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# 15 The economic analysis of migration flows in response to migration policies

***Jacopo Bassetto***

*ABSTRACT*

This chapter reviews pioneering and recent literature on the economics of migration with a particular focus on high-skilled migration. High-skilled migration is a growing phenomenon that has recently attracted large attention both in the media and in academia. Many countries face constant challenges to attract and retain high-skilled migrants, both to increase their human capital and to mitigate the negative effects of brain drain. In this chapter I first review the current trends in high-skilled migration, highlighting its main characteristics such as the rapid increase in the last decades, the main geographical directions, and its circularity. Second, I review studies that investigate both the determinants and the consequences of high-skilled migration, considering both the individual and the country perspective. Third, I review studies that evaluate different types of policies aimed at attracting and retaining migrants and. I focus on policies that aim at integrating migrants in the host labor market, such as the recognition of credential and naturalization policies. Finally, I discuss policy implications of these studies for the further implementation and improvement of migration policies.

## INTRODUCTION

With the advent of globalization and the interconnection between countries and labor markets, migration flows have evolved in their density, roots and characteristics. According to the most recent Eurostat data, in 2020 around 3.3% of EU citizens live and work in an EU country different from their country of origin (European Commission, 2021). 2.7 million individuals entered the EU from non-EU countries, adding up to the more than 20 million individuals who live in Europe but have a non-EU citizenship (European Commission, 2021) Since 2015 Europe has also been the destination of a large number of refugees from Middle-Eastern countries, fleeing from conflicts and natural disasters. From these broad statistics, it appears immediately clear that migrations are a key phenomenon in European countries, and a crucial topic in their policy agenda.

Migration phenomena are far from being static, and in the last decades they changed both in magnitude and type. From the years of mass migration, through the labor migration of the post-war years until the recent mobility, migration flows have strongly changed. If at the beginning of the previous century entire families of Europeans were moving to distant destination seeking fortune and chasing the American dream (Abramitzky et al., 2012), in the 60s and 70s it

was mainly men, low-educated workers, from Southern European countries going for predefined periods as "guestworkers" in the growing continental economies (Martin & Miller, 1980). The 80s and 90s were characterized by family reunifications and refugee flows from the ex-Jugoslavia and – more rarely – from the dismantled Soviet Bloc (Barsbai et al., 2017; Dustmann et al., 2017).

Today migratory phenomena are again rapidly changing. For example, in recent years migrants are younger and more highly educated. High-skilled migrants represent the largest group of emigrants in many countries: they are indeed more prone to emigrate than their lower educated counterparts. In this regard, Figure 5 displays the percentage of high-skilled distinguishing between natives and emigrants. The x-axis reports the share of high-skilled natives relative to all natives (i.e., individuals living in their own country of origin). The y-axis reports the share of high-skilled emigrants among all emigrants from each country of origin (i.e., individuals from one origin country living abroad)[12]. Most of the countries place themselves above the 45° line, suggesting that, among the high-skilled, the group of emigrants is larger than the one of natives (stayers).

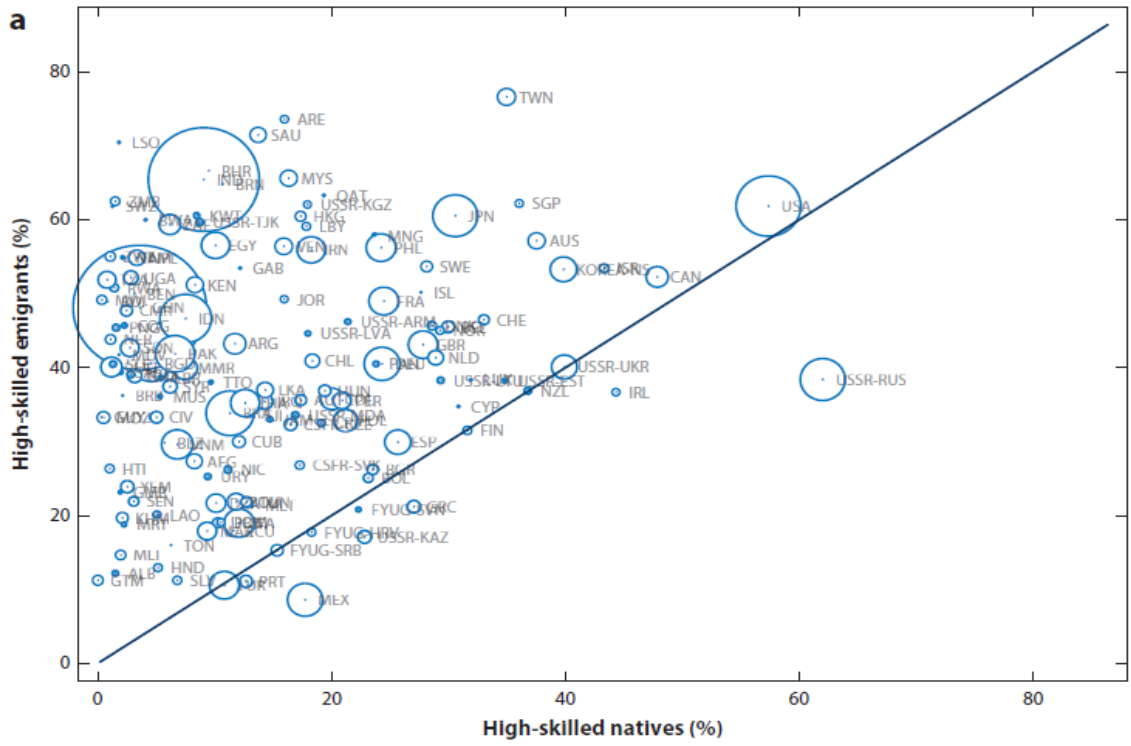


***Figure 5:*** *Percentage of high-skilled emigrants and natives by country. Source: Kerr et al. (2017).*

[12] Circles highlight the size of the population in each origin country, where larger circles indicate larger populations.

From 1990 to 2010, the migration of high-skilled migrants increased by 130% and reached 28 million mobile individuals worldwide. At the same time, also between developed countries the movements of high-skill human capital have grown and evolved. In Europe, for example, about 2.3% of highly educated active EU-28/EFTA citizens have been living in an EU or EFTA country other than their country of origin for up to ten years (European Commission, 2014). Figure 6 shows the distribution of educational levels in the pool of recent (2013 data) movers within Europe, for different origin countries.

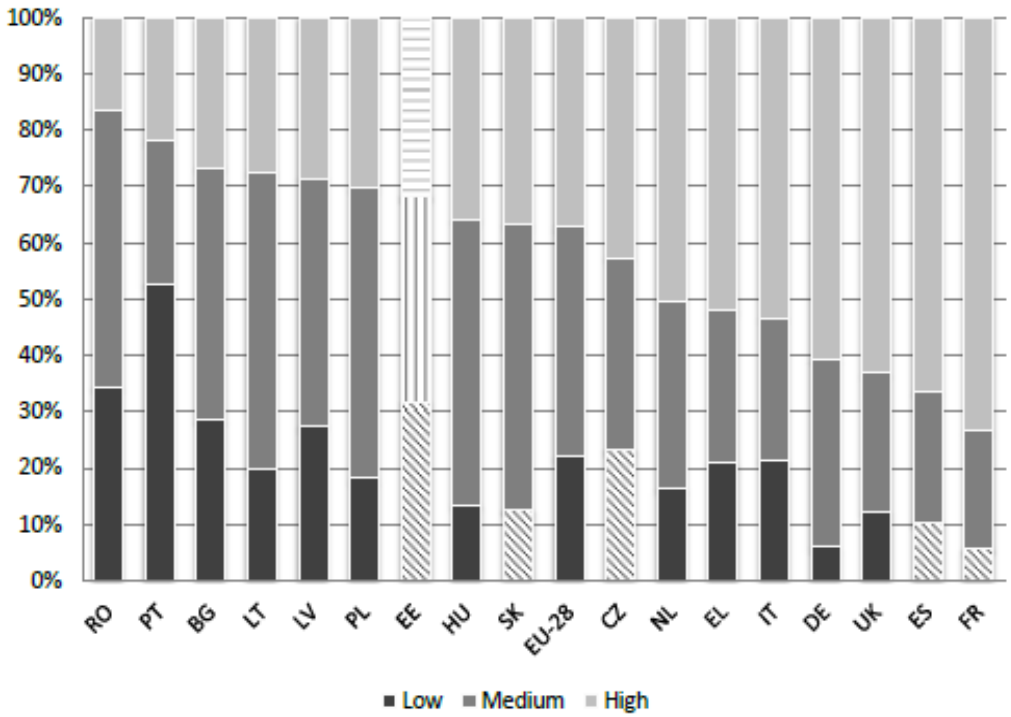


***Figure 6:*** *Distribution of active recent EU-28/EFTA movers across different levels of education, by citizenship. Source: EU-LFS (European Commission report on intra-Europe Mobility, 2013).*

This trend has been favoured by the expansion of higher education, together with its internationalization (e.g., Erasmus program and similar), the sinking of transportation costs, the possibility to access freely labour markets, and the need for specialized labour in many destination countries (e.g., health care specialists and engineers). Migration flows are also more temporary and circular. Individuals do not only move multiple times between destination and home countries, but also move across destination countries. Finally, in recent years many countries have experienced an increase in the arrival of refugees and asylum seekers. Conflicts in Africa and Middle East, as well as numerous natural disasters and climate shocks have brought many people to leave their countries and seek shelter in European countries.

All these changes have raised a number of challenges for origin and destination countries, from the distribution of refugees during the 2015 Refugee Crisis, to the selection and integration of immigrants in the labour market, to the effects that migratory phenomena have on natives' attitudes, labour market prospects and political behaviours, to contrasting brain drain phenomena. Migration is a fundamental aspect of societies as it not only affects the life and career of mobile subjects, but it also has broader implications for the singular country internal dynamics (sending or receiving) and for international equilibria. These implications, moreover, are surely economic, but also social and political, as the growth in populist and xenophobic ideas and movements has demonstrated. It is therefore necessary to adopt multiple lenses and multifaceted points of view in order to investigate the numerous aspects of migration and their evolution over time.

For this reason, together with migrations themselves, also the study of migrations has become increasingly diffuse, and many disciplines are contributing to study different aspects of migration. In recent years researchers from demography, to whom the topic of migration traditionally belongs, but also from economics, sociology and other social sciences have been publishing a prolific number of works. Sub-disciplines such as economics of migration (Borjas et al., 2019) and sociology of migration have expanded both the number of approaches, techniques, and the scope of the topics investigated. In this chapter we take a close look to the study of high-skilled migration from an economics perspective. First, I summarize common data sources for the study of high-skilled migration. Second, I review studies on the macro-perspective focusing on recent migration trends, on the race to attract high-skilled human capital, and on the determinants and effects of high-skilled migration from the perspective of sending and receiving countries.

## DATA AND METHODS FOR THE ECONOMETRIC ANALYSIS OF MIGRATION FLOWS AND MIGRATION POLICIES

### Data

Before turning to reviewing the recent economic literature on cross-country migration, in this section we describe data and methods used for the study of cross-country migration. With respect to the data, we distinguish between data on migration flows and on migration policies. Table 20 reports information on databases for the study of migration flows at the country-level. These data are recorded from different sources (mainly administrative sources on registration and deregistration of citizens as well as passenger surveys) in each country and harmonized. They cover a large number of origin and destination countries and span

wide time windows. The richness of the data allows to construct precise migration flows across both for one country and between countries. Let's take the example of Germany in 2010 and the DIOC-E datasets. With small data elaborations, one can obtain the following pieces of information: i) the total number of incoming individuals from all other countries present in the dataset; ii) the total number of outgoing individuals to all other countries present in the dataset; iii) the number of incoming individuals from each single country; iv) the number of outgoing individuals to each single country. The information contained in the datasets also allows to disaggregate these flows by migrants' characteristics, such as age groups, gender, or educational level.

It is important to also mention a few limitations. First, while the time coverage is wide, the frequency of the data is low, so that the time between flow data varies from one year to ten years. Not all datasets have information on the educational level of mobile individuals and where this variable is present it might not be accurate. While the study of high-skilled migration is possible, one should be careful in acknowledging this limitation. Third, the datasets here reported do not have information on the stock of migrants in each country. While this does not represent an issue for the study of migration flows, it might be necessary to enrich the datasets with data on the stocks of migrants, for example to compute measures of flows relative to the migrant population in the destination and/or origin countries.

The second type of data is data on migration policies. Compared to migration data which are often collected by either destination or origin countries, data on migration policies must be retrieved from administrative documents and communications. For this reason, these data are rarer and part of single research projects. Two recent examples are the dataset on migration policies and bilateral agreements collected and used by Czaika and Parssons (2018), and the dataset on employment bans for refugees in Fasani, Frattini and Minale (2021). An exception is the DEMIG dataset on migration and visa policies which covers a large number of policy changes for many countries and across several years. This data source is described in Table 2. Empirical research operationalizes migration policies in two ways. The first approach constructs policy indices that measure the restrictiveness of immigration systems (Boeri et al., 2012; Mayda, 2010; Ortega & Peri, 2014). In this case, a value of 0 is assigned to the index for a particular country in period 0. This value is increased or decreased by 1 should a policy in a particular year be deemed to be more or less restrictive. This approach can be used to assess how within variation in the intensity of migration policies affects migration to a specific country. For this reason, this kind of variables focus on the intensive margin. The second approach uses a binary variable that equals 1 if a particular policy is in place in one given year or

0 if the policy is absent. This second approach, which focuses on the extensive margin, is useful to exploit both within- country and across-countries variation.

| | |
|---|---|
| **Dataset** | DEMIG |
| **Description of Data** | DEMIG C2C (country-to-country) database contains bilateral migration flow data for 34 reporting countries and from up to 236 countries over the 1946–2011 period.<br>It includes data for inflows, outflows and net flows, respectively for citizens, foreigners and/or citizens and foreigners combined, depending on the reporting countries.<br>The DEMIG C2C database was compiled through extensive data collection and digitalisation of historical national statistics as well as current electronic sources.<br>It provides a unique opportunity to construct migration flows from many origin countries to the 34 reporting countries, as well as return flows |
| | DEMIG TOTAL reports immigration, emigration and net migration flows for up to 161 countries covering various periods of time from the early 1800s to 2011, disaggregating total flows of citizens and foreigners whenever possible. The database allows for quantitative analysis of the long-term evolution of international migration. |
| **Download of data** | https://www.migrationinstitute.org/data/demig-data |
| **Main webpage** | https://www.migrationinstitute.org/data/demig-data |
| | |
| **Dataset** | OECD Migration Statistics (DIOC/DIOC-E) |
| **Description of Data** | |
| | Bilateral flows, disaggregated by age class and gender, educational level |
| **Additional Information** | The datasets contain also additional information, such as acquisition of citizenship. |
| **Time coverage** | DIOC is available for 2000/2001, 2005/2006, 2010/2011, 2015/2016 |
| | DIOC-E is available for 2000/2001, 2010/2011 |
| **Spatial coverage** | DIOC: 34 destination countries and more than 200 countries of origin.<br>DIOC-E: 100 destination countries and more than 200 countries of origin. |
| **Download of data** | https://www.oecd.org/els/mig/dioc.htm |
| **Main webpage** | https://www.oecd.org/els/mig/dioc.htm |

| | |
|---|---|
| **Dataset** | EUROSTAT Migration Statistics |
| **Description of Data** | |
| **Additional information** | The datasets are constructed based on reports for each country. Eurostat harmonizes the sources. Particular attention should be paid to country-specific limitations. |
| **Time coverage** | 2007-2018 |
| **Spatial coverage** | All EU countries |
| **Download of data** | https://ec.europa.eu/eurostat/statistics-explained/index.php/Migration_and_migrant_population_statistics |
| **Main webpage** | https://ec.europa.eu/eurostat/statistics-explained/index.php/Migration_and_migrant_population_statistics |
| | |
| **Dataset** | IAB Brain Drain dataset |
| **Description** | IAB brain-drain dataset: Contains data on the total number of foreign-born individuals aged 25 years and older, living in each of the 20 considered OECD destination countries, by year, gender, country of origin and educational level. Educational levels are distinguished in low, medium and high skilled. |
| | Migration by gender: Total number of foreign-born individual (all age groups as a whole), living in each of the 20 considered OECD destination countries, by gender and country of origin. |
| | Emigration rates: Proportion of migrants over the pre-migration population (defined as the sum of residents and migrants in each source country), by gender, skill level and year. Age group: 25 years and older. |
| **Time coverage** | 1980-2010, with 5 years intervals |
| **Spatial coverage** | Australia, Austria, Canada, Chile, Denmark, Finland, France, Germany, Greece, Ireland, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and United States |
| **Additional Information** | The data come from population censuses from all countries included. Data for years between two censuses are interpolated (see guide for specific information) |
| **Download of data** | https://www.iab.de/en/daten/iab-brain-drain-data.aspx |
| **Main webpage** | https://www.iab.de/en/daten/iab-brain-drain-data.aspx |

| | |
|---|---|
| **Dataset** | Data for Integration (D4I) |
| **Description** | The Data for Integration (D4I) dataset has been obtained through a spatial disaggregation of statistics of the 2011 Census, collected from national statistical institutes. The results of the spatial processing of the original data is a uniform grid showing the concentration of migrants in cells of 100 by 100 m in all cities of eight European countries (France, Germany, Ireland, Italy, Netherlands, Portugal, Spain, the United Kingdom). |
| **Time coverage** | 2011 |
| **Spatial coverage** | France, Germany, Ireland, Italy, Netherlands, Portugal, Spain, the United Kingdom |
| **Additional information** | The data are disaggregated in country of origin, macrogroups of countries of origin, EU vs third country |
| **Download of data** | https://ec.europa.eu/knowledge4policy/migration-demography/data-integration-d4i_en |
| **Main webpage** | https://ec.europa.eu/knowledge4policy/migration-demography/data-integration-d4i_en |
| | |
| **Dataset** | DEMIG POLICY |
| **Description** | The dataset tracks more than 6,500 migration policy changes. The policy measures are coded according to the policy area and migrant group targeted, as well as the change in restrictiveness they introduce in the existing legal system. |
| **Time coverage** | 1945-2013 |
| **Spatial coverage** | 45 countries around the world |
| | |
| **Dataset** | DEMIG VISA |
| **Description** | The database tracks annual bilateral travel visa requirements. It contains over 4 million data points. The information tracked includes a) country of visa issuance, b) nationality of the traveller, c) year for the visa requirements, d) policy measure (visa entry and/or exit permit). |
| **Time coverage** | 1973-2013 |
| **Spatial coverage** | 237 nationalities, 214 countries |

**Table 20:** *Datasets on migration flows*

## Methods

The literature on the effects of migration policies is broad and so are the empirical approaches in the econometric analysis of these policies. We consider here only two cases.

The first is a one country one policy scenario. We take the example of Bassetto and Ippedico (2021), who evaluate the effect of introducing tax deductions for high-skilled individuals who come back to Italy after a period abroad. In particular, in 2010 Italy responded to the brain drain phenomenon introducing a set of tax deductions for high-skilled migrants residing abroad. The scheme only applied to a subset of Italians abroad, i.e. Italians that had at least a university degree, born after 1969 and who had resided abroad for at least two years. If we are interested in investigating the effect of tax deductions on the inflow of migrants eligible for the tax incentives, we can estimate the following Difference-in-Difference (DiD) model[13]:

$$logN_{c,e,t} = \lambda_t + \gamma Treated_{c,e} + \eta Treated_{c,e} * Post_t + \epsilon_{c,e}$$

where Nc,e,t is the number of returnees in birth cohort c, with education level e relocating to Italy in year t, Treatedc,e =1(c≥1969)∗1(e=college), i.e. indicating the groups eligible for the tax incentives, and Postt=1(t≥2011), i.e. indicating the years when tax incentives were in place. Under the parallel trend assumption, namely, that absent tax incentives the eligible and non-eligible groups would have had similar trends in the likelihood of returning, η identifies the reduced-form, intention-to-treat (ITT) effect of eligibility for tax incentives on return migration.

This empirical approach – which has been extended to many other setups – exploits the differences in eligibility criteria to identify a group of treated and a group of control, to analyse the effect of the policy on the eligible (treated) group.

While effective in casually estimating the effects of a single policy, the previous approach might fail in considering that different countries enact policies at different times and all these policies might work to increase or reduce the flows towards or from one specific country. The second case we consider is therefore a scenario with many countries and many policies. The empirical research in migration economics has been adapting gravity models from the trade economics literature, substituting the inflow/outflow of goods with the inflow/outflow of individuals. These models allow to estimate the effects of policies taking into account dyadic characteristics of countries, such as language proximity. Combining data on migration policies, bilateral migration flows and other dyadic characteristics, it is possible to estimate the effects of migration policies on both the quantity

[13] See Bertrand et al. (2004) and Angrist and Pischke (2009) for a thorough discussion of the Difference-in-Difference methodology

(scale model) and quality (selection model) of migrant inflows. In their paper on migration policies and migration flows, Czaika and Parssons (2017) estimate the two following equations, respectively, for the quantity (log number of high-skilled migrants) and the quality (share of high-skilled migrants):

$$\ln n_{odt}^{HIGH} = \beta_1(\ln W_{dt}^{HIGH}) + \beta_2(\ln A_{dt}) - \beta_3(\ln E_{dt})\beta_4(P_{dt}) - \beta_5(X_{od})\beta_6(\ln M_{odt}) - \beta_7(P_{odt}) + \delta_{ot} + \varepsilon_{odt}^{HIGH}$$

$$\ln\left(\frac{n_{odt}^{HIGH}}{\Sigma_z n_{odt}^{z}}\right) = \beta_1(\ln W_{dt}^{HIGH} - \ln W_{dt}^{AVERAGE}) + \beta_2(\ln A_{dt}) - \beta_3(\ln E_{dt}) - \beta_4(P_{dt}) - \beta_5(X_{od}) - \beta_6(\ln M_{odt}) - \beta_7(P_{odt}) + \delta_{ot} + \varepsilon_{odt}^{HIGH}$$

where z refers to skilled migrants (z = high (H), low (L)). The subscripts o, d, and t refer to origins, destinations, and time, respectively. W signifies wages, and A refers to countries' amenities. Migration costs are broadly conceived as comprising time-varying economic factors at destination Edt, which include the prevailing unemployment rate and the total population; time-varying destination-specific migration policies Pdt; time-invariant bilateral factors Xod that include geographical factors, physical distance between origins and destinations, and whether country pairs share a common border, as well as cultural factors, common languages, or a colonial heritage; and time-varying migrant networks Modt. Time-varying bilateral and multilateral policies are represented by Podt. ∂ is the error term, and origin-time fixed effects, δot.

## STATE-OF-THE-ART RESEARCH ON MIGRATION FLOWS AND POLICIES

### Origin, destination, and migration flows

In recent years the number of high-skilled individuals (both students and graduates) moving from one country to another has been increasing, both in absolute terms and relative to the lower educated groups. Nonetheless individuals do not move randomly around the globe, they rather follow quite clear pathways. Among the emerging patterns there is a concentration of movements from a broader range of countries (both developing and developed) to a narrower set, especially the USA, Canada, Australia, while at the European level there is a strong agglomeration of high-skilled migrants in the UK (European Commission, 2016). In general, OECD countries host two-thirds of the worldwide pool of high-skilled migrants (OECD, 2013). Moreover, based on the occupation, sector or industry they work in, high-skilled migrant workers tend to cluster in single areas of a country. An example is the large group of Asian scientists and high-tech experts who moved to the Silicon Valley, a phenomenon which provides first-hand

evidence on the fact that concentration phenomena are even stronger in the upper tail of the talent distribution (Borjas & Doran, 2012). Concentrated migration patterns are also typical of the migration of university students (also defined as raw talent migration) who decide to spend an entire cycle of studies in a foreign country. Also, in the contest of student mobility agglomeration is even clearer for the top performers who, for example, move often to the American Ivy Leagues or England's best colleges. Besides economic reasons, there is also other reasons that make OECD countries preferred destination countries, such as more generous welfare systems, or more democratic and welcoming societies, and more stable governments. Given the magnitude of inflows and outflows, countries can be then classified as either net importer, net exporter or as displaying a balance between incoming and outgoing high-skilled migrants. For example, the UK and Germany for Europe, and Australia, Canada and the USA on the global stage are net importer. European net exporters are, among others, Lithuania, Romania (European Commission, 2016).

Besides this agglomeration phenomenon, other recent trends have been detected. Above all, the notable increase in the migration of high-skilled women (Kerr et al., 2017), who between 1990 to 2010 increased by 152%, from 5.7 to 14.4 million, and the rise in shorter-term and circular migrations (Kerr et al., 2016). Additionally, as stated earlier, since the number of high-skilled migrants increased relatively more than the number of lower-skilled migrants, not only the direction and magnitude of the migrants' group have changed, but also its composition: the share of high-skilled has increased relative to that of lower-skilled migrants (Arslan et al., 2014; Docquier & Rapoport, 2009).

**Macro-determinants of migration**

Given the patterns and the composition of high-skilled migration, research has focused on understanding the reasons behind such peculiarities. In this section I review the country level determinants. It is important to state here that I focus on the determinants of voluntary migration, therefore not considering the causes of forced migration (such as climate shocks, conflicts, ethnic persecutions). These may be distinguished between dyadic and single-country characteristics (Czaika & Parsons, 2017). The former ones are features which countries have in common or through which they are interconnected. Among these, language, presence of colonial heritage and geographical proximity tend to be two important factors both in workers' mobility and students' mobility (Aparicio-Fenoll & Kuhn, 2016, 2017, 2018; Chiswick & Miller, 2015), although the high-skilled still cover longer distances compared to lower-skilled migrants (Arslan et al., 2014). Sharing the language or the borders allows immigrants to experience lower migration and integration costs. Tight trade relationships also increase the

flow of high-skilled, especially across developed countries. Both high-skilled staff and senior managers are indeed frequently transferred with firms' headquarters across countries throughout their careers (Kerr et al., 2017). Other dyadic characteristics that have been proven relevant in explaining migration flows are the network size of immigrants from the origin country, the presence of colonial heritage (Czaika & Parsons, 2017). A particularly relevant immigration-driver is the *relative* wage differentials (Rosenzweig, 2010), which may be also seen as a dyadic characteristic. For the mobility of university students, the relative costs and performance of the educational system also represent a key factor entering the migration decision (Beine et al., 2014; Grogger & Hanson, 2011, 2015). On the other hand, single-country characteristics consist, among others, of the level of unemployment, the high-skilled wage level and the size of the population at destination.

A different kind of determinant is the presence of the bilateral agreements and unilateral policies. Among unilateral policies, immigration policies are introduced and modified with the aim of attracting high-skilled workers[14]. These policies can be divided in supply-driven (ex. point-based systems), where no prospective employment contract is required during the visa application procedure, and demand-driven, for which an employment contract is requested in order to enter the host country. Recent research results point to the fact that *only* supply-driven immigration policies can meaningfully attract high-skilled workers (Boeri et al., 2012; Czaika & Parsons, 2017), and this contributes to explain why Canada and Australia are net importer of high-skilled human capital. Other policies influence migration flows: bilateral agreements on mobility, on the recognition of degrees (this is important to favour students' mobility on one side, and integration of high-skilled workers on the other side as shown in Anger et al. (2022), on the transfers of social security arrangements. These all work in the direction of reducing the indirect costs of mobility. Finally, with regards to high-skilled female mobility differences in women's rights between sending and receiving countries have been found relevant (Blau et al., 2011; Neyad & Young, 2014).

**Consequences of migration: A country level perspective**

Although it is empirically difficult to isolate the single effect of each determinant on the flow of high-skilled migrants, the literature generally agrees on which the main determinants are and on the direction of their effect. Less clear are the consequences of high-skilled migration for both the sending and the re-

[14] With the exception of mobility within Europe, which is subject to the freedom of movement of people across European countries' borders.

ceiving countries, and for the international equilibria. For many years researchers, who due to due lack of crucial data had to rely heavily on theoretical considerations only, affirmed that high-skilled migration would have induced a brain drain in sending countries (Becker et al., 2004 for the case of Italy; Docquier & Rapoport, 2009), while host countries would have experienced a temporary or permanent brain gain. Although this might still be largely true and confirmed by empirical evidence, especially for a restricted set of countries (Docquier & Rapoport, 2012), the picture is much more complex and the effects of skilled migration much more heterogeneous. In general, skilled immigration should contribute to the economic growth of recipient countries insofar as it increases the share of skilled workers in the population (Boeri et al., 2012). In particular, a crucial factor is the integration of skilled migrants into their labour markets and their relatively rapid assimilation (Friedberg, 2000). This generates positive spill over effects via skill acquisition and learning by doing also of native workers as well as competitive pressures on the latter to acquire more skills (Boeri et al., 2001). On the other hand, the positive self-selection of high-skilled migrants should deprive the origin country – often already relatively more disadvantaged – of complementary skills, business leaders, role models, professionals essential for the human capital sector (ex. teachers, physicians), providers of public services and so forth (Doquier & Rapoport, 2012; Kerr et al., 2017). Nonetheless, beyond the canonical view of brain gain and brain drain, researchers have been increasingly focusing on the positive effects of high-skilled migration for sending countries, and on the negative ones for receiving countries. On the one hand, high-skilled migration might indeed represent a source of brain gain also for source countries: if skills acquired abroad are more valuable in the home country rather than in the host country and migrants have therefore incentives to remigrate (Dustmann et al., 2011); if feedbacks effects in terms of technology diffusion, remittances (transfer channel), induced trade and foreign investments are present (Boeri et al., 2012; Gibson & McKenzie, 2012; Mayr & Peri, 2009); if foreign-trained individuals promote democracy – an institutional channel - in the home country (Spilimbergo, 2009). On the other hand, in receiving countries the overall brain gain effect might hide a high degree of heterogeneity across sectors and regions due to agglomeration patterns of the high-skilled. Moreover, differences in the quality of educational systems could lead to the immigration of individuals who are relatively high-skilled with respect to the skill distribution at origin, but average or low-performing in the host country.

Finally, it should be noticed that recent trends in migration patterns further increase the complexity of welfare calculations for sending and receiving countries. Brain circulation, characterized by the short-term and transit migrations typical of today's high-skilled workers, and chain migration involving at least a

third receiving country, could indeed mitigate or strengthen the brain gain and brain drain effects.

Besides consequences for single countries a crucial, but largely understudied aspect is the effect that high-skilled migration has on the international equilibria, especially with regards to the distribution and re-distribution of costs and benefits. An example: assuming there is no brain circulation and that individuals migrate after completing their university studies at origin, receiving countries tend to free-ride on sending countries' educational systems (Demange et al., 2014), with the risk of triggering a reduction of investments in education in source countries. At the same time, receiving countries accumulate foreign-trained human capital, but they also bear the welfare costs raising the need for coordination in the social security systems[15]. In this respect, policies of redistribution of costs and benefits, such as the European Social Cohesion policy framework, might be further developed in order to split the burdens of high-skilled migration more equally. Finally, considering a more political perspective, the effect that high-skilled migration has on the overall perception of immigrants and on the political legitimation of the EU should not be neglected.

## POLICY DISCUSSION AND CONCLUSION

While some governments worry about restricting immigration, integrating incoming immigrants in their labour markets and societies, predicting the effects that migrant inflows might have on natives' employment and political attitudes, other governments worry about containing emigration, recalling emigrants, predicting the effects that migrant outflows might have on the economy and society.

No matter which perspective is taken, whether migrants themselves are considered, or natives at destination, or stayers at origin, migratory phenomena entail challenges and opportunities for both destination and origin countries. For this reason, it is fundamental to deeply understand the determinants of migration, the effects that migration has on migrants themselves, on natives and stayers, and more in general on countries. At the same time, it is crucial to seek evidence of how governments and supranational organizations may intervene to better integrate immigrants in their labour market and societies, to re-attract emigrants or benefit from the network of nationals abroad, to attract new immigrants and welcome successfully refugees and climate migrants.

In the last decades studies on migration in the social sciences have grown exponentially. Many of these are the starting point of my dissertation. In this chapter I revise the theoretical and empirical literature on migration economics, focusing on three aspects that form the basis for my empirical analysis. First,

[15] http://ec.europa.eu/social/main.jsp?langId=en&catId=84.

I focus on the determinants of migration, on the understanding of which are the personal motives, which are the conditions for individuals to decide in favour or against migration, which are the contextual drivers that push or pull them into migrating. Second, I review studies on the consequences of migration for the migrants, answering what happens to their labour market outcomes, their integration into host societies, and which factors improve or hinder their integration. I also review which are the consequences of migration more broadly, for countries, which is eventually the drivers to implement policies that attract and integrate immigrants, but that also might ban and discriminate them. Understanding the effects of migration and integration policies becomes a fundamental priority for countries and governments, not only in destination but also in origin countries. For this reason, this chapter also revises the available data and the methodologies that may allow to evaluate these policies.

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