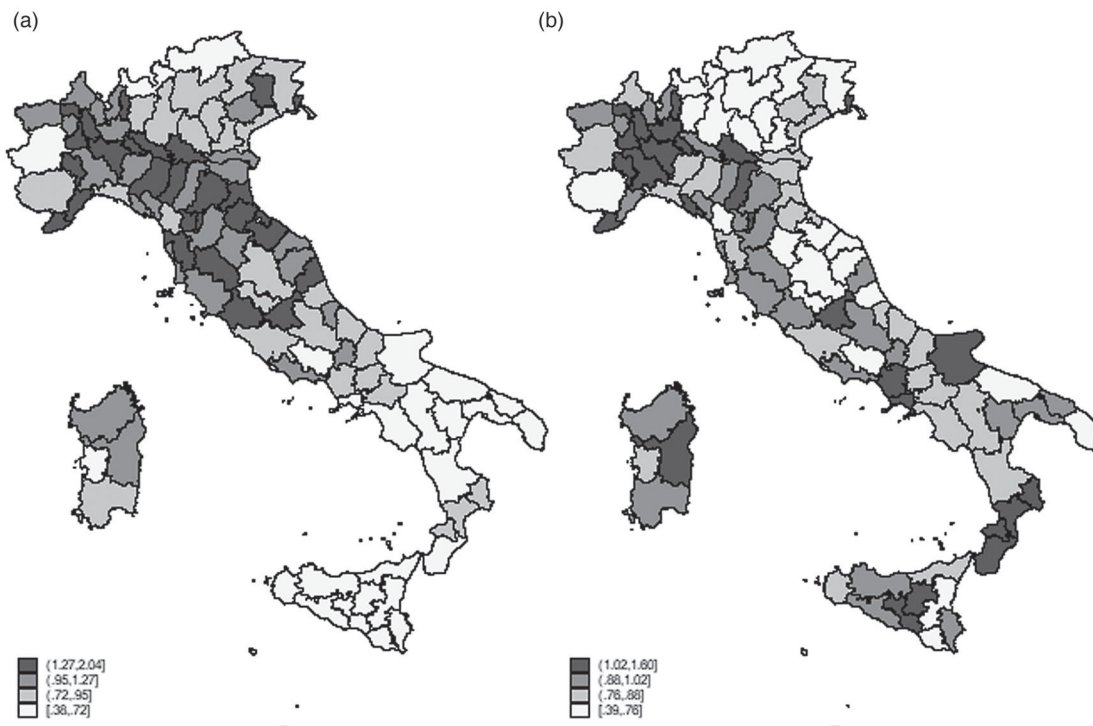


Figure 4. Inbound (a) and outbound (b) population flows, by province, as percentage of the province population. Source: Authors' own elaboration on ISTAT Residence transfer data, 2002.

high-school graduates who enrol in a university. Although there is some heterogeneity among provinces, there are no big territorial differences to be seen. Thus, participation in tertiary education is relatively homogenous all over Italy. Figure 5(b) then shows the outbound students' average distance from their province of residence during high school. The map confirms that the average distance is relatively short, so that in most of the cases it potentially enables daily commuting. As expected, it is mainly Southern students who move over longer distances. However, a similar pattern is shown also by their peers originary from several Northern border provinces, mostly located in mountainous territories and hosting few, if any, universities.

Figure 5(c) describes the inbound fluxes by reporting, for provinces hosting universities, the share of students enrolled in the local universities coming from other provinces. Interestingly, the pattern of the movements is quite different from those observed for the population at large in Figure 4(a). Here no cleavage appears between Centre–North and South, and the provinces attracting (in proportion) more students are in the Centre of the country. This is because the geographical distribution of universities is weakly related to local levels of development: as recalled above, Italian HE policies of the last decades established universities in most economically disadvantaged areas (Ballarino et al., 2019). This is also seen in the (albeit small) fluxes of students coming from other provinces to Southern universities, which – it has to be noted –

appear to be constant over time. Southern students who cannot afford to travel up to the Centre or the North are able to reach university campuses relatively close to home, in the regional capital or in other large cities of their own region of residence.

Finally, Figure 5(d) shows the share of high-school graduates from each province who moved away for their HE. Also, in this case, the largest proportion of students is observed in the provinces located in the Centre of the country. Over time, Southern provinces are experiencing some decrease in their students' geographical mobility, probably as an effect of the economic crisis.

Selection into geographical mobility

We now move to the analysis of the factors selecting high-school graduates into geographical mobility. We also estimated our models separately over Centre–North and South areas in order to look at the territorial heterogeneity of the selection process.

Table 4 reports the estimated regression coefficients from a logit model of the probability of high-school graduates to experience geographical mobility to enrol in university. Given the coefficients were calculated as average partial effects, they can be interpreted as (average) percentage points of change in the dependent variable corresponding to a one-unit change in the independent variable.

As expected from the economic 'gravitational' arguments, local employment rates were negatively associated with the probability to move. However, it is interesting to note that this effect is mostly located in the South.

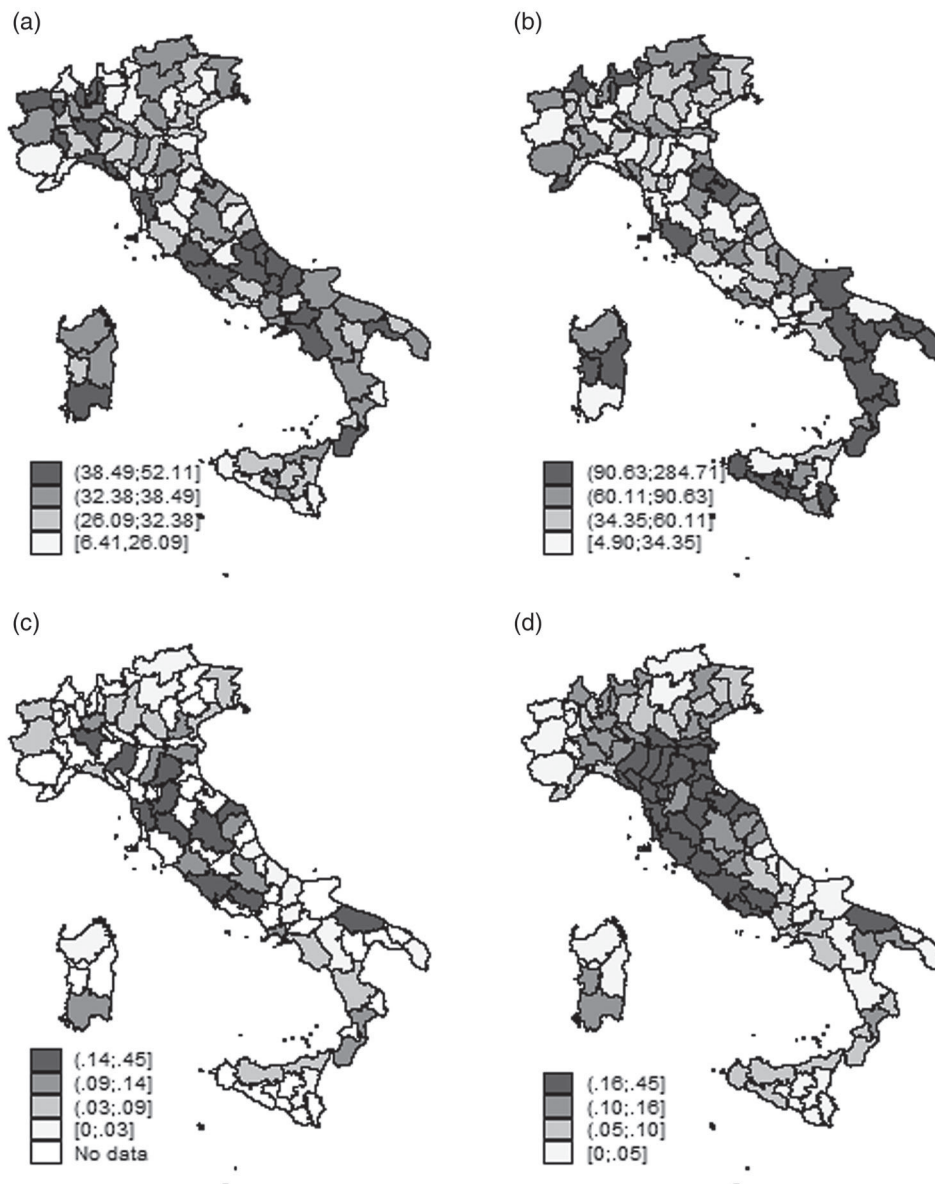


Figure 5. Geographical mobility of high-school graduates enrolling in university, by province.

Notes: (a) Percentage of high-school graduates who enrol in university; (b) outbound university students' average distance from their province of residence during high school; (c) share of students enrolled in provinces hosting universities coming from other provinces; and (d) share of high-school graduates from the province who moved for their higher education.

Source: Authors' own elaboration on ISTAT SGS Survey 2001.

Concerning individual-level variables, the positive selection of movers was confirmed, as students from the upper and middle classes were found to be more inclined to move for university enrolment than their working-class counterparts. Moving for studying is indeed a noteworthy economic cost for the families of origin, which are expected to support their children who leave to improve their lot. Differently from what usually happens in international migration, and in past Italian internal migration, in the case of student mobility it is indeed the family of origin who in most of the cases finances migration. 'Movers' also showed a better school career. Indeed, they had on average higher grades and

come more frequently from the academic high-school track, the most demanding one (Panichella & Triventi, 2014). Assuming that a good academic career lowers the risks of the investment in education – as reducing the risk of dropouts – (Ballarino & Panichella, 2016), the expected risks associated with geographical mobility were then to some extent counterbalanced by a regular and high-level school career.

A gender effect also appeared: women, in fact, showed a lower propensity to move than men. Although this is a common result in the literature on Italian internal migration, in the case of students it is not easy to identify

Table 4. Probability of geographical mobility of high-school graduates who enrol in college: average partial effects from a logit model.

	Italy	North and Centre	South
Provincial employment rate	−0.003*** (−0.003 to −0.004)	−0.00 (−0.00 to −0.00)	−0.004*** (−0.004 to 0.005)
<i>Gender</i> [ref: Male]			
Female	−0.01*** (−0.01 to −0.00)	0.00 (−0.00 to 0.00)	−0.04*** (−0.05 to −0.03)
<i>Age (years)</i> [ref: < 22]			
> 22	0.007* (0.00–0.01)	0.01** (0.00–0.01)	0.00 (−0.00 to 0.01)
<i>Citizenship</i> [ref: Italian]			
Not Italian	−0.03 (−0.06 to 0.00)	−0.03 (−0.05 to −0.00)	0.00 (−0.00 to 0.01)
<i>Lower secondary grade</i> [ref: <i>Sufficiente</i> (sufficient)]			
<i>Buono</i> (good)	−0.004 (−0.01 to 0.00)	−0.00 (−0.01 to −0.00)	−0.01 (−0.02 to 0.00)
<i>Distinto</i> (very good)	0.00 (0.00–0.01)	−0.00 (−0.01 to −0.00)	0.01 (0.00–0.02)
<i>Ottimo</i> (excellent)	0.01 (0.00–0.01)	0.00 (−0.00–0.01)	0.02 (0.00–0.03)
<i>High-school grade</i> [ref. 60–69]			
70–79	0.00 (0.00–0.01)	0.00 (0.00–0.01)	0.01 (0.00–0.02)
80–89	0.01*** (0.01–0.02)	0.01 (0.00–0.01)	0.03*** (0.01–0.05)
90–99	0.02*** (0.02–0.03)	0.02*** (0.01–0.03)	0.03*** (0.02–0.04)
100	0.04*** (0.03–0.05)	0.03*** (0.02–0.04)	0.05*** (0.04–0.06)
<i>Type of high school</i> [ref: Vocational]			
Technical (business)	−0.01** (−0.02 to −0.00)	−0.02*** (−0.03 to −0.01)	−0.01 (−0.02 to 0.00)
Technical (surveyor)	0.00 (−0.00 to 0.01)	−0.01 (−0.02 to 0.00)	0.02 (−0.03 to −0.00)
Technical (engineering)	0.00 (−0.00 to 0.01)	−0.01 (−0.02 to 0.00)	0.02** (0.01–0.03)
Academic (scientific)	0.05*** (0.04–0.06)	0.03*** (0.02–0.04)	0.08*** (0.07–0.09)
Academic (humanities)	0.08*** (0.07–0.09)	0.05*** (0.04–0.06)	0.13*** (0.12–0.14)
Foreign languages	0.05*** (0.04–0.06)	0.04*** (0.03–0.04)	0.08*** (0.06–0.10)
Arts	0.00 (0.00–0.01)	0.00 (−0.00 to 0.00)	0.01 (0.00–0.02)
Teaching	0.05*** (0.03–0.05)	0.05*** (0.04–0.06)	0.04** (0.02–0.06)

(Continued)

Table 4. Continued.

	Italy	North and Centre	South
<i>Failures in high school</i> [ref: None]			
One	0.00 (-0.00 to 0.01)	-0.00 (-0.01 to 0.00)	0.01 (0.00-0.02)
Two or more	-0.00 (-0.01 to 0.01)	0.00 (-0.01 to 0.02)	-0.01 (-0.03 to 0.01)
<i>Class of origin</i> [ref: Bourgeoisie]			
White collar	-0.02*** (-0.03 to -0.01)	-0.03*** (-0.04 to -0.02)	-0.00 (-0.01 to 0.00)
Petty bourgeoisie	-0.02*** (-0.03 to -0.01)	-0.04* (-0.05 to -0.03)	0.00 (-0.01 to 0.01)
Working class	-0.04*** (-0.05 to -0.03)	-0.05*** (-0.06 to -0.04)	-0.02** (-0.03 to -0.01)
Bologna process (dummy)	0.03*** (0.03-0.04)	0.03*** (0.02-0.04)	0.04*** (0.03-0.05)
Regional dummies	Yes	Yes	Yes
(N)	43,643	27,180	16,346

Note: 95% confidence intervals (CI) are shown in parentheses; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.001$.

Source: Authors' own elaboration on ISTAT SGS survey, waves 1998, 2001, 2007 and 2011.

mechanisms explaining the lower female propensity to mobility. Migration studies often interpret this gap referring to family dynamics, in particular the so-called *tied migration* pattern. According to this pattern, the migration decision is taken at family level, and it is shaped by the familiar division of labour. Men leave first, in order to look for a job, while women eventually reach them later, when the costs and risks of migration became lower (Ballarino & Panichella, 2021). In the case of students, however, this argument does not hold, since most of them have not made the transition to marriage and/or the first child yet. Hence, it is possible that other factors constrained female students' geographical mobility. In particular, the fact that the gender effect was to be found in the South suggests that cultural factors might be at work: it might be that Southern families still hold on, more or less consciously, to traditional norms privileging investment in the education of sons, while investment in daughters takes place mostly via marriage strategies.

Another possible explanation relates to the HE supply. Given the strong gender segregation between fields of studies, it might be that the uneven geographical distribution of courses in mostly male fields (particularly engineering) encouraged male more than female student mobility. Unfortunately, our data did not include information concerning the field of study of high-school graduates who enrol in university, so this hypothesis could not be controlled.

Besides local unemployment and gender, the selection process did not change substantially over the two major areas of the country, except for the effect of school career being slightly stronger in the South and the one of family background slightly stronger in the

Centre-North. Interestingly, in both areas we found a positive effect of the dummy for the Bologna process, meaning that geographical mobility of high-school graduates increased after the redesign of the course structure which introduced a two-tier structure of courses (bachelor's plus master's) in place of the previous single-tier structure (which required four years at least). This might be related to the increasing heterogeneity of HE supply over institutions created by the redesign of the courses (Ballarino & Regini, 2005).

We move now to the ordered logit estimates of the movement distance, conditional on the movement itself, reported in Table 5. The selection patterns were quite similar to those observed above for geographical mobility, generally pointing towards positive selection. We found, again, a gender effect concentrated in the South and stronger than in the previous model. This provides additional support to the possible cultural explanation outlined above. As long-distance geographical movement to enrol in a university is a costly venture, Southern families might be more inclined to bear such a heavy cost for their sons than for their daughters.

While positive selection on family background was similar over the two geographical areas, the estimates showed some differences for what the effect of previous school career is concerned. It appeared to be strong and significant only in the South, while in the Centre-North it did not appear to drive selection. Moreover, concerning high-school tracking, in the South selection into geographical mobility was stronger for graduates in the academic scientific and humanistic tracks, while in the Centre-North it mostly concerned graduates from the language track.

Table 5. Probability of experiencing geographical mobility at different distances of high-school graduates who move to enrol in college: average partial effects of ordered logit models.

	Italy (km)			North and Centre (km)			South (km)		
	100-250	250-500	> 500	100-250	250-500	> 500	100-250	250-500	> 500
Gender [ref: Male]									
Female	-0.34*** (-0.39 to -0.29)	-0.26*** (-0.31 to -0.21)	-0.35* (-0.46 to -0.24)	-0.12 (-0.22 to -0.02)	-0.05 (-0.14 to 0.04)	-0.06 (-0.18 to 0.06)	-0.44*** (-0.50 to -0.38)	-0.40*** (-0.46 to -0.34)	-0.54* (-0.74 to -0.34)
Age (years) [ref: < 22]									
> 22	0.23*** (0.29-0.17)	0.30*** (0.25-0.35)	0.21** (0.13-0.29)	0.98*** (0.87-1.09)	1.07*** (0.97-1.17)	0.94** (0.85-1.03)	-0.09 (-0.16 to -0.02)	-0.10 (-0.17 to -0.03)	-0.07 (-0.20 to 0.04)
Citizenship [ref: Italians]									
Non-Italians	-0.54 (-0.92 to -0.16)	-0.35 (-0.75 to -0.05)	-0.31 (-0.78 to 0.16)	-0.08 (-0.52 to 0.36)	-0.04 (-0.46 to 0.38)	-0.11 (-0.52 to 0.30)	-1.00 (-2.00 to 0.00)	-0.91 (-1.90 to 0.07)	-1.00 (-2.00 to 0.00)
Lower secondary grade [ref: Sufficiente (sufficient)]									
Buono (good)	0.05 (-0.04 to 0.14)	0.07 (-0.00 to 0.15)	0.09 (-0.02 to 0.20)	-0.04 (-0.00 to 0.15)	0.02 (-0.12 to 0.16)	0.02 (-0.06 to 0.10)	0.08 (-0.03 to 0.19)	0.09 (-0.02 to 0.20)	0.11 (0.00-0.22)
Distinto (very good)	-0.17* (-0.26 to 0.08)	-0.11 (-0.20 to 0.00)	-0.02 (-0.07 to 0.03)	-0.21 (-0.37 to -0.05)	-0.13 (-0.28 to 0.02)	-0.09 (-0.22 to 0.04)	-0.15 (-0.27 to -0.03)	-0.10 (-0.21 to 0.01)	-0.05 (-0.15 to 0.05)
Ottimo (excellent)	0.01 (-0.09 to 0.11)	0.08 (-0.02 to 0.18)	0.07 (0.00-0.14)	-0.16 (-0.34 to 0.03)	-0.08 (-0.25 to 0.09)	-0.02 (-0.17 to 0.13)	0.08 (-0.04 to 0.20)	0.12 (0.08-0.16)	0.16 (0.01-0.31)
High-school mark [ref: 60-69]									
70-79	-0.01 (-0.09 to 0.07)	-0.05 (-0.11 to 0.02)	-0.09 (-0.17 to -0.03)	-0.15 (-0.27 to -0.01)	-0.19 (-0.32 to -0.06)	-0.24 (-0.39 to -0.09)	0.07 (-0.03 to 0.17)	0.04 (-0.05 to 0.13)	0.04 (-0.07 to 0.15)
80-89	0.12 (0.04-0.20)	0.05 (-0.03 to 0.13)	0.08 (-0.03 to 0.19)	-0.03 (-0.17 to 0.11)	-0.14 (-0.28 to 0.00)	-0.04 (-0.00 to 0.15)	0.15 (0.05-0.25)	0.14 (0.04-0.24)	0.11 (0.00-0.22)
90-99	0.08 (-0.01 to 0.17)	0.04 (-0.04 to 0.12)	0.03 (-0.17 to 0.23)	0.23 (-0.39 to -0.07)	-0.28* (-0.43 to -0.13)	-0.25 (-0.45 to -0.05)	0.23** (0.12-0.34)	0.22** (0.11-0.33)	0.21 (0.09-0.33)
100	0.36*** (0.26-0.46)	0.25*** (0.16-0.34)	0.22** (0.12-0.32)	0.13 (-0.05 to 0.31)	-0.07 (-0.24 to 0.10)	0.06 (-0.12 to 0.30)	0.46*** (0.34-0.58)	0.43*** (0.31-0.54)	0.40** (0.28-0.52)

(Continued)

Table 5. Continued.

	Italy (km)			North and Centre (km)			South (km)		
	100-250	250-500	> 500	100-250	250-500	> 500	100-250	250-500	> 500
<i>High-school track</i> [ref: Vocational]									
Technical (business)	0.03 (-0.08 to 0.14)	0.05 (-0.06 to 0.16)	0.08 (-0.03 to 0.19)	0.04 (-0.17 to 0.25)	0.22 (0.02-0.42)	0.17 (0.01-0.33)	0.00 (-0.14 to 0.14)	-0.06 (-0.20 to 0.08)	-0.04 (-0.46 to 0.38)
Technical (surveyor)	-0.35** (-0.52 to -0.18)	-0.39** (-0.55 to -0.23)	-0.44** (-0.59 to -0.29)	0.25 (-0.09 to -0.59)	0.09 (-0.24 to 0.42)	0.08 (-0.03 to 0.19)	-0.48** (-0.68 to -0.28)	-0.53** (-0.72 to -0.34)	-0.53** (-0.60 to -0.36)
Technical (engineering)	0.15 (0.04-0.26)	0.06 (-0.05 to 0.17)	0.08 (-0.03 to 0.19)	0.08 (-0.12 to 0.28)	0.05 (-0.16 to 0.24)	0.00 (-0.20 to 0.20)	0.17 (0.03-0.31)	0.02 (-0.11 to 0.15)	0.05 (-0.08 to 0.18)
Academic (scientific)	0.31*** (0.21-0.41)	0.15 (0.05-0.25)	0.17 (0.06-0.28)	-0.01 (-0.18 to 0.20)	-0.04 (-0.22 to 0.14)	-0.05 (-0.22 to 0.12)	0.42*** (0.29-0.55)	0.20 (0.08-0.32)	0.28 (0.02-0.50)
Academic (humanities)	0.45*** (0.34-0.56)	0.33*** (0.21-0.55)	0.31*** (0.18-0.44)	0.25 (0.05-0.45)	0.11 (-0.08 to 0.30)	0.12 (-0.08 to 0.32)	0.52*** (0.39-0.65)	0.38*** (0.25-0.51)	0.35*** (0.22-0.48)
Foreign languages	0.38** (0.23-0.53)	0.68** (0.53-0.73)	0.57** (0.44-0.70)	0.49** (0.26-0.75)	0.53** (0.32-0.74)	0.57** (0.46-0.68)	0.20 (0.00-0.40)	0.31 (0.10-0.52)	0.14 (0.04-0.24)
Arts	0.14 (0.03-0.25)	0.08 (-0.03 to 0.19)	0.03 (-0.18 to 0.24)	0.25 (0.06-0.44)	0.30* (0.12-0.48)	0.17 (0.06-0.28)	0.09 (-0.05 to 0.23)	-0.03 (-0.16 to 0.10)	0.00 (-0.17 to 0.17)
Teaching	0.22 (0.09-0.35)	0.20 (0.07-0.33)	0.28 (0.02-0.50)	-0.09 (-0.31 to 0.13)	0.03 (-0.18 to 0.24)	0.00 (-0.13 to 0.13)	0.33* (0.16-0.50)	0.26 (0.09-0.43)	0.22 (0.02-0.42)
<i>Failures in high school</i> [ref: None]									
One	-0.10 (-0.20 to 0.00)	-0.01 (-0.09 to 0.02)	0.03 (-0.18 to 0.24)	-0.01 (-0.10 to 0.08)	-0.05 (-0.13 to 0.03)	0.00 (-0.08 to 0.08)	-0.01 (-0.10 to 0.08)	0.11 (0.00-0.22)	-0.01 (-0.09 to 0.07)
Two or more	-0.29 (-0.53 to 0.05)	-0.10 (-0.38 to 0.18)	-0.13 (-0.41 to 0.15)	-0.11 (-0.34 to 0.12)	-0.12 (-0.20 to -0.04)	-0.06 (-0.20 to 0.08)	-0.11 (-0.34 to 0.12)	0.15 (-0.13 to 0.43)	-0.11 (-0.22 to 0.00)
<i>Class of origin</i> [ref: Bourgeoisie]									
White collar	-0.09 (-0.16 to -0.02)	-0.06 (-0.15 to 0.03)	-0.01 (-0.12 to 0.10)	-0.18 (-0.30 to -0.06)	-0.22* (-0.33 to -0.11)	-0.12 (-0.24 to 0.00)	-0.02 (-0.11 to 0.07)	-0.01 (-0.10 to 0.08)	-0.03 (-0.16 to 0.10)
Petty bourgeoisie	-0.17* (-0.26 to -0.08)	-0.19 (-0.32 to -0.06)	-0.11 (-0.24 to 0.02)	-0.11 (-0.28 to -0.06)	-0.20 (-0.36 to -0.04)	-0.28 (-0.33 to 0.13)	-0.16 (-0.28 to -0.04)	-0.11 (-0.23 to 0.01)	-0.14 (-0.24 to -0.04)

(Continued)

Table 5. Continued.

	Italy (km)			North and Centre (km)			South (km)		
	100-250	250-500	> 500	100-250	250-500	> 500	100-250	250-500	> 500
Working class	-0.40*** (-0.50 to -0.30)	-0.53*** (-0.63 to -0.43)	-0.68** (-0.88 to 0.48)	-0.35** (-0.51 to -0.19)	-0.51*** (-0.66 to -0.36)	-0.54** (-0.77 to -0.21)	-0.34*** (-0.39 to -0.29)	-0.33*** (-0.43 to 0.23)	-0.45** (-0.55 to -0.35)
Bologna process (dummy)	0.40*** (0.33-0.47)	0.33*** (0.21-0.55)	0.30*** (0.18-0.42)	0.19*** (0.14-0.24)	0.23*** (0.12-0.34)	0.22*** (0.14-0.30)	0.23*** (0.17-0.29)	0.33*** (0.26-0.40)	0.28*** (0.20-0.36)
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(N)	6784	6784	6784	2991	2991	2991	3793	3793	3793

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.001$.

Source: Authors' own elaboration on ISTAT SGS survey, waves 1998, 2001, 2007 and 2011.

CONCLUSIONS

In this paper we defined and measured student geographical mobility in Italy at the province level. We thus provided a more detailed and reliable picture of the phenomenon with respect to the previous literature, where in most of the cases only interregional mobility is considered. By making student geographical mobility more visible, we managed to explore it more in detail. The resulting evidence is not always consistent with the received wisdom on the issue, so that some of our hypotheses, based on the latter, could not be confirmed.

First, according to a macro-perspective, the results showed that the geographical mobility of Italian high-school graduates only partially follows the socioeconomic cleavages of the country. To some extent this was an unexpected result. Indeed, it appears that the major geographical cleavage, separating the North and Centre from the South, dominates the mobility of students only for what long-distance movements, > 500 km, are concerned. On the contrary, short-distance movements were mostly governed by the geographical distribution of HEIs. The latter was made relatively homogeneous over the country by the creation of new universities in the 1980s and is now concentrated in a number of metropolitan areas spread over the whole national territory. Hypothesis 1, concerning the primacy of South-to-North student geographical mobility as a function of different development, is thus confirmed for long-distance movements only.

While student long-distance mobility from the South to the Centre-North gets most of the attention of both the media and public opinion, our empirical evidence showed that most student geographical mobility takes place at a relatively short distance, similarly to what happens for geographical mobility at large. Consistent with these results, and contrary to expectations, we did not find different selection patterns by family of origin between Centre-North and South, thus disconfirming Hypothesis 5. Our hypothesis was indeed based on the expectation of a wider distance to be covered by Southern movers, but in fact short-distance geographical mobility is diffused in the South as elsewhere, given the homogeneous territorial distribution of HEIs. However, our results raise concerns related to a possible brain-drain pattern from the marginal areas to the wealthier ones, generalized over the whole country.

From the point of view of student mobility, indeed, such cleavages appear to be internal to geographical areas, and only partially follow the macro-divide between Centre-North and South. Italy is well known for a tradition of territorial policies aimed at supporting less developed areas, especially concerning Southern regions, and the expansion and the territorial diffusion of HEIs has been one core instrument of this type of policies. Starting in the 1980s, Italian university policies created new 'knowledge spaces' in territories where students were traditionally forced to travel long distances to attend university. This reduced the distances travelled to study, especially in the Southern regions. Policies for the

expansion of university campuses might have contributed positively to short-term local development. However, the expansion of the HE supply did not substantially change the employment opportunities provided by economically weak areas. Without a multiple-level local development policy fostering economic growth and increasing employment opportunities, depressed territories could get only a short-term brain gain, perhaps at the cost of a long-term brain drain made up by people moving after graduation to obtain a job. To foster local development, further and different policies would be needed.

If we consider the students' individual characteristics, the results of our models for the geographical movement and for its distance are consistent, particularly concerning a positive effect of both social class of origin and previous school performance. This confirms both Hypotheses 2 and 4 and, in general, the positive selection patterns of high-school graduates into geographical mobility. This result is consistent with the previous literature highlighting the constant flux over time of positively selected Southern individuals moving to the North and the Centre of the country. However, our evidence shows this pattern of positive selection to be at work also for a number of shorter distance movements following the distribution of HEIs, concentrated in the metropolitan areas of the North, Centre and South.

This finding should be kept in mind when discussing a possible brain-drain pattern in Italy. While concerns for a brain-drain pattern typically refer to the cleavage between the two major macro-areas of the countries, our results show they should be extended to local-level cleavages, to be found all over the country. Indeed, there is probably a reinforcing pattern between the attractiveness of local universities and local economic development, by which wealthy areas hosting attractive universities show a brain-gain pattern, while disadvantaged, marginal areas show a brain-drain pattern. According to our results, this pattern is to some extent stronger in the South than in the Centre–North. Indeed, we have seen selection on school careers to be stronger in the South. In the light of the literature reviewed above, these results suggest that students with a good school career have a higher propensity to move to areas with better returns of education especially if living in depressed areas. This might result in a brain-drain mechanism perpetuating long-standing disparities of regional development.

Finally, concerning gender, we confirmed our expectation of a male advantage in geographical mobility (Hypothesis 3). This finding is in strong contrast with the current pattern of educational inequality in Italy, which since the cohorts born in the 1960s have shown a reversal of the traditional male educational advantage. However, this reversal, similar to that experienced in other wealthy countries, apparently did not extend to the choice of moving towards university, despite the better school performance of women and their greater transition rate to university. Indeed, we found this effect to be stronger for the distance of geographical mobility and (as expected) in the South (Hypothesis 6). We would then

interpret this female disadvantage as determined by resilient cultural traits still found in several Italian families, particularly in the South. Families appear to renew a traditional gendered pattern of investment choice, privileging the investment in the education of sons, as female social mobility is still seen as depending on marriage strategies rather than on an investment in education aimed at occupational careers.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

NOTES

1. We relied on ISTAT geographical data, accessible at <https://www.istat.it/it/archivio/222527>. Distance was computed through GEODIST (Picard, 2010), a STATA package based on Vincenty's (1975) formula.
2. The data set does not include information on the actual change of the registered residence. However, many mobile students do not change their formal residence during university and remain registered as living with their parents, so that our measure is more reliable than that provided by residential registers.
3. We did not use this control in the models of distance since the push of the local labour market should not affect the choice of the destination once the decision to move has been taken.
4. We used ISTAT residence transfer data (<http://dati.istat.it/Index.aspx?QueryId=19748>). Flows were computed as percentages of the province population.
5. Owing to lack space, we only show results concerning the 2001 survey. Full results, showing the changes over surveys of the maps, are available from the authors upon.

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