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Graduate Migration Out of Italy: Predictors and Pay-Offs

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1. Introduction

The promotion of cross-country mobility of European citizens has historically been a major concern for the EU. For European policy-makers, young skilled workers are deemed to be particularly well-situated to migrate in a free movement area because they are able to reap the benefits of labor mobility for a longer time. After the Euro-crisis broke out, youth mobility was again invoked as a tool to fight unemployment, explicitly framing free movement as a safety valve for highly skilled workers (Reding, Rehn and Andor 2013). In fact, even before the crisis, shortages of skilled labor in some European and extra-European economies already created a structural incentive to migration for tertiary graduates from Southern Europe who traditionally experienced difficulties in labor market entry (Barbagli 1982; Gangl 2001; Brzinsky-Fay 2007; Wolbers 2007).

Despite its policy relevance, there is remarkably little empirical research on skilled migration from Southern Europe. Some studies have assessed the labor market outcomes of scientists, engineers and other specific categories of skilled workers (De Grip et al. 2010), but there is scant evidence concerning the entire population of tertiary graduates for a systematic comparison of the causes and consequences of high-skilled migration. This research gap is possibly due to data limitations, since a more systematic analysis demands large representative samples of graduates. This paper aims at filling this lacuna on the basis of a high-quality data source that meets these standards. In particular, we will first assess the overall propensity to migrate and its main determinants, and then estimate occupational pay-offs to migration for Italian graduates.

In the next section, we will outline our theoretical framework and hypotheses concerning the structural and institutional factors driving skilled migration and its economic profitability in the Italian context. In section 3, we will present our data, variables and methods. Section 4.1 presents evidence on the extent and determinants of migration, while section 4.2 assesses pay-offs to migration for Italian graduates across different outcomes (unemployment risks, earnings, access to highly skilled employment, self-perceived over-education, career satisfaction). Section 5 concludes.

2. Framing high-skilled youth migration

The neoclassical economic theory of migration represents a parsimonious explanation for international labor mobility (Arango 2000). This theoretical approach views the process of migration as an investment decision, where the returns to migration in terms of employment opportunities and higher wages should exceed the costs involved in moving. Following this theory, lifetime economic returns to migration should be higher for young, tertiary graduates, who are expected to display an above-average propensity to migrate, which is indeed the case in Western European countries (Fouarge and Ester 2008; Kahanec and Fabo 2013; Recchi and Salamonska 2015).

At the same time, sociologists have highlighted the role of non-economic drivers for cross-national resettlements. Educated youth in particular have been frequently shown to migrate for expressive reasons in the European context. For instance, Favell's (2008) portrait of 'Eurostars' is revealing of the complexities of such choices: tertiary-educated, young adults in three Western European capitals (London, Amsterdam and Bruxelles) who mostly migrated in search of a full-fledged recognition of their talent hardly fit into the stylized template of high-earning seekers in an international market. Other case studies resonate with similar accents in different geographical areas (Scott 2006; Krings et al. 2013; King et al. 2016), or as regards specific nationalities (Koikkalainen 2013). A survey-based study of Western intra-EU migrants found that the affective dimension was at the root of a significant number of moves, reflecting an aspiration to reside with a partner of another nationality or to live one's sexuality outside the social control of the home environment (Santacreu et al. 2009). The key message of this lite-

rature is that enhanced spatial mobility reveals a mounting cosmopolitan lifestyle which expresses itself particularly in large cities (Beck 2008), thus feeding into an over-representation of highly-skilled youth among international migrants (Docquier and Machado Carneiro 2014).

It should be acknowledged that economic and expressive motives of migration intertwine or, as Massey (1990; 2003) aptly summarized, 'cumulate'. As regards the economic motives, the Italian labor market provides strong economic incentives to international migration for tertiary graduates. The demand for skilled workers is low in the Italian economy, due to the prevalence of small firms operating in traditional sectors (e.g., manufacturing, constructions, catering and tourism). Moreover, investments in R&D are comparatively scarce, and occupation in the public sector, which was a major employer of Italian graduates in the past, has declined over the past two decades (Anvur 2014). Access to the liberal professions is constrained by the high degree of entry regulations (Patterson 2008). Unsurprisingly, in Italy, the employment share of professional and managerial jobs has stagnated over the past three decades (Ballarino et al. 2016). These structural problems have been further exacerbated by the economic recession that started in the late 2000s, which hit Italy severely. The cohort of university graduates which we consider in this work completed their studies in 2007 and have thus taken their first steps in the labor market during this period of enhanced economic hardship.

The number of Italian graduates has considerably increased over the past three decades, spanning from 74,471 to 304,608 between 1987 and 2014 (Miur 2016). This growth has been primarily fed by a marked long-term growth of upper secondary graduation rates in the 1980s and 1990s, which swelled the student population eligible to enroll in Higher Education; the so-called Bologna process, implemented on a national scale in 2001, has also contributed to the expansion of university enrollments, at least for the cohort of students under examination in this paper.[1]

These structural unbalances between supply and demand of skilled employment shed light on a seeming paradox. The share of graduates is comparatively low in Italy (24 per cent of the 25-34 years-old as opposed to an OECD average of 41 per cent in 2014), but economic returns to tertiary degrees are equally low (OECD 2015). Despite the modest proportion of graduates in Italy, their unemployment rate in 2014 was as high as 17.7 per cent among individuals aged 25-34, even higher than the corresponding value for upper secondary graduates (15.8 per cent).[2] Moreover, the earnings premium of tertiary degrees is among the smallest in OECD countries (OECD 2015). This paradox is easily explained once we consider that the poor number of graduates in Italy also reflects the scarce demand for graduates in the labor market (Sestito 2014). Because employment opportunities and wage differentials are much more favorable for graduates in most other OECD countries, we can expect that international migration yields substantial economic returns for Italian graduates. We will test this first hypothesis by comparing Italian graduates who migrate abroad (movers) with Italian graduates who stay in the country (stayers) across five indicators of occupational performance:

H1: Ceteris paribus, movers display a smoother labour market transition than stayers as regards: a) unemployment risks; b) access to skilled employment; c) earnings; d) self-perceived overeducation; e) career satisfaction.

Hence, we argue that Italian graduates have strong economic incentives to migrate. However, the choice to migrate also carries with a number of significant economic and non-economic constraints. The recognition of educational

1. In more recent cohorts, enrollments have started to decline, possibly due to the growing disillusion concerning the occupational prospects of the new bachelor degrees that have replaced the old 4- or 5-year degrees.
2. These data are available in the online data archive of Italian National Bureau of Statistics: dati.istat.it (consulted on March 2, 2016).

qualifications is still far from being even across member states: the EU legislation is often translated partially or 'contextualized strategically' at the country level in order to protect insiders over external potential competitors (Paul 2013; Shaw and Miller 2013), and the situation can be even worse for graduates who migrate outside Europe; the difficult acknowledgement of past pension rights for movers is another well-known critical issue. Moreover, transaction costs associated with access to housing and paperwork needed for migration must be taken into account as costs of international resettlement. Additionally, language barriers play a critical role, especially in a multilingual mosaic like the EU (Adsera and Pytlikova 2015; Aparicio Fenoll and Kuehn 2014). This constraint is particularly important in Italy, where proficiency in foreign languages is comparatively weak (Eurobarometer 2012). Finally, the social and psychological costs of migration must be factored in, even though they are mitigated by cheaper and expanding means of transportation and communication in Europe over the last decades. These costs may be particularly high in a familistic society like Italy, where cultural norms converge with welfare state arrangements in promoting a long period of cohabitation of young adults with their parents, even after graduation and entry into the labor market, relying on informal exchanges between generations (Impicciatore 2015).

The above barriers to migration are not equally distributed among graduates, thus generating different propensities to migrate and different opportunities to reap the occupational benefits of migration. First, like in other countries, in Italy a more privileged social background is associated with higher foreign language proficiency, as well as with the development of more cosmopolitan attitudes and lifestyles that mitigate the social and psychological costs of migration (Gerhards 2014). Moreover, for upper class families, migration can represent a credentialing strategy associated with the attainment of prestigious foreign qualifications. Finally, these families can bear the economic costs of migration more easily. Second, foreign students who graduated in Italy are more likely to display cosmopolitan attitudes and to face lower social costs of migration back home; indeed, if they return to their country of origin, they can fall back on pre-existing networks of social support.[3] Moreover, considering the imbalance between supply and demand for skilled labor in Italy and the better economic prospects for graduates in several neighboring European countries, these foreign students have low incentives to stay in the country after graduation, rather choosing to invest their educational qualifications in more knowledge-intensive graduate markets. We would thus expect that:

H2: Ceteris paribus, the propensity to migrate is higher for:
a) graduates from upper class families;
b) graduates from foreign countries.

Moreover, fields of study differ in the marketability of their degrees and of the underlying skills. In some fields, human capital is highly nation-specific: this is particularly the case for law and for fields that cater specifically to national civil servants, such as social work. Inversely, degrees involving highly transferable skills, such as scientific fields, are more likely to promote migration; among fields displaying a high degree of skill transferability, those characterized by an explicit international orientation, such as foreign language and international relations, are more likely to recruit students with a cosmopolitan orientation and to develop foreign language skills that boost their inclination to migrate. Indeed, students in these fields can be channeled directly into foreign employment by their university institutions. Similarly, graduates from any field who took part in international exchange programs during their studies should be more likely to migrate because they developed skills and cultural attitudes which promote migration, and because these experiences abroad can reduce the information barriers which affect the transaction costs associated with migration. This leads us to formulate the following hypotheses:

3. The Italian system of Higher Education attracts few foreign students, who amount to 2.4 per cent of the total of graduates. They are predominantly from Eastern Europe (49.7 per cent), Southern Europe (12.6 per cent) and Western continental Europe (10.1 per cent), while only few students come from Northern Europe (1.2 per cent) or from other Western countries (0.5 per cent). Citizens of developing countries amount to 22.1 per cent, with an equal distribution of students from South America, Africa and Asia.

H3: Ceteris paribus, the propensity to migrate is higher for: a) graduates of scientific and internationally-oriented fields; b) graduates who enrolled in international exchange programs during their university studies.

In the next section we present the data and the statistical methods that we have used to assess these hypotheses.

3. Data and methods

We tested the above hypotheses using data from a large-scale survey on Italian tertiary graduates' careers (Indagine sull'inserimento professionale dei laureati), conducted by the Italian National Bureau of Statistics (ISTAT) in 2011[4]. This survey involves a representative sample of 62,000 individuals who obtained a tertiary degree in 2007 (31,088 individuals completing a Bachelor programme, BA hereafter, and 30,912 completing a Master programme, MA). These data provide detailed information on the educational and labour market careers of graduates, together with information concerning their country of residence at the time of the interview.

ISTAT follows graduates regardless of their country of residence, and the documentation of this survey does not report higher attrition rates for movers. We have data on 1,163 graduates who lived abroad at the time of the interview – that is, four years after graduation. We have grouped their destination countries in the following six categories: Northern Europe (Scandinavia, United Kingdom and Ireland), Western Continental Europe (including France), Southern Europe, Eastern Europe, economically developed countries outside Europe (mostly the United States, Canada and Australia), and a residual category that includes developing countries (mostly). The motivation behind this classification is to maximize the level of detail of the analyses, taking into account the low numbers for extra-European countries. For the same reason, we will differentiate by country of destination only in the analyses on occupational returns to migration, and not in those concerning the determinants of migration.

Unfortunately, the data do not provide information on the timing of foreign migration, which is a significant limitation. Our picture is a snapshot of migration at a given time and therefore excludes people who may have migrated in previous years and returned. However, since the sample comprises individuals who graduated from an Italian university, we can reasonably assume that migration took place after graduation for most of them. BA-holders who, after graduating in 2007, subsequently obtained a MA degree are excluded from the analytical sample. Indeed these individuals are not comparable with the other BA graduates because of their different educational trajectory (three vs. five years of tertiary education), nor with MA graduates, due to different work experience.[5] Graduates who were still studying in 2011 are included in the first part of the analyses, which refers to the social determinants of migration, but not in the analyses on the occupational careers of graduates. We thus end up with an analytical sample of 49,002 graduates.

Three sets of analyses are presented in the next section. First, the determinants of migration are assessed by means of logistic regression models, where the dependent variable is a dummy which equals to 1 if the graduate was living abroad four years after graduation, and 0 otherwise. These models include socio-demographic factors (sex, age, parents' occupational class,[6] citizenship), information on the educational careers of

4. ISTAT adopted a two-stage process of data collection. In the first stage, all Italian universities were asked to provide administrative information and contact data for all their graduates of the 2007 cohort. From this complete list of the population, which referred to 300,388 graduates, the sample of graduates to be interviewed was drawn. In the second stage, the questionnaires were administered by means of telephone interviews. While we know that ISTAT follows state-of-the-art procedures to maximise randomness and representativeness of their samples, response rates are not known and we are not in a position to assess the non-response risk of different categories of potential respondents.

5. Since we do not know whether these graduates have achieved their master degree in Italy or abroad, it is difficult to include them in the analyses. Hence, our conclusions cannot be extended to this target.

6. A dominance criterion is adopted to construct this variable: parents' occupational class is defined by the highest level observed among parents.

Table 1. Average net monthly earnings with and without adjustment for the PPP conversion factor, by area of residence (in Euros)

	Average net monthly earnings	Average net monthly earnings adjusted for the PPP conversion factor
Italy	1,405	1,816
Northern Europe	2,059	2,248
Western Continental Europe	2,484	2,472
Southern Europe	1,645	2,135
Eastern Europe	1,406	2,843
Developed extra-EU countries	2,489	3,161
Developing extra-EU countries	2,169	5,097

Source: own elaboration on Istat data (2011)

respondents (type of upper secondary diploma, academic performance in upper secondary education, university enrollment year, type of tertiary degree, field of study, final graduation mark in university), as well as information related to mobility experiences before graduation (country or geographic area of residence before enrolling at university, geographical area of the university, and study abroad experiences during university education).

As regards the analyses of the occupational outcomes of migration, we will first estimate a multinomial logit model, where the dependent variable is occupational status, measured in four categories: employed, unemployed, student, other condition of inactivity. This model includes, alongside with the control variables listed above, a variable for the country of residence of graduates at the time of the interview.[7]

Then, conditional on being employed, we will consider four occupational outcomes: net monthly earnings, access to highly skilled employment, and two subjective indicators concerning perceived overeducation and satisfaction for career prospect. As regards earnings, we control for cross-national differences in the cost of living by adjusting graduates' earnings by the Purchasing Power Parity conversion factor for 2011, as reported by the World Bank; the results for this adjustment are presented in Table 1. As can be seen, adjusting by purchasing power results in substantial corrections of cross-country differentials in the earning prospects of Italian graduates.

Moreover, in order to control for different working-time regimes across countries, monthly earnings have been converted into hourly earnings. We take the logarithm of net hourly earnings as the dependent variable. Access to highly skilled employment is a dummy variable that is equal to 1 if the individual is employed in an occupational category within the ISCO 1997 major groups 1 (Managers) or 2 (Professionals), 0 otherwise. Perceived over-education is defined by respondents' self-assessment of the match between their level of education and the educational requirements of their job ("Was a tertiary degree necessary to get your current job?"; over-education occurs whenever respondents answer "No"). Finally, graduates were surveyed about their level of satisfaction with regard to the career prospects of their current job (very satisfied, fairly satisfied, a little satisfied, not at all satisfied); the variable takes value 1 if the individual is very satisfied, 0 otherwise.[8] The functional form of regression models for the above outcomes de-

7. It can be objected that the choice of a destination country is not exogenous to the occupational situation. We have therefore run the models with a simple dummy for movers/stayers. The substantive conclusions are unchanged.

8. Additional analyses have been conducted where the dependent variable is equal to 1 if the interviewees answer "very satisfied", or "fairly satisfied", 0 otherwise. The results are virtually identical to those reported in the article (available upon request).

pends on the nature of the dependent variables: it is linear for earnings and logistic for the remaining outcomes. The set of control variables is the same as for occupational status, plus a dummy for part-time employment and a dummy that marks whether the job at the time of the interview started after graduation.

Despite this rich set of controls, it is of course possible that the models omit some significant predictors of occupational attainment that are not equally distributed among movers and stayers. For instance, we cannot control for achievement orientations, nor for standardized measures of cognitive ability. Therefore, due to this selection issue, we cannot interpret our coefficients in causal terms. However, we will see in the next section that movers are only a moderately selected population in terms of characteristics that are known to correlate with achievement orientations and ability, such as measures of academic performance. Moreover, in order to strengthen the robustness of our analyses, we will compare the standard regression-based estimates with propensity score matching estimates. Propensity score matching aims at mimicking experimental treatment randomization in the context of observational settings, and it ensures that regression-based estimates are not undermined by a lack of common support (Kaliendo and Kopeinig 2005). The idea is to create a sample of units that received the treatment (in our case, people who migrated) which is comparable to a sample of units that did not receive it on all observed covariates. The propensity score is defined as the probability of being exposed to the treatment (D=1) conditioning on a set of observable characteristics X. Formally:

$$p(X)=P\{D=1|X\}$$

In our case, D is a dummy equal to 1 if the individual migrated, 0 otherwise, and the propensity score is computed on the set of covariates listed above, which account for socio-demographic factors, educational career indicators, and previous experiences of mobility. Then, treated individuals (movers) are matched with non-treated individuals (stayers) and their occupational outcomes are compared in order to have an estimate of the "effect" of migration.[9]

4. Results

4.1 The extent and determinants of migration

In this section we will first describe the extent of international migration of Italian graduates and the profile of movers, and then assess the occupational outcomes of movers. Table 2 reports that only 2.4 per cent of tertiary graduates live abroad four years after graduation; in absolute terms, this means that every year almost 7,000 Italian graduates migrate abroad. This estimate is consistent with the results reported by Becker et al. (2004), who estimated that, in the late 1990s, between 3 and 5 per cent of Italian college graduates were dispersed abroad in the year after graduation.[10] In 2007, another large sample study found that five years after graduation 3 per cent of Italian graduates lived abroad (Almalaurea 2008)[11]. More recent data suggest that these figures may in fact have increased after 2011 (Rosina 2014).

Unsurprisingly, the majority of migrants opt for a European country, in line with theoretical arguments and empirical research, which suggest that the economic and extra-economic costs of migration are a key determinant of the choice of destination country. Indeed, the neighboring graduate markets of Western continental Europe that display a sustained demand for tertiary graduates (mainly Germany, Switzerland, and France) are the preferred destinations of Italian graduates: they absorb four migrants out of ten. UK, Ireland and Scandinavia

9. More specifically, we use caliper matching, where each treated *i* is matched to the closest non-treated *j* in terms of the propensity score, within a predefined radius that we set at 0.01.
10. This estimate is based on a 5 per cent random sample of the official register of Italians residing abroad (AIRE). Unfortunately, this register is notoriously problematic as regards education, and the authors themselves note that 30 per cent of their cases are missing for this variable.
11. Another study of Italian PhD holders three to five years after the discussion of their dissertation reported that 6.4 per cent of them lived abroad. Of course, this higher rate refers to a specific sub-population of graduates that is, by the very nature of scientific work, embedded in international networks and epistemic communities (ISTAT 2011).

Table 2. Distribution of graduates across countries

	N	per cent
Italy	*47,839*	*97.6*
Abroad	*1,163*	*2.4*
Northern Europe	239	0.5
Western Continental Europe	450	0.9
Southern Europe	247	0.5
Eastern Europe	72	0.2
Developed extra-EU countries	70	0.1
Developing extra-EU countries	85	0.2
Total	*49,002*	*100.0*

Source: own elaboration on Istat data (2011)

hold lower but significant attraction. Interestingly, Southern European countries (mostly Spain) are as attractive as Northern Europe, despite the fact that the labor market prospects of Spanish graduates are, if possible, even worse than those of Italian graduates – an indication of the importance of extra-economic motives of migration and of the role of linguistic proximity. Unsurprisingly, Eastern European nations, as well as extra-European destinations, attract the smallest portion of graduates.

Table 3 presents the results concerning the determinants of migration. The influence of the covariates is described by the average marginal effects, which refer to changes in the probability to migrate. The first model incorporates only socio-demographic predictors, while the second model also includes information on educational careers and previous mobility experiences. As can be seen, women and older graduates display lower propensities to migrate, in line with previous research. Supporting hypotheses 2a and 2b, international migration is less common among working class graduates (-1.5 per cent, and -1.7 per cent if the head of the household is not employed) and more common among foreign students who graduated in Italy (+1.9 per cent).

Model 2 indicates that academic performance in upper secondary and in tertiary education is positively associated with the propensity to migrate: better-performing students are more likely to move on. Moreover, in line with hypotheses 3a and 3b, the propensity to migrate is higher among graduates from fields of study that provide students with more easily transferable skills, such as foreign language (+2.3 per cent) and scientific fields (+2.1 per cent), and among students that have participated in international exchange programs (+3 per cent).[12] Overall, the results discussed so far move in the expected direction and confirm previous research which indicates that international migrants tend to be a positively selected population (Belot and Hatton 2012). However, these effects are quite small in absolute terms (probability differences). At the same time, it may be noted that these effects are far from negligible in relative terms. For instance, the odds ratio for the migration propensity of children of manual workers, as opposed to the reference category of managers and professionals, is 0.49; this means that the relative propensity to migrate of the former is 51 per cent lower than that of the latter. Yet these marked relative differentials do not greatly impact the absolute probability to migrate, which remains uniformly low.

Conversely, a previous experience of migration is a powerful determinant of the propensity to move after graduation.

12. Model 2 also reveals that universities in Northern Italy are significantly more likely to yield graduate out-migration flows. This may reflect their overall higher academic status and thus the marketability of their degrees internationally. Northern Italian universities tend to drain high performing students from the South, in a country where South-North internal migration has picked up again over the last decade (Panichella 2014).

Table 3. Determinants of migration. Logistic regression models, average marginal effects

		Mod1	Mod2
Sex (Male)	Female	-0.011*** (0.001)	-0.012*** (0.001)
Age (Less than 25)	25-29	-0.002 (0.002)	-0.006*** (0.002)
	30 +	-0.019*** (0.002)	-0.013*** (0.003)
Parent's occupationnal class (Manager / Professional)	Entrepreneur	-0.011*** (0.003)	-0.007** (0.003)
	Clerk	-0.010*** (0.002)	-0.006*** (0.002)
	Self-employed	-0.016*** (0.002)	-0.011*** (0.002)
	Manual worker	-0.015*** (0.002)	-0.008*** (0.002)
	Unemployed / Inactive	-0.017*** (0.006)	-0.008 (0.008)
	Unknown	0.014 (0.022)	0.020 (0.022)
Citizenship (Italian)	Foreign	0.019*** (0.004)	0.021*** (0.004)
Residence before university (same as university)	Other region	0.006*** (0.002)	0.003* (0.002)
	Abroad	0.127*** (0.024)	0.106*** (0.019)
Type of secondary degree (Scientific lyceum)	Classical lyceum		0.002 (0.002)
	Foreign-language lyceum		0.000 (0.003)
	Other lyceum		-0.006* (0.003)
	Technical school		-0.006*** (0.002)
	Vocational school		-0.002 (0.004)
Upper secondary graduation mark			0.000 (0.00)
Enrollment year (1999-2000 or later)	1998-1999 or before		-0.002 (0.002)
Type of tertiary degree (Pre-reform or single-tier)	Master		-0.004* (0.002)
	Bachelor		-0.011*** (0.002)

		Mod1	Mod2
Field of study (Humanities and Social Sciences)	Mathematics, Physics, Chemistry		0.021*** (0.003)
	ICT and Engineering		0.002 (0.003)
	Medicine and Health Professions		-0.016*** (0.002)
	Architecture		-0.004 (0.003)
	Economics and Statistics		-0.002 (0.003)
	Foreign Languages		0.023*** (0.004)
	Law		-0.014*** (0.002)
Tertiary graduation mark (66-90)	91-100		0.003 (0.002)
	101-105		0.005** (0.003)
	106-110		0.005* (0.003)
	110 cum laude		0.011*** (0.003)
Location of the university (North-West)	North-East		-0.001 (0.002)
	Centre		-0.007*** (0.002)
	South		-0.010*** (0.002)
Experience abroad, e.g. Erasmus (No)	Yes		0.030*** (0.002)
Number of observations		49,002	49,002
Pseudo R2		0.095	0.183
Source: own elaboration on Istat data (2011)			
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

Respondents who lived abroad before enrolling at university are more likely to migrate than residents in Italy; this effect is strong also in absolute terms (+12.7 per cent). Of course, it is unsurprising that foreign students who graduated in Italy display a higher inclination to leave the country after graduation, since they face lower transaction costs, particularly if they return to their home countries. Moreover, these students are likely to be positively selected in terms of attitudes associated with a higher propensity to migrate, which may lead them to reap the benefits of their educational investments in labor markets that offer better occupational prospects than Italy. Unfortunately, due to data constraints, we are not able to discriminate between these two hypotheses, since we cannot identify return migrations. What this result clearly indicates is the inability of the Italian system to absorb (and benefit from) the skilled foreign workers that it has contributed to train.

Table 4. Occupational status of graduates. Multinomial logistic regression models, average marginal effects

		Student	Unemployed	Employed
Current residence (Italy)	Northern Europe	0.097*** (0.023)	-0.012 (0.012)	-0.071*** (0.027)
	Western Continental Europe	0.087*** (0.017)	-0.020** (0.009)	-0.074*** (0.020)
	Southern Europe	0.023 (0.020)	-0.011 (0.012)	-0.002 (0.025)
	Eastern Europe	-0.026 (0.036)	-0.001 (0.024)	0.051 (0.044)
	Developed extra-EU countries	0.125*** (0.044)	-0.034** (0.017)	-0.109** (0.051)
	Developing extra-EU countries	-0.009 (0.036)	0.015 (0.028)	0.033 (0.044)
	Total	49,002	100.0	
Observations			49.002	
Pseudo R2			0.127	

Source: own elaboration on Istat data
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

4.2 Pay-offs of migration

In Table 4 we present the results of a multinomial logit model for the probability of being a student, employed or unemployed, as opposed to being inactive (reference category). To save space, the table reports only the coefficients of interest (the full results are reported in the appendix). No significant difference is found between graduates who remained in Italy (reference category) and those who moved to Mediterranean or Eastern European countries, as well as in developing countries. On the contrary, we observe a much lower probability of employment in Northern Europe (-7.1 per cent) and in Western continental Europe (-7.4 per cent). This differential is, however, more than counterbalanced by the higher probability of being a student (+9.7 per cent and +8.7 per cent, respectively). In line with hypothesis 1a, unemployment risks are lower for Italian graduates who migrate in these countries. Similar outcomes are found for graduates migrating to other developed countries outside Europe, such as Canada, Australia and the United States: compared to stayers, they are significantly less likely to be employed four years after graduation but, at the same time, their risk of unemployment is lower and their propensity to study is higher. Overall, these results suggest that the transition from university to the labor market is less problematic in these countries in terms of unemployment risks, but also that direct entry into the labor market is not necessarily the dominant motive of migration. Migrating to developed countries with a rich supply of internationally recognized universities can also reflect a broader credentialing strategy that can be rewarding for graduates who plan to return to Italy after completing their graduate studies abroad.

We can now assess the occupational returns to migration among employed graduates. Table 4 presents two sets of estimates for each occupational outcome: standard regression-based estimates and propensity score matching estimates. As can be seen, propensity-score estimates confirm quite closely regression-based estimates. Both sets of estimates indi-

Table 5. Returns to migration. Standard regression and propensity score matching estimate

		Standard regression	Propensity score matching
Earnings	Coef	0.273***	0.272***
	SE	(0.012)	(0.017)
Subjective overeducation	Coef	-0.007	0.034
	SE	(0.005)	(0.018)
Skilled Employment	Coef	0.088***	0.085***
	SE	(0.017)	(0.020)
Career prospects	Coef	0.105***	0.117***
	SE	(0.013)	(0.019)

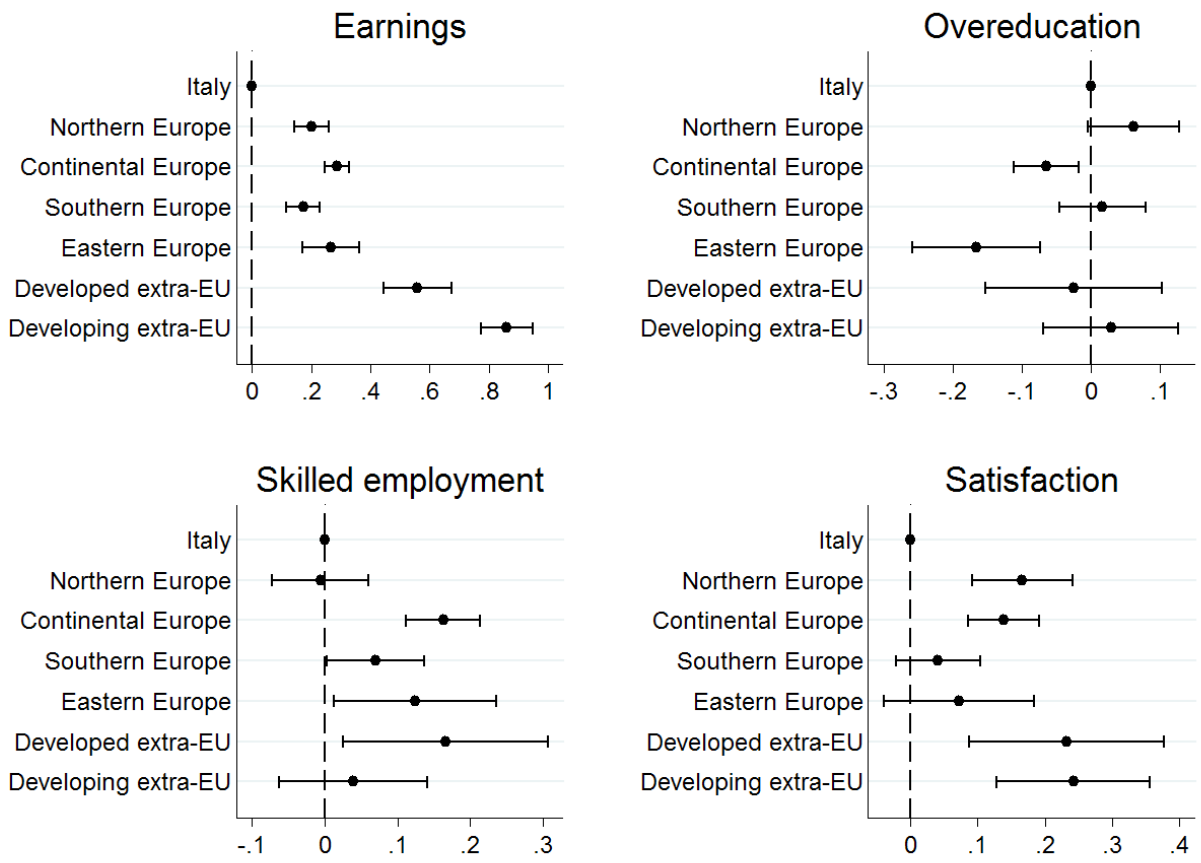
Source: own elaboration on Istat data
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

cate that migration is definitively a rewarding investment for Italian graduates. First, the average, net hourly salary of movers, adjusted by purchasing power, is 27 per cent higher than the salary of stayers. Second, movers have more often access to highly skilled managerial and professional occupations: the differential amounts to almost 9 per cent (the base probability is 41 per cent). Movers are also much more satisfied with the career opportunities offered by their jobs: the advantage over stayers is comprised between 10 per cent and 12 per cent (the base probability of being very satisfied is 19 per cent).

However, stayers are as satisfied as movers when it comes to the perceived risks of over-education. We have just seen that an objective, ISCO-based measure of the skill level of occupations reveals a substantial gap, and that this gap translates into considerable earnings differentials. Indeed we have argued that, given the characteristics of the Italian labor market, migration should substantially increase the chances to access highly skilled jobs. However, the subjective perceptions of stayers do not reflect this gap. This is less surprising once we consider that the definition of 'graduate job' is subjective and possibly largely influenced by the characteristics of the broader context. Hence, graduates may downwardly adjust their expectations concerning graduate jobs in contexts – such as the Italian labor market – where the availability of these jobs is more restricted. In order to assess whether returns to migration vary across sub-groups of graduates, we also estimated the above models with the inclusion of interaction terms between the dummy for migration and gender, social origin, or field of study. These analyses show no statistically significant difference, suggesting that returns to migration do not differ between men and women, between fields of study, nor between social classes of origins (results available upon request). However, caution is needed when interpreting these results, since the lack of statistical significance may simply reflect a lack of statistical power.

Figure 1 plots the regression-based coefficients for the four selected occupational outcomes across the six clusters of destination countries, always taking stayers as reference category (the full results are reported in the Appendix). Results clearly indicate that returns to migration differ across destinations. Net of purchasing power, movers always earn more than stayers, but the gap is particularly strong for graduates who live in developed extra-European countries (the earnings premium relative to stayers is +52 per cent); the earnings of graduates living in developing countries are even almost twice as high as the earnings of stayers (+98 per cent). Graduates who remain within the European borders benefit from migration, although to a lower extent: compared to living in Italy, the earnings premium of migration is +29 per cent in Continental Europe, +27 per cent in Eastern Europe, +20 per cent in Northern Europe and +17 per cent in Southern Europe. We may thus conclude that the

Figure 1. Returns to migration, by geographical area of residence



higher the economic and non-economic costs of migration are, as indicated by the choice of a destination country overseas, the higher its economic benefits. This is consistent with existing comparative evidence on the occupational attainments of migrants, which tend to rise the greater the distance from the country of origin (Spörlein and van Tubergen 2014).

Moving to results concerning the other outcomes, except for Northern Europe, access to highly skilled employment is much more likely in all destination regions: the effect is weaker in Southern Europe and particularly strong in extra-European developed countries and in Western continental Europe. Interestingly, the status advantage of migration in developing countries is quite small and non-significant. Hence, the extremely large earnings returns associated with migration to these countries do not reflect better chances of access to highly skilled jobs, but rather the profitability of jobs reserved to the expat labor force relative to the cost of living in these countries. In terms of perceived career opportunities, movers are in an advantageous position everywhere, but the gap is quite small and non-significant in Eastern and Southern Europe. Finally, in line with our previous remarks concerning the subjective bias of the indicator of over-education, we see that perceived over-education is found to be lower than in Italy only in Western continental and Eastern European countries. Overall, we may conclude that migration to developed non-European nations is particularly rewarding and that migration towards the Southern European neighbors is the least rewarding option.

5. Conclusions

Our analyses indicate that international migration sets out a promising scenario for Italian graduates. Compared to their counterparts that enter the national labor market, movers benefit from higher chances of accessing highly skilled jobs with better career opportunities, and they enjoy an earning premium of +27 per cent, adjusting for differences in purchasing power. This premium rises to +52 per cent if they move to developed extra-European nations (mainly the US, Canada and Australia) and even to +98 per cent if they settle in developing countries. Given the great labor market predicaments faced by graduates in Italy, we expected international migration to yield positive returns, but the magnitude of these differentials is quite sizable. Interestingly, stayers and movers do not significantly differ when it comes to perceived chances of access to graduate jobs. This is unsurprising, if we consider that the perception of what constitutes a graduate job is also shaped by the labor market context: in a country where graduates are frequently demoted to less skilled jobs, the notion of 'graduate jobs' is likely to be broadened. If this interpretation is correct, Italian graduates may fail to fully appreciate the occupational opportunities which open to them by choosing to migrate. More generally, it may be noted that if the results concerning the very high returns to migration enjoyed by Italian graduates are novel within the academic community, the general public may not be expected to be better informed.

In the light of these findings, the share of graduates who leave the country (2.4 per cent) is remarkably low. This seeming paradox may be resolved if we consider the multiple barriers to international migration that we have discussed. We would like to especially highlight two hurdles that are prominent in the Italian case: on the one hand, the knowledge of foreign languages, which is remarkably weak among Italian students; on the other, the 'social costs' of migration, which are likely to be higher in a familistic society like Italy. Indeed we have found that students in internationally-oriented fields and with international study experiences, as well as foreign students who graduated in Italy, display a significantly higher propensity to migrate after graduation. This suggests that, when language barriers and social costs of migration are lower, graduates are more ready to reap the economic benefits of crossing national borders.

If our interpretation is correct, the international mobility of graduates may be enhanced by removing information and language barriers. It should be clear, however, that this 'safety valve' cannot replace macroeconomic policies aimed at creating skilled employment opportunities for Italian youth. Moreover, our results suggest that an expansion of international migration may entail negative consequences not only in terms of brain drain, but also of social inequality. Upper class graduates are better equipped to expatriate both to strengthen their educational credentials and to improve their occupational prospects. Currently, the migration rate is so low that this dynamic cannot play any major role, but our analysis of the relative propensities to migrate suggests that, far from promoting an equalization of opportunities, the opening of a larger labor market for high-skilled youth may work as an additional avenue of social reproduction.

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Appendix

Table A1 - Occupational status of graduates.
Multinomial logistic regression models, average marginal effects. Full results

		Student	Unemployed	Employed
Current residence (Italy)	Northern Europe	0.097*** (0.023)	-0.012 (0.012)	-0.071*** (0.027)
	Western Continental Europe	0.087*** (0.017)	-0.020** (0.009)	-0.074*** (0.020)
	Southern Europe	0.023 (0.020)	-0.011 (0.012)	-0.002 (0.025)
	Eastern Europe	-0.026 (0.036)	-0.001 (0.024)	0.051 (0.044)
	Developed extra-EU countries	0.125*** (0.044)	-0.034** (0.017)	-0.109** (0.051)
	Developing extra-EU countries	-0.009 (0.036)	0.015 (0.028)	0.033 (0.044)
Sex (Male)	Female	-0.006* (0.003)	0.015*** (0.002)	-0.027*** (0.004)
Age (Less than 25)	25-29	-0.010** (0.005)	0.002 (0.003)	0.006 (0.005)
	30+	-0.088*** (0.005)	-0.020*** (0.004)	0.101*** (0.007)
Parent's occupational class (Manager)	Entrepreneur	-0.033*** (0.008)	-0.010** (0.004)	0.038*** (0.009)
	Clerk	-0.028*** (0.004)	0.006** (0.003)	0.023*** (0.005)
	Self-employed	-0.041*** (0.005)	0.002 (0.003)	0.031*** (0.006)
	Manual worker	-0.042*** (0.005)	0.005* (0.003)	0.028*** (0.006)
	Unemployed/Inactive	-0.030* (0.017)	0.009 (0.011)	-0.039* (0.022)
	Unknown	-0.030 (0.036)	0.007 (0.024)	-0.043 (0.047)
Citizenship (Italian)	Foreign	-0.006 (0.014)	0.007 (0.009)	-0.023 (0.016)
Residence before university (same as university)	Other region	-0.001 (0.004)	0.004* (0.003)	-0.006 (0.005)
	Abroad	0.025 (0.018)	0.006 (0.013)	-0.021 (0.022)
Type of secondary degree (Scientific lyceum)	Classical lyceum	0.033*** (0.005)	0.005* (0.003)	-0.049*** (0.006)
	Foreign-language lyceum	-0.044*** (0.008)	-0.002 (0.005)	0.043*** (0.010)
	Other lyceum	-0.069*** (0.006)	-0.003 (0.004)	0.070*** (0.007)
	Technical school	-0.066*** (0.004)	0.004 (0.003)	0.067*** (0.005)
	Vocational school	-0.079*** (0.007)	0.002 (0.006)	0.087*** (0.009)

Upper secondary graduation mark		0.003*** (0.000)	-0.001*** (0.000)	-0.002*** (0.000)
Enrollment year (1999-2000 or later)	1998-1999 or before	-0.025*** (0.004)	0.007** (0.003)	0.016*** (0.006)
Type of tertiary degree (Pre-reform or single-tier)	Master	-0.130*** (0.004)	-0.012*** (0.003)	0.156*** (0.005)
	Bachelor	-0.064*** (0.005)	-0.021*** (0.003)	0.100*** (0.006)
Field of study (Humanities and Social Sciences)	Mathematics, Physics, Chemistry	0.072*** (0.006)	0.003 (0.005)	-0.082*** (0.008)
	ICT and Engineering	-0.002 (0.005)	-0.039*** (0.004)	0.069*** (0.007)
	Medicine and Health Professions	0.112*** (0.005)	-0.050*** (0.003)	-0.032*** (0.006)
	Architecture	-0.020*** (0.006)	-0.008 (0.005)	0.037*** (0.009)
	Economics and Statistics	-0.012** (0.005)	-0.020*** (0.004)	0.037*** (0.007)
	Foreign Languages	-0.015** (0.007)	0.033*** (0.008)	-0.031*** (0.011)
	Law	0.013** (0.006)	0.003 (0.005)	-0.073*** (0.008)
Tertiary graduation mark (66-90)	91-100	0.003 (0.006)	-0.007 (0.004)	0.005 (0.008)
	101-105	0.005 (0.007)	-0.009* (0.005)	0.011 (0.008)
	106-110	0.006 (0.007)	-0.015*** (0.005)	0.017** (0.008)
	110 cum laude	0.036*** (0.007)	-0.015*** (0.005)	-0.015* (0.009)
Location of the university (North-West)	North-East	0.006 (0.004)	0.004* (0.002)	-0.012** (0.005)
	Centre	0.027*** (0.004)	0.019*** (0.003)	-0.057*** (0.005)
	South	0.051*** (0.004)	0.053*** (0.003)	-0.131*** (0.005)
Experience abroad, e.g. Erasmus (No)	Yes	0.034*** (0.005)	-0.004 (0.004)	-0.025*** (0.007)
Observations			49,002	
Pseudo R2			0.127	

Source: own elaboration on Istat data
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A2 - Returns to migration, full results

		Earnings	Overeducation	Skilled employment	Satisfaction
Current residence (Italy)	Northern Europe	0.202*** (0.030)	0.062* (0.034)	-0.006 (0.034)	0.166*** (0.038)
	Western Continental Europe	0.287*** (0.021)	-0.064*** (0.024)	0.163*** (0.026)	0.138*** (0.027)
	Southern Europe	0.172*** (0.029)	0.017 (0.032)	0.070** (0.034)	0.041 (0.032)
	Eastern Europe	0.266*** (0.049)	-0.166*** (0.047)	0.124** (0.057)	0.072 (0.057)
	Developed extra-EU countries	0.559*** (0.058)	-0.025 (0.065)	0.166** (0.072)	0.232*** (0.074)
	Developing extra-EU countries	0.861*** (0.045)	0.029 (0.050)	0.039 (0.052)	0.242*** (0.058)
Sex (Male)	Female	-0.085*** (0.004)	-0.005 (0.005)	-0.045*** (0.005)	-0.052*** (0.004)
Age (Less than 25)	25-29	0.002 (0.005)	0.043*** (0.006)	0.002 (0.006)	-0.019*** (0.006)
	30+	0.136*** (0.007)	0.121*** (0.009)	0.034*** (0.009)	-0.035*** (0.008)
Parent's occupational class (Manager)	Entrepreneur	0.006 (0.010)	0.061*** (0.011)	-0.010 (0.012)	0.033*** (0.011)
	Clerk	-0.021*** (0.005)	0.021*** (0.006)	-0.064*** (0.006)	-0.024*** (0.005)
	Self-employed	-0.014** (0.007)	0.031*** (0.008)	-0.048*** (0.008)	-0.034*** (0.007)
	Manual worker	-0.022*** (0.006)	0.029*** (0.007)	-0.076*** (0.007)	-0.034*** (0.007)
	Unemployed/Inactive	-0.017 (0.021)	0.062** (0.025)	-0.044* (0.027)	-0.033 (0.022)
	Unknown	-0.008 (0.067)	-0.001 (0.053)	-0.092* (0.056)	-0.075* (0.043)
Citizenship (Italian)	Foreign	-0.018 (0.017)	0.009 (0.020)	-0.012 (0.021)	-0.004 (0.018)
Residence before university (same as university)	Other region	0.017*** (0.005)	-0.006 (0.005)	-0.003 (0.006)	0.018*** (0.005)
	Abroad	0.009 (0.023)	-0.023 (0.025)	0.046* (0.027)	-0.010 (0.022)
Type of secondary degree (Scientific lyceum)	Classical lyceum	-0.008 (0.007)	0.004 (0.008)	0.028*** (0.008)	0.000 (0.007)
	Foreign-language lyceum	-0.020* (0.010)	0.004 (0.012)	-0.045*** (0.012)	-0.001 (0.011)
	Other lyceum	0.056*** (0.008)	0.017* (0.009)	0.073*** (0.009)	0.001 (0.009)
	Technical school	-0.004 (0.005)	0.023*** (0.006)	-0.044*** (0.006)	-0.007 (0.005)
	Vocational school	-0.018* (0.009)	0.013 (0.011)	-0.058*** (0.012)	-0.014 (0.010)

		Earnings	Overeducation	Skilled employment	Satisfaction
Upper secondary graduation mark		0.001*** (0.000)	-0.001*** (0.000)	0.003*** (0.000)	0.001*** (0.000)
Matriculation year (1999-2000 or later)	1998-1999 or before	0.006 (0.006)	0.021*** (0.007)	0.016*** (0.006)	-0.024*** (0.006)
Type of tertiary degree (Pre-reform or single-tier)	Master	0.010* (0.006)	-0.001 (0.006)	-0.154*** (0.007)	0.007 (0.006)
	Bachelor	-0.034*** (0.006)	0.147*** (0.007)	-0.380*** (0.007)	-0.025*** (0.006)
Field of study (Humanities and Social Sciences)	Mathematics, Physics, Chemistry	-0.038*** (0.008)	-0.104*** (0.010)	0.074*** (0.010)	0.002 (0.008)
	ICT and Engineering	0.013* (0.007)	-0.177*** (0.009)	0.161*** (0.009)	0.012* (0.007)
	Medicine and Health Professions	0.129*** (0.006)	-0.336*** (0.006)	-0.081*** (0.007)	0.038*** (0.006)
	Architecture	-0.155*** (0.010)	-0.152*** (0.011)	0.269*** (0.012)	0.000 (0.009)
	Economics and Statistics	0.011 (0.007)	-0.028*** (0.009)	-0.040*** (0.008)	0.074*** (0.007)
	Foreign Languages	-0.046*** (0.011)	0.102*** (0.014)	-0.074*** (0.013)	-0.001 (0.011)
	Law	-0.079*** (0.009)	-0.084*** (0.011)	0.123*** (0.010)	0.056*** (0.009)
Tertiary graduation mark (66-90)	91-100	-0.010 (0.008)	-0.014 (0.009)	-0.022** (0.009)	0.001 (0.008)
	101-105	0.004 (0.008)	-0.028*** (0.009)	-0.012 (0.010)	-0.011 (0.009)
	106-110	0.006 (0.008)	-0.032*** (0.010)	0.001 (0.010)	-0.022** (0.009)
	110 cum laude	0.030*** (0.009)	-0.052*** (0.010)	0.025** (0.010)	-0.028*** (0.009)
Location of the university (North-West)	North-East	-0.021*** (0.006)	0.031*** (0.006)	-0.013** (0.007)	-0.007 (0.006)
	Centre	-0.045*** (0.005)	0.030*** (0.006)	0.001 (0.007)	-0.009 (0.006)
	South	-0.082*** (0.005)	0.029*** (0.006)	0.005 (0.006)	-0.011** (0.006)
Experience abroad, e.g. Erasmus (No)	Yes	0.028*** (0.008)	-0.019** (0.009)	0.013 (0.009)	0.017** (0.008)
Current job started (Before graduation)	After graduation	-0.098*** (0.005)	-0.259*** (0.005)	0.029*** (0.006)	0.003 (0.006)
Working hours (Full time)	Part time	0.042*** (0.006)			
Observations		29,558	36,129	36,721	36,519
R-squared		0.149	0.1931	0.186	0.0218

Source: own elaboration on Istat data (2011)
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Abstract
Migration from Southern Europe has been on the rise after the Euro-crisis, mostly fed by young skilled workers. Little is known about the determinants and pay-offs of migration for this population. This paper focuses on the Italian case, on the basis of a large representative sample of graduates interviewed in 2011. Four years after graduation, 2.4 per cent of them lived outside Italy; the majority (87 per cent) had settled in the EU. Multivariate analyses show that they are disproportionately drawn from upper class families and have scientific and internationally-oriented credentials. Academic performance in upper secondary and tertiary education also displays a positive correlation with migration. Moreover, when compared to the 'stayers' in their cohort, movers enjoy better occupational outcomes in terms of unemployment risks, access to skilled jobs, salary and work satisfaction. *Ceteris paribus,* the PPP-adjusted net hourly salary of movers is 27 per cent higher than the salary of stayers. This differential varies considerably across destination countries, ranging between 17 and 98 per cent.

Keywords
skilled migration, Italy, graduates, brain drain

Résumé
Après la crise de l'Euro, se redessine un mouvement migratoire intra-européen originaire des pays du sud, principalement alimenté par une jeunesse hautement qualifiée. On sait peu de choses sur les déterminants et les profits escomptés de leurs déplacements. Cet article étudie plus particulièrement le cas des italiens, à travers des entretiens menés en 2011 sur un large échantillon représentatif des jeunes diplômés. 4 ans après l'obtention de leur diplôme, 2.4% vivent à l'étranger ; la majeure partie d'entre eux (87%) se sont installés dans un autre pays de l'Union Européenne. Les analyses multivariées montrent que la propension à migrer est plus forte chez les jeunes issus de familles de classes sociales supérieures et d'inscrits dans des disciplines scientifiques ouvertes sur le monde. La migration est également corrélée avec les performances scolaires dans l'enseignement secondaire et supérieur. Comparés aux individus non mobiles, les migrants de la cohorte affichent de meilleures perspectives de carrière, de meilleurs salaires, plus de satisfaction dans leur travail, et moins de risque de chômage. De plus, en moyenne et toute chose étant égale par ailleurs, la Parité en Pouvoir d'Achat (PPP), au travers du salaire horaire net de ces migrants, est 27% plus élevée que pour ceux qui restent en Italie. Cet écart varie considérablement selon les pays de destination, entre 17% et 98%.

Mots clés
migration hautement qualifiée, expatriation, Italie, diplômés

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