

Alessandra Casarico and Silke Uebelmesser

## Migration Policies and the Highly Skilled



Alessandra Casarico  
Bocconi University, Don-  
dena; LDA and CESifo.



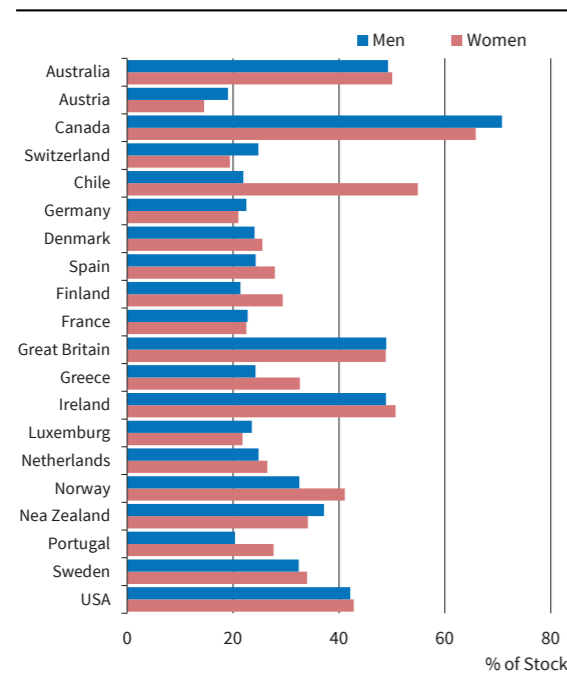
Silke Uebelmesser  
University of Jena; LDA, and  
CESifo.

Demographic and technological changes have boosted demand for a highly skilled workforce. The skill shortage, which is a topic of high relevance in many European countries, has led to a widespread debate on appropriate policy responses. These policies include measures to increase female labour force participation, improve the qualification of the present and future workforce and change the way in which labour is organised. As a further option, countries refer to migration policy as a means of attracting highly skilled workers and responding to the need to increase the skill pool.

As Figure 1 illustrates, countries manage to affect the composition of their migrant stocks to differing extents. For example, of all migrants who lived in Canada in 2010, over 70% of males and 65% of females were highly skilled. The respective shares for Australia, Ireland and the United Kingdom were close to 50%. By contrast, only around 20% of the migrants in Austria, Germany and France, respectively, belonged to that skill group.

Figure 1

Share of Highly-Educated Migrants, 2010



Note: Highly-educated refers to those with an education level higher than a high-school leaving certificate.

Source: IAB brain-drain dataset, see Brücker, Capuano and Marfouk (2013).

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The observed differences across countries raise two key questions: firstly, how can migration policies be designed such that those with qualifications most in demand are attracted? And secondly, what can be said about the implementation costs of these policies? In the following, we provide an assessment of different migration policies in the light of these two aspects, while paying attention to their possible effects on migrants' incentives to invest in their human capital.<sup>1</sup>

### OPEN BORDERS

As a benchmark, the first concept to be discussed is the absence of any migration restrictions, i.e. a policy of open borders. Who would come to – let's say – the European Union (EU) if immigration from non-EU countries were not regulated at all? To answer this question, the following considerations are useful: If migration is motivated by differences in gross wages between the origin country and the destination country, and if those differences reflect productivity differences, migration is undistorted and beneficial. Migrants move to countries where they produce the largest value and this leads, in turn, to the largest economic product for all countries involved.

Gross wage differences, however, are not what enters the migration decision. Migrants compare their net income, thus also considering taxes and transfers. If and for whom a country is attractive then depends on how the income distribution (after taxes and transfers) in the origin country differs from that in the destination country (Borjas 1987). If, for example, the average income in both countries is the same, but the income is distributed more unequally in the origin country compared to the destination country, then migration is worthwhile for low-skilled groups in the origin country. They benefit most from the tax and transfer system in the destination country – and if differences in income more than compensate for the monetary and non-monetary costs of migration, migration by the low-skilled obtains. In this case, the welfare state acts as a magnet (Borjas 1999). This holds at least if claims against the welfare state can be made immediately after entry. On the contrary, highly skilled groups with higher expected wage income may abstain from migrating to countries with a very redistributive system.

Highly skilled migrants care more about the transferability of their qualifications (see Thum and Uebelmesser 2003, Poutvaara 2004), i.e. whether the skills acquired at home can be productively used in the foreign labour market. This, in turn, depends on the technology used in the destination country compared to that in the origin country. Moreover, the formal recognition of the qualifications plays a role and language proficiency in the language of the destination country

<sup>1</sup> For a discussion of different options to address skill shortage in Germany, see Uebelmesser (2013).

is also important (see Dustmann and van Soest 2001, 2002).

For an undistorted outcome in which the skill composition of the migrants corresponds well to the needs of the destination country's labour market, only differences in gross wages should guide the migration decision. The migrants, however, are mostly interested in their incomes net of taxes and transfers. In addition, they may consider factors like labour market institutions, or the quality of the educational system or health system (see Geis et al. 2013). It follows that with open borders, it is only by chance that migrants' qualifications match well with the labour market needs of the destination country.

(Almost) open borders, however, may generate a positive incentive effect on migrants' education. If potential migrants know which qualifications are in high demand, and thus are highly remunerated abroad,

and if they consider the probability to migrate large enough, this could encourage them to invest more in human capital. Unrestricted mobility would then positively influence migrants' average level of human capital (Stark et al. 1998),<sup>2</sup> with positive repercussions on destination countries.

### POINT SYSTEM

A scenario with open borders is not very realistic for developed countries, despite the fact that it can serve as a useful point of departure. As far as the skill composition of the migrants' pool is concerned, a selective

<sup>2</sup> While the focus here is on destination countries, migration of the highly skilled is also likely to have an effect on sending countries. Under certain conditions, a brain drain may, however, go hand in hand with a brain gain such that also the sending countries benefit from the migration opportunities of their skilled workers (see Stark and Wang 2002; Beine, Docquier, and Rapoport 2008, Stark et al. 2012).

Table 1

Points Attributed under Different Schemes in Selected EU Countries (2014), as a Percentage of the Pass Mark

Characteristic	Denmark	Netherlands	Austria (Tier 1: high-qualified)	Austria (Tier 2: key worker or shortage occupation)	United Kingdom <sup>a)</sup>
<b>Requirement of job offer?</b>	No	No	No	Yes	Yes
<b>Characteristics of the intended occupation</b>					
Job offer or current employment in country					42
Qualified for/ job offer in skilled occupation				0*	28*
Qualified for/ job offer in a shortage or growth occupation	10			0*	63*
<b>Previous work experience</b>					
Work experience (in general)	5		3–29*	4–20**	
Additional points for work experience in specific occupations	5–10				
Additional points for work experience in country	5–10*	14	14*	8–20**	
<b>Academic qualifications</b>					
Academic qualification (in general)	30–80	71–86	29–57**	40–60	
Additional points for academic qualification in country or region	5–10*	0*–14	7–14		
Additional points for academic qualification at top-ranked university	5–15	0*			
<b>Language<sup>b)</sup></b>	5–25 (+5–10)	14*	7–14	20–30	14
<b>Age</b>	10–15	14	14–29	30–40	
<b>Financial requirements</b>					
Sufficient funds for initial period	0				14
Previous salary			29–43**	0	
Current salary					31–69
<b>Pass mark</b>	100	100	100	100	100

<sup>a)</sup> This data is only related to the so-called »Tier 2« program. The »Tier 1« program ended in 2015.

<sup>b)</sup> Countries with national languages, that are not widely spoken outside their borders, also reward proficiency in other languages. The Netherlands, for example, also give points for knowledge in English. In Denmark, the languages English, German, Swedish, and Norwegian are accredited, even though additional points can be earned with proficiency in Danish.

Notes: Obligatory criteria in grey; \*/\*\*/\*\* denote alternative requirements. Source: DICE Database (2016) and OECD (2014).

policy based on a point system could have a significant impact. To achieve such an impact, in a first step, demand in terms of qualifications has to be specified. In a second step, this has to be translated into a point system. Examples can be found among the classical immigration countries like Canada, Australia and New Zealand. A few countries in the European Union, like the United Kingdom and Denmark, have also introduced a point system for migrants from outside the EU (see Table 1). Whether someone is welcome in a country depends, for example, on his/her level of education and years of job-related experience. In addition, the individual's age and proficiency in the language of the destination country may play a role. Furthermore, the point system offers the possibility of taking into account the situation of the labour market in general and in specific sectors. Depending on the state of the economy, the allocation of points to different criteria, as well as the required minimum number of points, can be adjusted.

A point system has the advantage that selected migrants better meet labour market demand. This holds at least if the criteria can be easily recorded and verified in an inexpensive way, and if they can be identified and adjusted by the authorities without much delay. In this case, a point system can provide also a good orientation for potential migrants as to the valuation of their qualifications in the destination country, especially if the criteria are relatively constant over time. Even more importantly, the relative weighting of the different criteria informs potential migrants of how they can increase their immigration probability. Migrants can then choose, for example, to improve their language proficiency and/or their general and specific qualifications.

In particular, incentives to invest in human capital may increase for those who intend to migrate if their human capital is valued appropriately. At the same time, the policy can influence the composition of the group of migrants in relation to the destination country's labour market. However, it should not be overlooked that a point system requires a catalogue featuring criteria to select the migrants. Determining these criteria and subsequently selecting the applicants can be cost- and time-intensive.

#### ENTRY FEE AND QUOTA

Given the resources necessary to make a point system work, we ask whether there are alternative policies a country can resort to with the goal of promoting highly skilled immigration. One possibility is the use of quotas. Since the Immigration Restriction Act of 1921, the US, for instance, has controlled the inflow of migrants by means of quotas, selecting migrants by their characteristics. At the outset, quotas were based solely on nationality, but with the enactment of the Immigration and Nationality Act of 1965, the focus shifted to migrants' skills and family ties to US citizens.

If a country seeks to admit skilled workers, a simpler and potentially more profitable tool than point systems or quotas could be that of selling the right to enter the destination country. An entry fee or a tax, which migrants would have to pay upon entry could deliver the skill composition the destination country wishes to achieve and at the same time, let the native population participate in the benefits that accrue to migrants via the additional revenues collected. Benefits for economic migrants must exist because no one would consider leaving his home country and bearing the monetary and non-monetary costs of such a move otherwise.

The idea of selling the right to entry was originally put forward by Freeman (2006) and Becker (2011) and can be explained as follows: if the private returns from migration, as measured by a prospective migrant's earnings, increase with a migrant's skill level, then it would be more beneficial for highly skilled individuals to migrate than for low-skilled individuals. Consequently, the imposition of a high enough entry fee will discourage low-skilled individuals for whom the cost of entry will be higher than the gain from increased earnings. If the number of migrants decreases with the level of the entry fee, an appropriate setting of the fee will therefore control the number of migrants, while also delivering revenues for the destination country. This reasoning relies on the assumption that migrants are heterogeneous only in their skill intensity, but not in their skill type; or that destination countries only care about skill intensity. In other words, if, say, migrants with tertiary education have higher earning-prospects than migrants with secondary education, an entry fee can help a destination country to favour inflows of the former rather than the latter. While destination countries may prefer to host highly skilled individuals because, for instance, they are easier to integrate or they contribute more to the public budget, they are generally not indifferent to the type of skills migrants bring in. Certain skills may be highly sought after by destination countries due to skill shortages in specific sectors, or because of complementarities with existing country-specific skills or because they generate higher social returns. However, skill types that generate the highest social returns are not necessarily placed at the top of the pay distribution. STEM workers, for example, have a significant impact on total factor productivity in US cities, as Peri et al. (2014, 2015) show, but the annual mean wage of a mathematician is well below that of a manager or chief executive. In this case, if a destination country seeks to attract more scientists, setting a high entry fee does not necessarily deliver the skill composition it is aiming for. In Stark et al. (2017) we discuss these issues, and model the impact of opening up an economy to migration on the skill composition of the native workforce, assessing whether entry fees or quotas are most beneficial from the perspective of the destination country's workers. Both natives and migrants are heterogeneous in their skill level and type:

there are "scientists" and "managers". Scientists generate externalities that boost the productivity of the entire workforce, which is not the case for managers. On an individual level, working as a scientist confers prestige, whereas working as a manager does not. As a compensation for the lack of occupational prestige, managers receive earnings that are higher than those of scientists.

Our analysis shows that with a uniform entry fee, migrants are mostly highly skilled managers, as they can realise the largest private gains from migration. Thus, a uniform entry fee allows the country to select migrants by skill level, but not by type. While the revenues raised are large, the absence of migrating scientists negatively affects the productivity of the workforce. The outcome changes when a differentiated entry fee is available, which makes it possible to set different fees for managers and scientists. If generating revenue is not a priority, setting differentiated fees appears to be the most effective option, as it allows policy-makers to select migrants both by skill level and skill type. If appropriately designed, all or most migrants will be highly skilled scientists. The country can then benefit from positive externalities, but has to accept lower revenues. Would a differentiated quota deliver the same outcomes?<sup>3</sup> This policy allows a country to achieve the type of skills desired, i.e. managers or scientists, but not the level. If the externality is strong, only scientists will be allowed in – but they will have average skills rather than the highest possible skill level, because a quota only fixes a number and a type of migrants, but does not induce migrants to self-select according to the level of skills. If the externality is weak, managers of average skill level will be attracted to the destination country.

In short, as soon as one jointly contemplates the importance of skill levels and types, the design of selective policies is not straightforward as Stark et al. (2017) show. When the externality is weak, differentiated fees present the superior policy compared to uniform fees or quotas: migrants are selected by skill type, self-selection is effective and revenues are large. A trade-off emerges, however, if the externality is strong. If the aim of the destination country is to attain the optimal skill composition, differentiated entry fees will allow it to mostly admit scientists, but will deliver a lower level of revenues.

While entry fees seem an effective tool for giving destination countries the optimal skill composition of the workforce, it is important not to overlook that they may lead to distortions in migrants' education decisions, since they decrease the expected returns on that investment by reducing the migration probability of certain groups. The advantage of better self-selection with low administrative costs and the resulting

<sup>3</sup> Within the EU, quotas are not widely used as a way of determining the composition of highly skilled migrants. In some cases, there are occupation-specific quotas, which, however, do not always refer to skilled occupations, but can also include other occupations, like low-skilled seasonal workers.

revenues must be seen in relation to the potentially negative incentive effects (Stark and Wang 2002). In particular, if the goal of this selective policy is to make a country a more attractive destination for the highly skilled of any type or of specific types, the possible negative feedback of taxing the highly skilled should be taken into account.

#### IMMIGRATION TAX SUBSIDY

The arguments put forward so far seem to indicate that a restricted migration policy is superior to open borders if the former makes it possible to attract those individuals who are mostly needed in the destination country more effectively than the latter. This particularly holds true if the policy mostly relies on instruments that lead to greater self-selection among migrants, and if, furthermore, these instruments do not have too large negative effects on the education decision by migrants or distort their migration choice in other ways. This may explain why some countries use preferential tax treatments to encourage the arrival of specific migrants, rather than using taxes as a tool for self-selection and revenue collection. Migrants can qualify for such a scheme if they fulfil some specified conditions (see Table 2 for a selection of countries). In Denmark, for example, special rules apply for foreign scientists and highly-paid employees. If they meet a number of conditions, they may choose to pay a tax at a rate of 27% for a period of 84 months without deductions of any kind, instead of paying tax under the regular income taxation schedule. Similar schemes can, for example, be found in Finland and Portugal. In other EU countries, part of the wage income is exempted from taxation. This applies to Belgium and Italy, among others.

Compared to the point system, the administrative costs are low, as the conditions are mostly based on a small number of clearly defined criteria like wage income and/or skill type. A qualification, which is highly remunerated, should reflect a high skill level. In addition, by specifying conditions, which only apply to certain skill types, like scientists as in the Danish case, this policy makes it possible to treat those who exert larger positive externalities in a preferential way.

A preferential tax treatment is certainly a promising policy if a country wants to attract high-wage earners. Often, these exceptional rules are justified by positive external effects on other members of the workforce, if for example the productivity of co-workers increases or new jobs are created thanks to highly-qualified foreign workers. Of course, counteracting an existing or projected skill shortage is another potential reason. Although lower tax rates or other tax reductions mean lower tax revenues, ceteris paribus, most highly skilled migrants already contribute positively to public finances and social security systems in the short run. Furthermore, lower taxes mean a smaller distortion of the migration decision, but also of the preceding edu-

Table 2

**Tax Concessions for Highly Skilled Workers (Selection)**

Reduced tax rates			
	Tax rate	Time restriction	Requirement
Denmark	27%	7 years	Foreign scientists or employees who earn > DKK 65,100 per month
Finland	35%	4 years	Employees with a special expertise who earn > 5.800 Euro per month
Portugal	20%	10 years	Employees with a special expertise in specific sectors and returnees
Reduced tax base			
	Tax base (share subject to taxation)	Time restriction	Requirement
Belgium	20%	-	Foreign scientists
Italy	10%	3 years	Foreign scientists and returnees
Netherlands	70%	10 years	Foreign scientists or employees who earn > 37,296 Euro*
Sweden	75%	3 years	Foreign scientists/ employees with a special expertise or employees who earn > 44,800 SEK

\* A minimum salary of 28,350 Euro is applicable for those who have completed a Master's degree and are younger than 30 years.  
Source: OECD (2011) – updated by the authors for the most recent years.

cation decision. In the best case scenario, more highly-educated migrants come to a country.

Most schemes impose time restrictions on eligibility. After some few years, the tax privileges cease and wage income is subject to the normal tax rates, as preferential treatment is no longer considered justifiable on efficiency grounds. In addition, equity concerns play a role, as the progressivity of the tax system is reduced when foreign high-wage earners enjoy preferential treatment. Some migrants factor the restricted time into their migration decision and leave the country when they no longer qualify for the special scheme, which limits the long-run effects on the destination country's workforce of immigration subsidies.<sup>4</sup> In this case, the preferential tax policy does not have a major impact on migrants' education decision either, if at all. The higher remuneration of a qualification in the destination country only changes the cost-benefit calculus of the education decision to a small extent, if the stay abroad is meant to be temporary.

**CONCLUSIONS FOR EUROPE**

Europe faces a skill shortage challenge. Beside policies targeting the domestic population, attracting foreign skilled workers is another option. This article provided an assessment of various migration policies geared towards this goal. At the EU level, the introduction of the EU Blue Card was a step in this direction, as this card eases immigration by highly skilled from outside the EU, provided that they fulfil certain conditions. These conditions comprise of higher professional qualifications, an employment contract or a binding job offer with a high salary compared to the average of the EU country in which the job is offered. EU countries

<sup>4</sup> There is evidence that high-wage earners and those with high non-wage income are sensitive to the tax systems. For an interesting study on the effect of the preferential tax scheme in Denmark on foreign top earners' mobility, see Kleven et al. (2014). Akcigit, Baslandze, and Stantcheva (2016) study the effect of top tax rates on the international mobility of "superstar" inventors.

determine the details; they can also set an upper limit on the number of non-EU citizens who can enter for highly-qualified work.<sup>5</sup> At the moment, a new directive to attract highly skilled workers to the European Union is under discussion by the European Parliament and Council, with the goal of easing entry conditions and further harmonising the regulatory framework (European Commission 2016). On a country level, EU countries are mostly continuing to facilitate admission of highly skilled workers, for example, the Czech Republic and Italy, while some other EU and non-EU countries, like New Zealand, Denmark and the United Kingdom, have made their skilled migration policy more selective (OECD 2017).

There is, however, one important caveat: a selective migration policy only allows selection among those individuals who have an interest in coming to a country. To influence highly skilled workers' location decisions, in addition to a well-designed migration policy, the institutional framework of the destination country is also important. This comprises of labour market institutions, the transfer system, as well as the quality of the education sector and the design of family policy. In addition, a welcome culture is needed. Only in such cases can the destination country achieve its goals and benefit from the new ideas, skills and contacts that migrants bring with them.

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- <sup>5</sup> The Blue Card has not played a major role in most countries to date. In 2016, Germany issued 17,600 cards out of 20,900 (Eurostat, 2017).

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