European Centre of Expertise (ECE) in the field of labour law, employment and labour market policy

Labour Market Policy Thematic Review 2018: An in-depth analysis of the emigration of skilled labour

Italy

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March, 2018

EUROPEAN COMMISSION

Directorate DG Employment, Social Affairs and Inclusion

Unit B.2 – Working Conditions

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This publication has received financial support from the European Union Programme for Employment and Social Innovation "EaSI" (2014-2020). For further information please consult: http://ec.europa.eu/social/easi.

Luxembourg: Publications Office of the European Union, 2018

PDF ISBN:978-92-79-88882-3 doi:10.2767/92480 KE-04-18-644-EN-N

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1 Introduction: the demographic and labour market situation in Italy

The right to free movement of workers is a fundamental principle and one of four main freedoms guaranteed by the EU, together with the free movement of goods, services, and capital. The right is also enshrined in Article 45 of the Treaty on the Functioning of the European Union (TFEU). The principle, therefore, lies at the core of the EU and is key to the development of European labour markets. It should enable EU citizens to find jobs and to work in other areas where there are labour shortages or better employment opportunities, ultimately contributing to the reduction of skills and job mismatch. But brain drain is a growing problem at European level. Most recently, the New Skills Agenda, while advocating the enhancement of geographical mobility across Member States, clearly stated the importance of reducing brain drain, including 'further analysis and sharing of best practice to tackle brain drain' as one of its 10 actions.[1]

In Italy, the start of the economic crisis caused a decrease in net migration (from a positive balance of almost half a million in 2008 to +144 000 in 2016) (ISTAT, 2017), with a fall in foreigners moving to Italy, and a parallel increase of people living in Italy moving abroad. The emigration trend, positive in the short term, may have negative effects for the country medium to long-term, primarily for the possible impact this migration may have on the real economy and innovation capacity. This is because the share of people with tertiary education leaving the country (31 %) is much higher than that of those moving to Italy (16 %) (ISTAT, 2016). Second, demographic change will impact the long-term stability of Italy's economic and welfare system. Italy already has the largest share of the population above the age of 65 years in Europe (22 % vs 19.2 %), and it is expected to grow substantially by 2060 (33.4 % according to baseline projections).[2]

The recent uptick in the domestic economy may represent a shift in the trends. It has already impacted the main labour market indicators: there was an increase in the employment rate 15-74 (50 % in 2016, 1.4 p.p. higher than in 2013) alongside a parallel decrease in the unemployment rate (at 11.7 %, it is 1 p.p. below the 2014 mark, but still two times higher than 2007).[3]

This reflects broader participation in the labour market from the working-age population: that participation increased by 2 % in the last decade, reaching 64.9 % in 2016.[4] Compared to other European countries, Italians migrate relatively less (Aspen, 2012) but recent studies (IDOS, 2017) challenge the official data available for emigration from Italy, estimating a figure 2.5 times higher than that published by the Italian National Institute for Statistics (from 147 000 to 367 500 yearly emigrants).

[1] European Commission, 'The New Skills Agenda for Europe'. Internet: http://ec.europa.eu/social/main.jsp?catId=1223
[2] Eurostat's Europop 2013 population projection, main scenario.
[3] Source: Eurostat.
[4] Source: OECD.

2 Emigration of skilled labour

Migration is a multi-faceted issue, with no single methodology and theory measuring the flows holistically. From an economic standpoint, the mobility of people may be considered as the aggregation of individual mobility decisions. But economic factors fail to provide a comprehensive explanation of the movements we see in reality. This is because a range of non-economic factors also impact the decision to move abroad (permanently, for studies, for a fixed-term working experience abroad, or for seasonal work). A range of concepts and theories illustrate the decisional mechanisms behind migration, such as: theories of household decision-making, human capital theory, learned behaviour and adaptive capacity/capability from disciplines including economics, sociology, psychology, geography, and political science/public policy. As a result, several factors may account for the decision to move abroad. Table 1, formulated following careful analysis of the available scientific literature, lists the main drivers behind migration decisions, divided into:

- push factors, i.e. forces driving the individual away from the country they live in;
- pull factors, i.e., forces exerting gravitational pull to transfer to a specific country;
- stay factors, i.e., forces keeping the individual in the country they live in.

At European level, the most statistically significant driver for mobility is being unemployed or inactive, followed by the economic performance of the country of destination and level of education. The Italian trends tend to mimic those at European level. On average, unemployed and inactive people are 3.5 times more likely to engage in intra-EU mobility compared to employed people (all other factors being equal) (European Commission, 2015a). Unfortunately, it has not been possible to break down this data for Italy, because immigrants in the LFS microdata database are aggregated in three macro-groups (EU 15, EU 12, and EU 3).[5] These general findings for the EU appear comparable with the Italian level based on qualitative research (Gjergji, 2015; Fondazione Migrantes, 2016).

The second most relevant factor for mobility is the country of destination. The most relevant to the EU are the Anglo-Saxon[6] and North-Western country[7] clusters, both around three times more likely destinations than Eastern European countries, and six times more likely than Southern European countries (European Commission, 2015a). In Italy, the two most likely destinations are the UK and Germany,[8] totalling 32 % of migration from Italy, evenly split. The Eastern European countries are less enticing for people migrating from Italy. Likely destinations instead are: Switzerland (11.7 % of emigrants), France (9.3 %), USA (5.4 %), Spain (4.9 %), Brazil (4.6 %), Belgium (2.3 %), Australia (2.2 %), and Austria (2 %) (Istat, 2016).

[5] Countries in the EU-15 group are the oldest members of the EU, the ones composing it before the 2004 enlargement (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the United Kingdom), the countries of the EU enlargement are the EU 10 (Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia), while Bulgaria, Romania, and Croatia compose the EU 3 group.
[6] United Kingdom and Ireland.
[7] Austria, Germany, the Netherlands, Luxembourg, and Belgium.
[8] Taking into account only people at least 25 years old.

Table 1. Push, pull and stay factors affecting personal decisions about moving. Own elaboration based on: Borjas, 1989; Boeri and van Ours, 2013; Gjergji, 2015; Aspen Institute Italia, 2012; European Commission, Employment and Social Developments in Europe, 2015

Push factors (the forces pushing people out of the country of origin)	Pull factors (the forces pulling people to the country of destination)	Stay factors (the forces keeping people in the country where they are residing)
Higher general and sectoral unemployment rate in the country of origin	Higher general and sectoral employment rate in the destination country	No money to undertake travel (the more distant the country the higher the cost of moving), pay a rent/living for the initial period
Lower wages (especially for the occupational group the person is specialised in)	Higher wages (especially for the occupational group the person is specialised in)	Family ties, family issues, presence of children
Poor language skills (if the person is not a native speaker)	Knowledge of the language of the country of destination	No knowledge of foreign languages
	Existence of a network (friends, relatives, other Italians) in the country of destination	
Low career prospects in the country of origin	High career prospects in the country of destination	
Poor skills-matching in the country of origin	Good skills-matching in the country of destination	Poor transferability of skills[9]
	Small and negligible cultural barriers between home and destination country	Considerable cultural barriers between home and destination countries
Lower quality of life in the country of origin	Higher quality of life in the country of destination	
Earlier migration experience		
Higher discrimination in the country of origin (if foreigner)	Lower discrimination in the country of destination (if foreigner)	
Lower social security in the country of origin	Higher social security in the country of destination	
Worse political situation (also from a personal	Better political situation (also from a personal	

[9] This would lead to under-utilisation of skills, and brain-waste, the worker in the destination country being overqualified for the task.

perspective)	perspective)	
Presence of crime in the country of origin (e.g. mafia)	Safer situation in the country of destination	
	Partner in destination country	Partner in country of origin
	Better matching with destination country labour market (if the person already studied abroad the employers in the country of study have better knowledge and experience in dealing with the respective educational qualification)	Better matching with local labour market (if the person studied in the country of origin local employers have better knowledge and experience in dealing with their educational qualification)

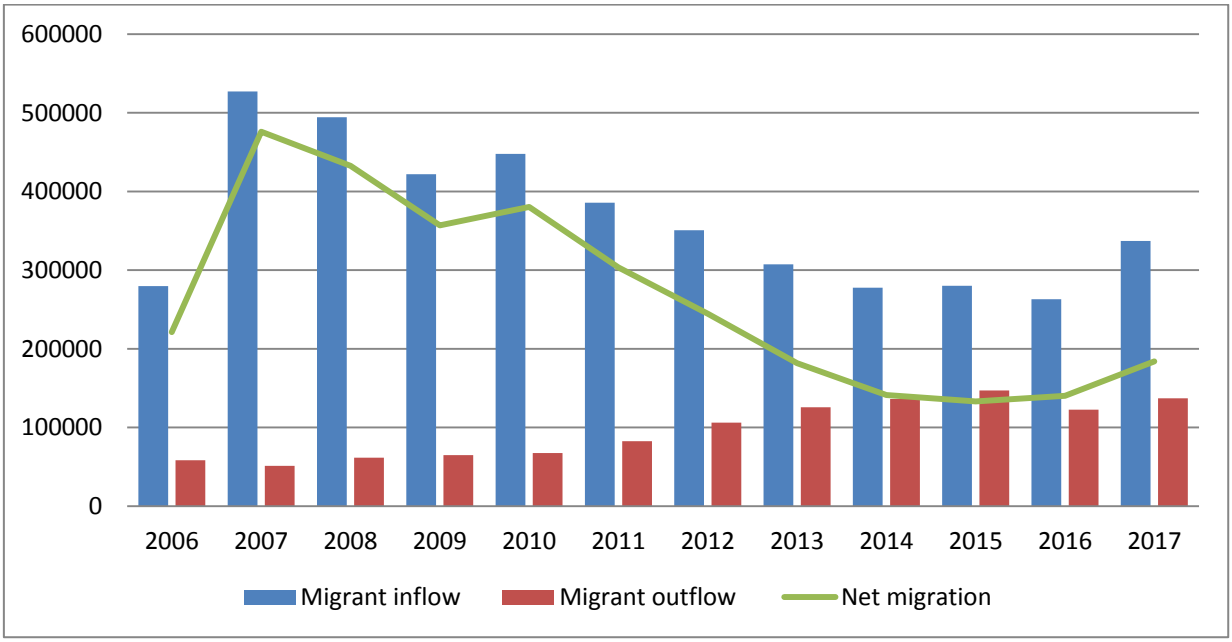
Education is also pivotal, with highly educated people twice as likely to move abroad as medium and low-skilled people (see additional information in the following paragraphs). Also relevant at EU level, are family factors, such as the presence of older people in the household, marital status and children (Monteleone, 2012b). Family ties normally limit the migration of households. Here, the finding at EU level is corroborated by the evidence provided by Italian literature (Monteleone, 2012a; Sauro, 2010).

In the last decade, the outflow of migrants from Italy rose, while the inflow fell. A variety of factors should be considered from a historical perspective: it is not only wage difference that drives the decision to move or stay, but also its trend (e.g. a growing wage difference between origin and destination country). Compensations should also be considered in real terms, to take into account different costs of living.

Collating this information, Figure 1 shows the evolution of migration inflows and outflows, and the net migration concerning Italy. As macro-trends we notice that:

- the migration inflow is declining from 2007 till 2016 (2006 is an exception given that the average for arrivals between 2003 and 2005 was 387 000 arrivals), whereas a sharp increase is recorded in 2017;
- the migration outflow is growing from 51 000 migrants in 2007 to 147 000 in 2015, while their number decreases in 2016 and goes up again in 2017;
- the net migration rate is decreasing between 2007 and 2015, but it displays a modest increase in 2016 and then grows sharply in 2017.

Figure 1. Migrant inflow, outflow, and net migration between Italy and other countries, 2006-17. Source: Istat.



There is a thorny reliability issue of data between the different data sources. Data are sourced via Istat (the Italian National Institute of statistics) which builds its database by aggregating people registering or signing off at the registry office in their municipality.

Evidence from registration of Italian citizens abroad suggests caution when approaching these data. Analysing the data available from the German and British registration offices concerning the presence of Italians in their countries illustrates the size of the problem. Comparing Istat data with that from the German *Statistisches Bundesamt* and from the British *National Insurance Number,* it is possible to notice the presence of 2.5 more Italian emigrants than those registered (IDOS, 2017). The number of people leaving Italy would therefore increase from 147 000 to 367 500. The reason for this discrepancy lies in the law. Although it is mandatory for Italian citizens to register their decision to move abroad,[10] there is no sanction for those not doing so. In Germany and the UK, registration is mandatory to qualify for an employment contract, social insurance, domiciliation, and welfare rights. There is a further discrepancy between data available from Istat and those from the *Anagrafe degli Italiani Residenti all'Estero* (AIRE), the registry office for Italian Citizens living abroad. Here, the number of people is twice as high as those reported by Istat (IDOS, 2017). But because Istat data are the most detailed, we have to rely on them.[11] It is important to bear in mind, however, that this figure likely underestimates the phenomenon.

[10] Law n.470 of 27th October 1988. Internet: http://www.esteri.it/MAE/normative/leg27.10.88.pdf

[11] It would also not be statistically sound to infer that the 2.5 multiplier will affect with the same level of magnitude the UK, Germany, and the rest of Italians abroad. Although Germany and the UK are the two preferred destinations of Italian migration, according to Istat data from 2015, they represent 32 % of the total outwards flows.

Migrants from Italy tend to come from border regions, are predominantly male, and in their 30s. From a geographical point of view, all but three Italian regions saw a continual rise in the number of people moving abroad between 1995 and 2015 (see Figure 3 in annex). Overall, the number rose from 43 303 in 1995 to 146 955 in 2015. The biggest increase was between 2010 and 2013, growing from 67 501 to 125 735 Italians leaving the country. A breakdown by province (NUTS3) shows that the territories with more emigrants per 1 000 inhabitants are those in the North of the country (specifically along the borders) and in Sicily (Istat, 2016).[12]

Migrants also tend to come from fairly well-off families (Zurla, 2014). As for gender, men are slightly more represented (53 % against 47 % in 2016, with a reduced percentage change in the past ten years; see Figure 4 in annex), while the age is similar for both groups (the trend is very similar, with the bulk of migrants aged between 25 and 40, with the average 33.7 years of age for men, and 33.9 for women). All the age groups experienced similar increasing trends during the past decade (see figure 3, in annex).[13]

People with higher qualifications are increasingly more likely to migrate. As for the qualifications of emigrants, people with higher educational levels are overrepresented. This is in line with almost all countries worldwide (Docquier, 2006), but it has not always been the case. Until the end of the last century, migrants from Italy were characterised by a low level of skills and education and this is generally still apparent when analysing the stocks of migrants in foreign countries rather than the yearly fluxes. For example, in 2013, only 11 % of Italian women in Germany had higher educational degrees, 5 % had university degrees, and 31 % had occupational qualifications (for men the figures are 8 %, 3 %, and 39 %, respectively). In comparison, the average figures for the female population in Germany are: 17 % with higher educational level, 7 % with a university degree, and 60 % with occupational qualifications (for the male population, the figures are 19 %, 8 %, and 67 % respectively) (Gjergji, 2015).

The trends of mobility reflect this shift towards higher skills and qualifications for migrants leaving Italy. In 2002, among those over 25, 51 % had only compulsory education, 37.1 % secondary education and 11.9 % tertiary education. In 2013, the levels were quite different:[14] 34.6 % had compulsory education, 34.8 % secondary education, and 30 % had tertiary education. The trend continued in 2015, with 30.8 % of migrants having compulsory education, 38.4 % having secondary education and 30.8 % having tertiary education. In comparison, only 16 % of the Italian population over 25 holds a tertiary education degree (the lowest share in Europe),[15] meaning that Italian graduates are more prone to migrate to foreign countries.

The tendency to go abroad, although below the EU level, increases in line with education. In 2010, around 12 000 people started their PhD in Italy (Magni, 2013). According to a survey conducted four years later, 39.9 % of them said they had been abroad during their studies, and 19.9 % afterwards[16] (in the same year, the

[12] In 2015, four provinces in Sicily had between 2.7 and 3 inhabitants per 1 000 leaving the country (the highest value in Italy being 3.4). Also Imperia, Bolzano, and Trieste province range from 2.9 and 3.4 people deciding to move abroad.
[13] Istat only has 4 age groups: below 17, 18-39, 40-64, and over 65.
[14] The data refer to a much bigger number of people, being 42 000 in 2002, and 125 000 in 2013 (source: ISTAT).
[15] Source: Eurostat.
[16] Source: Istat.

percentage of the Italian population with tertiary education was 12.3 %).[17] Unfortunately, there were no data about the people choosing to stay abroad after completing their PhD abroad. The database DaVinci, created to keep track of Italian researchers abroad, is no longer active. A recent survey helped to shed light on the main drivers pushing Italians with a doctoral degree abroad, namely: significantly higher wages and better job opportunities (Istat, 2015). Also, the facilities and opportunity for state-of-the-art research play a non-negligible role (Monteleone, 2012a). Yet, the mobility of higher educated people from Italy is below the EU average and that of Southern EU countries (Aspen, 2012). Recent research shows that, at least for researchers, the main reason for staying in Italy are strong family ties, regardless of the geographic origin of the researchers (Monteleone, 2012b).

Moving abroad aids job search, particularly for higher levels of education. Evidence suggests that moving abroad may offer a higher chance of finding a job, particularly for the highly educated: one year after completing their master's, 44.5 % of Italians abroad have a stable job, compared to 34.5 % of graduates remaining in Italy (Almalaurea, 2014). Internal migration is still active and growing. The number of people moving from Southern regions towards Northern Italy almost doubled between 1998 and 2007 (Ciriaci, 2010). Most of those people who decide to migrate abroad come rather from Northern Italy, despite the average higher real income per capita and lower unemployment and inactivity rates prevailing locally.

Study experiences abroad increase the likelihood of emigration. Experiencing study abroad substantially strengthens the desire to go abroad. According to a 2014 survey, 48 % of 2013 graduates were willing to work abroad. Among these, 74 % had already experienced at least one study or work period abroad (Almalaurea, 2014).

The return flows compensate around one-tenth of emigrations. In comparison to previous generations (e.g., those of the Italian *Gastarbeiter* in Germany during the 50s, which recorded a 90 % return rate), Italian migrants currently appear more likely to stay abroad (Gjergji). One possible reason seems to be the ease with which they can stay in touch with their family and friends, thanks to new media, and the possibility to come back more often. In 2015, 30 000 former emigrants returned to Italy, i.e., one-fifth of the people leaving the country and one-tenth of the arrivals.[18] Highly qualified researchers seem the most likely to stay abroad. In 2009, only 10 % of the returning migrants had a high qualification compared to 17 % with medium qualifications (Biondo, 2012). The launch during the past two decades of policies aimed at incentivising brain return managed to attract only 1 % of the Italian top researchers abroad (more details in section 5).

The national debate on brain drain is lively, but did not lead to a comprehensive framework to support brain return. From a visibility perspective, the issue of the emigration of skilled labour appears cyclically in the national media, but 'the policies instituted to date by the Italian government, as well as by the private sector, aimed at reversing outward flows or attracting highly-skilled individuals to Italy, have been inadequate. The main shortcoming of these policies has been that they have taken the form of low-key and often uncoordinated initiatives' (Aspen, 2012).

[17] Source: Almalaurea.
[18] Source: Istat.

3 Emigration of skilled labour and its impact on domestic economies beyond the labour market

The estimated impact of brain drain on the domestic economy is not trivial. As noted in the previous section, the estimates of the number of Italians migrating every year greatly vary. In 2015, the number varies between 147 000 and around 370 000. The causes underlining these discrepancies are well-rooted and stable. Above all, the law requiring Italian citizens to communicate their decision to live abroad to the registry office in their municipalities – lacking any sanctions for those not complying - dates back to 1988.

The negative impact on GDP of the patents registered abroad by Italian researchers is estimated at more than EUR 1 billion, in terms of GDP. The widely-accepted link between skilled workers and innovation operates via two main channels: skilled workers appear better able to produce innovative products and services (ILO, 2010) and are also the most likely benefit from innovation, being better able to adjust to new trends and technologies.[19]

Here we will focus on the first aspect and come back to the second aspect in section 4. Although difficult to estimate because of the lack of counterfactuals, Italian research gauged that the 243 patents registered by Italian researchers working abroad result in a loss of more than EURO 1 billion annually to the Italian GDP. The same research estimated that, at the current pace of patent registration by Italian researchers abroad, this will reach 3 billion by 2030 (Giudice, 2012). Larger scale, the emigration of the most skilled people could prove detrimental to Italian labour productivity. This casts shadows over the economy, with Italy already experiencing the second lowest real labour productivity per hour (with 100.3, the Italian value second only to that of Greece, and well below the EU-28 average, set at 106.1).[20] In the context of intensifying global competition on the services and products market, this could have serious long-term consequences for the country.

The fiscal and social effects of the emigration of skilled labours are ambiguous. Two main effects can be associated with the migration of skilled labour. Short- term, the outflow has a positive impact on the national fiscal balance, due to lower welfare expenditure, since the unemployed are eligible for unemployment benefits and active labour market policies (ALMPs). However, long-term, the continuous drain of workers further depletes tax revenues, which in turns limits the room for manoeuvre and budgeting for policymakers. It is difficult to assess which driver impacts the most, but the fall in tax revenues increases with time, whereas unemployment benefits costs are linked with eligibility criteria and are therefore capped over time.

A final factor to consider is the role of remittances from abroad, which overall appear to be minor. In 2017, the remittances of Italian migrants abroad were equal to 0.5 % of GDP: this figure confirms indirectly the reason why highly skilled young people leave the country, namely the need to find better job opportunities to realise their potential and take advantage of their own education.

The Italian demographic profile may undermine the long-term sustainability of its social security system. As a whole, the European population is expected to

[19] The G20 leaders statement: The Pittsburgh Summit, 2009. Internal: http://www.g20.utoronto.ca/2009/2009communique0925.html
[20] Source: Eurostat.

shrink by almost half a percentage point per year over the next 40 years.[21] As a result, the economic dependency rate (EDR, defined as the ratio between the number of dependant people and the number of employed people)[22] will continue to grow. DG Employment calculations assume that, if the targets of the Europe 2020 strategy are met, the European EDR will reach the figure of 1.6 dependent people per employed by 2060 (European Commission, 2015a). To maintain the current EDR, Europe would need 30 million people from third countries to migrate to Europe and work to maintain the current welfare state (Peschner, 2015; Peschner, 2016). Four indicators suggest that the Italian situation is comparatively worse than the EU average:

1. The median age of the population is growing. Italy will be the third oldest EU country in 2060, after Greece and Portugal, with a median age of 51.6 years, against an EU average age of 46.8 years;[23]
2. The share of the Italian population between 15 and 64 years will pass from 64.5 % in 2015 to 54.5 % in 2060, lower than the EU average (projected at 56.1 % in 2060);[24]
3. The projected old-age dependency ratio is expected to grow from a value of 33.7 in 2015 to 61.2 in 2060 (the EU 28 values are 28.8 and 51.6, respectively).[25]
4. The Italian employment rate is lower in comparison to the EU average (almost 10 percentage points lower than the EU average). Moreover, the gap between the other EU countries is increasing (it was 6.5 p.p. in 2005). This translated in a EU2020 national target which is seven points lower than the European one, the latter set at 75 %.[26]

While the first three projections hint at structural limitations affecting Italy due to its peculiar demographic structure, the last proves that the country has more room to improve. At the current pace, if there were no changes to policies to raise employment or limit/reverse workers' emigration, the growing cost of the welfare state[27] should be compensated by productivity gains. Another option would be to counterbalance the emigration with immigration or return migration flows (European Commission, 2017a). We saw that the immigration flow is certainly bigger than emigration, with 280 000 people moving to Italy in 2015, although the trend is decreasing. Moreover, high skilled Italians show a very modest propensity to return to their home country (Biondo, 2012). As for foreign influx, Italy is the fifth country in Europe for the number of migrants received from other EU countries (Chojnicki, 2016). Apart from Romania (the biggest contributor to migration inflows with 46 000 people in 2015), with respect to country of origin, there is no other EU country in the top 15. As we discuss in the

[21] Eurostat Europop 2013 population projection, main scenario, age group 20-64 years (series proj_13npms).
[22] The number of dependant people is defined as the sum of: young people below 20 years old, people not employed between 20 and 64 years old and older people above 65 years old.
[23] Eurostat Europop 2013 population projection, main scenario, age group 20-64 years.
[24] Ibid.
[25] Ibid.
[26] Internet: http://ec.europa.eu/europe2020/europe-2020-in-your-country/italia/progress-towards-2020-targets/index_en.htm
[27] The cost of welfare state is assumed to grow to take care of the growing number of the dependent people.

following section, the share of immigrants with tertiary education is much lower than the share of emigrants.

4 Emigration of skilled labour and its impact on labour market conditions

Labour mobility aids shock absorption at European level. From a European perspective, the mobility of workers contributes to the deepening of a European labour market by enabling a quicker adjustment to asymmetric economic shocks affecting the EU (European Commission, 2015b). Recent findings at EU level suggest that intra-EU mobility reacts to different labour market conditions in the EU (mainly unemployment rate and GDP per capita) and increased as a result of the economic crisis. Workers react by moving to countries where they would be paid more, acting like a stabiliser for the economy. Thus, labour market mobility helped to absorb the shocks and reduced the potential negative effects of the crisis (European Commission, 2015a).

The impact of migration of skilled workers at national level is more ambiguous. Generally, brain drain negatively affects the sending countries, hampering their growth potential due to the loss of highly skilled human capital in the labour market (Atoyan, 2016). To estimate the impact of migration of skilled workers on the labour market is arduous, given the lack of a counterfactual. Intuitively, it is possible to see two effects:

- On one hand, unemployed and discouraged people may decide to move abroad to find a job, reducing overall unemployment and inactivity rates affecting both their numerators and denominators;
- On the other, an increase in the employment rate, due to decrease of the denominator.

These positive impacts short-term concern mainly, but not only, economic indicators. For the real economy, it should also help people, both emigrants and those who decided to stay. As seen in section 2, emigrants tend to be unemployed or inactive in Italy, seeking a job abroad. Their decision also helps people remaining in the country to find a job by limiting competition.[28]

In this way, the mobility of labour in a country affected by a high unemployment rate (at the end of 2016, Italy had the fourth highest unemployment rate in Europe, 11.7 %, against an EU average of 8.6 %)[29] and low activity rate (at the end of 2016 Italy has the lowest activity rate in Europe, 64.9 %)[30] helps workers to remain active in the labour market. Mobility will help emigrants and those remaining in the country to avoid gaps in their careers and contribute to their use of the skills they have developed and the acquisition of new skills. The problems of brain drain are more visible long-term when the loss of human capital limits potential growth. The economy is not a zero-sum game, and highly qualified people raise companies' productivity and profits, possibly favouring further expansion and hiring.

The profiles of emigrants match the job opportunities likely to be available in the future, by qualifications. An improved framework to match the education

[28] This is particularly true for people with higher education, given that 16 % of people in Italy have tertiary education, while 31 % of the emigrants have this level of education.
[29] Source: Eurostat.
[30] Ibid.

system's supply and labour market needs may help to reduce emigration. According to the skills and supply forecasts realised by Cedefop, the share of the highly qualified labour force will grow substantially over the next few years. Compared to 2013, where highly qualified workers accounted for 21 % of the labour force, this share is expected to reach 31 % in 2025, mainly due to new jobs available as a result of the evolving economy (Cedefop, 2015).

In comparison, new job possibilities for professionals with medium qualifications will grow more or less by the same magnitude (almost 6 million openings by 2025), but mainly due to replacement needs. Openings for people with low qualifications will increase by less than one million and only due to replacement needs, given that there will be a contraction of the labour force with these qualifications. The growth of jobs available for highly skilled profiles may lead to a gradual reduction of the migration outflows for people living in Italy. Yet, there is evidence from the Excelsior database[31] that there is a mismatch between the profiles produced by the tertiary education systems and those required by the labour market. It is possible to identify the following four main causes.

- Italian young graduates perform poorly in comparison to most EU countries, according to the OECD PIAAC survey, also in terms of basic skills (literacy and numeracy). Italian graduates perform poorly also in comparison to the best performing countries in secondary education (e.g. Finland) (OECD, 2013).

Italy lacks effective vocational training at tertiary levels. Italy has two VET programmes at post-secondary level, the higher technical education and training programmes (*istruzione e formazione tecnica superiore*, IFTS) and the programmes at the higher technical institutes (*istituti tecnici superiori*, ITS) (Cedefop, 2014). But these two combined, account for less than 1 % of people in post-secondary and tertiary systems. As a result, the share of 30-34-year-olds with tertiary education is less than 1 %, compared to France (where it is almost 40 %), Germany (more than 30 %), Spain (more than 30 %) and the UK (around 20 %) (OECD, 2013). This likely affects the transition from tertiary education to work, with a bad performance in terms of vertical mismatch[32] compared to the other OECD countries. More specifically, Italy has the highest share of underqualified workers, equal to 22 %. This suggests that the Italian tertiary education system does not provide the relevant skills to match the national labour market. Interestingly, Italian graduates perform better abroad, where they receive better salaries and working conditions, which may suggest that their education prepares them better for foreign labour markets.[33] This, in turn, can be seen as a deadweight loss for the country, given that the average investment for every

[31] Excelsior is one of the major skills forecasting tools of the Italian system, based on the Excelsior survey conducted by the Italian Union of the Chambers of Commerce (*Unioncamere*), on a sample of 100 000 private enterprises operating in Italy.

[32] Vertical mismatch is the situation where a worker level of skills is higher or lower than what required in the job description.

[33] This is in contrast with international averages. Normally, universities are better linked with their national labour markets. This also explains why people moving to study abroad tend to remain in the country in which they study: there is less asymmetrical information between education providers and employers. See: K. Mayr, G. Peri, Brain Drain and Brain Return: Theory and Application to Eastern-Western Europe, 2009, Cream Discussion Paper Series. Moreover, it has to be taken into account that the demand side of the labour market, which is more dynamic in the country of destination.

student with secondary education is EUR 90 000. This figure rises to EUR 158 000 for students with a bachelor's degree, to EUR 170 000 for a student with a master's degree, and to EUR 228 000 for a PhD graduate (IDOS, 2017).

- The inefficient use and performance of matching channels in the Italian labour market. According to the results of the 2012 Excelsior survey, one-third of recruitment occurs via informal channels, regardless of the sector of activity. Particularly so for Italian SMEs, while the situation improves for bigger companies, mainly through recruitment agencies (Montanari, 2015). Firms rarely resort to PES to fill their vacancies, and the trend is declining (2 % in 2012, against 6 % in 2009) (Montanari, 2015). This is likely linked with the very modest Italian expenditures in PES (Jin, 2016).
- Italy is the OECD country with the lowest participation in lifelong learning, which could help workers to remain relevant for the labour market through reskilling and upskilling policies. According to OECD calculations, if Italy could reach a median position among OECD countries, the labour mismatch would reduce by 6 percentage points (from 34 % to 28 %) (McGowan, 2015). [34]

The emigration of a skilled labour force may acerbate skill shortages of ICT and STEM professionals. Emigration of skilled labour contributes to the Italian skills shortage, and future impact seems to be relevant. First, there is evidence that people with higher education who went abroad performed better than those who remained in Italy, for both average university marks and time needed to finish their studies (Almalaurea, 2014). Second, there is overlap between some of the most desirable profiles and emigrants' profiles. The main Italian occupation shortages are: ICT professionals, occupations in Science, Technology, Engineering and Maths (so-called STEM professions), health related professional, teachers, and marketing, design, and creative professionals.[35]

The partial available data suggest that the first two shortages may be worsened by the migration of skilled workers. As for ICT professionals, particularly electro-technical engineers and software and application developers and analysts' vacancies were hard to fill for around 40 of the companies interviewed.[36] According to Cedefop's estimates, the professionals in this occupational groups will also experience one of the highest employment growth rates (2 % per year until 2020, against a national average below 1 %).[37] As for STEM professionals, the estimate for employment growth rates are even higher (3 %). Both professional groups suffer from an insufficient number of graduates as a cause for the skills mismatch. The migration of skilled workers may exacerbate this skill shortage in the following years, given that one fourth of the emigrating Italians comes from engineering faculties (Almalaurea, 2014), and Italy has overall the sixth lowest rate of graduates from technical and scientific faculties.[38]

The low growth of wages may be partially explained by migration of skilled workers. Italian wage growth has been moderate over the past years. This is mainly

[34] This would translate in a 2.2 % gain in labour productivity (McGowan, 2015).
[35] Skills Panorama, Italy: Mismatch priority occupations, 2016. Internet: http://skillspanorama.cedefop.europa.eu/en/analytical_highligths/italy-mismatch-priority-occupations .
[36] Ibid.
[37] Ibid.
[38] Internet: http://noi-italia2015.istat.it/index.php?id=7&user_100ind_pi1%5Bid_pagina%5D=6

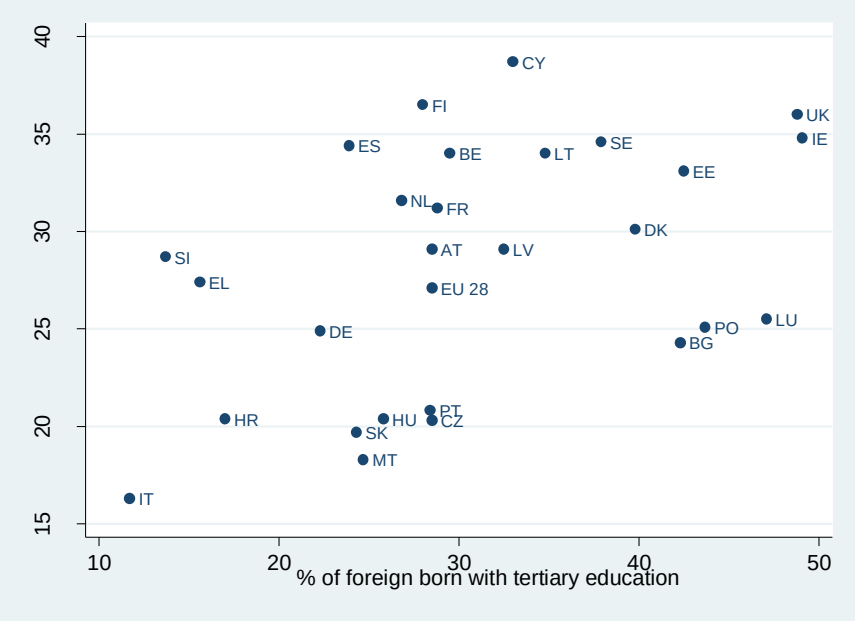
due to two causes: a low inflation environment for the whole Eurozone and a national stagnation in labour productivity growth. The latter 'holds back the adjustment in unit labour costs relative to other euro area countries' (European Commission, 2016b). From this perspective, the emigration of highly educated people from a country with a low share of tertiary graduates may play a role, and that migrants performed on average better for marks and time needed to complete their education paths (Almalaurea, 2014).

This may be linked to the relatively high mismatch between productivity and wage in the labour market, the latter being linked mainly with age rather than productivity (European Commission, 2015c). This labour market inefficiency can create a vicious circle. On the one hand, there is a form of self-selection among graduates: those who perceive themselves as highly skilled may decide to go abroad given that there are better chances of getting jobs with better working conditions and higher salaries (Kwok, 1982). On the other hand, Italian companies, perceiving that the best profiles migrate, may decide to continue offering sub-optimal working conditions for type of contracts and wages.

The emigration of skilled labour (and the immigration of unskilled labour) in Italy is likely contributing to growing inequality. From a theoretical point of view, the emigration of skilled labour increases wage inequality (Boeri, 2013). Intuitively, the reduction of skilled labour implies that there will be more competition among employers to hire skilled workers, driving their wages upwards. Moreover, as skilled workers are over-represented in the emigration flows, low and medium skilled workers will represent a higher share of the labour force. As mentioned above, Italy already has the lowest share of people with tertiary education among European Countries and, while more than compensating the overall number of people leaving the country, the immigration flow towards Italy is also characterised by the lowest share of people with tertiary education (see Figure 2).[39] In this way, competition among lower and medium skilled workers is made worse by both migration flows. The result of this higher competition among low and medium skilled workers will translate into a downward trend in their wages. Because of these two diverging trends, wage inequality should rise. According to World Bank data, the Gini index has grown in Italy since 2007,[40] providing evidence for the theoretical mechanism just described. The skill levels of the Italian migration flows (both inward and outwards) are likely to be one of the variables explaining this phenomenon.

[39] Moreover, among the 15 countries most represented in the immigration flows, only Romania belongs to the EU (Istat, 2015). People from third countries will likely face higher problems in having their certification recognised.
[40] Internet: http://data.worldbank.org/indicator/SI.POV.GINI?locations=IT

Figure 2. Percentage of people with tertiary education (ISCED 5-8, by country of origin).



Immigrants and return migrants do not appear to counterbalance the brain drain generated by emigrants. As noted in section 2, in 2015, the number of arrivals in Italy was equal to 280 000, down from 520 000 in 2007. Among these arrivals, around 11 % were Italians. As seen in Figure 2, the problem for Italy lies in its inability to attract foreigners with high educational attainment. International studies corroborate this evidence, highlighting the struggles of Italy in its capacity to attract foreign talent (Economist Intelligence Unit, 2011). As a result, Italy is not able to offset the losses it experiences in human capital due to brain drain (Aspen, 2012). For what concerns return migration, only 20 % of Italians abroad consider to return to Italy in the future, even for a small amount of time, while 62.7 % consider their presence abroad as stable (Censis, 2016).

5 Actions undertaken by Member States to address the outflows of skilled labour

The Italian effort to promote return migration began in 2001 with modest results. The first brain return programme was launched in 2001[41] and aimed to offer 'European level' salaries to experts and scholars who had worked abroad at least for the previous three years. The Ministry of University and Research itself was in charge of the evaluation process. Thanks to a ministerial decree, the Ministry was offering awardees contracts ranging from 6 to 36 months (renewable). The contracts foresaw teaching and research activities for those receiving the awards. The hosting universities had to provide facilities to the awardees, support them and cover 10 % of the costs of the research programme. Two years later, the programme was reinforced by adding tax cuts as benefits,[42] with the aim of raising the incentives to return for

[41] Ministerial Decree of 26th January 2001, "Incentivi per la chiamata di studiosi stranieri ed italiani residenti all'estero". Internet: http://attiministeriali.miur.it/anno-2001/gennaio/dm-26012001.aspx .

[42] Law n.326 of November 24, 2003, "Conversione in legge, con modificazioni, del decreto-legge 30 settembre 2003, n. 269, recante disposizioni urgenti per favorire lo

foreign researchers. Nevertheless, the effects of the programme proved rather limited. According to a 2010 Report to the Senate, in the first eight years of the programme, fewer than 500 researchers returned to Italy as a result of the programme and only 110 contracts were renewed (see Table 2) (Brandi, 2010). According to estimates, this result is equal to no more than 1 % of the Italian researchers abroad (Aspen, 2012). More recently, a form of tax relief was introduced in 2015 to attract high skilled emigrants back to Italy.[43] The target group had to have been away from Italy for at least five years and would agree to stay in Italy for at least two years (working at least 183 days per year in Italy in a company with legal residence in the Italian territory). They should also either have supervisory/managerial duties or be highly skilled.[44] The reasons behind the moderate success of the programme could be the short-term contracts offered and the lack of opportunity to work in top international research institutes (Monteleone, 2012a) (the first Italian university in the Shanghai ranking - the Academic Ranking of World Universities (ARWU) - is Sapienza University of Rome, ranking 165th worldwide).[45] In general, the inflow of foreigners from other developed countries accounts for a good share of graduates (35 %, higher than the native national average), but they represent only 7.8 % of the overall influx (Istat, 2016).

Some Italian regions launched their own programmes to tackle brain drain. Other initiatives at local level attempted to attract researchers back to Italy. Among them, worth highlighting is the Programme 'Masters and Back' from the Sardinia region,[46] which awarded 3 500 scholarships of around EUR 30 000 (lump-sum) to attract Sardinian researchers back to the region. The programme was supported by the ESF, which also finances similar projects, such as the Brain Back project in the Umbria region,[47] which helped former Umbrian emigrants to create 40 new companies in the region. But the impact of both national and regional projects seems to be marginal. Structural reforms in place of ad-hoc interventions would likely have a bigger impact. The lack of coordination between the different initiatives is also likely to limit their effect (Aspen, 2012).

Table 2. Results achieved by the "Rientro dei cervelli" programme, 2001 – 09

Year	New contracts	Renewals
2001	99	-
2002	125	-
2003	65	2
2004	84	3
2005	72	13

sviluppo e per la correzione dell'andamento dei conti pubblici". Internet:http://www.parlamento.it/parlam/leggi/03326l.htm .

[43] Internet: http://www.dottrinalavoro.it/agevolazioni-c/pubblicato-il-decreto-sul-rientro-dei-cervelli

[44] As defined by the legislative decree number 108 of 28th June 2012 (Internet: http://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:legge:2012;108), and legislative decree number 206 of 9th November 2007 (Internet: http://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:legge:2007;206).

[45] Internet: http://www.shanghairanking.com/ARWU2016.html .

[46] Internet: https://www.regione.sardegna.it/masterandback/ .

[47] Internet: http://www.brainbackumbria.eu/

2006	15	33
2007	-	45
2008	28	7
2009	-	4
Total	488	110
Average	61	18

6 Conclusions

This in-depth analysis investigates the push and pull drivers of emigration of skilled labour. It shows that being unemployed or inactive are the main drivers for emigration, followed by the economic performance of the country of destination, and the level of education of the migrant. Following the outbreak of the economic crisis, the net migration of Italy declined: from a positive balance of almost half a million per year in 2008, it fell to 147 000 in 2015, decreased in 2016 and went up again in 2017. This is due to a rise in the number of emigrants (90 % of which Italians), and a decline in the number of immigrants. Yet, recent research challenged the number of emigrants officially released by the Italian National Institute of Statistics, confronting them with the number of Italians registered in the British and German registration offices. From these estimates, the magnitude of the phenomenon appears to be 2.5 times bigger. If this was the case, the number of people emigrating from Italy would be more than 350 000 per year. As for the characteristics of emigrants from Italy, emigrants tend to come from border regions, tend to be male and in their 30s. Compared to the past, their families seem to enjoy much better economic conditions, normally from middle to upper middle classes. Having prior study experiences abroad tends also to play a role in the decision to emigrate. People emigrating from Italy also tend to have higher qualifications. The emigration process seems to help job search, particularly for highly qualified people. Return migration amounts to 10 % of emigration and plays a much smaller role compared to Italian emigration in the 1950s.

It is difficult to assess the impact of emigration of skilled people on the Italian economy. According to recent research, simply considering the patents registered by Italians abroad would generate EURO 1 billion annually, with a growing trend. The impacts on the welfare state and on the social situation are also difficult to gauge. Short-term, they ease pressure on the unemployment benefit systems and could help people remaining in the country via remittances, which have increased in the past few years (+33 % in the past three years, but accounting for only the 0.5 % of GDP). But long-term, strong emigration may help put at risk the sustainability of the social security system. This is mainly due to demographic factors. Italy is already the European country with the highest share of people above 65 years of age, equal to 21.7 %, and this is expected to grow substantially, reaching 33.4 % in 2060 according to Europop baseline projections. The changing demography may jeopardise the sustainability of the social security system, by worsening the economic dependency rate. If the emigration trend is not reversed or compensated for by immigration (particularly of higher skilled profiles), the system's sustainability will be at risk. This is because, to remain stable, it will have to rely only on productivity gains and on a strong increase of the employment rate.

As for the effects of emigration on the Italian labour market, outflow helps emigrants in finding a job and keeping their skills relevant to the labour market. Migration may also partially explain low growth of wages, creating a vicious circle through self-

selection of workers with high profiles going abroad and companies not willing to pay a premium to those remaining. According to Cedefop's skills forecasts, the skills profiles of emigrants are similar to what will be needed in the labour market in the future. If specific policies are not devised and implemented, the skills shortages of the Italian labour market will get worse, particularly for professions linked with ICT and STEM. From a social point of view, the emigration of skilled labour may acerbate Italian inequalities, whose growth may be already partially explained by continuing migration outflows. The loss of highly skilled people is also not compensated for by migration inflows, since Italy is attracting immigrants with the lowest share of tertiary education qualification across the 28 Member States.

The issue of emigration of skilled labour appears cyclically under the spotlight of Italian debate, but the solutions proposed by policymakers so far produced modest results, and no more than 1 % of the researchers abroad returned to Italy thanks to these policies. This is possibly because they were low-key initiatives. Another relevant problem could also be coordination between different initiatives, which lately flourished also at regional level.

As a whole, the emigration of its skilled labour force is a major challenge for the Italian system, and may become increasingly so if the ongoing trends are not halted by the economic recovery of the past two years. From a scientific perspective, it would be extremely useful to identify with more certainty the magnitude of the phenomenon, given the huge discrepancies between different estimates of emigration (from 150 000 to 367 000 per year). From a policy and political point of view, the issue definitely merits more attention in the cycle of economic and fiscal policy coordination within the EU. Short-term, the emigration of skilled labour has fewer consequences than ensuring effective active labour market policies, or the rationalisation of social spending (European Commission, 2017b). But if not tackled effectively, it could be much more damaging for the country long-term, lowering its ceiling in terms of innovation potential, competitiveness and sustainability of the social security system. If it does not carry the relevance of other macro-challenges to be mentioned in the Country Specific Recommendations, a stronger emphasis can certainly be granted through a more prominent role in future Italian Country Reports.

7 Bibliography

Almalaurea (2014), Condizione occupazionale dei Laureati, XVI Indagine 2013 (Employment Status of Graduates, XVI Survey 2013). Internet: http://www.almalaurea.it/sites/almalaurea.it/files/docs/universita/occupazione/occupazione12/almalaurea_indagine2013.pdf

R. Atoyan, L. Christiansen, A. Dizioli, C. Ebeke, N. Ilahi, A. Ilyina, G. Mehrez, Q. Haonan, F. Raei, A. Rhee, and D. Zakharova (2016), Emigration and Its Economic Impact on Eastern Europe, IMF Discussion Note.

Aspen Institute Italia (2012), Brain Drain, Brain Exchange, and Brain Circulation. The case of Italy viewed from a global perspective. Internet: http://www.lse.ac.uk/businessAndConsultancy/LSEEnterprise/pdf/Brain-Drain-(English).pdf

A.E. Biondo, S. Monteleone, G. Skonieczny, B. Torrisi (2012), The propensity to return: Theory and evidence for the Italian brain drain, Economics Letters, no. 115Internet: https://www.researchgate.net/publication/249313674_THE_PROPENSITY_TO_RETURN_THEORY_AND_EVIDENCE_FOR_THE_ITALIAN_BRAIN_DRAIN .

T. Boeri, J. van Ours (2013), The Economics of Imperfect Labor Markets.

G. Borjas (1989), Economic theory and international migration. International Migration Review.

C. Brandi (2010), "L'emigrazione dei ricercatori italiani", CNR-IRPPS. Internet: http://www.senato.it/documenti/repository/commissioni/cqie/documenti_acquisiti/BrandiSENATO.pdf .

Cedefop, Vocational education and training in Italy - Short description, 2014. Available at: http://www.cedefop.europa.eu/en/publications-and-resources/publications/4132 .

Censis (2016), 50° Rapporto sulla situazione sociale del Paese,. Internet: http://www.censis.it/10?shadow_ricerca=121067 .

Centro Studi e Ricerche IDOS (2017), Dossier Statistico Immigrazione 2016.

D. Ciriaci (2010), University quality, interregional brain drain and spatial inequality. The case of Italy. Internet: https://mpra.ub.uni-muenchen.de/30015/1/MPRA_paper_30015.pdf

X. Chojnicki, A. Edo, L. Ragot (2016), "Intra-European Labor migration in Crisis Times, CEPII. Internet: http://www.cepii.fr/CEPII/en/publications/pb/abstract.asp?NoDoc=9572 .

Docquier, F. and Marfouk, A. (2006) , International Migration by Education Attainment, 1990–2000, in Ç. Özden and M. Schiff (eds.), International Migration, remittances, and the Brain Drain, Washington/New York, The World Bank and Palgrave Macmillan.

Economist Intelligence Unit, The global talent index report: the outlook to 2015, 2011, Heidrick and Struggles.

European Commission (2017a), Employment and Social Developments in Europe, 2017. Internet: http://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8030&furtherPubs=yes .

European Commission (2017b), Recommendation for a Council Recommendation on the 2017 National Reform Programme of Italy and delivering a Council opinion on the 2017 Stability Programme of Italy. Internet: https://ec.europa.eu/info/sites/info/files/2017-european-semester-country-specific-recommendations-commission-recommendations-italy.pdf .

European Commission (2016a), Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – A New Skills Agenda for Europe – Working together to strengthen human capital, employability, and competitiveness. Internet: https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/1-2016-381-EN-F1-1.PDF .

European Commission (2016b), Country Report Italy 2016 - Including an In-Depth Review on the prevention and correction of macroeconomic imbalances, Commission Staff Working Document. Internet: https://ec.europa.eu/info/sites/info/files/cr_italy_2016_en.pdf .

European Commission (2015a), Employment and Social Developments in Europe. Internet: http://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=7859&furtherPubs=yes

European Commission (2015b), "Labour mobility and labour market adjustment in the EU – Labour market and wage developments in Europe", 2015.

European Commission (2015c), Macroeconomic Imbalances. Country Report – Italy 2015, European Economy – Occasion Papers. Internet: http://ec.europa.eu/economy_finance/publications/occasional_paper/2015/pdf/ocp219_en.pdf .

Eurostat (2017), "Baseline projections: demographic balances and indicators". http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=proj_15ndbims&lang=en

Fondazione Migrantes, Rapporto Italiani nel mondo (Italians in the World report), 2016. Internet: http://ced.uab.es/wp-content/uploads/2016/11/Sintesi_Rapporto-Italiani_2016_Reca%C3%B1o-i-altres.pdf .

F. Giudice (2012), Il volo dei calabroni. Come le PMI italiane vincono la legge di gravità (The flight of the hornets. How Italian SMEs win the law of gravity), Franco Angeli editore.

ILO (2010), A Skilled workforce for Strong, Sustainable, and balanced Growth – a G20 Training Strategy. Internet: https://www.oecd.org/g20/summits/toronto/G20-Skills-Strategy.pdf .

Iside Gjergji (2015), La nuova emigrazione Italiana – Cause, mete e figure sociali (New Italian Emigration - Causes, Goals and Social Figures), Edizioni Ca' Foscari. Internet: http://virgo.unive.it/ecf-workflow/upload_pdf/STS_1_DIGITALE.pdf .

Istat (2015), l'inserimento professionale dei dottori di ricerca anno 2014. Internet: https://www.istat.it/it/files/2015/01/Dottori-di-ricerca_DEF.pdf?title=Inserimento+professionale+dei+dottori+di+ricerca+-+21%2Fgen%2F2015+-+Testo+integrale.pdf

Istat (2016), Migrazioni internazionali e interne della popolazione residente. Internet: https://www.istat.it/it/files/2016/12/Report_Migrazioni_Anno_2015.pdf?title=Migrazioni+della+popolazione+residente+-+06%2Fdic%2F2016+-+Testo+integrale+e+nota+metodologica.pdf

Jin, Y., R. Fukahori, H. Morgavi (2016), Labour market transitions in Italy - Job separation, re-employment and policy implications, OECD, 2016. Internet; http://www.oecd-ilibrary.org/docserver/download/5jm0s95j78s1-en.pdf?expires=1481927944&id=id&accname=guest&checksum=CBC012848B900A49B96BA067A9CA04F3

V. Kwok, H. Leland (1982), An Economic Model of the Brain Drain. Internet: http://econpapers.repec.org/article/aeaaecrev/v_3a72_3ay_3a1982_3ai_3a1_3ap_3a91-100.htm .

K. Mayr, G. Peri (2009), Brain Drain and Brain Return: Theory and Application to Eastern-Western Europe, Cream Discussion Paper Series. Internet: http://www.cream-migration.org/publ_uploads/CDP_11_09.pdf .

M. A. McGowan, D. Andrews (2015), Skills Mismatch and Public policies in OECD countries, The future of productivity: main background papers. Internet: https://www.oecd.org/eco/growth/Skill-mismatch-and-public-policy-in-OECD-countries.pdf .

M. Montanari, D. Pinelli, R. Torre (2015), From tertiary education to work in Italy: a difficult transition, ECFIN Country Focus, European Commission. Internet: http://ec.europa.eu/economy_finance/publications/country_focus/2015/pdf/cf_vol12_issue5_en.pdf .

F. Magni (2013), Dottorati di ricerca: I numeri dell'Italia nel confront comparator, bollettino adapt 15 luglio 2013 (Research PhDs: The numbers in Italy in comparison comparator, bulletin adapt July 15, 2013). Internet: http://faredottorato.it/wp-content/uploads/2013/11/Magni_Dottorati-di-ricerca_i-numeri-dellItalia-nel-confronto-comparato_Magni.pdf .

S. Monteleone, B. Torrisi, (2012a) Italian Researchers Abroad: a multivariate analysis of Migration trends. Internet: https://www.rivisteweb.it/doi/10.1427/36441 .

S. Monteleone, B. Torrisi, (2012b) Geographical analysis of the academic brain drain in Italy, Scientometrics, Volume 93, Issue 2, pp 413-430. Internet: https://link.springer.com/article/10.1007/s11192-012-0683-z .

OECD (2013), Education at a Glance 2013. OECD indicators, 2013. Internet: http://www.oecd.org/edu/eag2013%20(eng)--FINAL%2020%20June%202013.pdf .

OECD (2013), OECD Skills Outlook 2013: First Results from the Survey of Adult Skills. Internet: http://skills.oecd.org/skillsoutlook.html .

Peschner, J. and Fotakis, C. (2013), Growth potential of EU human resources and policy implications for future economic growth, European Commission, DG EMPL, Working Paper 3/2013.

Peschner, J. (2012), 'Exploring conditions for EU growth given a shrinking workforce', in OECD, Free Movement of Workers and Labour Market Adjustment, Recent Experiences from OECD countries and the European Union, 2012.

M. Sauro, and C. Porello (2010), La mobilità del lavoro in Italia: nuove evidenze sulle dinamiche migratorie (Work-driven mobility in Italy: new evidence on migratory flows). Internet: http://www.astrid-online.it/static/upload/protected/ncad/ncad-Italia_La-mobilit--del-lavoro-in-Italia_QEF_61_genn2010.pdf .

Skills Panorama, Italy: Mismatch priority occupations, (2016). Internet: http://skillspanorama.cedefop.europa.eu/en/analytical_highligths/italy-mismatch-priority-occupations .

The G20 leaders statement: The Pittsburgh Summit, 2009. Internet: http://www.g20.utoronto.ca/2009/2009communique0925.html .

P. Zurla (2014), L'emigrazione dei giovani italiani alla ricerca del lavoro: "mobilità" o fuga dei cervelli? (Emigration of young Italians looking for work: "mobility" or brain drain?).

ANNEX

Figure 3. Number of people deregistering from municipality register to move abroad, per region, years 1995-2005-2015 (Source: Istat).

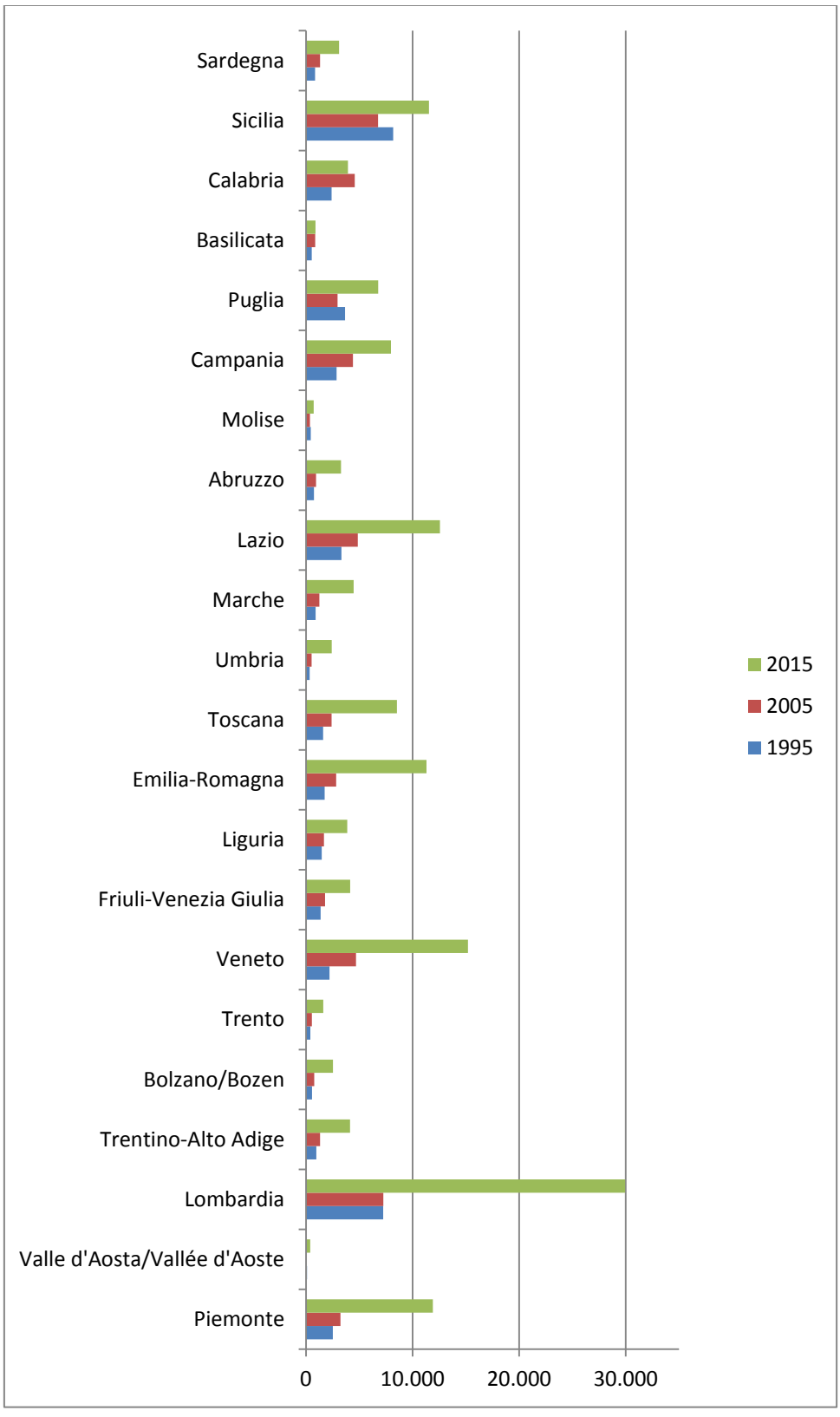
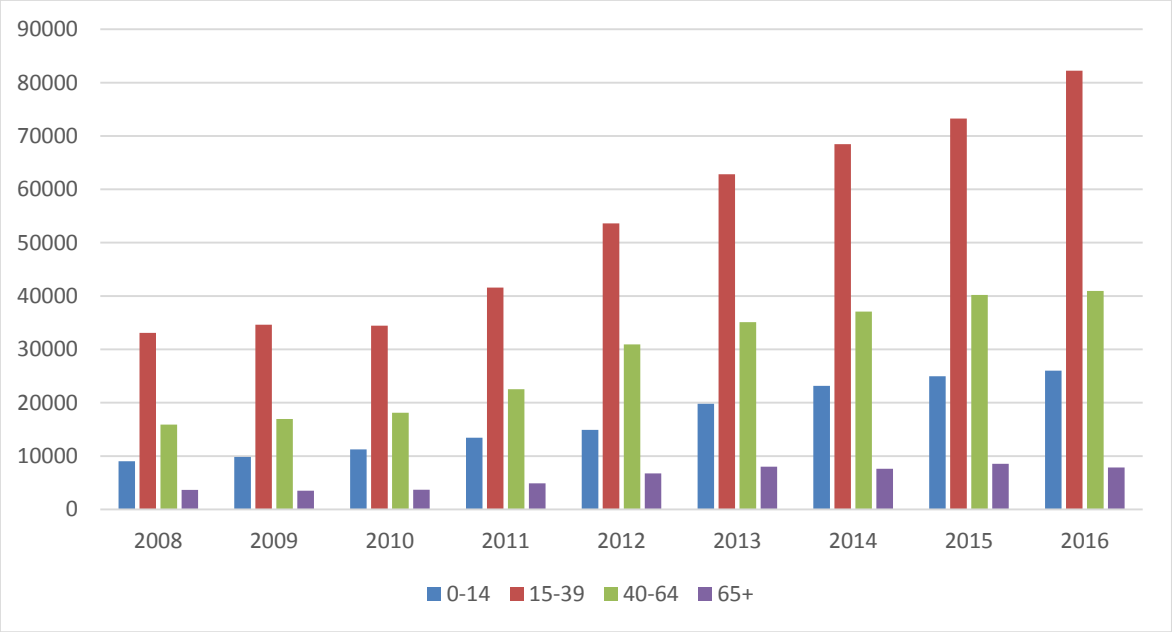


Figure 4. Gender profiles of emigrants from Italy, 2008-16 (Source: Istat).

Figure 5. Italian migrants by age group, 2008-16 (Source: Istat)

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