Talent Abroad: A Review of German Emigrants

GERMANY

OECD

Talent Abroad: A Review of German Emigrants

Please cite this publication as:
OECD (2015), *Talent Abroad: A Review of German Emigrants*, OECD Publishing, Paris.
http://dx.doi.org/10.1787/9789264231702-en

ISBN 978-92-64-23169-6 (print)
ISBN 978-92-64-23170-2 (PDF)

Foreword

Emigrants are often considered a loss for their country of origin but they can also play an important role for fostering trade and economic development, notably because of the skills and contacts they have acquired abroad. If they choose to return their re-integration in the labour market and in society will be facilitated by the fact that they speak the local language, have specific social capital and possess local qualifications that employers readily recognise.

Drawing on the human resources of emigrants, however, necessitates maintaining links with them and pursuing policies adapted to the specific needs of each expatriate community. This implies, as a prerequisite, to be able to identify precisely where, when and why people have left and what their socio-demographic characteristics and skills are, as well as understanding the dynamics of the phenomenon and of individual behaviour.

Because statistical systems in countries of origin are generally poorly equipped to undertake this monitoring exercise it is necessary to compile information directly from destination country data sources. This is particularly challenging because it implies collecting data from a large number of countries across which emigrants are scattered, based on comparable definitions and concepts. The OECD Database on Immigrants in OECD Countries (DIOC) that pools census and register data allows identifying people across the world by place of birth as well as by education and labour market status at several points in time. It is a powerful tool to undertake this mapping exercise, especially when complemented by available national sources (e.g. consular data, specific surveys, analyses of social networks) and many other international data sources.

This series of country reviews entitled "Talent abroad" aims at providing an accurate, updated and dynamic picture of the diasporas from OECD and selected non-OECD countries. On this basis, and building on cumulated experiences regarding diaspora policies, it is possible to formulate policy recommendations on how best to engage with emigrants and better mobilise their skills to support economic development in the country of origin.

The first volume in this series focuses on Germany. Germany is facing rapid population ageing and already experiences occasional shortages of skilled labour. In this context, German authorities are considering all possible options to increase the local supply of skills through a comprehensive set of policies including activation, education and training as well as immigration. However, taking into account the large number of Germans abroad, it appears important to be able to also draw from this pool of talent abroad.

The in-depth analysis of the German diaspora presented in this publication allows one to determine the potential of emigrants as a source of labour supply. How many emigrants are there, and where are they located? Are they of working age, and what is their education level? Do they participate in the host country's labour market, and in which occupations? What is their motivation to emigrate, and who returns? What is the specific evidence regarding researchers, health professionals and students? What are the implications in terms of public policies?

Acknowledgements

This review was written by Friedrich Poeschel. It incorporates important contributions from Emily Helmeid at earlier stages of the work, and valuable comments were received from Jean-Christophe Dumont, Theodora Xenogiani and Thomas Liebig. The OECD Secretariat would like to thank the German Federal Ministry of Labour and Social Affairs, without whose support this review would not have been possible. Special thanks go to Cansin Arslan, Véronique Gindrey and Philippe Hervé for their help with OECD data sources. The editorial assistance provided by Marlène Mohier, Lucy Hulett, Sylviane Yvron and Nathalie Bienvenu is greatly appreciated. The Secretariat would like to thank Xing AG for kindly providing additional data, and Andreas Ette from the Federal Institute for Population Research for help with data from German sources. A draft of this report was presented at the OECD Working Party on Migration in Paris on 13 June 2014. Thanks are also due to the OECD Working Party on Migration for their comments.

Table of contents

Figures

Tables

Acronyms and abbreviations

ACS	American Community Survey
AvH	Alexander von Humboldt Foundation
DAAD	German Academic Exchange Service
DZHW	German Centre for Research on Higher Education and Science Studies
DIOC	OECD Database on Immigrants in OECD Countries
EEA	European Economic Area
EFTA	European Free Trade Association
EU	European Union
EU-LFS	European Union Labour Force Survey
GAIN	German Academic International Network
GSO	German Scholars Organization
GSOEP	German Socio-Economic Panel
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
LFS	Labour force survey
PIAAC	Programme for the International Assessment of Adult Competencies
SOC	Standard Occupational Classification
STEM	Science, technology, engineering and mathematics
UOE	UNESCO-OECD-Eurostat

Executive summary

Germany is one of the world's main origins of emigrants

A sizeable pool of German emigrants can be found in OECD countries: in 2010/11, it comprised 3.4 million persons aged 15 and above. This number appears large when compared with other emigrant populations: Germany ranks third among OECD origin countries and fifth worldwide. On the other hand, compared with the extraordinary increases in other countries' emigrant populations, the growth of this pool of emigrants has been slow: 250 000 between 2000/01 and 2010/11, or 8%.

German emigrants are found especially in selected European countries and the United States

In 2010/11, almost 90% of the emigrants from Germany resided in just twelve OECD countries. The United States alone hosted 1.1 million. The United Kingdom and Switzerland each hosted around 270 000, followed by high numbers in France, Spain and Italy. Among the main destination countries, the EU/EFTA countries collectively hosted more German emigrants than the United States.

Emigration flows from Germany fell after 2008 and recently emigrants are heading, above all, to Switzerland and Austria

An upward trend in the annual flow appears to have been interrupted in 2008: in the aftermath of the financial crisis, staying in Germany likely became a more attractive option for potential emigrants. Still, the emigration flow has stabilised at a high level. Switzerland saw a particularly rapid growth in German emigrants between 2000/01 and 2010/11, and rapid increases were also noted in Spain and Austria. In recent years, large numbers emigrated to Switzerland, Austria, the United Kingdom, Spain and the Netherlands. Almost half a million of all German emigrants residing in the OECD area in 2010/11 – 14% – had arrived within the preceding five years.

The number of highly educated among German emigrants has grown quickly

Large numbers of German emigrants possess formal qualifications: in 2010/11, 1.2 million had a tertiary education and 1.4 million had an upper-secondary or vocational education. Between 2000/01 and 2010/11, there was a strong shift towards higher educational attainment: the number of German emigrants with tertiary education grew by 40%, while the number of those with a medium level of educational attainment grew by 7%. Among the destination countries, the United States and Switzerland hosted the largest number of German emigrants with a high level of education. By 2010/11, the EU/EFTA area had become the main destination for German emigrants with either a high or a medium level of education.

There are more German emigrant women than men and they are becoming more highly educated over time

Women among German emigrants represented a share of 55% in 2010/11, down from 57% in 2000/01. While the number of working-age men grew by 118 000 over this period, the number of working-age women grew by 31 000. At the same time, women drove the shift towards high education among German emigrants. In 2010/11, the German diaspora included 550 000 women of working age with a tertiary level of education, 150 000 more than in 2000/01. The corresponding increase among male emigrants was lower, from 370 000 to 490 000.

German emigrants, when in employment, are often found in high-skill occupations

About 1.8 million German emigrants of working age were in employment in 2010/11. Across the main destination countries, German emigrants of working age faced rates of employment and unemployment comparable to those of other emigrants from the OECD area as well as those of the destination country's native-born. But compared with their peers in Germany, German emigrants with high or medium levels of education faced lower employment probabilities and higher unemployment rates. High-skill occupations such as professionals, managers and senior officials are overrepresented among German emigrants compared with their peers in Germany, while low-skill occupations are underrepresented. Especially outside the European Union, German emigrants often have managerial responsibility. In Europe – notably Switzerland, the United Kingdom and Austria – many work in occupations for which candidates are in short supply in Germany, such as engineering, health and personal care. Teaching professionals in higher education, academic researchers in many cases, also often reside in the United States, Switzerland, and Canada.

Many Germans consider emigration, but only some leave

Of 9 000 native-born Germans surveyed between 2009 and 2013, 15% reported an intention to emigrate, with particularly high shares among unemployed and low-educated Germans. Over the life cycle, the intention to emigrate is strongest in a person's late twenties. Very few, however, appear to carry out that intention. Those who do emigrate often leave because of career prospects or family reasons. The available evidence suggests that the overall satisfaction of those who emigrate increases, but remains below the satisfaction level of those who do not intend to emigrate.

Highly employable German emigrants are underrepresented among those who return

Over recent years, the number of Germans who have left is greater than the number of those who have returned. Especially the outflows to Switzerland and Austria exceeded the return flows. The composition of the flows between Germany and EU/EFTA countries appears to differ: highly educated Germans were more frequent among those leaving than among those returning; the opposite was found for Germans with a medium level of education. Similarly, active labour market participants were more frequent among those leaving, while the reverse was found for the inactive.

More and more German students go abroad, but return of researchers is limited

Between 2010 and 2012, the total number of international students from Germany increased by 14%. They now represent the largest group of international students coming from an OECD country. Their numbers have risen especially fast in Austria and the Netherlands. Many are enrolled in engineering, medicine, natural science and mathematics. German researchers move abroad primarily out of career considerations. Depending on job prospects in Germany, many of them appear willing to return, often motivated by family considerations. Evidence of a brain drain emerges when the scientific impact of those leaving is compared to that of those returning, as measured by publications in academic journals.

Chapter 1

Numbers and locations of German emigrants

This chapter establishes the total size of the German diaspora in the OECD area at 3.4 million and draws comparisons with other large diasporas worldwide. The composition of the German emigrant population is determined with regards to sex, age and duration of stay. The main destination countries of German emigrants are identified, and by comparing changes in levels over the last decade, the chapter documents a shift towards European destination countries. It also explores how developments in recent years have changed the number and composition of the German emigrants in these main destination countries.

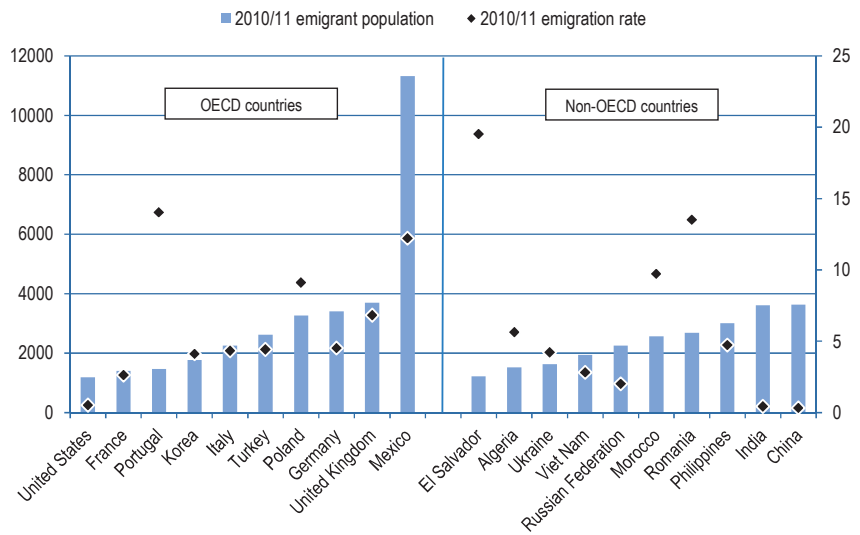
The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

A large pool of emigrants

In 2010/11, as many as 3.4 million German-born individuals aged 15 or above were living in other OECD countries, based on census data (see Box 1.1 for detailed data sources). This number places Germany ahead of Poland and behind only Mexico and the United Kingdom among OECD countries when ranked by the number of emigrants living in other OECD countries (Figure 1.1). German emigrants are only slightly fewer in number than those from India and China (3.6 million each), a comparison which may seem surprising considering the size of the populations of those two countries. The emigration rate in Figure 1.1 (right axis) captures the relation between the number of emigrants of a given country and its population aged 15 and above. Germany's figure of 3.4 million amounts to over 4% of the German population aged 15 and above – a rate markedly below that of Portugal and Mexico, two typical emigration countries with relatively large diasporas, but comparable to that of Turkey and Italy and well above the rates of France and the United States.

Figure 1.1. Main origin countries for emigration to the OECD area, 2010/11

Total emigrant population aged 15 and above in thousands (left scale); emigration rate (%) of the population aged 15 and above (right scale)



Note: The numbers on which the figure is based. as well as those for 2000/01, are provided in Table A.2 in the Annex.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Already in 2000/01, German emigrants were the third largest diaspora in the OECD area, behind the Mexican and the British diasporas (see Table A.2 in the Annex). The number of German emigrants has since grown: from a high level of more than 3.1 million in 2000/01, it increased by 250 000 (or 8%) to 3.4 million by 2010/11. Over the same period, however, the number of emigrants from non-OECD origin countries has grown much more rapidly: the number of Indian emigrants in the OECD area grew by 83% between 2000/01 and 2010/11; that of Chinese emigrants by 75%; and that of Romanian emigrants by 138%. Thus, although the number of German emigrants in the OECD has (slowly) grown from a high level, their share among the 100 million emigrants in the OECD area has actually fallen – from 4% in 2000/01 to 3% in 2010/11 (see Table A.3 in the Annex).

Box 1.1. Data sources

For the purpose of this review, everyone born in Germany but now living abroad is considered a German emigrant. This includes the children born to immigrants in Germany, irrespectively of their citizenship. In some data sources, however, only data based on nationality rather than on country of birth are available – in which case German emigrants correspond to German nationals. Due to limited information available on the children of German emigrants who were born abroad, that second generation is not taken into account in this review, even in cases where members of the second generation hold German citizenship. Apart from official German statistics, the review mainly draws on the following data sources.

OECD Database on Immigrants in OECD Countries (DIOC), 2000/01 and 2010/11

In the version used for this publication, the *Database on Immigrants in OECD Countries* (DIOC) covers the OECD destination countries for which data were collected in both 2000/01 and 2010/11. The principal sources of DIOC data are national administrative registers and population censuses. In the censuses carried out in 2000/01, virtually all OECD countries collected information on immigrants' country of origin, so that it became possible for the first time to gain a comprehensive overview of migrant stocks in OECD countries (for more background information on DIOC, see Dumont and Lemaître, 2005). When censuses were either unavailable or incomplete, data from labour force surveys were used as a substitute. Table A.1 in the Annex gives an overview of the sources of DIOC.

For two points in time, 2000/01 and 2010/11, DIOC contains information on the population aged 15 and above from over 200 origin countries who reside in OECD destination countries. The core variables are country of residence, country of birth, sex and educational attainment. Further variables – age, duration of stay, labour force status and occupation – can be cross-tabulated with the core variables, but not always with each other. In addition, not all variables were available for all countries at both points in time. Data on employment and occupation are by and large available for the population aged 15 and above. In some sections of the review, the focus is on persons of working age, that is those aged between 15 and 64. Detailed information on DIOC can be found in Arslan et al. (2014).

Box 1.1. Data sources *(cont.)*

OECD International Migration Database, 2000-12

Largely based on the individual contributions of national correspondents (the OECD Expert Group on Migration), this database covers legal migration flows on a yearly basis. The network of correspondents covers most OECD member countries as well as the Baltic States, Bulgaria and Romania. The data have not necessarily been harmonised at the international level and should therefore be interpreted with caution. For example, flows to the United States include only permanent migrants, while others might also include temporary migrants such as seasonal workers, students, or refugees. In addition, the criteria for registering the population and conditions for granting residence permits vary across countries, so that measurements may differ greatly. Finally, irregular migrants are only partially covered.

OECD Programme for the International Assessment of Adult Competencies (PIAAC)

PIAAC is a survey of adults of working age (16 to 65 years) that aims to assess their competencies in an internationally comparable framework**.** Tests focus on competencies required to participate effectively in society and to function in the workplace. Competencies are tested in literacy, numeracy, and the ability to solve problems in a technology-rich environment. This is complemented by survey questions on how the adults use their skills at home or at work. In 2011/12, the survey was simultaneously implemented in 24 countries, almost all of which are OECD members. In Belgium only Flanders is covered, and only England and Northern Ireland in the United Kingdom. Seven research institutes have been entrusted with the implementation, and in most of the participating countries, samples included 5 000 individuals.

EU Labour Force Survey

To produce the annual EU Labour Force Survey, Eurostat merges household survey data from the 28 member countries of the European Union, three EFTA countries (Norway, Switzerland and Iceland), as well as Turkey and the Former Yugoslav Republic of Macedonia. The information supplied by Germany derives from the annual *Mikrozensus*. The stock data in the EU Labour Force Survey notably cover the labour force status, age, sex, occupation and educational attainment of individuals aged 15 and above. For migrants, duration of stay is also recorded. This data source has been used in the sections of the review where fine disaggregation was needed, which was not available in DIOC.

International Students (UOE data collection)

The UNESCO-OECD-Eurostat (UOE) data collection on education statistics is compiled from national administrative sources, as reported by ministries of education or national statistical offices. To capture student mobility, a distinction is made between resident foreign students – that is to say, foreign students who are resident in the country because of prior migration by themselves or their parents – and non-resident foreign students, who came to the country expressly to pursue their education. International students are defined as students with permanent residence outside the reporting country, and data on non-citizen students are used only where information on non-resident foreign students is unavailable (in this review, notably for Austria). Data on international students are only available from 2004 onwards.

Box 1.1. Data sources *(cont.)*

Gallup World Poll Data

The Gallup World Poll covers a large range of behavioural and economic topics. It is conducted in approximately 140 countries based on a common questionnaire, translated into the predominant language of each country. Each year since 2006, more than 100 questions have been asked of a representative sample of around 1 000 persons aged 15 and above. In some countries, Gallup collects oversamples in cities or regions of special interest. In countries with large populations, such as China, India and the Russian Federation, sample sizes can include up to 4 000 adults. Results may, however, be affected by sampling and non-sampling errors.

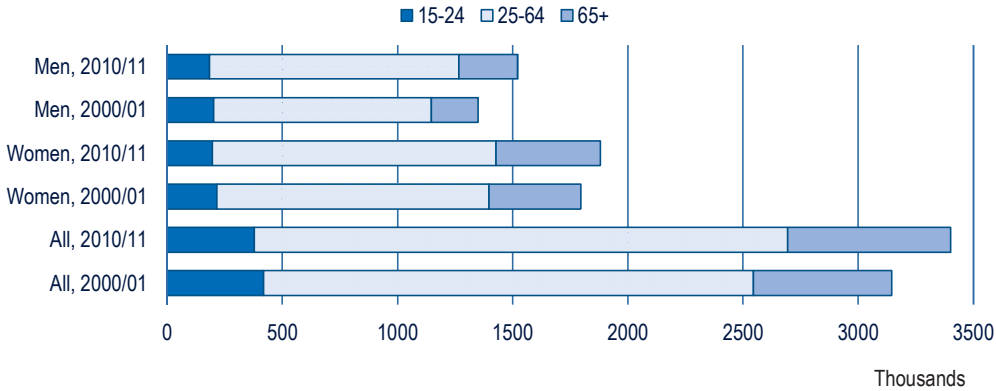
Increasing numbers of working-age and older emigrants

This section focuses on individuals of working age (15-64 years), who are more likely to be active on the labour market. Some attention is paid to those aged 25-64, hence excluding youth who are in many cases still in full-time education and thus hardly available for employment.

The size of these age groups is given in Figure 1.2. In 2010/11 2.7 million, or 80%, of German emigrants in the OECD area were of working age. Those aged 15-24 numbered 380 000 and made up 11% of all German emigrants in the OECD area; those aged 25-64 numbered 2.3 million, corresponding to a share of 68%. While the share of the young emigrants appears rather high in comparison with Austria, Spain, the United Kingdom or France, the share of the age group 25-64 is similar to the corresponding shares among emigrants from other OECD countries (see Table A.3 in the Annex). One can further infer from Figure 1.2 that the growth of the German diaspora since 2000/01 derives from increases among those aged 25-64 (+190 000 from 2.1 million in 2000/01) and of those aged 65 and older (+107 000 from just over 600 000 in 2000/01).

However, in percentage terms, the age group 65 and older grew by 18%, while the age group 25-64 grew at only half that rate. The number of young emigrants actually declined (-40 000 from 418 000 in 2000/01). These developments suggest that the German emigrants have been affected by population ageing. Finally, men accounted for most of the increase in the working-age group: while the number of working-age men among the German emigrants grew by 118 000, the number of working-age women grew by only 31 000. Among both men and women, increases in the age group 25-64 thus outweighed decreases of 20 000 each in the age group 15-24.

Figure 1.2. Stock of German emigrants by sex and age, 2000/01 and 2010/11



Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Where have they gone?

The vast majority of the destination countries that counted more than 10 000 German-born residents in 2010/11 are situated in either North America or Europe, with the exception of Turkey, Australia, Israel and New Zealand (based on DIOC 2010/11). Almost 90% of German emigrants can be found in just 12 OECD countries. By far the highest number of Germans, over 1.1 million, were living in the United States (see Table A.4 in the Annex). Next come the United Kingdom and Switzerland, with each hosting around 270 000. Around 200 000 Germans were counted in France, in Italy and in Spain. Canada, Austria, and Turkey each hosted around 150 000. The set of the 12 main destination countries is completed by Greece, Australia, and the Netherlands, each hosting around 100 000 German emigrants in 2010/11.

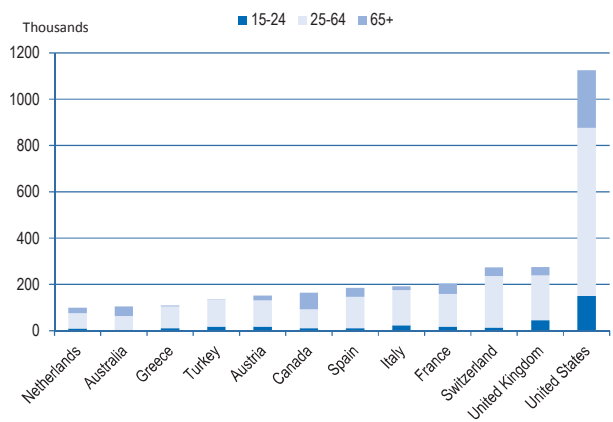
There were thus nearly four times as many German emigrants in the United States as in the second most important destination country, the United Kingdom. However, among the main destination countries, the EU/EFTA countries collectively hosted a larger number of German emigrants than the United States. The share of women among the emigrants ranged from 46% in Finland to 61% in Poland in 2010/11 (see Table A.4 in the Annex). Despite such variation, the 12 main destination countries of women coincided with those of men, with hardly any difference in the ranking of destination countries. While German emigrants make up only small shares (5% or less) of the foreign-born population in most OECD countries, they comprise particularly high shares in some of the main destination countries – notably

between 15% and 20% in Switzerland, Austria and Turkey, but also 12% in Poland (Table A.4 in the Annex). Despite the large number of Germans in the United States, their share of the foreign-born population in that country remained below 3%. German emigrants also made up more than 5% of the foreign-born population in the Netherlands, Denmark, Hungary, Belgium and Luxembourg.

In practice, the pool available for recruitment may be by and large limited to those aged 15-64 or those aged 25-64. The age composition of the German emigrants is shown in Figure 1.3 for the main destination countries (see Table A.4 in the Annex for more countries). Almost 880 000 Germans of working age resided in the United States in 2010/11, and close to 250 000 in both the United Kingdom and Switzerland. While the number of German emigrants in Canada fell short of the number in Italy by only 27 000, the number of working-age German emigrants in Canada (94 000) was far below that in Italy (175 000). This derives from the particularly high share that Germans aged 65 and above made up in Canada, while the corresponding share in Italy was particularly low. The comparison between Canada and Italy could similarly be made between Australia and Greece. Since students often fall into the age group 15-24, international students from Germany contributed to the especially high shares of this age group in the United States and the United Kingdom, where it reached 151 000 and 46 000 individuals respectively. Chapter 4 takes a closer look at international students from Germany.

Figure 1.3. Main destination countries for German emigrants, 2010/11

German-born population aged 15 and above



Source: OECD Database on Immigrants in OECD Countries (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Clusters in European regions

The regional distribution of German emigrants can be derived from EU-LFS data for Austria, the Netherlands, and Switzerland in 2013 (see Table A.5 in the Annex). Some of the highest numbers of German emigrants were found in and around the main cities of these countries. Thirty thousand lived in Vienna, of whom about half were younger than 35. Seventy-five thousand German emigrants were counted in Zurich, and somewhat less than half of them were younger than 35. In the region of Amsterdam (Noord-Holland), those younger than 35 only made up one-fifth of a total of 13 000. The cities' shares in these countries amounted to 22% (Vienna), 29% (Zurich), and 18% (Amsterdam). Similar shares can be identified for London (19% of the German emigrants in the United Kingdom) and Madrid (17% of those in Spain).

Thus German emigrants in these countries reside largely outside the main metropolis. Notably, almost 25 000 German emigrants resided in the Austrian region of Tyrol in 2013. Higher numbers were, however, counted in most Swiss regions, including over 50 000 in Northwest Switzerland and another 50 000 in East Switzerland. The Dutch province of Limburg was home to 13 000 Germans but again, only one-fifth of them were younger than 35. Two provinces with much lower numbers of German emigrants, Groningen (4 000) and Overijssel (8 000) each nevertheless counted 2 500 below the age of 35. Finally, the largest communities of German emigrants outside Madrid were the Balearic and the Canary Islands, respectively hosting 15 000 and 27 000, with hardly any of them younger than 35. However, another 27 000 German emigrants could be found in Andalusia, one-third of whom were recent emigrants, and almost as many were younger than 35.

Trends and developments

Stocks of emigrants are typically the result of migration flows over many years. The emigrants joining or leaving a stock in a single year are thus typically a small fraction of the stock. Even profound changes in these flows may therefore only add up to a significant effect on the stock after a number of years. For that reason, developments over time may be very hard to detect from information on the stock's level alone. The remainder of this chapter will therefore focus on the stock of recent migrants and on the flows (rather than the stocks) of German emigrants observed in recent years. Those individuals who joined the ranks of the emigrants only recently could also become the focus of companies seeking to recruit emigrants, or of public policies aiming to attract skilled emigrants: compared to emigrants who have already resided abroad for many years, emigrants who arrived in

their destination country only a few years ago can often be more mobile because they have had less time to settle down. Therefore, they may also be more likely to return to their country of origin. For this reason, recent emigrants – defined as those who arrived in their respective destination country within the preceding five years – will receive special attention throughout this review.

According to this definition, more than one-fifth of the German emigrants in Austria and even more than one-third of those in Switzerland were recent emigrants in 2010/11 (see Table 1.1). The United Kingdom (17%), Spain (15%) and France (10%) had the next highest shares of recent German emigrants in the main destination countries. By contrast, the so-called settlement countries exhibited lower shares: 8% in Australia, 7% in the United States, and 4% in Canada. These figures already suggest that several destination countries in Europe have seen disproportionately large inflows of German emigrants over recent years, compared to the existing stock. Overall, this may reflect a shift towards Europe in the pattern of emigration from Germany, which will be further investigated below.

Table 1.1. Main destination countries for German emigrants aged 15 and above, 2010/11 and 2000/01

	2010/11			2000/01		
	Total in thousands	% of all German emigrants	% recent (≤5 years)	Total in thousands	% of all German emigrants	% recent (≤5 years)
United States	1 125.3	33.1	7.2	1 067.7	33.9	8.8
United Kingdom	275.0	8.1	17.0	231.3	7.3	7.4
Switzerland	274.0	8.1	36.9	175.9	5.6	19.7
France	204.1	6.0	9.5	198.3	6.3	10.8
Italy	191.9	5.6	6.8	167.9	5.3	4.4
Spain	185.7	5.5	15.1	125.8	4.0	21.9
Canada	164.8	4.8	4.4	182.6	5.8	2.9
Austria	152.9	4.5	22.7	130.2	4.1	12.7
Turkey	136.2	4.0	7.7	228.8	7.3	
Greece	109.4	3.2	13.0	90.9	2.9	4.4
Australia	105.3	3.1	7.5	105.5	3.4	4.9
Netherlands	99.2	2.9	11.6	106.5	3.4	5.6

Note: Information on duration of stay in 2000/01 was not available for Turkey.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Switzerland has seen a particularly rapid growth of German emigrants between 2000/01 and 2010/11: their number increased by almost 60%, or

100 000 individuals, outpacing growth in every other destination country. Rapid increases, with associated high shares of recent migrants among the German emigrants, also occurred in Spain, Greece, the United Kingdom and Austria. Turkey, on the other hand, saw a drastic decline: close to 100 000 fewer Germans lived there in 2010/11 than in 2000/01. In the Netherlands and Canada, the overall number fell by about 10% between 20001/01 and 2010/11, while it remained stable in Australia. Among the settlement countries that historically received many emigrants, only the United States saw a growing number of German emigrants.

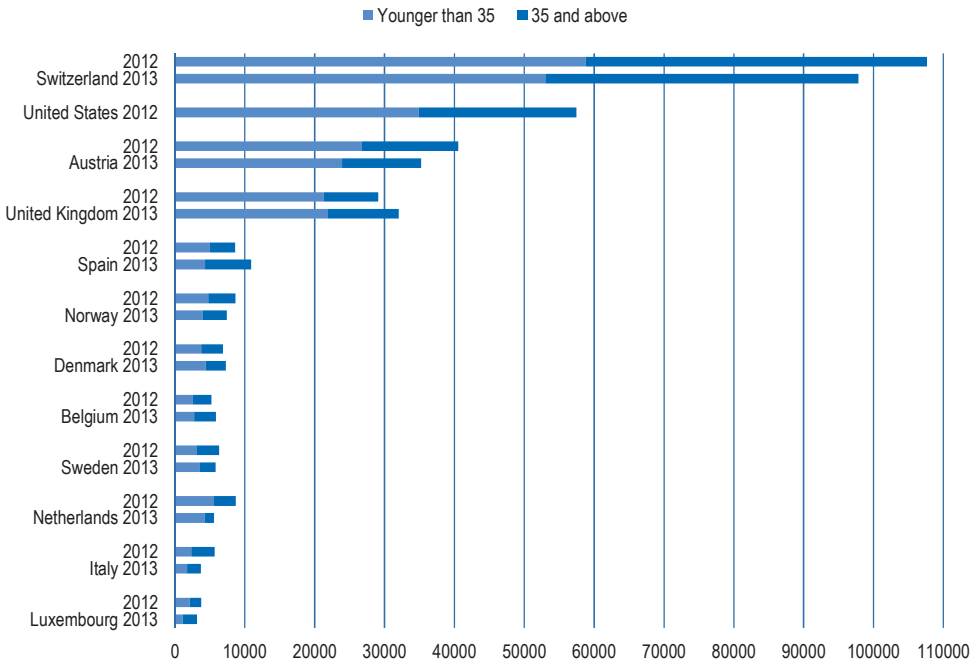
Recent emigrants are rather young

For German emigrants in a number of destination countries, labour force surveys provide information on how long those in a particular age group have already stayed. Overall it appears that recent German emigrants tend to be young: among the 260 000 German emigrants of working age in European OECD countries who in 2012 had resided there for less than five years, 40 000 (or 15%) fell into the age group 15-24, and 120 000 (or 45%) were aged 25-34 (see Panel A of Figure A.1 in the Annex and Table A.8). Only 90 000 (or 35%) fell into the (wider) age group 35-54, and 13 000 (or 5%) were aged 55-64. In the United States, even 25% of the 60 000 recent German emigrants counted in 2012 fell into the age group 15-24, 36% were aged 25-34, another 36% were aged 35-54, and only 3% were aged 55-64.

Thus persons under 35 made up the majority of recent German emigrants of working age, both in the United States and in European OECD countries in 2012. Figure A.1 and Table A.8 also give the age distribution in European OECD countries for previous years, and it emerges that emigrants under 35 have been in the majority since 2005 at least, accounting for 50% to 60% of the German emigrants resident in these countries for less than five years. Within this majority, the age group 25-34 is much larger than the age group 15-24, which indicates that most of these emigrants under 35 are likely not in education anymore, but are instead at the beginning of their working lives.

Figure 1.4 shows the split between younger emigrants (aged 15 to 34) and older emigrants (age 35 to 64) in a number of destination countries. In the countries with many recent German emigrants, those younger than 35 represented large majorities in both 2012 and 2013: Switzerland (with 53 000 emigrants below 35 in 2013), the United States (35 000 in 2012), Austria (24 000 in 2013), and the United Kingdom (22 000 in 2013). In all cases, the majority of the young emigrants again were aged 25-34 (45 000 in Switzerland, 21 000 in the United States, and 16 000 in both Austria and the United Kingdom), and thus at the start of their careers.

Figure 1.4. Recent German emigrants by age group, 2012 and 2013



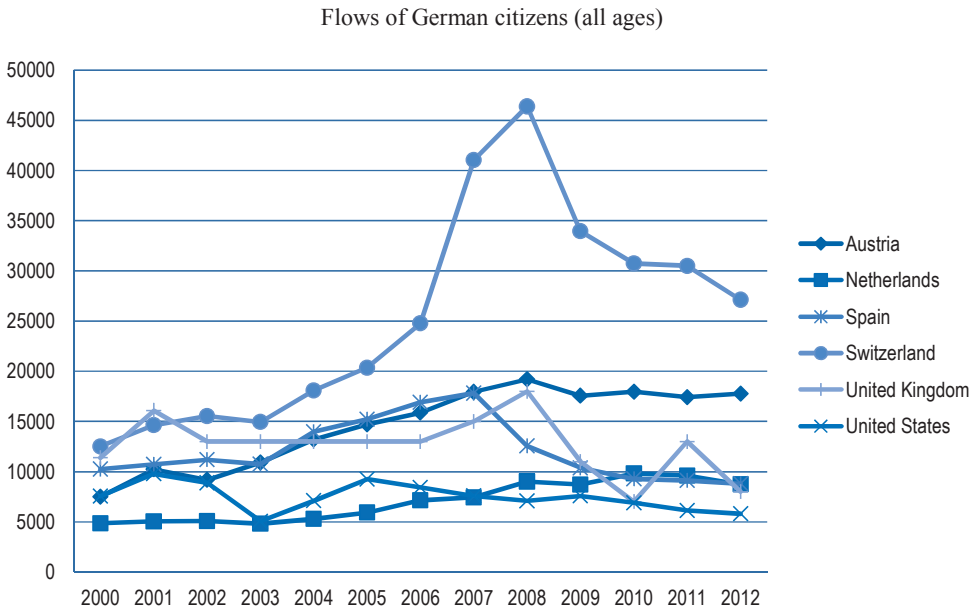
Note: The 2013 figure for the Netherlands regarding those aged 35 and above is based on a somewhat low sample size and should be treated with caution. The 2013 data on the United States are not yet available.

Source: EU Labour Force Survey (Eurostat), http://ec.europa.eu/eurostat/web/lfs/overview); for the United States, American Community Survey, www.census.gov/acs.

A trend towards the Alps

This section focuses on the flows of German nationals over time. Drawing on the yearly inflows recorded by OECD countries, Figure 1.5 shows where the highest flows of German emigrants were directed over the years 2000 to 2012. (The flows to other destination countries are given in the Annex in Table A.6.) By far, the highest inflows of German emigrants have been reported by Switzerland. Flows of German emigrants to Austria and the Netherlands have also grown considerably over this period; flows to the United Kingdom and the United States have, while fluctuating, tended to fall.

Figure 1.5. Flows of German emigrants received by selected OECD countries, 2000-12



Note: These are the top receiving countries of German outflows from among those for which there are data. Figures for the United States only count permanent residence permits. A comparison with stocks in DIOC suggests that the flow to the United States is therefore substantially underestimated.

Source: OECD International Migration Database, http://dx.doi.org/10.1787/data-00342-en.

The spike in the flows to Switzerland in 2007-09, however, most likely constitutes a statistical artefact following a policy change in June 2007, when the Swiss Government abandoned a limit on the number of permanent residence permits available to citizens of EU-15 countries for employment in Switzerland. In the preceding years, the available permanent permits had been exhausted and more citizens of EU-15 countries were admitted based on temporary residence permits. It is likely that many migrants who had previously not obtained a permanent permit did obtain one in the months after the limit was lifted, resulting in a sudden increase in the figures for permanent permits in 2007 and 2008 (see de Coulon and Mathys, 2008). A sharp fall in residence permits could then follow once the shift from temporary to permanent residence permits had occurred.

At the end of the period, the flow of German emigrants to Switzerland (about 27 000 individuals) was almost five times that to the United States (close to 6 000 individuals but likely underestimated), and still one and a half times the second highest flow, to Austria (18 000). At a level of

8 000-9 000 individuals, Spain, the Netherlands and the United Kingdom all witnessed a similar inflow. The considerable fall in the flows of German emigrants to Spain around 2008 might reflect changing economic conditions in the wake of the financial crisis: the employment rate of the foreign-born in Spain fell quickly over 2007 and 2008 (see OECD, 2009). The flow to the United States even exhibits a mild downward trend over the entire period 2000 to 2012.

Flows to other destination countries were smaller than those shown in Figure 1.5. The flow of German emigrants to Poland, however, was relatively high during a three-year period from 2005 to 2007 (see Table A.6). According to Haug (2004), high flows of German citizens to Poland might be explained by return migration of *Aussiedler* (ethnic Germans migrating to Germany) from Poland or by the mobility of the German minority in Poland. At least to some extent, however, these high flows were generated by Germans living close to the Polish-German border: a Polish residence permit allowed them to obtain, for example, their driving licence in Poland rather than in Germany (see Kępińska, 2007). What appears to be flows of Germans to Poland during these years could therefore partly derive from a high number of residence permits granted, even without subsequent migration to Poland.

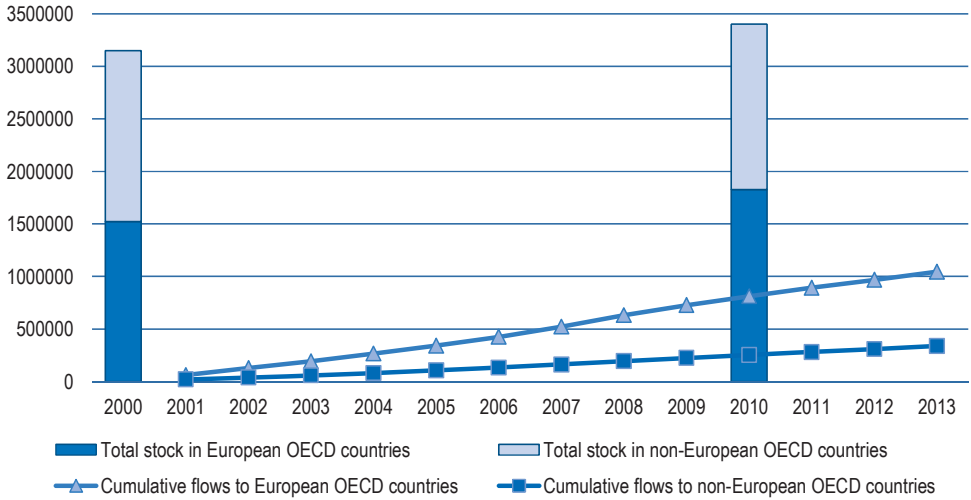
Changes in destinations: a shift towards Europe

The high flows in recent years of German emigrants to some countries in Europe turn out to be part of a larger trend that has apparently had a significant impact on the stocks of German emigrants. Figure 1.6 shows the cumulative flows since 2001: 250 000 German citizens in total had left over the years 2001 to 2010 for non-European countries in the OECD area, while more than 800 000 in total had left for OECD countries in Europe (the yearly figures are presented in Table A.21 in the Annex). Over the entire period 2001 to 2013, flows to OECD countries in Europe were about three times as high as flows to OECD countries outside Europe.

At the same time, Figure 1.6 indicates that the stock of German emigrants in European OECD countries has grown considerably: while this stock was still lower in 2000/01 than the stock in non-European OECD countries (1.5 million against 1.6 million), the relative positions had reversed by 2010/11, when 1.8 million German emigrants resided in European OECD countries and 1.6 million in OECD countries outside Europe. While this shift likely reflects the higher flows to destination countries in Europe, it is also determined by return flows (see Chapter 3) and flows of German emigrants among different destination countries.

Figure 1.6. Accumulation of the German emigrant population over time, 2000-13

German citizens (flows, all ages) and German-born population (stocks, ages 15 and above)



Note: The flows further do not include those to Mexico in 2003 and 2004, but include (small) flows to Korea, while Korea is not included in the stocks. Turkey is counted as a non-European destination country.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01, DIOC 2010/11), www.oecd.org/els/mig/dioc.htm for stocks. For flows: Destatis (2004), "Wanderungen", Issues 2001-02, Statistisches Bundesamt, Wiesbaden; Destatis (2004-05), "Wanderungsstatistik", Issues 2003-04, Statistisches Bundesamt, Wiesbaden; Destatis (2006-14), "Bevölkerung und Erwerbstätigkeit", Issues 2005-13, Statistisches Bundesamt, Wiesbaden.

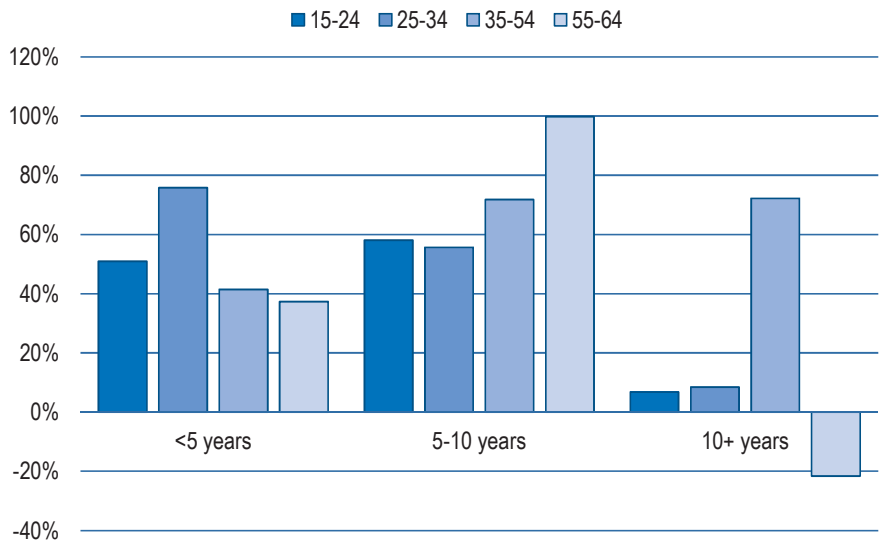
Changes in duration of stay

The extent to which higher flows translate into higher stocks depends on how many emigrants stay in the destination country, instead of returning or re-emigrating to a third country. As the available data do not allow following individuals over time, it is impossible to determine the rate of retention abroad. However, some information is available on how long those who are retained stay on average. Table A.7 in the Annex provides information on average duration of stay across destination countries, separately for German emigrants with high and medium levels of education.

For German emigrants in European OECD countries, duration of stay can be determined for age groups. Figure A.1 and Table A.8 in the Annex respectively give levels and shares of those who have stayed for less than five years, five to ten years, or more than ten years. Figure 1.7 instead presents the percentage changes between the 2005 and 2012 levels. It

indicates that durations of up to 10 years have become more frequent among German emigrants younger than 35 years or aged 55-64, as growth at these durations of stay has been higher over 2005-12 than at durations of more than ten years. Conversely, durations of five years and more have become more frequent among German emigrants in the age group 35-54, as the number of emigrants with such durations of stay has grown more strongly than the number with durations below five years. In as much as a longer duration of stay is associated with a decreasing mobility, this suggests that German emigrants aged 35-54 have become less mobile on average, while the younger German emigrants have become more mobile.

Figure 1.7. Percentage changes in German emigrants' duration of stay in European OECD countries, 2005-12



Note: The countries covered include Turkey, but do not include Belgium.

Source: EU Labour Force Survey (Eurostat), http://ec.europa.eu/eurostat/web/lfs/overview.

In conclusion, this chapter has documented a very large and moderately growing number of German emigrants in other OECD countries, a vast majority of whom are of working age. German emigrants reside mainly in the United States, the United Kingdom and Switzerland, while the largest flows in recent years were received by Switzerland and Austria. Likely as a result of high flows to European destination countries over several years, more German emigrants resided in OECD countries within Europe in 2010/11 than outside Europe.

References

Arslan, C., J.-C. Dumont, Z. Kone, Y. Moullan, C. Ozden, C. Parsons and T. Xenogiani (2014), "A New Profile of Migrants in the Aftermath of the Recent Economic Crisis", *OECD Social, Employment and Migration Working Papers,* No. 160, OECD Publishing, Paris, http://dx.doi.org/10.1787/5jxt2t3nnjr5-en.

De Coulon, C. and S. Mathys (2008), *Rapport de la Suisse*, SOPEMI Network Report.

Destatis (2014a), "Bevölkerung und Erwerbstätigkeit 2013", Statistisches Bundesamt, Wiesbaden.

Destatis (2014b), "Bevölkerung und Erwerbstätigkeit 2012", Statistisches Bundesamt, Wiesbaden.

Destatis (2013), "Bevölkerung und Erwerbstätigkeit 2011", Statistisches Bundesamt, Wiesbaden.

Destatis (2012), "Bevölkerung und Erwerbstätigkeit 2010", Statistisches Bundesamt, Wiesbaden.

Destatis (2011), "Bevölkerung und Erwerbstätigkeit 2009", Statistisches Bundesamt, Wiesbaden.

Destatis (2010), "Bevölkerung und Erwerbstätigkeit 2008", Statistisches Bundesamt, Wiesbaden.

Destatis (2009), "Bevölkerung und Erwerbstätigkeit 2007", Statistisches Bundesamt, Wiesbaden.

Destatis (2007), "Bevölkerung und Erwerbstätigkeit 2006", Statistisches Bundesamt, Wiesbaden.

Destatis (2006), "Bevölkerung und Erwerbstätigkeit 2005", Statistisches Bundesamt, Wiesbaden.

Destatis (2005), "Wanderungsstatistik 2004", Statistisches Bundesamt, Wiesbaden.

Destatis (2004a), "Wanderungsstatistik 2003", Statistisches Bundesamt, Wiesbaden.

Destatis (2004b), "Wanderungen 2002", Statistisches Bundesamt, Wiesbaden.

Destatis (2004c), "Wanderungen 2001", Statistisches Bundesamt, Wiesbaden.

Dumont, J. and G. Lemaître (2005), "Counting Immigrants and Expatriates in OECD Countries: A New Perspective", *OECD Social, Employment and Migration Working Papers*, No. 25, OECD Publishing, Paris, http://dx.doi.org/10.1787/521408252125.

Haug, S. (2004), "Wanderungen zwischen Deutschland und den mittel- und osteuropäischen EU-Beitrittsländern", *Wirtschaft und Statistik*, Vol. 3/2004, Statistisches Bundesamt, Wiesbaden.

Kępińska, E. (2007), *Recent Trends in International Migration in Poland,* 2006 SOPEMI Network Report.

OECD (2009), "International Migration and the Economic Crisis: Understanding the Links and Shaping Policy Responses", *International Migration Outlook 2009,* OECD Publishing, Paris, http://dx.doi.org/10.1787/migr_outlook-2009-3-en.

Database references

American Community Survey (ACS), www.census.gov/acs.

EU Labour Force Survey (Eurostat), http://ec.europa.eu/eurostat/web/lfs/overview .

OECD Database on Immigrants in OECD Countries (DIOC 2010/11), http://www.oecd.org/els/mig/dioc.htm.

OECD Database on Immigrants in OECD Countries (DIOC 2000/01), http://www.oecd.org/els/mig/dioc.htm.

OECD International Migration Database, http://dx.doi.org/10.1787/data-00342-en.

Chapter 2

Potential of German emigrants for the labour market

This chapter examines the potential that German emigrants in OECD countries represent for the labour supply in Germany. It considers the educational composition of the German diaspora, identifies the number of active German emigrants across destination countries, specifies their occupations with a focus on certain shortage occupations, and draws on a variety of indicators to characterise their career prospects. It emerges that German emigrants offer a large skill pool at both the high- and the medium-skill level, and indeed are more likely than their counterparts in Germany to work in high-skill occupations. Substantial numbers of German-born health professionals, engineers and technicians are present in some OECD countries.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

If German emigrants were to be mobilised for employment in their home country, it would be important to know the location of the emigrants with a certain education, and the location of those who are active on the labour market – especially those working in particular occupations. It would also be important to identify the career prospects in their current location, as those prospects determine whether or not a job offer from Germany and the return it would entail will be considered. This chapter thus identifies the educational attainment of German emigrants and examines their situation in the labour market, with a focus on high-skill occupations.

Educational attainment

In the OECD area, Germany is one of the most important origin countries for emigrants with high and medium[1] levels of education. More than one million German emigrants of working age in 2010/11 were highly educated, and 1.1 million possessed a medium level of education (see Table 2.1). The shares of women among those with high and medium levels of education both corresponded to the overall share of women among the German emigrants of working age. If all persons aged above 15 are considered, the numbers of German emigrants with high- and medium levels of education reached 1.2 million and 1.4 million individuals respectively, which constitutes an enormous pool of skills. Thus 85% of the highly educated German emigrants are of working age, and almost 80% of those with a medium level of education.

Table 2.1. Education of working-age German emigrants by sex, 2000/01 and 2010/11

Population 15-64	2010/11, in thousands			2000/01, in thousands		
	Men	Women	Total	Men	Women	Total
Total population	1 266.0	1 427.2	2 693.1	1 148.0	1 396.2	2 544.1
Medium-level education	526.3	613.0	1 139.3	490.3	635.1	1 125.4
High education	489.5	553.1	1 042.6	370.1	397.9	768.0

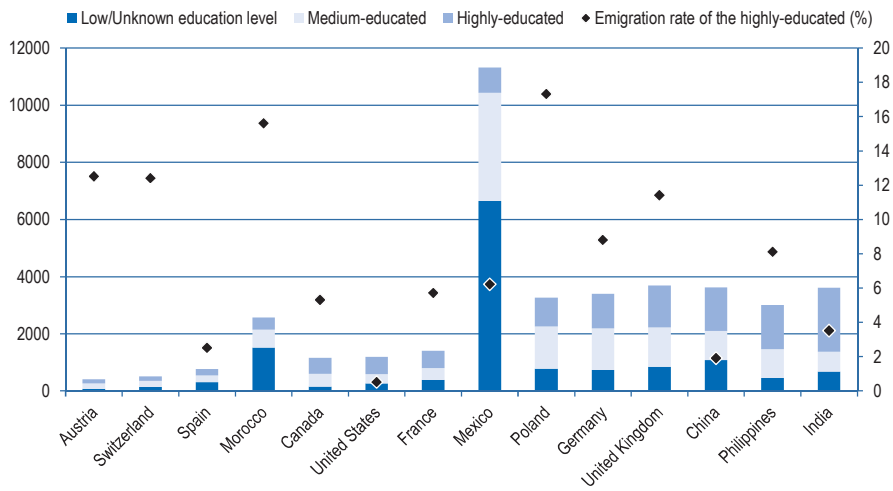
Source: *OECD Database on Immigrants in OECD Countries* (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

These numbers make Germany one of the most important origin countries for emigrants with either high or medium levels of education, not only in the OECD area but worldwide (see Figure 2.1). In 2010/11, it was the fifth most important origin country of highly educated emigrants – after India (2.2 million), the Philippines, China and the United Kingdom (1.5 million each). Within the OECD area, the number of highly educated emigrants from Germany was behind only that from the United Kingdom.

Likewise, in 2010/11 Germany was the third most important country of origin worldwide for emigrants with a medium level of education, behind only Poland (1.5 million) and Mexico (3.8 million).

Figure 2.1. Educational attainment among emigrants from selected origin countries, 2010/11

Emigrant population aged 15 and above in thousands (left scale);
emigration rate of the highly educated (right scale)



Note: Origin countries are ranked by how many highly educated emigrants they send to OECD countries, from least to most.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm for stocks; Barro, R.J. and J.W. Lee (2013), "A New Data Set of Educational Attainment in the World, 1950-2010", *Journal of Development Economics*, Vol. 104, September, pp. 184-198 for emigration rates.

Figure 2.1 also indicates the share of a country's highly educated people that has emigrated, which likely gives a better idea of the effects on the country of origin than absolute numbers do. For Germany, the emigration rate of the highly educated stood close to 9% in 2010/11, a rate comparable to that for the United Kingdom (11%) and above that for France (6%), but well behind the rates for Austria and Switzerland (both around 12%). The emigration rate of highly educated German-born persons was thus twice as high as the overall emigration rate of the German-born population – a finding shared by many countries of origin (including OECD members such as Austria, France and the United Kingdom), which highlights the selective nature of migration.

The same destinations for emigrants with high- and medium-level education

Most emigrants from Germany with high and medium levels of education can be found in the same few countries. Table 2.2 provides key figures for the highly educated German emigrants in their main destinations. Similarly, Table A.12 in the Annex gives such figures for those German emigrants with a medium level of education. The 12 main destination countries account for 87% of all highly educated German emigrants in the OECD area, and for as much as 91% of those with a medium level of education. Table A.9 in the Annex details the number of German emigrants by ISCED level wherever possible, for all available destination countries in the OECD.

In absolute numbers, the United States is by far the most important destination country for both educational groups: about 430 000 German emigrants with a high education and 560 000 with a medium level of education could be found there in 2010/11 (see Table 2.2 and Table A.12 in the Annex). Switzerland was the second destination for both groups, counting 142 000 with high education levels and 112 000 with medium education levels in 2010/11. Also the third destination is common to both groups: the United Kingdom hosted 118 000 with high education and 93 000 with medium education levels.

Table 2.2. Characteristics of highly educated German emigrants in main destination countries, 2010/11 and 2000/01

German-born population aged 15 and above

	Highly educated in 2010/11		Percentage in 2010/11 of highly educated emigrants that is…					Highly educated in 2000/01	
	Thousands	% of total	Female	15-24 years old	25-64 years old	65+ years old	Recent (≤5 years)	Thousands	% of total
United States	430.2	35.5	53.2	4.0	81.0	15.0	9.3	356.9	41.3
United Kingdom	118.1	9.7	58.1	8.2	81.7	10.1	24.9	60.4	7.0
Switzerland	142.3	11.7	44.6	0.8	92.3	6.9	41.9	61.4	7.1
France	74.5	6.1	59.2	5.1	81.9	13.0	15.6	58.3	6.7
Spain	73.1	6.0	45.6	2.5	80.2	17.3	18.6	33.5	3.9
Italy	26.8	2.2	62.3	2.1	87.8	10.1	12.4	16.4	1.9
Canada	75.5	6.2	51.3	2.9	64.6	32.5	5.9	63.5	7.4
Austria	43.1	3.6	43.8	0.6	88.7	10.7	24.9	24.9	2.9
Turkey	38.1	3.1	58.0	4.0	96.0	0.0	5.4	51.8	6.0
Greece	31.0	2.6	58.7	1.9	95.0	3.1	11.1	22.0	2.5
Australia	31.2	2.6	54.9	1.9	79.6	18.6	14.9	21.1	2.4
Netherlands	27.0	2.2	54.4	4.8	82.3	13.0	15.3	21.3	2.5

Note: Emigrants with an educational attainment of ISCED level 5 or 6 are counted as highly educated.

Source: *OECD Database on Immigrants in OECD Countries* (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

The ranking of destination countries begins to differ between the two educational groups from rank four: the next destinations of highly educated German emigrants were Canada (76 000), France (75 000) and Spain (73 000). Among the destinations of those with a medium level of education Austria took fourth place (90 000), ahead of France (77 000), Italy (83 000) and Canada (67 000). This different sorting leads to considerable variation in the educational composition across countries: more than 40% of the German emigrants in Switzerland, Canada and the United Kingdom were highly educated in 2010/11, but only 14% of the Germans in Italy. In the United States and Austria, half of the German emigrants had medium levels of educational attainment.

In line with the overall shift towards Europe discussed in Chapter 1, the share of highly educated Germans in the EU/EFTA countries has risen, while that hosted in the United States has declined over the same period (see Table 2.2). In 2000/01, the United States hosted 41% of all highly educated Germans abroad, but this share has fallen to 36% in 2010/11. Conversely, the EU/EFTA countries among the main destination countries together accounted for 35% in 2000/01, rising to 44% in 2010/11. The same pattern can be observed for German emigrants with a medium level of education (see Table A.12 in the Annex): the United States hosted 39% in 2010/11 (40% in 2000/01), against 41% in the EU/EFTA countries (35% in 2000/01).

The share of women among highly educated emigrants exceeded 50% in 2010/11 in most of the main destination countries. In Austria, Switzerland and Spain, however, their share only reached 43% to 46%. In turn, women accounted for 62% of highly educated Germans in Italy, and they represented close to 60% in France, Greece, the United Kingdom and Turkey. Among German emigrants with a medium level of education, women accounted for 50-60% in all countries except Australia, where they accounted for less than 40%.

More than 90% of the highly educated German emigrants in Switzerland, Turkey and Greece fell into the prime working-age group of 25 to 64 in 2010/11. By comparison, only 65% of highly educated German emigrants in Canada were 25 to 64 years old, while 33% were over the age of 65 in 2010/11. The share of those younger than 25 remained at or below 5% in all main destination countries except the United Kingdom (8%), while that same group made up much higher shares of the German emigrants with a medium level of education – notably 16% in the United States and Turkey, and 27% in the United Kingdom. However, those who emigrate to study for their first tertiary degree abroad still have a medium level of education while studying, and will be counted as highly educated once they obtain their degree. Therefore, a substantial share of young emigrants with medium levels of education might have to be regarded as

future highly educated emigrants, especially in countries with large numbers of German students. Chapter 4 of this review will look at the migration of students from Germany in detail.

Individuals of prime working age (25 to 64) are also the largest group among the emigrants from Germany with a medium level of education, but are much less frequent there than they are among the highly educated. The shares of this age group are particularly low in the United States (61%), Australia (52%) and Canada (43%), where instead those aged 65 and above are more frequent, representing up to one-half of the emigrants with a medium level of education. As these countries exhibit low shares of recent emigrants (between 3% and 6%), it appears that their emigrants with a medium level of education often come from earlier emigrating cohorts.

Recent emigrants instead made up large shares of the medium-level educated Germans in Switzerland (34%), Austria (23%) and Spain (16%), as indicated in Table A.12. Higher still, no less than 42% of highly educated Germans in Switzerland were recent emigrants (see Table 2.2). Since recent emigrants may not have settled permanently yet, they could be more open to offers from abroad. German employers could therefore focus their efforts on Switzerland, given the total number of highly educated Germans in that country and the very high share (92%) aged 25 to 64. After Switzerland, the largest shares of highly educated recent emigrants from Germany could be found in Austria (25%) and Spain (19%).

Table A.13 in the Annex presents the shares of recent emigrants who have a high or medium level of education, in order to explore the educational composition of the recently emigrated cohorts. In the settlement countries (the United States, Canada and Australia), the highly educated in 2010/11 made up a clear majority of recent emigrants from Germany. This might reflect the emphasis on skilled labour migration in these countries, but it may also reflect the selective nature of migration as well as the rising numbers of persons with tertiary education. Indeed, in the United Kingdom – a country that does not impose any restrictions on migration from Germany – close to two-thirds of the recent German emigrants were highly educated. By contrast, only about one-fifth of the recent German emigrants in Turkey and Greece were highly educated. While those with a medium level of education accounted for a majority of recent German emigrants in Austria (60%) and Greece (51%), the low-educated did not make up a majority of the recent German emigrants in any of the main destination countries.

Finally, some information on the education of recent German emigrants in particular age groups is available from the EU Labour Force Survey. The numbers of highly educated recent German emigrants in the age

group 25-34, many of whom are beginning their working lives, are significant in Switzerland (28 000 in 2013), the United Kingdom (15 000), Austria (7 000) and Norway (2 000). Moreover, all of those numbers appear to be growing: they were much higher in 2013 than in 2005, and slightly higher than in 2011. Conversely, Austria and Switzerland counted significantly fewer medium-level educated recent emigrants from Germany aged 25-34 in 2013 than in 2011, although substantially more than in 2005.

A shift towards higher education

Between 2000/01 and 2010/11, there was a strong shift towards greater educational attainment among German emigrants of working age: the number of those with high education jumped from about 770 000 in 2000/01 to one million in 2010/11, while the number of those with a medium level of education remained at 1.1 million (see Table 2.1).[2] Thus both educational groups each represented about 40% of German emigrants in 2010/11. In 2000/01, the share of those with a medium level of education (44%) considerably exceeded the share of the highly educated (30%).

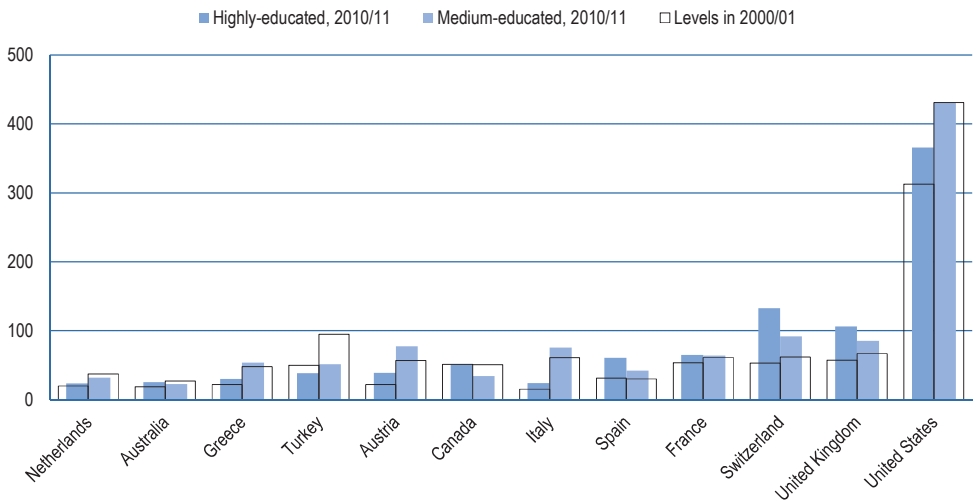
Indeed, the numbers of highly educated individuals have risen quickly not just among German emigrants but also in the entire population of emigrants in the OECD area (see Table A.10 in the Annex). Between 2000/01 and 2010/11, the total number of highly educated emigrants in the OECD area grew by 70%, driven by the roughly doubling numbers of highly educated emigrants from India, China and the Philippines. Among German emigrants, the shift towards high education was driven by women: in 2010/11, there were 550 000 highly educated German women of working age abroad, 150 000 more than in 2000/01 (see Table 2.1). The increase of the highly educated among male emigrants was lower, from 370 000 to 490 000. The slight fall in the number of women with a medium level of education, from 635 000 to 615 000, further contributed to the shift towards high education, while the number of men with a medium level of education rose slightly to reach half a million.

As Figure 2.2 shows, the increase in the number of highly educated emigrants from Germany has translated into rising levels in almost all main destination countries (except for a decrease in Turkey of 12 000 individuals and unchanged levels in Canada). The absolute increases were highest in Switzerland (+80 000), the United States (+53 000) and the United Kingdom (+50 000). The highest increases in percentage terms, however, occurred in Switzerland (+150%), Spain (+100%), the United Kingdom (+90%), and Austria (+80%). The changes in the stocks of German emigrants with a medium level of education were more mixed. On the one hand, this stock also increased between 2000/01 and 2010/11, notably in Austria and Switzerland (by 20 000 and 30 000, respectively). In relative terms, Austria and Switzerland but also Spain saw their stocks of German emigrants with a

medium level of education rise by more than one-third over this period. On the other hand, stocks fell by 20 000 in Canada and by close to 50%, or 40 000, in Turkey.

Figure 2.2. Working-age German emigrants with high and medium levels of education in the main destination countries, 2010/11 and 2000/01

German-born population aged 15-64, in thousands



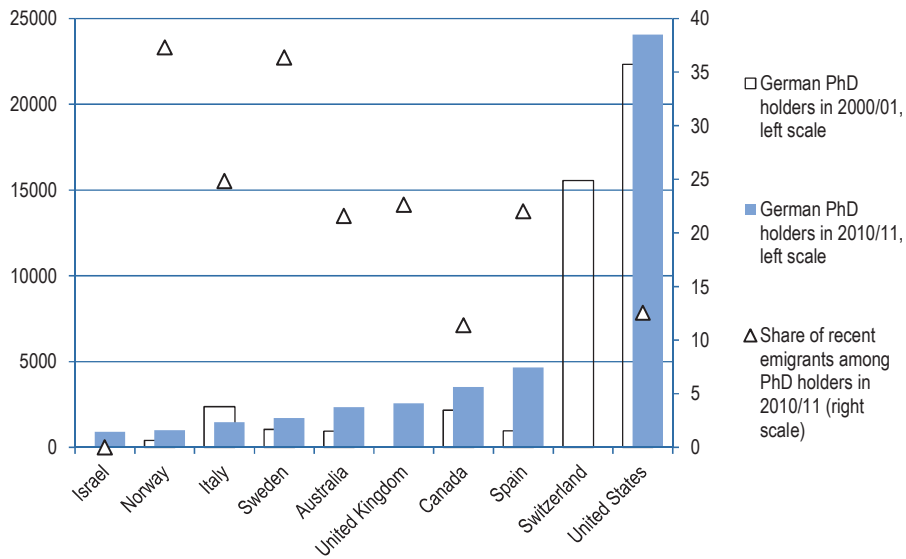
Note: Countries are ranked by the size of the German emigrant population in each destination country.

Source: *OECD Database on Immigrants in OECD Countries* (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Despite the overall shift towards highly educated German emigrants between 2000/01 and 2010/11, the composition of the recent German emigrants has shifted significantly towards the highly educated only in the United States, France, Spain and Australia (see Table A.13 in the Annex). The change was most pronounced in Spain: the share of the highly educated among the recent German emigrants essentially doubled (from 26% in 2000/01 to 49% in 2010/11), while the share of the low-educated roughly halved (from 49% to 22%). A shift towards those with a medium level of education was instead observed in Austria and Switzerland. The Netherlands has even seen a shift towards the low-educated: their share among recent German emigrants rose from nil in 2000/01 to one-fifth in 2010/11, while the share of the highly educated declined from 62% to 36%.

The shift towards higher education among German emigrants is also manifested in the growing numbers of doctorate holders (corresponding to ISCED level 6). While the necessary data are often unavailable, existing data suggest that more than 46 000 German doctorate holders were living outside Germany in 2010/11 (see Table A.14 in the Annex). The data available for 2000/01 set the corresponding figure at 48 000, but this does not necessarily imply a fall in the number of German doctorate holders abroad between 2000/01 and 2010/11. Rather, the figure for 2010/11 is not available in the case of Switzerland, a country that had contributed no less than 15 000 to the total in 2000/01. In several other main destination countries of German doctorate holders, the numbers for that group actually grew over this period: from 22 000 to 24 000 in the United States; from 2 200 to 3 500 in Canada; and from a level of roughly 1 000 in each of the following countries to 1 700 in Sweden, to 2 300 in Australia, and as much as 4 700 in Spain (see Figure 2.3). A large absolute decrease is observed only for Italy, from 2 400 to 1 500.

Figure 2.3. German emigrants with doctoral degrees in selected countries, 2000/01 and 2010/11



Note: Many countries do not provide information on ISCED level 6 (corresponding to doctorates) separately. Table A.14 in the Annex shows the data available at this level. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: *OECD Database on Immigrants in OECD Countries* (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

As the same data source puts the number of German-born doctorate holders who resided in Germany in 2010/11 at 660 000, the emigration rate of German doctorate holders exceeded 6%, but remained below the emigration rate of highly educated German emigrants. While the overwhelming majority may be found in only two countries, the United States and Switzerland, still about 500 of them were counted in Ireland, Luxembourg and New Zealand each; among them, up to one-third were recent emigrants (see Table A.14 in the Annex).

Shares of recently emigrated doctorate holders in Norway and Sweden that are well above one-third suggest that these countries have recently become very attractive for German doctorate holders, even though neither Norway nor Sweden figures among the main destination countries of German emigrants more generally.

Ultimately, information on formal educational attainment cannot provide a complete picture because it is only an indicator – often imperfect – of the skills that can be drawn on in practice, especially in a work environment. The actual skills individuals possess, although correlated with educational attainment, are not perfectly captured by it. Direct measures of skills can therefore add an important perspective on the labour market potential of German emigrants. In Box 2.1, their literacy proficiency as assessed in the Survey of Adult Skills (PIAAC) is discussed, together with information on where they obtained their formal education. Qualifications obtained in the home country are often discounted in the labour market of destination countries and transferability of skills can thus be limited.

Box 2.1. Evidence on adult skills and qualifications from PIAAC

Beyond formal educational qualifications, the OECD 2012 Survey of Adult Skills (PIAAC) directly measured an individual's literacy by testing their ability to deal with written texts. Given a series of varying tasks, subjects had to identify the relevant information in one or more texts, and often had to process it in order to arrive at an answer to the test question. The overall score attained across the various tasks served as a measure of the subject's literacy level. The survey was carried out in the majority of OECD countries, covering many European countries as well as some non-European countries. Details about this data set can be found in Bonfanti and Xenogiani (2014).

German-born individuals were not just tested in Germany. Because the survey participants in other OECD countries included foreign-born residents there, a number of German emigrants took the same tests as Germans in Germany. With the caveat that the tests were administered in the local language, the test scores of the German-born in Germany and abroad are therefore directly comparable.

Box 2.1. Evidence on adult skills and qualifications from PIAAC

From a simple comparison between the average test scores of the two groups, a number of overall results emerge. German emigrants in European countries (Austria, Belgium, Denmark, Spain, Estonia, Finland, France, the United Kingdom, Ireland, Italy, the Netherlands, Norway and Sweden) achieved almost the same average test scores as Germans tested at home. By contrast, German emigrants tested in non-European countries (Australia, Canada, Japan, Korea and the United States) reached significantly higher test scores. This might well reflect that the emigrants from Germany in the non-European countries are positively selected, i.e. the level of education or skills among the emigrants exceeds the average level in their country of origin.

The German emigrants also appear positively selected compared to the average of the population in their destination country: in both European and non-European countries, the average test scores of German emigrants actually somewhat exceed those of the native-born population. Similar patterns emerge for emigrants from France, the United Kingdom and the United States. Notably, the emigrants in non-European countries achieve higher average test scores than their counterparts in European countries or at home.

PIAAC further provides information on where an individual's formal qualification was acquired. For some countries, the available data allow estimating the share of German emigrants aged 15 to 64 holding local qualifications. This estimate reaches 70% in Norway and 64% in Austria. Such high shares might reflect high stay rates of German students in Norway and Austria (international students from Germany are discussed in detail in Chapter 4). However, PIAAC tends to cover migrants who are well integrated in the destination country better than other migrants; since well-integrated migrants could be more likely to have a local qualification, migrants with local qualifications might be overrepresented. Even in this case however, differences between estimates would still remain informative because this overrepresentation might well affect the estimate for each country similarly. Among German emigrants in Denmark and Belgium (Flanders only), the share with a local qualification is estimated at 49% and 34%, respectively. Much lower estimates are obtained for German emigrants in the United Kingdom (17%, England and Northern Ireland only) and Canada (15%).

Pooling all countries where such information is available (largely the countries listed above in the comparison of test scores), one can estimate shares in certain subgroups: while only 13% of the non-recent German emigrants (i.e. those who had stayed more than five years when surveyed) reported a local qualification, 84% of the recent German emigrants did. This very high share likely comprises international students who have obtained a local qualification but often do not stay longer than five years. Those aged 25-54 hold a local qualification much more often (24% of the cases) than those aged 55-64 (11%). Only 4% in the age group 16-24 report a local qualification, but many in that group may obtain one later. The share of local qualifications also seems to fall as the level of education rises: from 23% for those with low education to 19% for those with a medium level of education, and 16% for those with high education.

In conclusion, very large numbers of German emigrants possess formal qualifications at either the high or the medium level of education. This made Germany one of the main source countries of highly educated emigrants within the OECD area. The share of working-age individuals is greater

among the highly educated emigrants from Germany than among those with a medium level of education. While the number of highly educated German emigrants has been rising quickly – especially in Switzerland, the United States and the United Kingdom – the number of German emigrants with a medium level of education has stagnated. By 2010/11, the EU/EFTA area had become the main destination both for highly educated and for medium-level educated Germans.

Labour market participation

Within the entire OECD area, two million German emigrants of working age were active on the labour market in 2010/11 (based on DIOC), representing three-quarters of that group. More than 1.8 million German emigrants were employed, or two-thirds of those of working age. Men accounted for 940 000 of those employed, and women for 880 000. About 180 000 German emigrants were recorded as unemployed, corresponding to 9% of those participating in the labour market; they were almost equally split between men and women (86 000 compared to 90 000). However, there were twice as many inactive women of working age (460 000) as there were inactive men of working age (240 000).

For most OECD countries, Table 2.3 shows how many German emigrants of working age (15 to 64 years) are recorded as employed, unemployed, and inactive in the labour market of the respective destination country. In the United States alone, 660 000 German emigrants of working age were either employed or unemployed in 2010/11; about 200 000 each in the United Kingdom and Switzerland; and more than 100 000 each in Italy, Spain, France and Austria. Among those in the United States, the United Kingdom, France and Canada, around 90% were employed, while the employed even represented more than 95% of all participating German emigrants in Switzerland, the Netherlands, Norway, Denmark, Mexico and Japan.

While those employed in the United States are evenly split between high and medium levels of education, the highly educated in employment outnumber the medium-level educated ones in almost all OECD countries. The notable exceptions are Italy, Austria and Greece where, respectively, 46 000, 56 000 and 32 000 medium-level educated German emigrants were employed in 2010/11.

German emigrants who are unemployed in their destination country may be more likely to respond positively to job offers from their home country. At the same time, those who have been unemployed over a long period may suffer from skill obsolescence, which could in turn have implications for the usefulness of their skills back home. An especially high number of unemployed German emigrants are present in Spain (29 000), where they

represented one-quarter of the active German emigrants in 2010/11. Almost 9 000 of them are highly educated, and about another 9 000 have attained a medium level of education. Only in the United States are there more unemployed German emigrants than in Spain (46 000), most of whom have a medium level of education. Here the unemployed represented only 7% of the active German emigrants.

Table 2.3. Active German emigrants across destination countries by education level, 2010/11

German-born population aged 15-64

	Total			Highly-educated		Medium-educated	
	Employed	Unemployed	Inactive	Employed	Unemployed	Employed	Unemployed
United States	613 122	46 313	207 987	292 860	12782	293 167	27 670
Switzerland	202 421	6 969	27 821	119 310	3 068	75 653	3 562
United Kingdom	173 076	12 448	50 726	86686	3 357	59 861	5 420
Italy	97 463	18 951	58 492	17860	1 614	45 681	7 951
Spain	84 950	28 750	32 130	42490	8 745	23 475	8 520
France	102 845	10 339	48 469	51408	3 586	38 607	4 649
Austria	96 943	5 403	29 166	33484	1 333	55 856	2 969
Turkey	70 040	10 504	55 034	27650	3 386	24 451	3 515
Greece	64 862	14 284	26 376	23726	3 054	32 314	8 034
Canada	66 865	4 115	22 960	39220	1 950	23 250	1 730
Netherlands	54 286	2 297	20 017	20343	377	22 550	959
Australia	42 118	2 225	18 520	19726	829	14 926	904
Belgium	35 670	3 079	22 710	10426	559	10 898	1 198
Sweden	16 045	2 540	7 935	8 230	885	5 800	945
Portugal	16 040	1 829	5 070	6 219	376	5 464	688
Norway	15 792	475	4 603	7 930	153	3 538	<100
Denmark	14 743	617	8 725	5 154	168	4 447	241
Hungary	8 413	459	6 413	2 851	<100	4 821	310
New Zealand	7 659	501	2 175	5 334	270	2 055	171
Ireland	6 949	948	2 819	4 144	332	2 264	421
Luxembourg	5 951	394	2 510	3 030	124	2 162	176
Israel	5 134	300	3 340	4 036	169	856	131
Poland	3 943	774	10 179	1 597	<100	2 062	529
Mexico	3 589	109	1 266	2 581	<100	845	<100
Finland	2 718	293	1 617	1 095	112	644	122
Czech Republic	2 547	190	1 288	1 174	<100	1 212	105
Japan	1 960	<100	922	1 510	<100	199	<100
Chile	522	185	698	406	108	<100	<100
Slovak Republic	530	<100	239	232	<100	172	<100

Note: Levels below 100 are not reported.

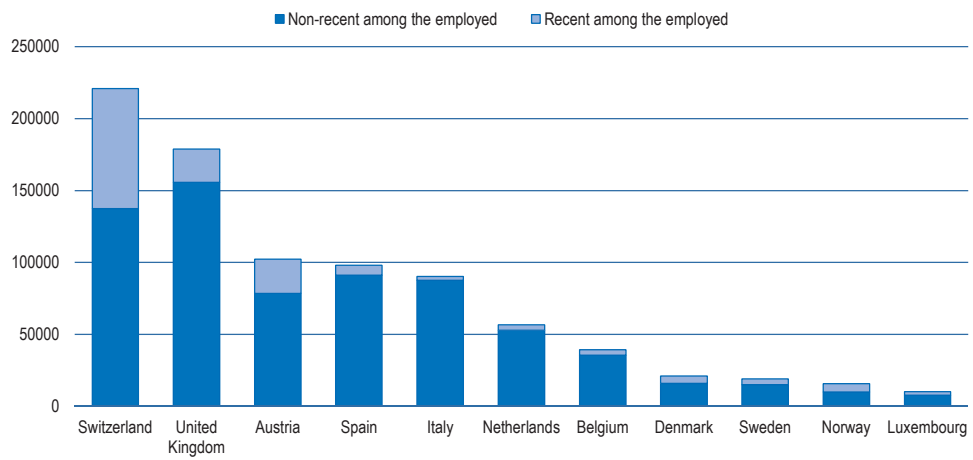
Source: *OECD Database on Immigrants in OECD Countries* (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Dynamic developments in some destination countries

Recruitment efforts might be most effective when targeted at recent emigrants, since those who arrived within the past five years may be more mobile than those who have arrived in the more distant past. Based on labour force survey data for 2013, Figure 2.4 shows the numbers of recent emigrants among the employed German emigrants in several European destination countries. In absolute terms, high numbers of recent German emigrants were employed in the United Kingdom (23 000), Austria (24 000), and especially Switzerland (83 000). High proportions of recent German emigrants were employed in Luxembourg, Austria and Denmark (about 25%), but especially in Norway and Switzerland (36% and 38%, respectively). While the totals from this data source are not necessarily directly comparable to the figures in Table 2.1, they do suggest that the employment of German emigrants in Switzerland has risen substantially since 2010/11.

Figure 2.4. Employed German emigrants by duration of stay in selected destination countries, 2013

German-born population aged 15-64



Note: Emigrants are considered recent as long as they have resided in the destination country for less than five years.

Source: EU Labour Force Survey (Eurostat), http://ec.europa.eu/eurostat/web/lfs/overview.

Developments over time can be seen for all main destination countries from a comparison of 2000/01 figures with 2010/11 figures. Tables A.15 and A.16 in the Annex provide these figures for all German emigrants and

then separately for those in employment and unemployment. It should be noted that when comparisons are drawn here between 2000/01 and 2010/11, the population of reference is that of persons aged 15 and above rather than only those of working age, because individuals aged 65 and above cannot be excluded from the 2000/01 data. Table A.15 confirms that employment of German emigrants (aged 15 and above) rose dramatically in Switzerland, by 100 000 or 100% – the highest increase recorded in a main destination country between 2000/01 and 2010/11 (but behind an increase of 125% in Norway). The corresponding figures for the United Kingdom, Spain, Austria and Italy also exhibit substantial increases. The figures for the United States, France, the Netherlands and Australia have remained rather stable, but those for Canada and Turkey have fallen substantially.

The employment of highly educated German emigrants especially has grown strongly over 2000/01-2010/11 in almost all main destination countries: as Table A.15 shows, it more than doubled in Spain (+144%) and Switzerland (+157%). By contrast, employment of Germans with a medium level of education has fallen or stagnated in the majority of the main destination countries, but has strongly increased in Austria, Italy, Spain and Switzerland (by 58%-70%). Unemployment of German emigrants rose particularly in Spain and the United States (see Table A.16): in both cases, it increased by around 20 000, growing at similar rates for those with medium and high levels of education. At the same time, unemployment figures for German emigrants in Turkey and Italy have fallen substantially, mainly among those with medium and low levels of education.

Rising numbers of highly educated German emigrants in employment – and in unemployment

Employment and unemployment figures for all German emigrants aged 15 and above – the group for which comparisons over time can be made – are very close to the figures for those of working age (mentioned earlier) because most persons aged 65 and above are not active on the labour market. Almost 1.9 million German emigrants aged 15 and above were employed in 2010/11, while 180 000 were unemployed (see Table 2.4). Compared to 2000/01, employment had increased by 240 000 (or 15%), driven equally by the growing employment of women (+125 000) and men (+120 000). The number of unemployed German emigrants rose by 40 000 (or 28%) over this period, thus increasing twice as fast as employment – again driven equally by the figures for women (+21 000) and men (+19 000). While growing employment suggests that it has overall become easier for recruiters to find employed German emigrants, it has in particular become much easier in some OECD countries to find unemployed German emigrants.

Table 2.4. Labour market status among German emigrants, 2010/11 and 2000/01

German-born population aged 15 and above, in thousands

	2010/11			2000/01		
	Men	Women	Total	Men	Women	Total
Total	1503.1	1844.6	3347.7	1351.8	1798.8	3150.6
Employed	968.6	912.8	1881.4	849.6	788.2	1637.8
Unemployed	87.8	92.2	180.0	69.1	71.5	140.6
Inactive	429.8	828.3	1258.0	420.9	916.5	1337.4
Total highly-educated	570.1	634.9	1204.9	420.4	444.5	864.9
Employed	438.8	427.0	865.7	321.7	285.5	607.1
Unemployed	21.0	28.2	49.2	13.4	15.6	29.0
Inactive	110.2	179.7	289.9	85.3	143.3	228.6
Total medium-educated	623.6	796.3	1419.9	571.0	778.7	1349.6
Employed	401.4	384.3	785.8	363.1	363.0	726.2
Unemployed	40.7	42.5	83.3	29.8	32.9	62.7
Inactive	181.0	369.2	550.1	177.4	382.2	559.7

Note: The totals given also include observations where labour force status was missing. The difference between the totals for 2010/11 reported here and those reported in Chapter 1 arise because those aged above 65 cannot be included here if only labour force data are available from their destination country. The vast majority in this age group would normally be inactive.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

As indicated before by the figures for the main destination countries, the overall increases in both employment and unemployment primarily concern the highly educated emigrants from Germany (see Table 2.4). Their overall employment rose from just above 600 000 in 2000/01 to 870 000 in 2010/11, driven somewhat more by women (+142 000) than by men (+117 000). Unemployment of the highly educated rose from 29 000 to 49 000 persons, growing more among women (+13 000) than among men (+8 000). Among the highly educated, unemployment (+69%) has thus grown faster than employment (+43%). For recruiters, it has therefore not only become easier to find highly educated German emigrants in employment, but it has especially become easier to find highly educated German emigrants in unemployment.

Occupations of German emigrants

This section focuses on the type of jobs German emigrants hold in OECD countries. Table 2.5 shows the employment of German emigrants in 2010/11 by occupational group, for each main destination country except the United States (where occupations are classified according to an entirely different system). In the majority of countries in Table 2.5, more than half of all German emigrants in employment work in high-skill occupations (managerial, professional and technical as well as associate professional jobs). In Switzerland, this share is up to 70%, followed by 67% in Luxembourg and 60% in France. When only managerial and professional positions are considered, these represent about 50% of all jobs German emigrants hold in Switzerland and Luxembourg, 46% in Ireland, and about 40% in Denmark, Sweden, Australia and France.

Table 2.5. Employed German emigrants by occupational groups in main destination countries, 2010/11

German-born population aged 15 and above

	High-skilled white collar			Low-skilled white collar		High-skilled blue collar		Low-skilled blue collar	
	Legislators, senior officials and managers	Professionals	Technicians and associate professionals	Clerks	Service workers and shop and market sales workers	Skilled agricultural and fishery workers	Craft and related trades workers	Plant and machine operators and assemblers	Elementary occupations
United Kingdom	20 729	40 558	31 321	19 758	26 922	997	12 247	8 576	15 090
Switzerland	30 016	84 265	47 034	13 075	22 093	2 001	19 274	6 117	4 723
France	12 586	26 045	21 811	11 339	09 670	1 522	7 210	5 898	5 383
Spain	6 600	14 480	14 555	14 625	15 870	1 235	8 390	4 850	5 720
Italy	4 449	12 511	11 153	11 798	23 945	1 164	15 020	6 756	21723
Canada	9 410	17 540	12 280	7070	10 285	1 890	8 145	3 565	4 480
Austria	9 789	28 386	21 007	11493	17 106	1 382	10 514	3 875	6 841
Australia	6 110	11 107	6 669	5006	5 793	958	4 510	2 103	2 688
Netherlands	5 335	13 749	9 870	5672	8 098	423	4 406	3 284	4 282
Belgium	5 658	11 176	7 031	7971	5 193	442	3 478	1 704	3 556
Sweden	910	4 640	2 665	1110	2 370	190	1 255	1 085	650
Greece	4 243	13 907	6 292	5979	16 299	2732	5 751	4 594	3 558
Portugal	1 442	3 929	2 473	1875	2 897	189	1 569	669	992
Norway	883	3 724	2 672	1348	3 168	277	2 201	622	845
Denmark	566	4 383	1 369	1172	1 936	<100	933	841	1 432
Hungary	673	2 018	1 428	702	1 303	182	958	731	744
Ireland	1 339	1 729	787	820	1 243	166	296	158	127
Luxembourg	725	2 155	905	669	514	<100	292	186	212

Note: Levels below 100 are not reported. Figures are unavailable for the United States, where a different classification of occupations is used.

Source: *OECD Database on Immigrants in OECD Countries* (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

In terms of the actual number of German emigrant professionals, one can find about 84 000 working in Switzerland, 41 000 in the United Kingdom, 28 000 in Austria and 26 000 in France. 47 000 work in Switzerland as technicians or associate professionals, still 31 000 in the United Kingdom, and more than 20 000 each in France and Austria. Respectively, between 13 000 and 30 000 work in managerial positions in Switzerland, the United Kingdom and France. These large groups all reflect that German emigrants concentrate in high-skill, white-collar occupations.

German emigrants in low-skill white-collar occupations could be found primarily in the United Kingdom (20 000 clerks and 27 000 service workers), Switzerland (13 000 clerks and 22 000 service workers), and Spain (15 000 clerks and 16 000 service workers). In the group of high-skill blue-collar occupations, Italy counted 15 000 German craftsmen and tradesmen, second only to the number in Switzerland (19 000). Another 7 000 were working in Italy as machine operators or assemblers, as were close to 9 000 in the United Kingdom. Across all blue-collar occupations, Italy was the prime destination country in 2010/11, with a number of 45 000 German emigrants. Overall, the share of German emigrants in low-skilled blue-collar jobs is low, ranging between 4% in Ireland and 18% in Denmark, with the exception of Italy (26%).

Not surprisingly, the distribution of employed German emigrants over occupations differs markedly by educational attainment (see Figure A.6 in the Annex). Highly educated emigrants in 2010/11 were at least seven times more likely to work as professionals than those with a medium level of education. However, almost equal numbers of high and medium-level educated German emigrants were working as technicians and associate professionals**.** While more than 100 000 highly educated emigrants worked in low-skilled white-collar occupations, less than 50 000 worked in blue-collar occupations. The issue of over-qualification among the employed German emigrants will be discussed at the end of this section.

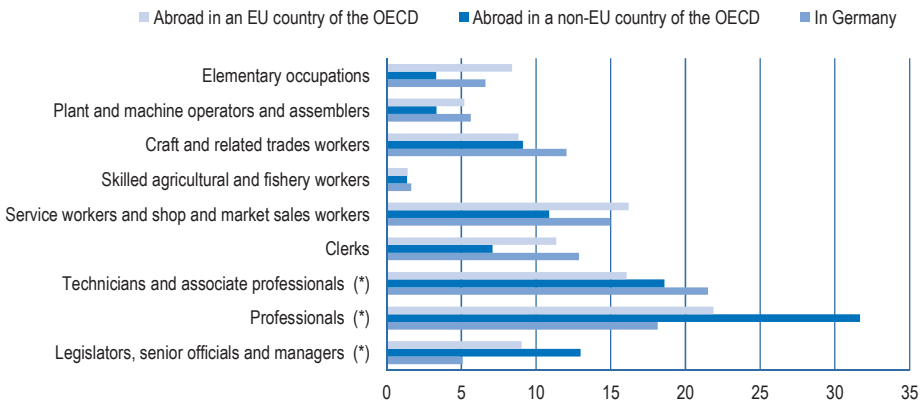
Prevalence of high-skill occupations

Compared to Germans working in Germany in 2010/11, German emigrants work far more often in high-skill occupations such as professionals, senior officials and managers, as shown in Figure 2.5. Those emigrants living in OECD countries outside the European Union work almost three times as often as senior officials or managers as Germans do in Germany. Those living in OECD countries outside Europe also work much more often as professionals. At the same time, German emigrants work less often than their peers back home as clerks or machine operators, and particularly less often as technicians or in crafts. Germans working in

elementary occupations (for example as cleaners or construction workers), as skilled agricultural or fishery workers, or service and sales workers, appear about equally frequent at home and abroad.

Figure 2.5. Distribution of German-born persons across occupations in Germany and abroad, 2010/11

Percentage of employed German-born population aged 15 and above



Note: Asterisks (*) indicate highly skilled white-collar occupations. Clerical work and services are considered low-skilled white-collar occupations; agricultural and fishery work as well as crafts and trades are considered highly skilled blue-collar occupations; plant and machine operation and assembly as well as elementary work are low-skilled blue-collar occupations. The United States is not included because an entirely different classification of occupations is in use there.

Source: *OECD Database on Immigrants in OECD Countries* (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

This overrepresentation of high-skill occupations is borne out by evidence from DIOC on the occupations of German emigrants in the United States, who could not be included in Figure 2.5 due to differing definitions. Where information on employed Germans is available, almost 40% work in high-skill occupational groups – notably management (12%), education and training (7%), health care and technical occupations (5%), business and financial operations (5%), and architecture and engineering (3%) or computer and mathematical occupations (3%). As to occupational groups at the medium level of skills, 14% are employed in office and administrative support occupations, while 12% work in sales. Four per cent work in personal care and service occupations. By contrast, low-skill occupations only account for small shares of the employed German emigrants in the United States: 4% each work in production and transportation, and 3% each

in construction/ extraction and installation/ maintenance, but 5% work in food preparation.

Employment in high-demand occupations

Certain occupations in Germany have been subject to emerging labour shortages (see OECD, 2013 for a discussion in the context of skills and demographic change). The German public employment service, Bundesagentur für Arbeit, defines labour shortage in an occupation using three criteria: the time it takes on average to fill a vacancy considerably exceeds the average time-to-fill across all occupations; the time-to-fill has significantly increased; and the ratio of registered jobseekers to registered vacancies lies below a critical value (see Bundesagentur für Arbeit, 2014). Shortages in 2014 were thus identified for specific engineers (e.g. in the fields of mechanics, automation, energy), technicians (e.g. in the fields of mechatronics, sanitation, train operation), and IT experts and health professionals (including personal care workers); the same occupations had already been identified in 2013 (see Bundesagentur für Arbeit, 2013, 2014). In addition, a particularly long time-to-fill was recorded for medicine.

As a short-term response to such shortages, recruiting German emigrants who work in these occupations abroad may be especially effective: returning emigrants would not only possess the specific occupational knowledge and experience, but would typically also be easily employable in the work environment of their home country and would not encounter language difficulties.

For those destination countries where data are available at this level of detail, Table 2.6 enumerates the German emigrants who work in occupations that are in short supply in Germany. The group of science and engineering professionals includes physicists, mathematicians, statisticians, life scientists, engineers, architects and designers. Almost 25 000 such professionals were residing in Switzerland in 2010/11, and 5 000 in Austria. These two countries also respectively hosted 13 000 and 6 000 teaching professionals, a group comprised of school teachers and those teaching in higher or vocational education. Another 5 000 teaching professionals resided in Canada. Together, these countries counted 20 000 health professionals from Germany, which include doctors, nurses, paramedical staff and veterinarians. Box 2.2 provides additional information on German health professionals in OECD countries, with a special focus on Switzerland. Personal care workers, in health care or child care, were counted separately; close to 4 000 Germans in Switzerland were working in this occupation. Details on higher education teaching professionals can be found in Chapter 4.

Table 2.6. Employed German emigrants in selected occupational groups and destination countries, 2010-12

German-born population aged 15 and above

Occupational group (ISCO)	Austria	Canada	Switzerland	Norway	Occupational group (SOC)	United States
Chief executives and senior officials	1 026	1 390	1 521		Engineering and natural science managers	1 414
Science and engineering professionals	5 476	2 545	24 254	667	Engineers	8 717
Health professionals	4 180	2 375	13 057	815	Medical scientists and physicians / surgeons	6 661
Teaching professionals	5 689	4 975	12 533	813	Physicists, chemists, and materials scientists	1 196
Business and administration professionals	5 821	3 795	15 342	758	Biological/chemical technicians	919
ICT professionals	2 197	1 585	8 442	493	Nurses	8 338
Personal care workers	1 346	1 660	3 819	856	Personal care aides	5 120

Source: *OECD Database on Immigrants in OECD Countries* (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm; American Community Survey (ACS 2012), www.census.gov/acs.

Box 2.2. Emigration of German health professionals

More than 25 000 German-born doctors resided in other OECD countries in 2010/11, as reported in OECD (forthcoming). This figure is higher than for any other OECD source country; almost as high as the figure for Chinese-born doctors; three times the figure for Polish-born doctors; and considerably exceeded only by the figure for Indian-born doctors. The number of emigrant doctors from Germany had already been the highest among OECD countries in 2000/01, but had still been very close to the corresponding number from the United Kingdom. From 17 000 in 2000/01, the number of emigrated German doctors rose by 50%, leaving the number for the United Kingdom behind. An equally dynamic development has been observed for German-born nurses in other OECD countries: their number likewise increased by 50%, from 32 000 in 2000/01 to 48 000 ten years later. In this case, the 2010/11 figure is still slightly lower than the figure for the United Kingdom, but the figure for Germany has grown much faster between 2000/01 and 2010/11. Such fast growth, also observed in similar magnitudes for a number of countries, might have been stimulated by policies in the European Union that affected the recognition of health qualifications.

The rates of German-born doctors' and nurses' emigration to OECD countries, respectively 8% and 5%, are higher than for neighbouring countries – such as France, where the emigration rate is 3% for doctors and 2% for nurses, or Switzerland, where it is 4% for doctors and 1% for nurses (OECD, forthcoming). For the United States, these rates are even below 1%. Higher rates than in Germany are recorded for the United Kingdom: 9% for both doctors and nurses. All these rates are, however, still far from the rates of emigration among health professionals in many developing countries, where the extent of emigration can lead to severe shortages in the provision of health services. Shortages in Germany are also prevented by inflows of foreign-born doctors and nurses: the numbers of doctors trained in Greece, Italy or Hungary but registered in Germany increased rapidly in recent years (OECD, forthcoming).

Box 2.2. Emigration of German health professionals *(cont.)*

From the German Medical Association (*Bundesärztekammer*), information is available on the outflows of doctors who had been practicing in Germany, and on their main destination countries (see table below). Over the years 2007-13, the total yearly outflow has fluctuated between 2 200 and 3 500, without a clear trend. In around 70% of the cases, the leaving doctors were German nationals. Switzerland is by far the most important destination country, accounting for around 700 every year except in 2013 when the figure rose to 800. Next, between 200 and 300 have left every year for Austria, and between 100 and 200 for the United States.

To obtain details on the emigrant doctors in the main destination country, one can analyse data on the recognition of doctors' qualifications in Switzerland. As doctors would typically apply for recognition of their qualification before they came to Switzerland, such data may sometimes only capture an intention to emigrate. Still, they should reflect trends over time in actual migration events. According to the Swiss Federal Office of Public Health, more than 10 000 qualifications obtained in Germany (or, in a few cases, only previously recognised in Germany) have been recognised by Swiss authorities over the years 2002 to 2013, rising from 700 in 2002 to 1 200 in 2013. This flow has risen even faster for doctors aged below 35 at the time their qualification was recognised: from less than 100 in 2002 to 500 in 2011, before receding to 400 by 2013. While these figures include Swiss citizens who obtained a medical qualification in Germany, such cases only account for about 300 of all recognised qualifications between 2002 and 2013.

As argued above, those who had arrived up to five years earlier may be considered recent emigrants. In the years 2009 to 2013, somewhat more than 5 000 qualifications from Germany were recognised, as many as in the preceding seven years. The age profile of the recent emigrants does not differ much from that of the non-recent emigrants; for example, close to 55% of both groups were aged below 40 at the time their qualification was recognised. Recent emigrants with qualifications from Germany represent 51% of all doctors whose qualifications were recognised between 2009 and 2013. This figure dwarfs the next largest shares, qualifications from Italy (13%), France (11%), and Austria (7%). Over the entire period since 2002, qualifications from Germany make up 57%. If one considers nationality instead of where the qualification was obtained, German nationals still account for 52% of recent emigrants and for 58% over the entire period.

As to the emigration of nurses, some information on their reasons and destination countries is reported in Zander, Blümel and Bussed (2013) who draw on recent data from two EU research projects (PROMeTHEUS and RN4Cast). The survey evidence obtained suggests that above all, a poor work environment contributes to the emigration of nurses from Germany, followed by emotional exhaustion, and low recognition of their work, while low salaries appear less important. As evidence on such criteria is available for several other European countries, Zander, Blümel and Bussed (2013) conclude that nurses in Switzerland, the Netherlands, Norway, the United Kingdom and Sweden assessed their work situation more positively than nurses in Germany, and it is reported that these countries (plus Austria) had also been identified in the PROMeTHEUS project as major destination countries for nurses from Germany.

Box 2.2. Emigration of German health professionals *(cont.)*

Outflow of doctors who had been practicing in Germany, 2007-13

	2007	2008	2009	2010	2011	2012	2013
Total	2 439	3 065	2 486	3241	3 410	2 241	3 035
With German citizenship	77%	67%	74%	69%	69%	67%	63%
To Switzerland	684	729	701	736	715	704	793
To Austria	269	237	262	314	302	275	289
To the United States	195	168	179	182	183	134	143
To the United Kingdom	101	95	96	113	136	-	-

Note: Totals and figures for individual destination countries include doctors without German citizenship. Figures for the United Kingdom were not reported in 2012 or 2013.

Source: Bundesärztekammer (German Medical Association): Ärztestatistik 2007-13, www.bundesaerztekammer.de/page.asp?his=0.3.

Table 2.6 also covers German emigrants working in specific occupations in the United States, based on the American Community Survey (ACS). While it has to be kept in mind that figures obtained from the ACS are not directly comparable to the figures based on EU-LFS data, due to a different classification of occupations in the United States, the divergence may be less pronounced at the level of specific occupations than for occupational groups. Concretely, in 2012 there were no less than 5 300 physicians and surgeons born in Germany working in the United States, almost 8 000 nursing, psychiatric and home health aides, and about 500 nurse practitioners or midwives. Next, more than 5 000 German emigrants worked as personal care aides. Elevated numbers of German emigrants were also found in several engineering occupations in the United States: 2 600 mechanical engineers, 1 800 electrical engineers, 1 600 civil engineers, 900 industrial engineers, 800 aerospace engineers, 550 chemical engineers and equally many materials engineers. Another 1 400 German emigrants worked as managers in engineering or architecture, and 800 as chemical technicians. Lastly, in scientific professions, the number of German-born medical scientists stood at 1 400 in 2012, while the number of chemists and materials scientists approached 1 000.

Information on German emigrants in specific occupations[3] – rather than in occupational groups – can be obtained from the EU Labour Force Survey. However, the samples of German emigrants are typically not large enough, with the exception of Switzerland. In 2013, 8 000 engineering professionals from Germany were thus counted in Switzerland, and close to 4 000 in Spain. Much higher levels had been recorded in some of the previous years:

13 000 were counted in Switzerland in 2010, and 7 000 in Spain in 2009. Another 1 000 electrotechnology engineers from Germany resided in Switzerland in recent years. In addition, Switzerland hosted between 4 000 and 5 500 physical and engineering science technicians over the years 2009-13. For German emigrants in this occupation, a level above 1 500 was also found in Italy in recent years. High numbers of German emigrants working in personal care (in health care only, not in child care) were reported from Switzerland (4 000 in 2013), the Netherlands (about 2 000), and Sweden (about 1 500), following similar levels in previous years.

Experienced personnel at advanced career stages

An important aspect not captured by one's occupation is the role that a recruit can fill in a company. For vacancies at entry level that do not require experience, recruiters would often consider recent graduates; German students graduating abroad are characterised in Chapter 4. For other positions, however, in-depth expertise or leadership potential are required. Individuals filling such positions might provide key inputs to companies, such as innovations, technological know-how, or managerial foresight. The impact of such recruitment can go far beyond merely filling one vacancy, as new business and additional jobs may be generated as a result of the recruit's key input. Information on the kinds of positions that the German emigrants hold is, however, not collected in standard data sources.

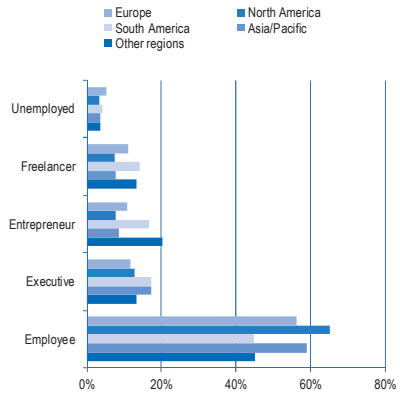
As indicators of the roles that German emigrants could play, Figure 2.6 depicts information on employment status and career level for users of the professional network *Xing*.[4] This online network, based in Germany but increasingly international, allows users to maintain profiles detailing career-related information, notably on the user's current job and his/her employment history. This way, users can provide background information to their professional contacts, but also to recruiters. German emigrants were identified indirectly as users who indicated German as their native language and who reside outside Germany, Austria, and Switzerland. Although this is not an ideal definition, it is likely to capture mostly German emigrants rather than those from Austria and Switzerland. Indeed, based on DIOC 2010/11, 82% of those born in Germany, Austria, or Switzerland but residing outside these countries were German emigrants. Because users of Xing are typically professionals, it is expected that Germans emigrants in low-skilled occupations are less likely to be captured by these data.

The largest shares across all regions are made up by employees: overall 58%, but reaching 65% in North America (see Panel A of Figure 2.6). However, there are substantial shares of executives (overall 13%) as well as freelancers (10%) and entrepreneurs (10%). The latter shares vary considerably across regions, between 8% and 20%, while the share of

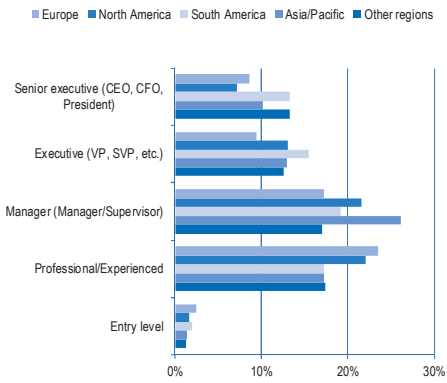
executives always falls between 12% and 17%. From Panel B of Figure 2.6, it emerges that almost all German Xing users abroad appear to be at an advanced career stage: only 2% overall indicate to be working at entry level, while 22% work at a level that requires experience, and 40% even hold managerial or executive positions. About a quarter of the latter, overall 9%, is made up of senior executives such as leading board members, whose share among the users ranges from 7% in North America to 13% in South America. For more than a third of the users, information on the career level is missing.

Figure 2.6. Employment situation of German-speaking Xing users abroad, 2014

A. Detailed employment status, percentage



B. Career level, percentage



Note: Based on a total of 42 347 users of the professional online network Xing who indicated German as mother tongue (or, if this is missing, as preferred language) and were living outside of Germany, Austria, and Switzerland. Categories representing less than 1% of the identified users are not reported. Information on the career level is missing for 36% of the identified users. Information on detailed employment status or region is almost never missing.

Source: Xing AG, April 2014, www.xing.com.

Similarly, the very high shares of German Xing users abroad in self-employment and managerial positions may be due to these emigrants having more to gain from a professional online network. However, it appears well possible that this additional incentive is roughly the same irrespective of the region, so that differences between users across regions correlate with differences in the underlying population of German emigrants across regions. In this sense, the user data in Figure 2.6 suggest that German emigrants in South America and Asia work particularly often as executives or managers. Entrepreneurs and freelancers, but also senior executives, are

particularly frequent among the German Xing users in South America and in regions other than those shown. Conversely, German Xing users in Europe appear to work less often as executives than emigrants in other regions, and more often at entry or experienced levels.

Career prospects

German emigrants who receive a job offer from Germany will not necessarily accept it if the offer merely appears more favourable than any current job, and will not necessarily decline if the offer is less favourable. Among the factors playing a role in this decision, one very likely consideration will be the career prospects in the current location. Even for unemployed emigrants who receive a job offer, long-term career considerations might outweigh the short-term objective of finding a job. Evidence on German emigrants' career prospects in their destination country can thus indicate how difficult they are to recruit. Given the absence of a single measure of those prospects, this section will draw on a variety of indicators.

Probability of employment

First and foremost, the rates at which German emigrants are employed or unemployed are indicators of the probability that they can keep current jobs or find new jobs. For highly educated German emigrants of working age, Panel A of Figure 2.7 shows very high probabilities of being employed: in 2010/11, 80% of those residing in the United States were employed, as were 82% in the United Kingdom, 87% in Austria and the Netherlands, and 90% in Switzerland. While these probabilities were behind those of the native-born in all main destination countries, they almost matched those of the native-born in the United States, Switzerland, the Netherlands and Austria. However, the employment rate of highly educated Germans reached 89% in Germany in 2010/11, thus exceeding the employment probability of highly educated German emigrants in all main destination countries but Switzerland; the probability in Austria was also approaching this level. The common language may be one reason why Germans' employment probabilities are so similar across these three countries, and so similar to those of native-born Swiss and Austrians.

Corresponding results for unemployment rates in 2010/11 are shown in Panel B of Figure 2.7. The unemployment rates of highly educated German emigrants did not exceed 5% in most of the main destination countries, but reached 7% to 8% in France and Italy, 11% in Greece, and a striking 17% in Spain, mainly reflecting the deteriorating labour market conditions during the economic crisis in the country. In all main destination countries except

the Netherlands, the unemployment rate of highly educated German emigrants was higher than the unemployment rate of their counterparts in Germany (and even 8.5 times as high in the case of Spain). But compared to the native-born of the respective destination country, highly educated Germans faced slightly lower unemployment rates in the United States, Canada and the Netherlands.

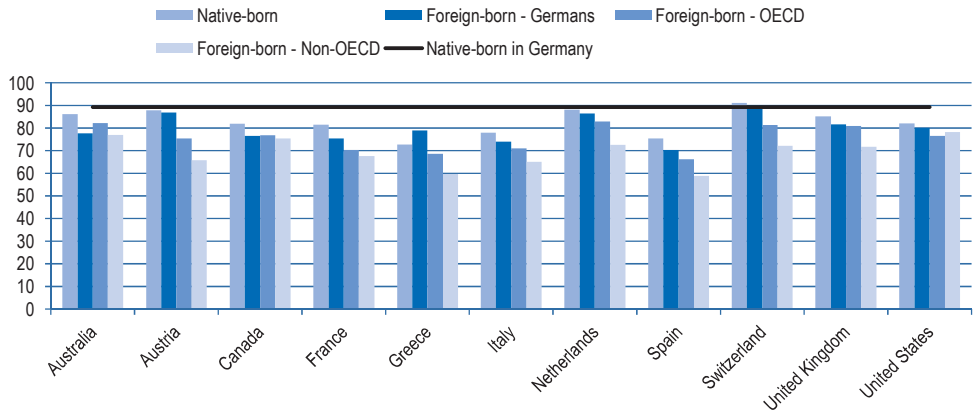
Two broader insights emerge from Figure 2.7. Firstly, highly educated German emigrants do not necessarily face higher employment probabilities or lower unemployment rates where they have chosen to move to – in most main destination countries in 2010/11, they were in that respect facing a less favourable situation than in Germany. Secondly, highly educated German emigrants largely experience the same labour market conditions as comparable native-born residents of the respective destination country and as emigrants from other OECD countries. Therefore, German emigrants might not see an unfavourable labour market situation as a push-factor for a return to Germany, as their prospects are hardly different from those of others in the same destination country. Learning about a more favourable labour market situation in Germany can, on the other hand, play the role of a pull factor for return. The issue of return is discussed in more detail in Chapter 3.

German emigrants with a medium level of education have in most cases a significantly lower probability of being employed than the native-born (see Figure A.4 in the Annex): in 2010/11, the employment rate of medium-level educated German emigrants stood at 72% in Austria (against 78% for the native-born residents), at 71% in the Netherlands (against 80%), and at 61% in France (against 68%). Moreover, the employment rate was often lower than that of other emigrants; in the United States, for example, its level of 68% is lower than that of other emigrants from OECD or non-OECD countries. Finally, compared to the employment probability of those with a medium level of education in Germany, German emigrants exhibit substantially lower employment rates in all main destination countries except Switzerland.

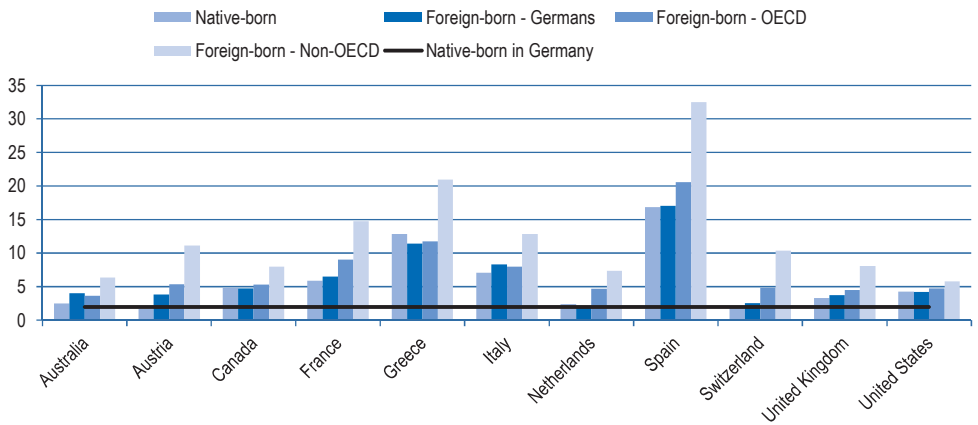
As in the case of the highly educated, the unemployment rates of German emigrants with a medium level of education were typically close to those of the native-born from the destination country (see Figure A.5 in the Annex), and even below it in the case of the United States. In most main destination countries, the unemployment rates of German emigrants with a medium level of education also remained close to the unemployment rate of their counterparts in Germany (5.5%). Only in Italy (15%) and Spain (27%) was the emigrants' unemployment rate significantly higher, more than double the rate in Germany.

Figure 2.7. Employment and unemployment of the highly educated, working-age population in selected destination countries by place of birth, 2010/11

Panel A. Percentage of the tertiary-educated population (aged 15-64) that is employed



Panel B. Percentage of the tertiary-educated labour force (aged 15-64) that is unemployed



Note: Numbers are provided in full in Tables A.19 and A.20 in the Annex.

Source: *OECD Database on Immigrants in OECD Countries* (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Considering all medium-level educated German emigrants of working age together, their unemployment rate stood at 9.7% in 2010/11 (see Table A.18 in the Annex). At 5.4%, the unemployment rate for all highly educated

German emigrants together was only roughly half as high. Moreover, the highly educated enjoyed an employment rate of 80%, against only 66% for those with a medium level of education (see Table A.17 in the Annex). Thus the highly educated among the German emigrants overall found themselves in a substantially more favourable labour market situation than those with a medium level of education. However, the difference in employment rates between the high and medium levels of education is very much in line with average results for emigrants from OECD countries (see Figure A.2 in the Annex). As shown in Figure A.3 in the Annex, the difference in unemployment rates is likewise close to the average for emigrants from OECD countries. Emigrants from the United Kingdom, for example, exhibited almost the same differences in employment rates and in unemployment rates by education level as German emigrants. Finally, it is worth noting that the rate of participation in the labour market was lower for working-age German emigrants with a medium level of education than for those with a high education (74% compared to 85%).

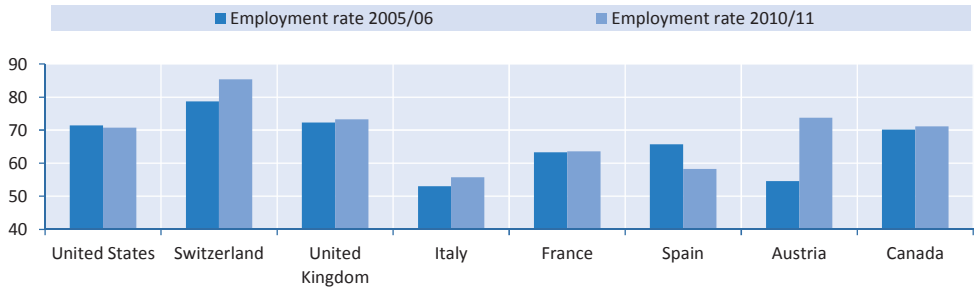
Altered employment probabilities after the recent crisis

The recent economic crisis appears to have had little impact on the labour market prospects of German emigrants – in contrast to other emigrants, notably those from Latin America and Africa (see Arslan et al., 2014). Figure 2.8 reports employment (Panel A) and unemployment rates (Panel B) of German emigrants in eight main destinations countries for 2005/06 and 2010/11. Over this period, the employment rate of German emigrants dropped by 7 percentage points in Spain but increased in Austria, Switzerland and Italy. It remained stable in the United States, the United Kingdom, France and Canada.

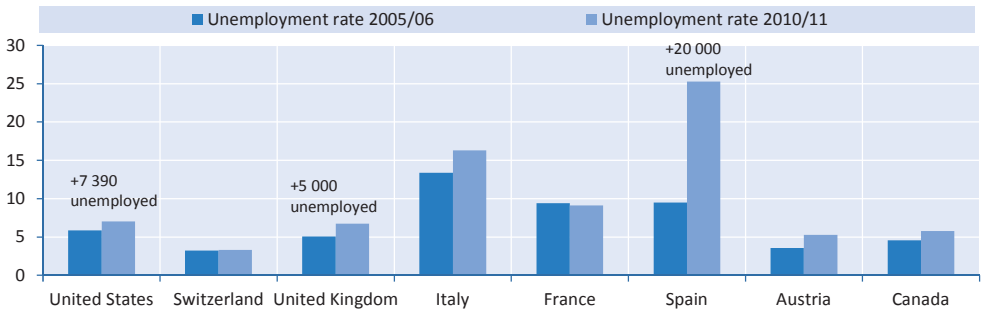
The unemployment rate of German emigrants in Spain increased by 16 percentage points over the same period, reaching 25%. This increase corresponds to 20 000 German emigrants joining the ranks of the unemployed in Spain. In the United Kingdom and the United States, respectively 5 000 and 7 000 more unemployed German emigrants were counted in 2010/11 than in 2005/06, representing increases by respectively two and one percentage points. In several countries, the changes between 2005/06 and 2010/11 differed considerably by gender. In Spain, for example, the number of unemployed German women has tripled over these years, while that of men almost quadrupled, reaching 16 000 and 12 600 respectively.

Figure 2.8. Employment and unemployment rates of German emigrants in selected destination countries, 2005/06 and 2010/11

Panel A. Employment rates, population aged 15-64



Panel B. Unemployment rates, active population aged 15-64



Source: OECD Database on Immigrants in OECD Countries (DIOC 2005/06 and DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

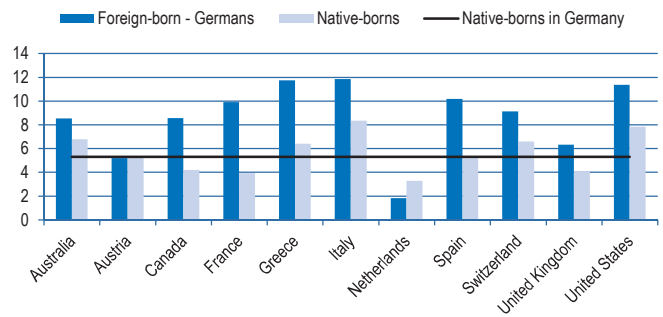
The fall in employment in the countries hit by the crisis was more modest among German emigrants with a tertiary education. Their unemployment rate reached 17% in Spain in 2010/11 (from 7.6% in 2005/06), corresponding to an increase of 5 600 unemployed individuals. In the United States, the employment rate of German emigrants with a high level of education only fell by one percentage point. The increase in unemployment has likewise been more modest: about 2 300 and 1200 additional unemployed German emigrants with high education were counted in the United States and the United Kingdom respectively in 2010/11, in comparison with 2005/06. Among those German emigrants who have experienced deterioration of their labour market prospects, many might particularly welcome efforts that aim to recruit them for positions back in Germany.

Lower employment probabilities for women

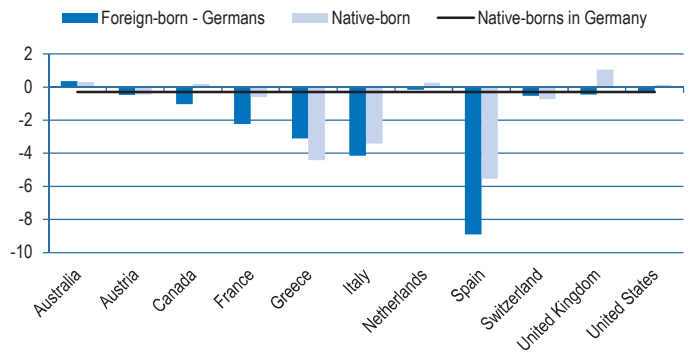
Across the main destination countries, highly educated women among the German emigrants have a significantly lower probability of being employed than the highly educated men (see Panel A of Figure 2.9): the consistently positive differences shown imply that the male emigrants' share in employment exceeded that of the female emigrants in 2010/11. The male emigrants' employment rate was even 12 percentage points higher than that of the female emigrants in Italy, Greece and the United States, and 10 percentage points higher in Spain and France. This gender gap in employment rates was larger for the German emigrants than for the native-born from the respective destination country (except in the Netherlands), and also larger than the gender gap of the German-born in Germany.

Figure 2.9. Percentage point difference between the labour market outcomes of highly educated, working-age men and women, by place of birth, in selected OECD countries, 2010/11

Panel A. Difference in employment rates (15-64 years)



Panel B. Difference in unemployment rates (15-64 years)



Source: *OECD Database on Immigrants in OECD Countries* (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

In turn, the women among highly educated German emigrants were at least as likely to be unemployed in 2010/11 as men (see Panel B of Figure 2.9). However, a difference in unemployment rates that surpasses 2 percentage points occurred only in Greece, Italy and Spain (3, 4 and 9 percentage points, respectively). Meanwhile, the gender gap in unemployment rates of the German-born in Germany was insignificant. The highly educated women's lower employment probabilities and higher unemployment rates suggest that they in particular might welcome job opportunities in Germany. In addition, arrangements for dual careers might also make offers considerably more attractive for highly educated men, in so far as new perspectives thereby open up for their partners.

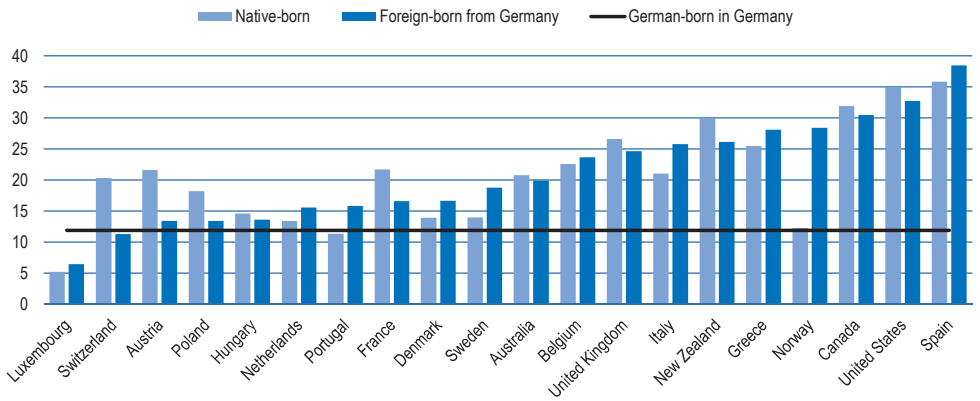
The rate of over-qualification as an indicator of job quality

To account for the qualitative dimension of career prospects, over-qualification rates can indicate the risk of having to work in an unsuitable job. Such a job would per se appear unattractive, but might also result in permanently lower career prospects: an individual not working at his or her level of qualification may lose skills over time, and such employment might be taken by other employers as a negative signal. Figure 2.10 shows over-qualification rates of German emigrants in comparison to those of the native-born in various destination countries. Over-qualification is measured here by the share of employed tertiary-educated individuals who work in occupations that do not normally require a tertiary education (i.e. medium- and low-skill occupations). The phenomenon of over-qualification is quite common among migrants in OECD countries, with about one out of three tertiary-educated foreign-born working in low- or medium-skill occupations. Among German emigrants, this share stands at only 6% in Luxembourg and remains at around only 10% in Switzerland, Austria, Poland and Hungary, but approaches 30% in Greece, Norway and Canada, even reaching 35% in the United States and Spain. Such high rates suggest that many German emigrants in these countries might be attracted by more suitable job opportunities in Germany, where the native-born exhibit an over-qualification rate of only 12%.

Whether the German emigrants are satisfied with the use made of their skills likely depends on how they fare compared with the native-born in their host country. For most countries shown in Figure 2.10, the over-qualification rate among German emigrants is close to that of the native-born. In Norway, Sweden, Portugal and Italy, however, over-qualification appears substantially more widespread among German emigrants than among the native-born. Conversely, German emigrants appear much less affected than the native-born in Switzerland, Austria, and France.

Figure 2.10. Over-qualification rates among workers by place of birth and place of residence, 2010/11

Percentage of highly educated workers in non-high-skill occupations



Note: The over-qualification rate is calculated as the share of employed individuals who possess a tertiary education (ISCED levels 5 or 6) but work in occupations that do not normally require a tertiary education (ISCO occupational groups 4 to 9).

Source: *OECD Database on Immigrants in OECD Countries* (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Survey evidence on subjective expectations

Ultimately, it matters how the German emigrants themselves assess the career prospects in their destination country, likely weighing several aspects in addition to employment probabilities and the expected job quality. Evidence on the subjective expectations of German emigrants can be obtained from questions included in the Gallup World Poll in the years 2009-13 (see Chapter 3 for a description of these data). Notably, participants were asked whether they see enough good job opportunities in their current location. Among more than 400 German-born participants residing abroad (spread over 60 countries), 37% indicated their satisfaction with the jobs available, while 45% were dissatisfied. For some of the major destination countries of German emigrants, sufficiently large samples are available to report country-specific responses (see Table 2.7). These results suggest that very few German emigrants in Greece were satisfied with the locally available jobs, while about half were in Switzerland. Of the German-born surveyed in Germany, almost as many indicated to be satisfied with the available jobs as in Switzerland.

Table 2.7. Expectations of German-born persons abroad and in Germany, 2009-13

Percentages of respondents who agree with the statement

Statement	German-born abroad						German-born in Germany
	Australia	Austria	Canada	Greece	Luxembourg	Switzerland	
Satisfied with the availability of good job opportunities in one's city or area	--	44	--	11	55	49	47
It is a good time to find a job in one's city or area	31	34	41	3	35	32	41
Economic conditions in one's city or area are, as a whole, getting better	38	27	--	5	36	28	36
Life in five years is rated at 5 or above (scale from "0, worst possible life" to "10, best possible life")	81	82	86	74	90	86	84

Note: Based on interviews with the German-born abroad (N varies between 530 and 820) and the German-born in Germany (N varies between 4 146 and 14 719). City and area refer to the location of current residence. Answers recorded as "Do not know" or "Refused" are counted towards N and the base of the percentage. Some figures are not reported because of insufficient sample sizes. All observations are used without weights.

Source: Gallup World Poll data for 2009-2013, www.oecd.org/std/43017172.pdf.

Next, 800 German emigrants indicated how they perceive the current conditions for job search and economic conditions more generally. Only 24% considered the current local conditions favourable for job search, and 28% believed the local economic conditions to be improving (rather than worsening or staying the same). These shares were considerably higher among those surveyed in Germany. When asked to imagine their life five years later, no less than 83% of German emigrants rated it rather positively, against 84% in Germany. According to the country-specific results in Table 2.7, German emigrants (except those in Greece) and respondents in Germany have a similar perception of local economic conditions and the conditions for job search. A good life in a few years' time is expected across the board.

In conclusion, large numbers of German emigrants – and especially the highly educated among them – find employment in their destination countries. For the most part they work in high-skill occupations, and often hold positions of responsibility. Their labour market orientation, their distribution over occupations, and the kind of positions they hold all signal strong potential for the German labour market. In the aftermath of the economic crisis, German emigrants often appear to face less favourable prospects on the labour market in their destination country than on the German labour market. They could thus be prime candidates for recruitment for jobs in Germany – in particular, those currently working in jobs they are overqualified for, and skilled German emigrants not in employment, notably highly educated women.

Notes

1. The DIOC database records an individual's highest educational attainment on a scale from 1 to 6 according to the International Standard Classification of Education (ISCED), which allows comparisons of educational attainment across individuals in different countries. In the German education system, ISCED level 3 requires either completing a track in secondary schooling that prepares for tertiary education (*Fachhochschulreife/ Hochschulreife*) or completed vocational training, while ISCED level 4 requires both. ISCED level 5 corresponds to tertiary education, including universities of applied sciences and advanced vocational training (notably the *Meisterausbildung*), while ISCED level 6 corresponds to a doctoral degree. Throughout this review, educational attainment at level 5 or 6 will be referred to as high education; attainment at level 3 or 4 counts as a medium level of education.
2. The overall number of highly educated emigrants from Germany grew by 40% between 2000/01 and 2010/11; almost 20% of them are recent emigrants (see Table A.10 in the Annex). Over the same period, the number of emigrants from Germany with a medium level of education grew by 7% (see Table A.11 in the Annex).
3. The following figures refer to ISCO occupations at the three-digit level: 214, 215, 311, and 532.
4. Xing AG provided aggregate statistics on user groups; this support is gratefully acknowledged.

References

Arslan, C., J.-C. Dumont, Z. Kone, Y. Moullan, C. Ozden, C. Parsons and T. Xenogiani (2014), "A new Profile of Migrants in the Aftermath of the Recent Economic Crisis", *OECD Social, Employment and Migration Working Papers,* No. 160, OECD Publishing, Paris, http://dx.doi.org/10.1787/5jxt2t3nnjr5-en.

Barro, R.J. and J.W. Lee (2013), "A New Data Set of Educational Attainment in the World, 1950-2010", *Journal of Development Economics*, Vol. 104, pp. 184-198, September.

Bonfanti, S. and T. Xenogiani (2014), "Migrants' Skills: Use, Mismatch and Labour Market Outcomes – A First Exploration of the International Survey of Adult Skills (PIAAC)", *Matching Economic Migration with Labour Market Needs*, OECD/European Union, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264216501-en.

Bundesagentur für Arbeit (2014), *Der Arbeitsmarkt in Deutschland – Fachkräfteengpassanalyse Juni 2014*, Nuremberg.

Bundesagentur für Arbeit (2013), *Der Arbeitsmarkt in Deutschland – Fachkräfteengpassanalyse Juni 2013*, Nuremberg.

OECD (forthcoming), *Recent Trends in the International Migration of Doctors and Nurses and the Impact of Health and Immigration Policies,* OECD Publishing, Paris.

OECD (2013), *Recruiting Immigrant Workers: Germany 2013*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264189034-en.

Zander, B., M. Blümel and R. Bussed (2013), "Nurse Migration in Europe – Can Expectations Really Be Met? Combining Qualitative and Quantitative Data from Germany and Eight of its Destination and Source Countries", *International Journal of Nursing Studies*, Vol. 50, pp. 210-218.

Database references

American Community Survey (ACS), www.census.gov/acs.

EU Labour Force Survey (Eurostat), http://ec.europa.eu/eurostat/web/lfs/overview.

Gallup World Poll data, www.oecd.org/std/43017172.pdf.

OECD Database on Immigrants in OECD Countries (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

OECD Database on Immigrants in OECD Countries (DIOC 2005/06), www.oecd.org/els/mig/dioc.htm.

OECD Database on Immigrants in OECD Countries (DIOC 2000/01), www.oecd.org/els/mig/dioc.htm.

OECD International Migration Database, http://dx.doi.org/10.1787/data-00342-en.

OECD Survey of Adult Skills (PIAAC), www.oecd.org/site/piaac.

Chapter 3

Emigration from and return to Germany: Patterns and motivations

Based on internationally comparable survey data, this chapter explores the motives and determinants for German-born individuals to move abroad or return from abroad. While 15% of the native-born population in Germany indicate a preference to move abroad, few actually realise those intentions. Career prospects and family reasons appear to drive the decisions of many who do emigrate. The self-reported well-being of German emigrants improves following their emigration, but remains on average below the well-being of those who stay in the country. While many consider returning, fewer German citizens have returned than have left in recent years. The chapter provides estimates suggesting that the composition of the two groups differs: those who return are less likely to be highly educated and to be active on the labour market prior to moving than those who leave.

The motivation to emigrate: Survey evidence

For the design of policies that affect emigration, policy makers would want to understand the motivation behind emigrants' behaviour – why they leave, and why some stay abroad while others return. This chapter presents survey evidence on the intentions to emigrate, on the emigrants' reasons for leaving, their satisfaction with their situation abroad, and their willingness to return.

The new evidence is obtained from Gallup World Poll data covering the years 2009 to 2013. As part of these surveys, German emigrants were interviewed in many non-OECD countries and in all OECD countries except Chile, Estonia and Japan. However, disproportionately many of the 821 observations come from just a few countries: emigrants in Austria (108), Switzerland (74) and especially Luxembourg (145) thus appear overrepresented relative to emigrants in the United Kingdom (18) and especially the United States (7). Table 3.1 below compares the reported characteristics of German emigrants and German-born persons in Germany. By and large in line with previous findings, the emigrants appear to be more often highly educated and active on the labour market. Yet these figures also suggest that they have children more often. Finally, only 13% of them have moved to their current host country in the last five years.

Table 3.1. Characteristics of surveyed German-born persons, 2009-13

	German-born abroad	German-born in Germany
Aged 15 to 24	13%	16%
Aged 25 to 34	19%	13%
Aged 35 to 54	47%	45%
Aged 55 to 64	21%	26%
Completed four years of education beyond secondary school	37%	28%
Currently unemployed	2.40%	2.60%
Currently out of the labour force	42%	46%
Marital status: single	23%	25%
Marital status: married	52%	48%
No children under 15 years	70%	82%

Note: Based on interviews with German-born persons abroad (N varies between 579 and 820) and German-born persons in Germany (N varies between 11 215 and 16 340).

Source: Gallup World Poll data for 2009-13, www.oecd.org/std/43017172.pdf.

Close to 9 000 German-born persons surveyed in Germany between 2009 and 2013 were asked whether they would like to permanently move to another country if they had the opportunity. While 83% responded that they would like to continue living in Germany, 15% indicated the preference to move to another country. The respondents indicating this preference in

2010, 2011, or 2013 (i.e. 728 individuals in total) were also asked whether they had plans to move abroad in the next 12 months, which was confirmed by only 4% of them. Over the period 2009-13, these percentages fluctuated only little: with no clear trend, between 14% and 17% would like to move, but only between 3% and 6% of them planned to move within 12 months. Information on where respondents would like to go is only available for those wishing to go abroad if they had the opportunity: they would most often like to move to Spain and the United States (9% each), Canada and Switzerland (7% each), or Sweden and Australia (6% each).

The low-educated and the unemployed consider emigration more often

Figure 3.1 shows the share of respondents who would like to move by the highest level of education they attained. While there is considerable variation over time in the willingness to emigrate as captured by the surveys, this willingness appears to be least frequent among the highly educated. Among those with low education, emigration is at times considered by very high shares (around a quarter in 2009 and 2013), but their shares also appear to fall from 2009 to 2012 to the lowest level overall before rising again. The share among those with a medium level of education has meanwhile remained virtually stable. Of those with a medium level of education who consider emigration, only 4% plan to move within the year; this proportion is the same among those with high education. Too few observations are available on the plans of respondents with low education.

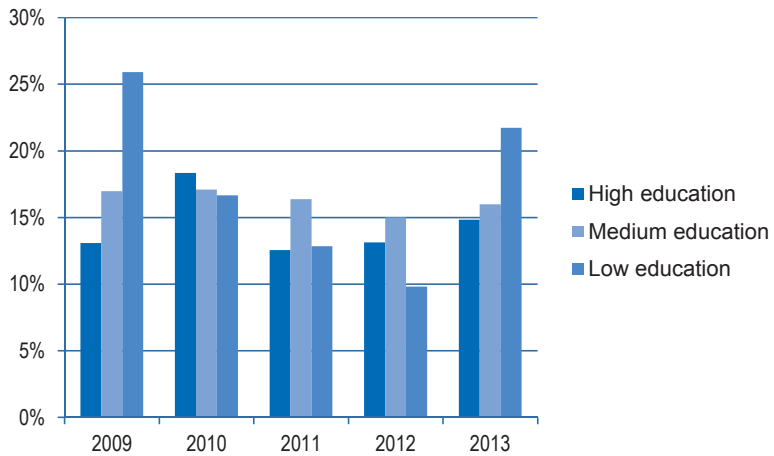
An issue thus arises with all surveys that do not record actual emigrants but rather individuals who have a self-declared intention to emigrate: the intention might say little about actual migration decisions (see Manski, 1990 for a general discussion), and those who do emigrate are typically no longer available for surveys at their previous place of residence. The discrepancy between declared intention and implementation is demonstrated for German citizens by Liebau and Schupp (2011): of those declaring an intention to emigrate when surveyed in 1998, as few as 4% had apparently emigrated by 2009. Moreover, the discrepancy between intention and actual emigration tends to be smaller for the highly educated than the average across educational groups (OECD, 2012). Thus, even though the willingness to emigrate appears to be least frequent among the highly educated, actual emigration might still be most frequent in this group.

Figure 3.2 similarly reports the share of respondents who would like to move, by employment status. Those out of the workforce typically exhibit the lowest shares of respondents considering emigration (only around 10%), followed by those employed part-time. Those employed full-time or self-employed exhibit shares around 20% in most years, and the share among the self-employed tends to fall over the entire period 2009-13. The unemployed

seem to consider emigration most frequently; the share among them exceeds 30% in several years. However, this pattern is not necessarily reflected in the more concrete plans to move in the next 12 months: across all years, 2% of the full-time employed who consider emigrating and 6% of the inactive who consider emigrating have such plans, although the intentions they reported would suggest the reverse order. Looking at age groups, one finds a share of 24% considering emigration among those aged 15-24, rising to 28% for those aged 25-29, and then falling for higher ages: from 25% (30-34) to 19% (35-54) and further to only 13% (55-64). While there are too few observations on the plans of these age groups to emigrate within the year, it appears again that these figures would be much lower. Finally, as to occupations, it appears that 18% of professionals consider emigration, as do 20% of business owners, and 20% of managers or executives. The latter share, however, exhibits a decreasing trend over the entire period 2009-13.

Figure 3.1. German-born persons who consider emigrating from Germany, by education, 2009-13

In percent of the native-born population aged 15 and above

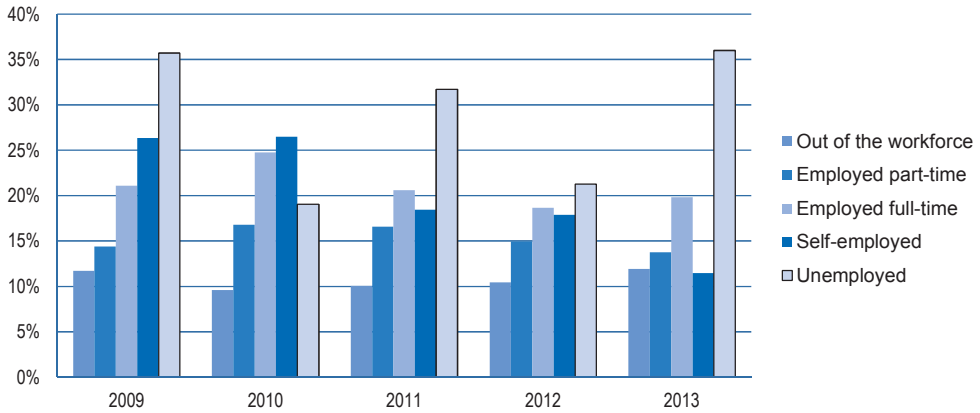


Note: Based on interviews with German-born persons in Germany at (varying) points in the years 2009-13. Considering emigration means answering "yes" to: "Ideally, if you had the opportunity, would you like to move permanently to another country?" Low education refers to completed elementary education or less (up to eight years of basic education). A medium level of education is between some secondary education and up to three years of tertiary education (9 to 15 years of education). High education refers to at least four years of completed education beyond high school, or a four-year college degree. N = 230 for low education, N = 6 111 for medium education, and N = 2 330 for high education. Answers recorded as "Do not know" or "Refused" are counted towards N and the base of the percentage. All observations are used without weights.

Source: Gallup World Poll data for 2009-13, www.oecd.org/std/43017172.pdf.

Figure 3.2. German-born persons who consider emigrating from Germany, by employment status, 2009-13

In percent of the native-born population aged 15 and above



Note: Based on interviews with German-born persons in Germany at (varying) points in the years 2009-13. Considering emigration means answering "yes" to: "Ideally, if you had the opportunity, would you like to move permanently to another country?" N = 2 805 for full-time employed, N = 1 220 for part-time employed, N = 222 for unemployed, and N = 3 957 for out of the workforce. Answers recorded as "Do not know" or "Refused" are counted towards N and the base of the percentage. All observations are used without weights.

Source: Gallup World Poll data for 2009-2013, www.oecd.org/std/43017172.pdf.

Those considering emigration are less satisfied

Table 3.2 reports opinions of German-born persons abroad and in Germany on their life overall, their current income, and the conditions in the country they live in for the period 2009-13. The last two columns compare the opinions of those German-born who would like to move abroad if they had the opportunity to all German-born surveyed in Germany (while the first column will be discussed below). As might be expected, the respondents who consider emigrating are substantially less satisfied with their income, their career prospects in Germany, the freedom of choice for their lives, and even with environmental protection in Germany. (At the same time, the levels of satisfaction are still high in both groups, except with regards to environmental protection). Likewise, half of the German-born respondents in Germany assessed the economic conditions in their country as good or excellent, but significantly fewer of those considering emigration advance this opinion.

Table 3.2. Opinions of German-born persons abroad and in Germany, 2009-13

Statement	Abroad	In Germany	
		All	Considering emigration
Life today is rated at 5 or above (on a scale from "0, worst possible life" to "10, best possible life")	90%	91%	86%
Living comfortably on present income or getting by	80%	85%	75%
People in this country can get ahead by working hard: yes	76%	80%	70%
Satisfied with the freedom in this country to choose what to do with your life: yes	82%	88%	76%
Satisfied with the efforts in this country to preserve the environment: yes	54%	64%	55%
Economic conditions in this country are good or excellent	43%	48%	37%

Note: Based on interviews with German-born persons abroad and in Germany. Considering emigration means answering "yes" to: "Ideally, if you had the opportunity, would you like to move permanently to another country?" N varies between 507 and 817 for those abroad, between 4 124 and 8 710 for all at home and between 649 and 1 333 for those at home considering emigration. Answers recorded as "Do not know" or "Refused" are counted towards N and the base of the percentage. All observations are used without weights.

Source: Gallup World Poll data for 2009-2013, www.oecd.org/std/43017172.pdf.

Previous findings on the reasons to emigrate

A number of studies have examined, similarly to the previous section, the characteristics and opinions of those indicating a willingness to emigrate. Niefert, Notburga and Rust (2001), Uebelmesser (2006), and Liebau and Schupp (2011) all use the German Socio-Economic Panel (GSOEP) to this end, a representative longitudinal survey among households in Germany. Drawing on the years 1993-98, Uebelmesser (2006) uses a sample of more than 20 000 observations from about 9 000 individuals (German citizens and foreigners). She finds that singles are more often willing to emigrate than married individuals, but Germans whose partners are foreigners have the highest propensity to emigrate. According to both her results and those in Niefert, Notburga and Rust (2001), the willingness to emigrate decreases with age and increases with educational attainment;

white-collar workers and the self-employed exhibit a greater willingness to emigrate; and those with young children exhibit a much lower willingness.

For 1993 only, Uebelmesser (2006) can also report responses to direct questions on the reasons to think about emigration. Sixty percent of men and 40% of women indicating a willingness to emigrate give better job prospects as their reason, but this rises to respectively 63% and 53% for those with a university degree and even 84% for unemployed men. Men's preoccupation with job prospects, compared to women, also persists when accounting for a host of characteristics. Around a quarter of both men and women thinking about emigration have a retirement abroad in mind. Between 40% and 50% of those aged under 20 years point to possibilities for education and training abroad, while this represents only little more than 10% of all men and women considering emigration. Finally, a fifth of the women considering emigration do so thinking of family or friends, while this applies to only 4% of the men.

Presenting results for the year 2009, Liebau and Schupp (2011) can qualify some of the earlier results just mentioned. More highly educated individuals are more likely to think about emigration, but they particularly often have a temporary stay in mind. Next, while income as such does not appear to play a role, the satisfaction with one's income does: a greater satisfaction decreases the propensity to emigrate. Having children aged under 16 years has a negative effect on the willingness to emigrate temporarily, but does not affect plans to emigrate permanently.

A small number of surveys have been designed specifically to shed light on emigrants' motivation and situation. SVR-Forschungsbereich et al. (2015) approached German citizens who had deregistered in 2013 with the authorities of selected cities before they left Germany. Using the new address given, about 800 Germans abroad could be surveyed (while many others could not be contacted or did not respond). Since German citizens were targeted, the sample included persons not born in Germany (14%) whose prior migration experience might make them especially mobile. Close to 30% of the respondents lived in households with children and 70% indicated to have tertiary education.

Emigrants surveyed by SVR-Forschungsbereich et al. (2015) could indicate multiple reasons for their move abroad. Close to three-quarters said they wanted new experiences and two-thirds cited work-related reasons, in particular an interesting professional challenge, opportunities to develop skills and working conditions. Half of the respondents pointed to personal or family reasons and almost as many to considerations of income or living standards; 40% said to be dissatisfied with life in Germany. Some reasons dominated in certain subgroups of emigrants: 72% of those with a tertiary education cited work-related reasons, but only 58% of those with a low or

medium level of education. Work-related reasons were given by even 80% of those in employment, while three-quarters of the respondents with partners and children gave personal or family reasons for emigrating.

Prognos AG (2008) conducted a survey targeting German specialists and managers aged 20-65. To limit the survey to more permanent emigrants, the sample comprised only those indicating they had been abroad for at least two years. Participants filled out forms on a freely accessible webpage, so that the sample of 1 410 individuals is not representative.[1] Forty-one percent of the participants indicated to have children, 84% to have a tertiary education and 21% to have obtained their qualification in STEM subjects.

Seventy percent of the respondents in the survey by Prognos (2008) expect a better labour market position abroad, and more than half express their dissatisfaction with their labour market position in Germany. The emigrants' assessment of their labour market situation typically includes the possibilities for professional development, for promotion, and for taking on responsibility, as well as salary levels. Forty percent of the respondents expect better opportunities for their personal ambitions and equally many expect a higher quality of life. By contrast, Germany was associated with heavy taxation, bureaucracy, and a lack of openness in society by between 25% and 40% of the respondents.

However, once respondents are asked about the importance of each reason, relationships with friends and family feature as the second most important reason. Only the labour market position in Germany is more important to respondents, also compared to what they expect abroad. In particular, respondents with a STEM qualification cite labour market considerations. While the expectation of a better labour market position is especially widespread among academics (85% cite this reason), it is also relevant for two-thirds of the specialists and managers from the private sector. Almost half of the latter also point to the taxation in Germany. The risk of unemployment in Germany, however, is cited less frequently, while the self-employed highlight bureaucratic hurdles in running a business.

A survey conducted in 2012 can provide results specifically regarding holders of doctorates (see Destatis, 2013b), more than 8 000 of whom responded. While respondents were residing in Germany, they were also asked about their reasons for any move abroad in the past, and for their eventual return. Among those who had lived abroad for at least three months in the previous ten years in order to study, work, or engage in research, almost 70% confirmed that employment prospects had played a role in their move abroad, and 25% said to have moved abroad as part of their studies (including the doctorate). Respectively, 20% and 27% acknowledged personal or family and academic reasons.

A few other studies conduct much smaller surveys aimed at identifying the motives of emigrants from Germany. However, issues arise here that question the relevance of their results for this chapter. First, a sample size well below 50 is problematic: while such a size may be acceptable for a representative sample, it appears too small in the presence of selection bias. Second, and related, it is not clear what share of an already small sample consists of individuals born in Germany as opposed to German citizens.

Networks affect the willingness to emigrate

Emigration can be made more attractive by the presence of a community of compatriots or other expatriates in the destination country. Contacts and information obtained through such networks might help with finding employment, accommodation, or friendships, and important immaterial benefits might accrue from the possibility to uphold one's cultural habits abroad. Existing communities abroad can thereby significantly decrease the risk and the cost (including psychic costs) associated with emigration. However, estimating this effect empirically is not without difficulty, as it may be hard to distinguish whether a new emigrant chooses a particular country due to the existing community there or due to the same reasons that had attracted this community in the first place.

The role of prior contacts across borders for Germans has been examined by Liebau and Schupp (2011) using micro data from the GSOEP for 2009. A third of the German citizens in their sample maintain regular contacts with friends abroad, and 4% have spent more than three months abroad at some point in the last ten years (7% did so at some point longer ago). These contacts appear linked to the willingness to emigrate: more than half of those thinking about emigration or even planning to move in the next 12 months maintain friendships abroad, compared to only a quarter of those not considering emigration. Among those planning to move abroad, as many as 40% have lived abroad before, compared to 26% of those thinking about it and less than 10% of those not considering it at all. Also after accounting for other determinants of the willingness to emigrate, a strong effect of such international contacts remains.

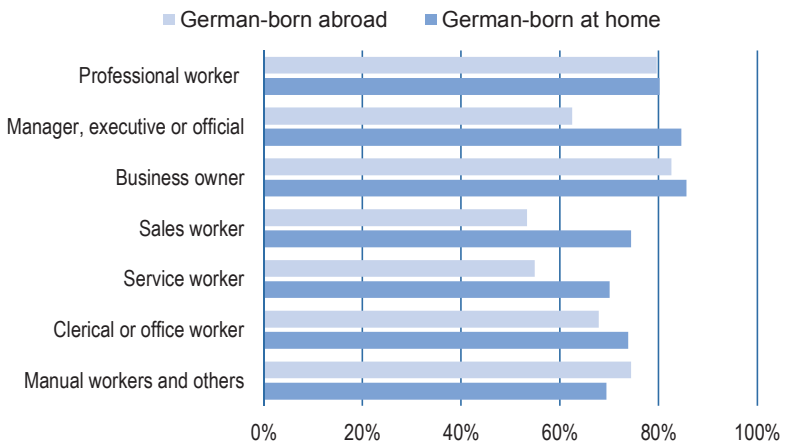
Emigrants' satisfaction abroad and willingness to return

Table 3.2 above also includes a column on the opinions of German emigrants. While the emigrants report a high satisfaction with their personal freedom, their income[2] and the degree of meritocracy, they appear less satisfied with the economic conditions in their host countries and the environmental protection there. These opinions are directly comparable to the opinions recorded in Germany because they are answers to the same

questions. Compared to all German-born persons in Germany, the emigrants appear overall less satisfied, reporting lower satisfaction in all cases and assessing the economic conditions of their host country more sceptically. Compared to the German-born in Germany who consider emigrating, however, the emigrants appear generally *more* satisfied (while both groups report the same satisfaction with environmental protection).

To find out whether this pattern is only superficial, perhaps masking considerable heterogeneity between subgroups, Figure 3.3 shows job satisfaction levels for various occupational groups. These levels represent the percentage answering in the affirmative to the question whether respondents consider their current job ideal for them. For every occupational group except (the pooled group of) manual workers, it appears that the German-born in Germany report at least as often as their colleagues abroad that their current job is ideal for them. While professional workers and business owners consider their job ideal about equally often, the managers, sales workers and service workers in Germany appear much more frequently satisfied with their current job. These findings reinforce the impression that German emigrants are less satisfied than the Germans in Germany.

Figure 3.3. German-born persons holding a job that is "ideal" for them, 2009-13



Note: Based on interviews with N = 343 German-born persons abroad and N = 7 566 German-born in Germany. The group of manual workers (N = 43 abroad and N = 615 in Germany) pools some occupational groups for which too few observations were available abroad: construction or mining workers, manufacturing or production workers, transportation workers, installation or repair workers, farming, fishing or forestry workers. Answers recorded as "Do not know" or "Refused" are counted towards N and the base of the percentage. All observations are used without weights.

Source: Gallup World Poll data for 2009-2013, www.oecd.org/std/43017172.pdf.

This finding stands in stark contrast with some existing evidence on the satisfaction of German emigrants. A study by Erlinghagen (2011) investigates the subjective well-being of German emigrants in 24 European countries. Individuals surveyed in the European Social Survey indicated how happy they are with their life on a scale from 0 (entirely dissatisfied) to 10 (entirely satisfied). Accounting for many demographic and socio-economic characteristics, Erlinghagen reports that German emigrants are happier than the Germans in Germany, irrespectively of how long the emigrants have been abroad. Much of the difference appears to be due to emigrants' greater satisfaction with their income and with the political system in their country of residence.[3]

In the aforementioned survey by Prognos AG (2008), 55% indicated that they had been satisfied with their overall situation in Germany, while 84% are satisfied in their current situation abroad. In particular, the child care facilities and the residential situation abroad are responsible for this increase. The emigrants' labour market position improved apparently markedly: almost all were employed after emigrating; the share of those with management responsibility doubles to reach 60%; and household income is perceived to be higher. Concerning their host society, the emigrants appear more satisfied with (first and foremost) economic conditions, the openness of society, their status within society, and the weather – while they miss the infrastructure and the environmental protection in Germany. Yet such findings in Prognos AG (2008) that emigrants' satisfaction improves following the move abroad are in fact in line with the findings in this chapter: a comparison between the first and the last column in Table 3.2 above suggests the same conclusion. But such an improvement might or might not be large enough to lift emigrants' satisfaction above the average satisfaction level of those at home.

German emigrants would primarily move back to Germany

One element of the German emigrants' situation appears particularly relevant for policies that seek to access their labour market potential: the emigrants' willingness to return. From the Gallup World Poll used throughout this chapter, information on this willingness can be obtained because the aforementioned questions about intentions to emigrate were put to the residents of many countries, including the German-born residents among them. One-quarter of over 800 German emigrants surveyed between 2009 and 2013 thus indicates a preference to permanently move to another country (but only 15% among those considering emigration have plans to move in the following 12 months).[4]

In some cases, the number of observations on German-born residents allows for country-specific estimates: while only about 10% of the German

emigrants in Austria, Canada and Switzerland consider moving on to another country, this is considered by 15-20% in Australia and Luxembourg, and by as much as 30% in Greece. Since the overall share of 25% substantially exceeds the share found above for residents in Germany, it suggests that the German emigrants remain more mobile on average than the population in Germany.

According to the Gallup World Poll, 40% of the German emigrants who consider moving to another country would move back to Germany, while 9% would move to the United States, about 5% would move to Canada and equally many to Spain or Australia. Similar preferences emerge from the responses of 150 German emigrants asked whether they would like to temporarily work in another country. Close to half express an interest, and again 40% would like to temporarily work in Germany, 10% in the United States, and slightly fewer in the United Kingdom and Canada.

While evidence on reasons for return is scarce, SVR-Forschungsbereich et al. (2015) also surveyed 900 German citizens who registered with authorities in 2013 after returning from abroad. Personal and family reasons were cited most often, by almost two-thirds of these respondents. Work-related reasons (57%) came next, followed by dissatisfaction with life abroad and a limited term of the stay abroad (40% each). The ranking of reasons thus differed from the ranking of those emigrating, but many other results were common to German citizens emigrating and returning. As work-related reasons, returning German citizens likewise cited opportunities to develop skills, interesting professional challenges and working conditions. Work-related reasons were indicated by 70% of those in employment; while as many of those with tertiary education cited work-related reasons, corresponding shares were much lower for those with low or medium levels of education. In the context of return migration, personal and family reasons appear almost as important for those with high education (cited by 65%) and were the reasons given most often by those with low or medium education levels (cited by about 70%).

In the survey conducted by Prognos (2008), more than half of the sample did not rule out a return to Germany: 46% indicated to be open to the idea, and for another 7% a return was already decided. Those with university degrees particularly often had a positive attitude to return, and 61% among those with a qualification in STEM subjects. Two-thirds of the German academics would consider returning, while the emigrants working in banking, retail, law, the chemical industry, or medical services particularly often consider their emigration permanent.

The main reasons given in Prognos (2008) for a (potential) return are family and friends, personal well-being, and also one's labour market

position, all cited by around a third. More evidence on researchers' reasons to return is presented in Chapter 4, which also points to the strong role of family and friends. The Gallup World Poll suggests that these mainly reside in Germany: almost 80% of more than 200 German emigrants first point to their country of birth as a place abroad where they have family or friends. The emphasis on family and friends is confirmed by the results of the aforementioned survey (see Destatis, 2013b) among holders of doctorates: while 44% acknowledged employment prospects as one of the reasons for their return, 31% acknowledged personal or family reasons, which thus featured much more often than academic reasons (6%) or the end of a study-related stay abroad (13%).

In conclusion, German emigrants often leave for work-related reasons but return for personal or family reasons. They appear more satisfied with their overall situation abroad than they were in Germany. It is less clear whether they are also more satisfied than those in Germany are on average. The emigrants' survey responses suggest a sizeable potential for return flows, both for permanent moves and for temporary work.

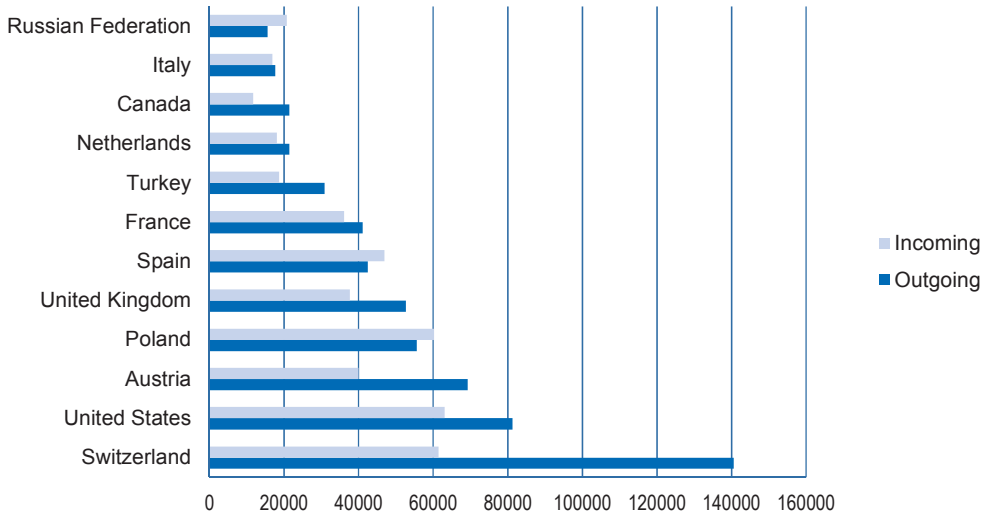
An analysis of return flows to Germany

The impact of emigration on the German labour force crucially depends on the extent of return migration to Germany. If the return flows of emigrants outweighed the outgoing flows, there would actually be a positive net migration flow to Germany. In either case, the labour market impact will strongly depend on the composition of these flows. For example, if primarily highly educated individuals emigrated and never returned, Germany might be facing a "brain drain" and its negative consequences on the supply of skilled labour and the country's capacity to innovate. This section will therefore compare the emigration flows of Germans to their return flows, especially with regards to education and labour market status.

Data from local population registers in Germany allow comparing the levels of outgoing flows of German citizens to the incoming flows of German citizens on an annual basis. Figure 3.4 shows for selected destination countries how the number of German citizens moving there compares to the number returning. For Switzerland, the difference was particularly large: while more than 140 000 German citizens left for Switzerland in the years 2008-13, less than half this number returned from there over the same period. Also in the case of Austria, the United States and the United Kingdom, the flows of Germans going there were considerably larger than the return flows, leading to net outflows of between 15 000 and 30 000 persons. The reverse notably held for the Russian Federation, Spain, and Poland, leading to net inflows of about 5 000 persons in each case.

In recent years, the accumulated outflows and return flows led to net emigration of German citizens from their home country, as shown in Figure 3.5, from 2005 to 2013. Approximately 110 000 German citizens departed for another country in 2000. The annual outflow then followed a rising trend and had increased by 60% to 175 000 departing German citizens by 2008, but then receded to 140 000 in 2013. Meanwhile, the return flows of German citizens exhibited a roughly opposite development. While the number of returning German citizens was nearly twice that of departing ones in 2000, it was essentially equivalent by 2005 and has since fallen below the number of departing Germans, which resulted in a negative net migration flow: in 2013, 22 000 fewer Germans returned to the country than departed from it. However, the gap appears to have narrowed over the years 2008-12.

Figure 3.4. Flows of German citizens between Germany and selected destination countries, 2008-13



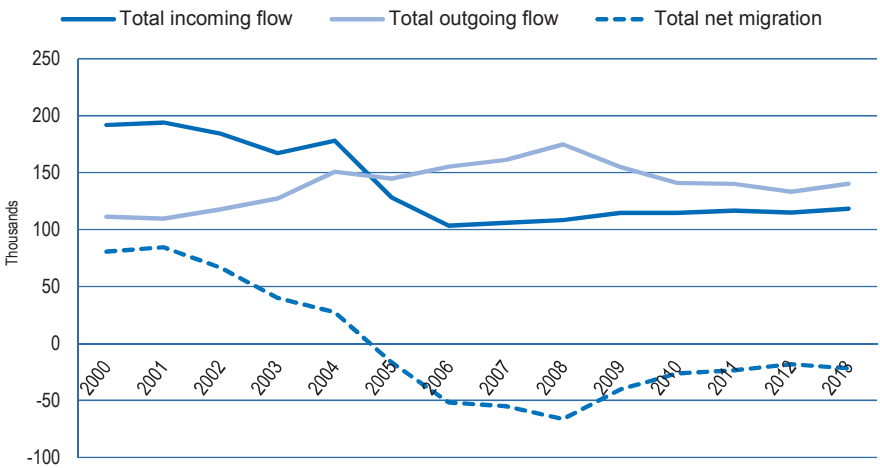
Note: Figures show German citizens (all ages), whether born in Germany or abroad. Figures for 2013 are preliminary.

Source: Destatis (2009-2013a, 2014a), "Bevölkerung und Erwerbstätigkeit", Issues 2007-13, Statistisches Bundesamt, Wiesbaden.

Based on the same data, one finds that there has been a net outflow of German citizens to the OECD countries as a group, each year since 2001 (see Table A.21). From only 5 000 persons in 2001, this net outflow grew steadily until it surpassed 60 000 in 2008, and then receded to levels around 20 000. In every year since 2002, about two-thirds or more of this outflow

was headed for European OECD countries. However, the net outflow to European countries and that to non-European OECD countries almost always moved in the same direction over this period, and both peaked in 2008. Since 2006, the net outflow to OECD countries has by and large accounted for the total net migration flow shown in Figure 3.5. By contrast, the overall net inflow before 2006 arose despite the net outflow to OECD countries, and thus rather reflects sizeable net inflows of ethnic Germans from the Russian Federation and from Kazakhstan.

Figure 3.5. Net emigration of German citizens from Germany, 2000-13



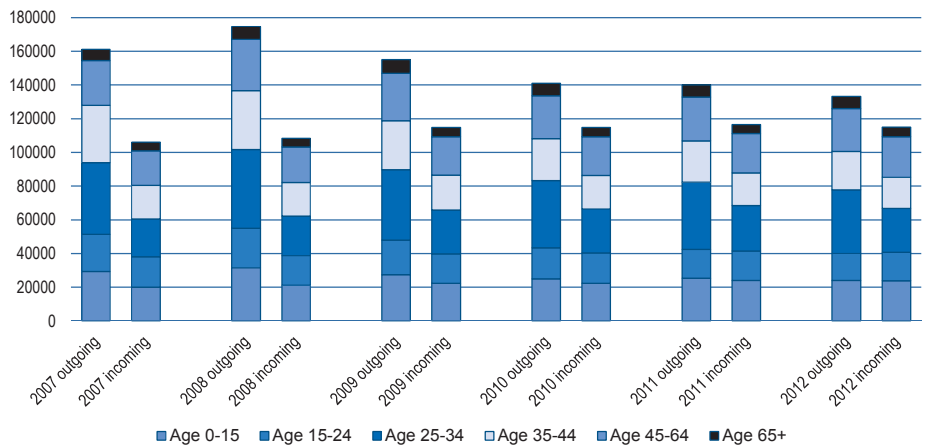
Note: Figures show German citizens (all ages), whether born in Germany or abroad. Figures for 2013 are preliminary. All destination countries are included.

Source: Destatis (2014a), "Bevölkerung und Erwerbstätigkeit 2013", Statistisches Bundesamt, Wiesbaden.

Figure 3.6 depicts the age composition of German citizens migrating from and to Germany in recent years. Not only have more German citizens emigrated than returned, but citizens of working age – especially those aged 25 to 34 – were also leaving in consistently greater numbers than were returning. A priori, this suggests a negative net effect on the size of the labour force in Germany. For an assessment beyond mere headcounts of the labour force, however, information on education and labour market participation would be needed. The registry data do not provide this, nor is it possible to link up exits and entries generated by the same person. Therefore, it is also unknown how many of those emigrating in a particular year eventually returned.

More fundamentally, comparing emigration and return flows is often impossible because data on the situation of the emigrants is collected abroad while data on the situation of returnees is collected in the country of origin, so that coverage, data definitions, and the kind of information collected typically differ significantly. An exception to this rule is found in data sets such as the yearly EU Labour Force Survey (henceforth EU-LFS), where data are collected in several countries according to largely harmonised definitions and procedures. This chapter adopts the approach employed by Ette and Sauer (2010), who identify migrant flows in the EU-LFS as those individuals who resided abroad one year before they are surveyed. Thus, someone surveyed outside Germany who claims to have resided in Germany one year ago would be part of the outgoing flow (for the respective year of the survey only), and someone surveyed in Germany who claims to have resided outside Germany one year ago would be part of the incoming flow. The information on education and labour market status in the EU-LFS then allows some inference on the composition of the flows between Germany and other EU/EFTA countries.

Figure 3.6. Flows of German citizens from and to Germany by age group, 2007-12



Note: All destination countries are included.

Source: Destatis (2009-2013a, 2014b), "Bevölkerung und Erwerbstätigkeit", Issues 2007-12, Statistisches Bundesamt, Wiesbaden.

Yet the following comparative analysis comes with a number of reservations. One is that this method will not capture many migration spells shorter than a year. Partly for this reason, the outgoing and incoming flows to the EU/EFTA countries estimated with the EU-LFS for 2012, as for the five-year period 2008-12, remain much lower than the figures in the Destatis

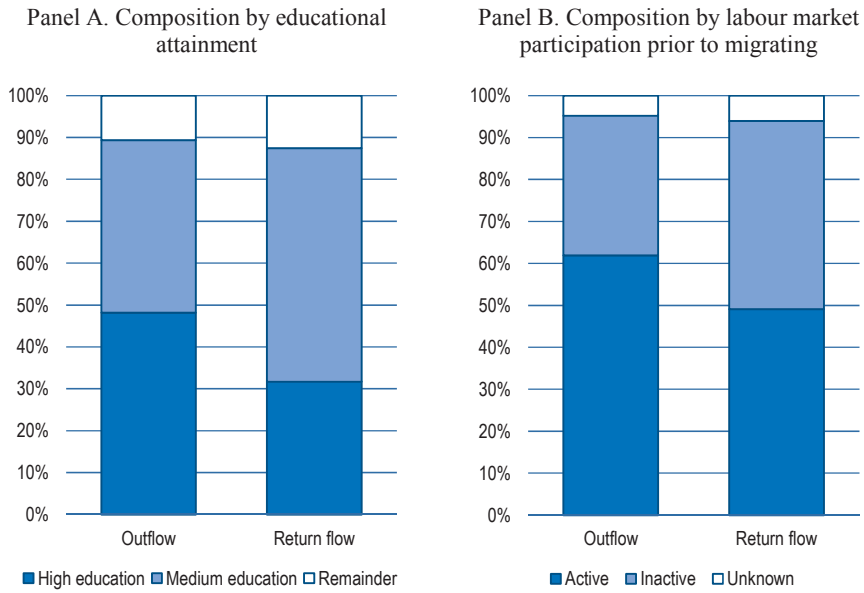
count data, shown in Table A.21. Ette et al. (2008) assess in detail such a divergence between the count data and the source of German data in the EU-LFS (the *Mikrozensus*). They conclude that, nevertheless, the composition of the flows may be estimated reliably with the *Mikrozensus*. Next, as only few of those migrating from or to Germany are captured in the samples that underlie the EU-LFS, the composition of these flows often cannot be reliably identified for particular countries or years. In light of these concerns, the available samples are aggregated as much as possible across countries and characteristics, so that the following comparisons distinguish only between medium and high levels of education, and between active labour market participation and inactivity.

Panel A of Figure 3.7 contrasts the estimated educational composition of the emigrant flow from Germany to EU/EFTA countries in 2012 with the estimated educational composition of the return flow. In both cases, the analysis focuses on those of working age. It shows that the highly educated are underrepresented in the return flow compared to the outflow, while those with a medium level of education are overrepresented: an estimated share of 48% among those leaving for other EU/EFTA countries in 2012 is highly educated, but only 32% among those returning from these countries. An estimated share of 41% of the outflow consists of individuals with a medium level of education, who represent 56% of the return flow.

One can likewise estimate the composition of flows over the five-year period of 2008-12, with the caveat that the necessary data are not always available for the United Kingdom or Switzerland.[5] The results are qualitatively the same as for 2012: an estimated share of 49% among those leaving for EU/EFTA countries between 2008 and 2012 is highly educated, compared to only 35% among those returning. Those with a medium level of education are estimated to make up 44% of the outflow, but 58% of the return flow. Given that more German citizens emigrate to EU/EFTA countries than return (see Table A.21), this underrepresentation of the highly educated in the return flow suggests that a substantially greater number of highly educated Germans have emigrated to EU/EFTA countries in recent years than have returned from there.

In Panel B of Figure 3.7, the previous labour market status of German emigrants is juxtaposed to that of the returning. In analogy to previous residence, the previous labour market status is identified by a question in the EU-LFS on one's situation one year ago, and hence refers to the labour market status in the country where the individual previously resided. All individuals in employment, self-employment, or unemployment are counted as active in labour market terms, while those in training or retirement count towards the inactive. As before, the analysis only considers individuals of working age.

Figure 3.7. Composition of aggregate migration flows between Germany and EU/EFTA countries, 2012



Note: The necessary data were not available for Finland, Ireland, Israel, Malta or Norway. Only individuals of working age are included. The level of detail does not allow identifying the German-born (except in Germany), but only the foreign-born from EU-15 countries. Outgoing flows thus include those born in the EU-15 who had resided in Germany, and will be overestimated relative to incoming flows, with unknown consequences for the estimated composition. Outflows are based on N = 249 observations and return flows on N = 221. Outflows and return flows respectively correspond to 27 000 and 41 000 individuals.

Source: OECD Secretariat calculations based on the EU Labour Force Survey (Eurostat), http://ec.europa.eu/eurostat/web/lfs/overview.

Following the estimated compositions in Panel B, those who were previously actively participating in the labour market are strongly underrepresented in the return flow compared to the outflow. While an estimated share of 62% among those emigrating in 2012 had been active on the German labour market, only 49% of those returning had been active on the labour market of their respective countries of residence. Conversely, inactive individuals are estimated to make up one-third of the outflow from Germany, but 45% of the return flow (and the vast majority of the inactive are in education or training, while retirees only represent around 1% of both the outflow and the return flow).

When this analysis is extended to the five-year period 2008-12 (with the same caveat as before), the difference in the flows' composition becomes considerably larger: two-thirds of those emigrating between 2008 and 2012 had been active, but only 41% of those returning. Only a quarter of those emigrating had been inactive, compared to half of those returning (and the retired again account for only 1-2% of the flows). Thus inactive individuals are strongly overrepresented in the return flow compared to the outflow, which suggests that many more active Germans emigrated to EU/EFTA countries in recent years than returned from there.[6]

The labour supply potential of emigrants is only realised when they both return and find work. For those who recently returned in one of the years from 2008 to 2012, as identified by the question on residence one year ago, the employment rate is estimated at only 63% at the time when they are surveyed in Germany (see Table 3.3). However, once one disregards those among the returning who were in education, retired, or permanently disabled before returning – many of whom would not participate in the German labour market either – the estimated employment rate rises to 71%. Essentially the same two figures are also found for just 2012. As the available variable for current labour market status in Germany differs conceptually from the variable for previous labour market status, it remains unclear to what extent returning Germans have the same labour market status before and after the return migration. Yet a change in the composition of the return flow, in terms of previous labour market status or in terms of education, will very likely affect the employment rate: separate estimates by education in Table 3.3 point to sizeable differences between the employment rates of returning emigrants,, depending on whether they have a medium or a high level of education.

Table 3.3. Estimated employment rates for German-born returning from EU/EFTA countries, 2008-12

	All	Medium-educated	Highly-educated
Employment rate, counting all incoming German-born aged 15-64	63%	55%	79%
Employment rate, counting incoming German-born aged 15-64 not recorded abroad as in education, retired, or permanently disabled	71%	65%	81%

Note: Returning individuals are identified as having resided in another EU/EFTA country one year before being surveyed. While all individuals returning in the years 2008 to 2012 are included, employment refers in all cases to the time subjects were surveyed. Using data for just 2012, the figures only differ substantially for the highly educated, whose employment rate is estimated at 85% (counting all) and 87% (not counting those in education, retired, or permanently disabled).

Source: OECD Secretariat calculations based on the EU Labour Force Survey (Eurostat), http://ec.europa.eu/eurostat/web/lfs/overview.

In short, this analysis of return flows provides some evidence that, in recent years, returning German emigrants had not been as active on the labour market abroad as those leaving Germany, and also were not as highly educated. In addition, highly educated Germans are not only relatively less frequent among the returning, but their number probably also falls short of the highly educated Germans leaving.

Whether the empirical analysis in this chapter confirms the concerns about a brain drain from Germany is a more nuanced question. While a number of important destination countries for German emigrants (e.g. the United States) could not be included in the analysis, it is unknown whether the return migration of Germans from these countries exhibits a different pattern. Finally, the composition of flows of persons not born in Germany plays a crucial role in determining whether more highly educated persons are going out than coming in: net inflows of highly educated migrants might offset net outflows of highly educated Germans, but net outflows of highly educated migrants would amplify any brain drain among highly educated Germans.

Previous findings on return to Germany

In the study whose approach this chapter has followed, Ette and Sauer (2010) look at flows of German citizens between Germany and the other EU-11 countries over the period 1996 to 2006. They limit their analysis to currently employed individuals aged 25 to 64. As almost half of the emigrants are found to be highly educated, compared to 29% in the immobile German population, they confirm that German emigrants represent a positive selection in terms of education. Other German emigrants typically had a medium level (43%) rather than a low level of education (9%). Among those returning, the highly educated are found to be even slightly more frequent (53%), while those with a medium level of education are as frequent (42%) as among the emigrants. The contrast with the results of the analysis above might arise from the difference in years and in the group of emigrants considered. However, when Ette and Sauer (2010) take into account that substantially more German citizens have emigrated over the period 1996 to 2006 than have returned, they estimate that significantly greater numbers of Germans with high and medium levels of education have emigrated than have returned, in line with the findings above.[7]

A similar approach is employed by Erlinghagen (2011) who uses a question in the European Social Survey on employment abroad in the previous ten years to identify returned emigrants. For the years 2002-08, he can thereby compare a stock of some 200 German emigrants who have returned to a stock of 1 000 Germans sampled abroad in 24 European

countries and to a stock of 10 000 Germans sampled in Germany, where Germans are defined as born in Germany or German citizens. Accounting for demographic and socio-economic characteristics including education and income, Erlinghagen (2011) finds that returned emigrants are as likely to be unemployed as the Germans in Germany, while the emigrants abroad are less likely to be unemployed. In contrast to the findings above, however, those who have returned are found to be better educated than those who have emigrated from Germany. While this result concerns stocks in 2002-08 rather than flows from 2008 to 2012, as above, the contrast might also arise from considering both German citizens and individuals born in Germany, or from the sample in Erlinghagen (2011) that appears skewed towards Switzerland, Austria, and Luxembourg.

The survey by SVR-Forschungsbereich et al. (2015) produced some evidence on the composition of emigration and return flows of German citizens in 2013. While the samples may not be representative, the available evidence suggests that the share of highly-educated persons was greater in the emigration flow (70%) than in the return flow (64%). The share of those with a medium level of education was about the same in both flows – 20% in the emigration flow and 18% in the return flow. Next, a considerably greater share of those emigrating than of those returning was in employment at the time of being surveyed (80% compared to 67%). Unemployment was instead more frequent among those returning (6%) than among those emigrating (1%); the same applies to inactivity (27% compared to 19%). Qualitatively, these results are by and large the same as those found in the analysis above for 2012 and the entire period 2008-2012.

A study by Diehl and Dixon (2005) provides evidence specifically on German emigrants in the United States. Drawing on German-born persons recorded in the US Census and on German citizens recorded in the German *Mikrozensus*, they compare the Germans living in the United States with those living in Germany. Not only was there, according to their findings, a higher share of university-educated persons among the Germans in the United States already in 1990, but by 2000 it had also increased more than in Germany. The same development is uncovered for Germans working in STEM occupations or as academics. However, the visa data suggest that these developments are driven by temporary and not permanent stays of Germans in the United States: while the number of temporary visas for Germans has risen swiftly between 1990 and 2000, changes to a permanent status have risen only mildly.

As another source of information on returning Germans, one can employ processing data from the German public pension system. These micro data record an individual's nationality, place of residence, education, their average contribution, and also whether or not they have acquired a claim to

a public pension abroad (see Mika, 2006; Himmelreicher and Scheffelmeier, 2013 for details on the data).[8] It is thus possible to identify emigrants as those who have worked abroad or have received a pension abroad. If in addition they have most recently received a pension in Germany, they can be identified as returned emigrants. At the same time, the data allow filtering out the pensioners among the *Aussiedler* – ethnic Germans migrating to Germany – who would typically meet these latter criteria although they immigrated rather than returned. However, the data do not cover those who have never contributed to the pension system – students or graduates who emigrated before working, civil servants (for whom a separate system is in place), and most of the self-employed (for whom contribution is not compulsory).

Himmelreicher and Roose (2014) analyse a set of such pension data for the cohorts first claiming their pensions between 1993 and 2011. They find that only 2-5% of these cohorts have ever worked abroad, men being slightly overrepresented. The most frequent countries where these German pensioners last worked are Switzerland and Austria (together accounting for one-third), followed by larger European countries and the United States. With regard to education, individuals with high and low educational attainment are overrepresented – relative to the population in Germany – among those who have worked abroad. Across rich, medium, and poor countries, the highly educated among those who have worked in the respective country are always overrepresented relative to the population in Germany. Those with low educational attainment are only overrepresented in medium and poor countries. Those with a medium level of education are not overrepresented anywhere, but primarily work in rich countries. Finally, Himmelreicher and Roose (2014) find that those who worked abroad earn a slightly lower average income from domestic sources (per year worked in Germany). However, it is not known whether the income obtained abroad was higher.

In Ette and Sauer (2010), pension data is used specifically to compare Germans who returned, eventually claiming their pension in Germany, to those who stayed abroad and claimed their pension there. The cohorts they consider are men born between 1909 and 1950, of whom 4% worked abroad at some point. Close to four-fifths of these (3%) have returned to Germany, while the remainder (1%) stayed abroad permanently.[9] Overall, the shares mentioned do not exhibit a clear trend over time. Yet Himmelreicher and Scheffelmeier (2013) look at pensions first claimed between 1993 and 2009, and they document a slowly rising incidence of employment spells abroad among all pensioners (German and foreign citizens) who first claim their pension in Germany. For residents of former West Germany, this share

increased from 5% in 1993 to 10% in 2009, while corresponding shares for residents of former East Germany are only around 1%.

In conclusion, there seem to be systematic differences both in the levels of outgoing flows from Germany compared to the return flows, and in the composition of these flows. More German citizens have left in recent years than returned, and those leaving are more likely than those returning to be of working age, highly educated, and active in the labour market prior to their move. Together, these results suggest that emigration, despite considerable return flows, tends to reduce the labour supply in Germany, in particular at high levels of education. Policy initiatives to respond to this development can be informed by the evidence on emigrants' motivations.

Notes

1. While science and research is the most frequent sector (20% of the sample), other sectors – notably business services, industry, medical services and ICT – together outweigh it by far. Therefore, results from this survey likely apply beyond academia.
2. According to the Gallup World Poll data for 2009-13, 10% of German emigrants send remittances to another country (likely Germany).
3. German emigrants rated the political systems of Switzerland, Luxembourg, Sweden and Austria most highly.
4. Only three-quarters of those who indicated in 2010-13 that they were considering emigration were asked about concrete plans.
5. Figures referring to 2008-12 include outflows to the United Kingdom only in 2009-12, and to Switzerland only in 2010-12. Outflow figures are based on N = 1 135 and return figures on N = 277 observations, respectively corresponding to 143 000 and 139 000 individuals. The note of Figure 3.7 applies.
6. The missing values ("Remainder", "Unknown") cannot overturn any of these results. Even if the entire remainder in the outflow in Panel A were medium-level educated and the entire remainder in the return flow were highly educated, the highly educated would still be slightly underrepresented in the return flow, while the medium-level educated would still be slightly overrepresented. Likewise, the results stated for Panel B would still hold even if all unknown in the outflow were inactive and all unknown in the return flow were active.
7. Estimating the composition by previous employment status was not part of the analysis in Ette and Sauer (2010).
8. Information on previous nationality is not recorded, so that naturalised individuals cannot be distinguished from other nationals. Education is not recorded if an individual has only worked abroad since 2000, and posted workers cannot be identified (see Himmelreicher and Roose, 2014).
9. The percentages given derive from OECD Secretariat calculations based on Table 7.1 in Ette and Sauer (2010) and do not include Germans who have never worked abroad but receive their pension abroad.

References

Destatis (2014a), "Bevölkerung und Erwerbstätigkeit 2013", Statistisches Bundesamt, Wiesbaden.

Destatis (2014b), "Bevölkerung und Erwerbstätigkeit 2012", Statistisches Bundesamt, Wiesbaden.

Destatis (2013a), "Bevölkerung und Erwerbstätigkeit 2011", Statistisches Bundesamt, Wiesbaden.

Destatis (2013b), "Hochqualifizierte in Deutschland. Erhebung zu Karriereverläufen und internationaler Mobilität von Hochqualifizierten", Statistisches Bundesamt, Wiesbaden.

Destatis (2012), "Bevölkerung und Erwerbstätigkeit 2010", Statistisches Bundesamt, Wiesbaden.

Destatis (2011), "Bevölkerung und Erwerbstätigkeit 2009", Statistisches Bundesamt, Wiesbaden.

Destatis (2010), "Bevölkerung und Erwerbstätigkeit 2008", Statistisches Bundesamt, Wiesbaden.

Destatis (2009), "Bevölkerung und Erwerbstätigkeit 2007", Statistisches Bundesamt, Wiesbaden.

Diehl, C. and D. Dixon (2005), "Zieht es die Besten fort? Ausmaß und Formen der Abwanderung deutscher Hochqualifizierter in die USA", *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, Vol. 57/4, pp. 714-734.

Diehl, C., S. Mau and J. Schupp (2008), "Auswanderung von Deutschen: kein dauerhafter Verlust von Hochschulabsolventen", *DIW Wochenbericht*, Vol. 5/2008.

Erlinghagen, M. (2011), "Nowhere Better than Here? The Subjective Well-being of German Emigrants and Remigrants", *Comparative Population Studies – Zeitschrift für Bevölkerungswissenschaft*, Vol. 36/4, pp. 899-926.

Ette, A. and L. Sauer (2010), *Auswanderung aus Deutschland. Daten und Analysen zur internationalen Migration deutscher Staatsbürger*, Springer VS, Wiesbaden.

Ette, A., R. Unger, P. Graze and L. Sauer (2008), "Measuring Spatial Mobility with the German Microcensus: The Case of German Return Migrants", *Zeitschrift für Bevölkerungswissenschaft*, Vol. 33, No. 3-4, pp. 409-432.

Himmelreicher, R.K. and J. Roose (2014), "Transnationalisierte Erwerbsbiografien. Verbreitung und Spezifika untersucht mit Daten der gesetzlichen Rentenversicherung", in G. Jürgen, H. Silke and C. Sören (eds.), *Globalisierung, Bildung und grenzüberschreitende Mobilität*, pp. 185-211, Springer VS, Wiesbaden.

Himmelreicher, R.K. and T. Scheffelmeier (2013), "Prozesse transnationaler Vergesellschaftung in der Rentenversicherung", in H.G. Soeffner (ed.), *Transnationale Vergesellschaftungen. Verhandlungen des 35. Kongresses der Deutschen Gesellschaft für Soziologie in Frankfurt am Main 2010*, Springer VS, Wiesbaden.

Liebau, E. and J. Schupp (2011), "Considering Emigration: German University Graduates Are Moving Abroad – But Only Temporarily", *DIW Weekly Report*, Vol. 1/2011.

Manski, C. (1990), "The Use of Intentions Data to Predict Behavior: A Best-case Analysis", *Journal of the American Statistical Association*, Vol. 85, pp. 934-940.

Mika, T. (2006), "Zuwanderung, Einwanderung und Rückwanderung in den Datensätzen des FDZ-RV", *DRV -Schriften*, Vol. 55/2005, pp. 93-113.

Niefert, M., O. Notburga and K. Rust (2001), "Willingness of Germans to Move Abroad", in R. Friedmann (ed.), *Econometric Studies,* Lit Verlag, Münster, pp. 317-333.

OECD (2012), *Connecting with Emigrants: A Global Profile of Diasporas*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264177949-en.

Prognos AG (2008), "Gründe für die Auswanderung von Fach- und Führungskräften aus Wirtschaft und Wissenschaft", Report to the Federal Ministry for Economic Affairs and Technology.

SVR-Forschungsbereich, Bundesinstitut für Bevölkerungsforschung and Universität Duisburg-Essen (2015), "International Mobil. Motive, Rahmenbedingungen und Folgen der Aus- und Rückwanderung deutscher Staatsbürger", Sachverständigenrat deutscher Stiftungen für Integration und Migration.

Uebelmesser, S. (2006), "To Go or Not to Go: Emigration from Germany", *German Economic Review*, Vol. 7, No. 2, pp. 211-231.

Database references

EU Labour Force Survey (Eurostat), http://ec.europa.eu/eurostat/web/lfs/overview.

Gallup World Poll data, http://www.oecd.org/std/43017172.pdf.

OECD Database on Immigrants in OECD Countries (DIOC 2010/11), http://www.oecd.org/els/mig/dioc.htm.

OECD Database on Immigrants in OECD Countries (DIOC 2000/01), http://www.oecd.org/els/mig/dioc.htm.

Chapter 4

German emigrants engaged in study and research abroad

This chapter establishes that students from Germany not only exhibit above-average mobility, but also have become the largest group of international students in the OECD area from any member country. In several host countries, they represent a significant share of the entire student population. Marked differences between international students from Germany and the students who remain in Germany are identified with respect to subjects studied. While the available data on internationally mobile researchers from Germany are scarce, this chapter identifies their number in key destination countries and discusses the evidence on their motivation to move abroad and to return. Measures of scientific impact based on publications suggest that many of the more influential researchers move abroad permanently.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

This chapter considers students and researchers separately because the emigration behaviour of these two groups may well differ substantially from that of other groups. Their motivation to go abroad might be particular to an academic context – the quality of research and teaching at specific institutions; the possibility to work together with leading researchers in one's specific field; or the desire to study in another country's culture and language, simply to widen one's horizon or also as a preparation for a career.

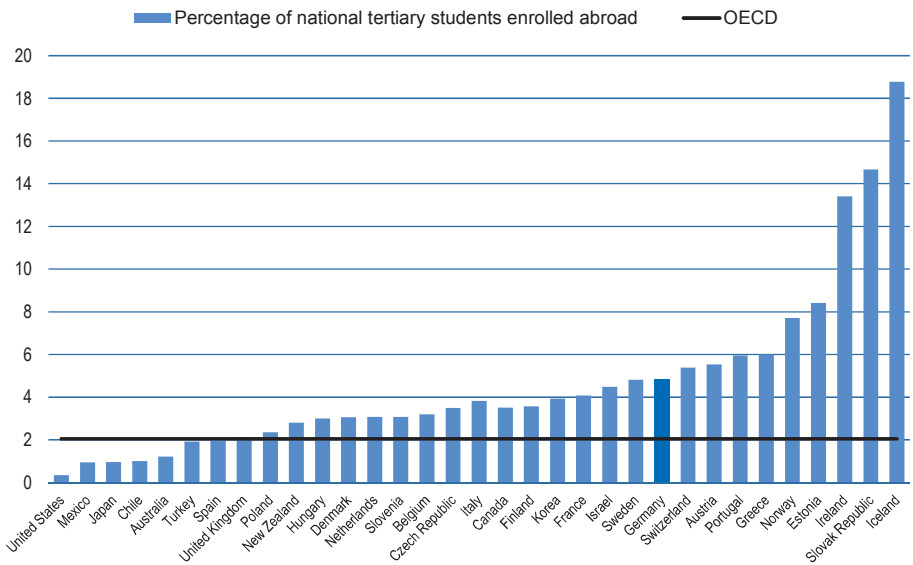
Still, the mobility of students and researchers amounts to more than an academic form of tourism: it has become relatively easy for German students to take entire degrees in another EU country, which might make it much more likely that they also settle there for a shorter or longer time after graduation. As future employees with a tertiary education and possibly some knowledge of the local language, the potential of international students is increasingly recognised by their host countries, and measures are taken to attract and retain them.

With regards to researchers, public debates regularly ensue when high-performing researchers leave to continue their work in another country. There appears to be a concern that mobility in teaching and research, albeit encouraged through numerous scholarships, adds up to a brain drain with negative consequences not only for domestic teaching and research, but also for the economy and its capacity to innovate. To distinguish between the potentially very beneficial mobility of researchers and their permanent loss through emigration, the key criterion is the extent to which mobile researchers ultimately return from abroad.

International students from Germany

As Figure 4.1 below shows, German students are roughly as mobile as their peers in the neighbouring countries Sweden, Austria and Switzerland, and a lot less mobile than Irish, Slovak or Icelandic students. The mobility of German students nevertheless by far exceeds the figure for the OECD area as a whole because students from large OECD countries such as the United States, Japan and Mexico exhibit a particularly low mobility. At 140 000, the absolute number of international students coming from Germany was in fact higher in 2012 than from any other OECD country, while still more international students originated from India and China (see Figure 4.2). Together with Korea and France, these countries were the top five sending countries of international students.

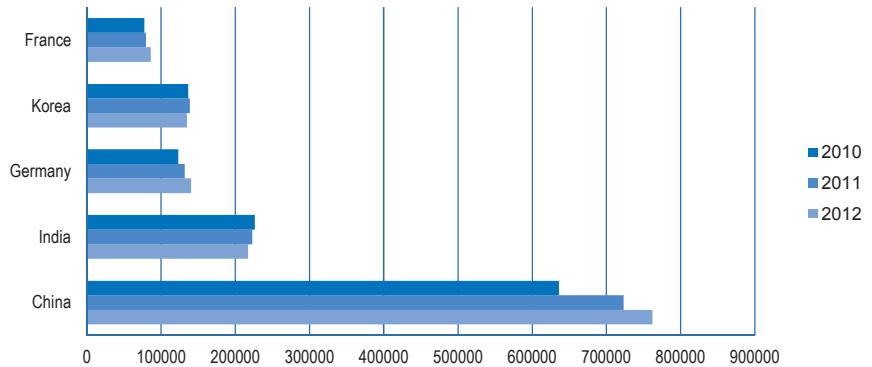
Figure 4.1. Student mobility in the OECD area, 2012



Note: The figure for Luxembourg, where a local university was not available until 2003, is 70%.

Source: OECD (2014), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2014-en, Table C4.5.

Figure 4.2. The top five origin countries of international students, 2010-12

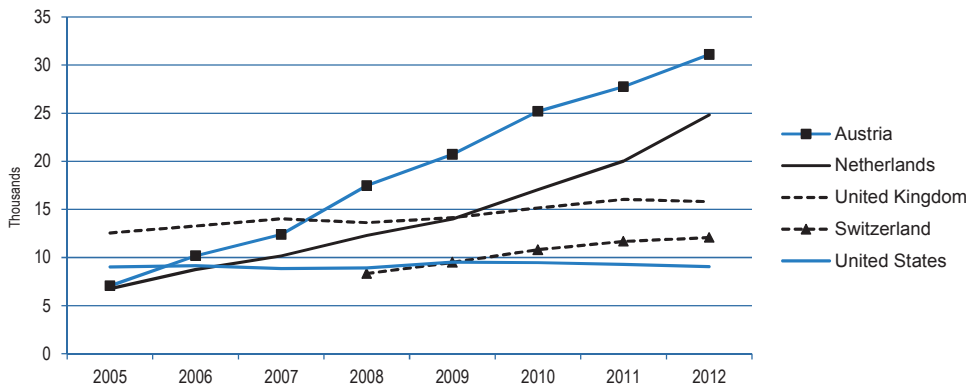


Source: OECD (2012), *Education at a Glance 2012: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2012-en, Table C4.7 (all web only); OECD (2013), *Education at a Glance 2013: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2013-en, Table C4.7; OECD (2014), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2014-en, Table C4.7.

The numbers of international students from France, Germany and China have risen steadily over the period 2010-12. The number of international students from Germany stood at 132 000 in 2011, after 123 000 in 2010; it has thereby grown at a rate comparable to that of international students from China: by 2012, students from Germany had increased by 14% compared to 2010, and students from China had increased by 20%. To some extent, the increase of German students abroad simply follows from the overall increase of young Germans who study: their number has also grown strongly in Germany since 2007/08 (see Destatis, 2013b). However, this can only explain a fraction of the increase abroad.

International students from Germany appear particularly attracted to a small number of countries. In 2012, by far the highest numbers of German students abroad could be found in Austria (31 000) and the Netherlands (25 000), as shown in Figure 4.3. Levels in both countries have risen steeply over the period 2005-12 and surpassed those of all other destination countries after 2009. The United Kingdom (16 000), Switzerland (12 000), and the United States (9 000) also counted among the top five destination countries for German students in 2012. The levels in the United States, however, have shown a slightly declining trend since 2009. The next highest numbers of German students in 2012 could be found in France, Denmark and Hungary.

Figure 4.3. International students from Germany in the top five destination countries, 2005-12



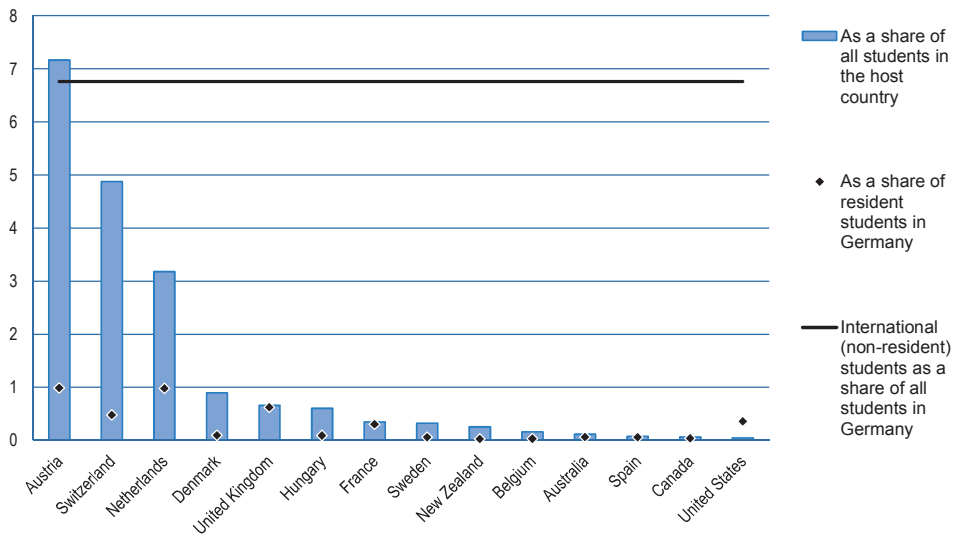
Note: International students are identified as students who are normally resident outside the country where they study, so that in particular non-citizens who were born in their country of study are not counted. Such information was unavailable for Austria before 2012, so that earlier figures refer to non-citizen students. In the case of Switzerland, figures are unavailable for 2005-07.

Source: International Students Database, UNESCO-OECD-Eurostat (UOE) database on education, http://dx.doi.org/10.1787/edu-data-en.

High density of German students in neighbouring countries

In Austria, Switzerland and the Netherlands, the relative frequency of international students from Germany has become so high that they make up a significant percentage of the entire student population in those countries, as Figure 4.4 shows. In the case of Austria, German students even represented more than 7% in 2012 – a higher share than all international students together represent in Germany. Figure 4.4 also indicates the magnitude of students from Germany as a share of all domestic students in Germany (i.e. not counting international students in Germany). While the magnitude of students from Germany in the United States is not far behind that in Switzerland, they do not nearly represent the same share of the student population as in Switzerland.

Figure 4.4. Density of German students abroad, 2012



Note: Figures include all tertiary levels of education. The bars refer to non-resident students from Germany with the exception of France, for which the data source only offers information on students who are non-citizens. To calculate the share of resident students in Germany, non-resident (i.e. international) students were subtracted from the total student population in Germany.

Source: International Students Database, UNESCO-OECD-Eurostat (UOE) database on education, http://dx.doi.org/10.1787/edu-data-en

The distinction between how many students from Germany study in a given country, and how frequent they are among that country's student population, may be relevant for policies seeking to connect with these emigrant students. The success of advertising campaigns, for example, may depend on

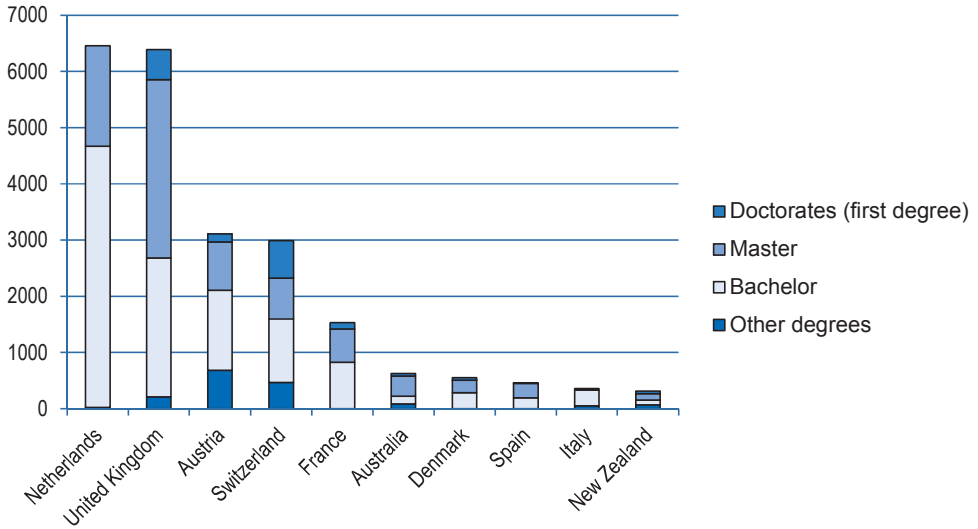
the relative frequency of the target group among those reached by the advertisement. In this sense, reaching a German student in the United States may be difficult because students from Germany make up only a very small share of the student body. By contrast, many of those reached by advertisements in Austria, Switzerland and the Netherlands could in fact be from Germany, and their total number would be high enough to justify the expenses of a campaign. However, other factors such as geographical dispersion of the students within a country would also matter. Finally, these considerations might have little relevance for highly targeted campaigns.

For example, a campaign building on referrals from one student to another would work especially well where strong networks are in place. In particular, students from Germany may be reached through the scientific and research organisations that support their stay abroad (see DAAD and HIS-HF, 2013). Of more than 2 700 supported postgraduate students in 2011, the largest share went to Europe (1 300), followed by North America (600) and Asia (500). Only 100 supported postgraduate students went to Australia and Oceania, slightly less than to Africa. The United States has consistently been their top destination country in recent years, followed by the United Kingdom (around 400 students). In 2011, about 150 supported postgraduate students went to Switzerland, Italy and France, respectively.

Advanced degrees and shortage subjects

Among the destination countries, students from Germany seem to prefer some for a bachelor's degree and others for a postgraduate degree. Figure 4.5 shows the type of degree of German graduates in their respective destination countries in 2011/12. While German students in the Netherlands overwhelmingly pursue bachelor's degrees, a majority in the United Kingdom obtain postgraduate degrees, and a particularly high share of German graduates in Switzerland earn a doctorate. Across all countries for which data are available, half of the German graduates abroad graduated with bachelor's degrees, more than a third with master's degrees, and about 7% earned doctorates and other or unknown degree types. While it is unknown how many German students graduate in the United States, data from the Institute of International Education suggest that, at pre-doctoral levels, half of them were studying for a bachelor's degree and half for master's degrees in 2013 (as reported in DAAD and DZHW, 2014).

Figure 4.5. Graduates with German citizenship by country and degree type, top ten destinations, 2011/12



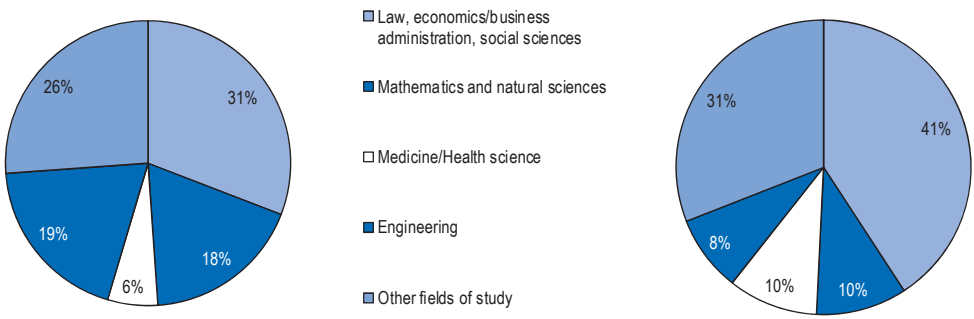
Note: For some countries, data for 2011/12 were unavailable and were replaced by data for 2011 (Australia and New Zealand), 2010/11 (Denmark), and 2008/09 (France). The data from the Netherlands do not include doctorates, and the figures for bachelor's degrees in Italy also include master's degrees. Figures for the United States and Hungary were unavailable.

Source: Destatis (2013), "Deutsche Studierende im Ausland. Statistischer Überblick 2001-2011", Statistisches Bundesamt, Wiesbaden.

German students abroad also seem to prefer different fields of study from those in Germany, as Figure 4.6 suggests. In Germany, about one-third of German students study law, economics, business administration, or social sciences. Abroad, this field accounts for two-fifths. However, German students in Germany can be found much more often than those abroad in mathematics and natural sciences (18% compared to 10%) and in engineering (19% compared to 8%). Conversely, the share of German students in medicine is larger abroad than in Germany (10% compared to 6%). Finally, students in other fields of study such as language and cultural studies account for around 30% both abroad and in Germany.

Figure 4.6. Students with German citizenship abroad and in Germany by field of study, 2012/13

Panel A. German students in Germany, 2012/13 Panel B. German students abroad, 2012/13 or latest year

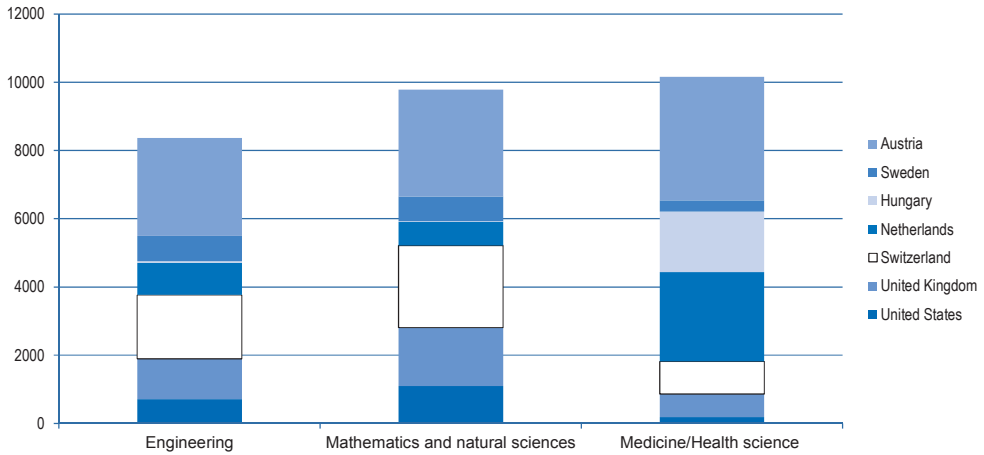


Note: Where data on 2012/13 were unavailable, the figure refers to the latest available year. German students in Germany are identified as German citizens.

Source: For students abroad, Destatis (2013), "Deutsche Studierende im Ausland. Statistischer Überblick 2001-2011", Statistisches Bundesamt, Wiesbaden; for students in Germany, Destatis (2013), "Bildung und Kultur. Studierende an Hochschulen. Wintersemester 2012/2013", Statistisches Bundesamt, Wiesbaden.

In considerable numbers, German students study subjects abroad in which graduates are in short supply in Germany. Figure 4.7 shows where most German students in engineering, mathematics/natural sciences and medicine could be found around the year 2012. Students in engineering are particularly frequent in Austria (2 900), Switzerland (1 900) and the United Kingdom (1 200). Exactly the same countries also had the highest numbers of German students in mathematics and natural sciences: 3 100 in Austria, 2 400 in Switzerland, and 1 700 in the United Kingdom. If engineering, mathematics and natural sciences are taken together as STEM subjects, Austria and Switzerland are thus home to 10 000 German students in STEM subjects. Another 5 000 study STEM subjects in the United Kingdom and the United States, and around 1 500 each in the Netherlands and Sweden. German students in Hungary are heavily concentrated in the field of medicine (1 800). Respectively, 2 600 and 3 600 German students also study medicine in the Netherlands and Austria.

Figure 4.7. Students with German citizenship by field of study, selected countries, 2012/13 or latest year



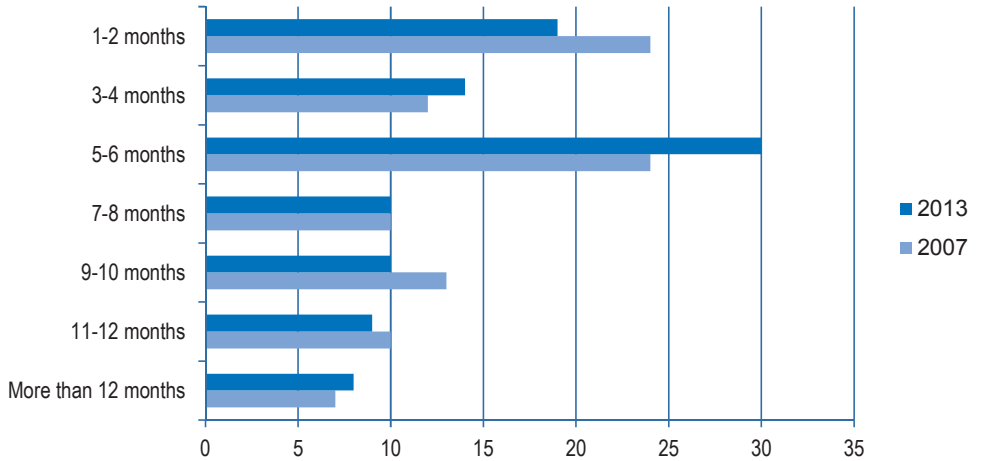
Note: Where data on 2012/13 were unavailable, figures refer to 2011/12 (Austria, United States), 2010/11 (Sweden) and 2006/07 (United Kingdom).

Source: Destatis (2013), "Deutsche Studierende im Ausland. Statistischer Überblick 2001-2011", Statistisches Bundesamt, Wiesbaden.

Students' duration of stay abroad

Among the German students enrolled in Germany, more than a quarter indicated a stay abroad as part of their studies, including internships and summer schools, when surveyed in 2013 (see DAAD and BMBF, 2013). Yet a large majority only stayed for up to half a year, and less than 10% stayed for more than one year (see Figure 4.8). Compared to the responses in 2007, the share of stays for 5-6 months has increased considerably, while the share of stays for 1-2 months has fallen significantly. This suggests that stays for a semester, for example through the European Union's Erasmus programme, have substituted for very short stays. The stays for more than six months do not exhibit such a clear tendency to become longer between 2007 and 2013.

Figure 4.8. Duration of stays abroad of students with German citizenship, 2007 and 2013



Note: Figures refer to previous stays abroad of 14 000 students with German citizenship, enrolled in Germany.

Source: DAAD and BMBF (2013), "7. Fachkonferenz 'go out! studieren weltweit' zur Auslandsmobilität deutscher Studierender. Ausgewählte Ergebnisse der 4. Befragung deutscher Studierender zu studienbezogenen Aufenthalten in anderen Ländern 2013", German Academic Exchange Service and Federal Ministry of Education and Research.

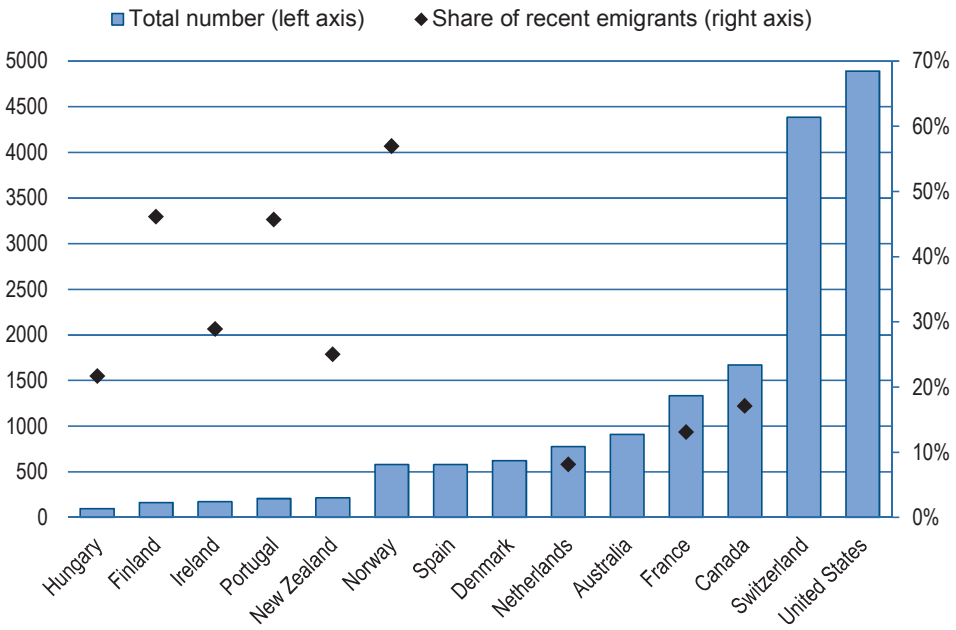
To fully gauge the role that study periods abroad play for subsequent emigration, in particular for finding employment abroad, one would like to know in particular how many international students stay in, or return to, the country where they studied. For international students from Germany, such information is unavailable from the data sources considered here. The main reason is that students from Germany do not need a visa in very many OECD countries, so that one cannot infer their stay rate from the number of student visas changed into work visas. Where a visa is required for students from Germany, e.g. in the United States, information is not published by nationality or country of birth. From an analysis of social security data, Finn (2010) could at least identify Germans who obtained a science or engineering doctorate in the United States. Looking at seven cohorts from 1990/91 to 2002, he finds that between 35% and 53% of the graduates were present in the United States four to five years after graduation. For the most recent cohort, graduating in 2004, this percentage has climbed to 54%, as reported in Finn (2012).

Internationally mobile researchers from Germany

In contrast to international students, information on international researchers is scarce, as they are not counted systematically. Some information may be obtained from occupational data, yet with caveats: the ISCO occupational classification allows identifying professionals who teach in higher education, but this might often not capture researchers who do not teach, especially those working in research institutes, think tanks, government, or firms' R&D departments. In turn, those who teach but do not engage in research would be counted in. Figure 4.9 below shows the distribution of German-born higher education teaching professionals over OECD counties in 2010/11 where the necessary information is available. Such data are unavailable, however, for the United Kingdom, although it might well feature among the top destination countries for researchers from Germany. The available data suggest that, in 2010/11, close to 5 000 higher education professionals from Germany resided in the United States alone, and another 3 000 resided in Canada or France, followed by Australia (900), the Netherlands (800), and Denmark, Norway, and Spain (about 600 each). In the cases of Norway, Finland and Portugal, these data suggest that about half of them are recent emigrants. Another data source (the EU Labour Force Survey) further offers information on German higher education teaching professionals in Switzerland: their number jumped from 2 000 in 2009 to 4 500 in 2012, decreasing to 3 000 in 2013.

German scientific and research organisations (e.g. the DAAD, the Leibniz Association, and the Deutsche Forschungsgemeinschaft) can provide information on those German graduate students and researchers whom they support during their stay abroad (see DAAD and HIS-HF, 2013). In 2011, such support was extended to 7 100 students and researchers, after 8 100 in 2010. Since 2004 their number has risen steadily, from about 4 000 to 6 300 by 2009. Over these years, between 2 500 and 3 200 could be identified as postgraduate students and between 550 and 1 000 as post-doctoral researchers ("post-docs"). Only around 300 annually could be identified as other faculty in the years 2009 to 2011. However, this is likely a gross underestimate, as academic status is unknown for many of the researchers supported in recent years.

Figure 4.9. Higher education teaching professionals from Germany in selected OECD countries, 2010/11



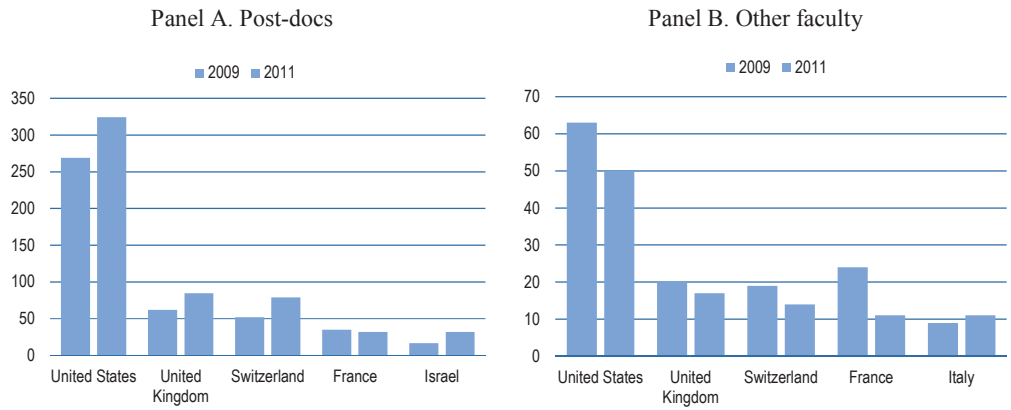
Note: Figures refer to ISCO group 231; while based on a different occupational classification, detailed figures for occupations in the United States have been adapted to match the delimitation of ISCO group 231 as closely as possible. The share of recent emigrants is the share among those observations with non-missing information on duration of stay. Information on duration of stay is non-missing for 60% of all observations. Levels below 100 are not reported.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm; for Switzerland: EU Labour Force Survey (Eurostat), http://ec.europa.eu/eurostat/web/lfs/overview.

For German researchers whose stay abroad was supported by a scientific or research organisation, the destination is often known (see DAAD and HIS-HF, 2013). The most frequent destination continents in 2011 were North America (more than 400 post-docs and other faculty) and Europe (360, of whom 90% went to Western Europe). Figure 4.10 shows supported German researchers in their top five destination countries. The United States is far ahead of all others, with a constantly high number of supported German post-docs (270-320). Roughly equal numbers of supported post-docs (about 80) went to the United Kingdom and Switzerland in 2011. Next, the number of supported German post-docs in Israel has grown within a few years from zero to the same level as those in France (about 30). The

United States was also consistently the top destination for other faculty in recent years, while faculty went to the United Kingdom, Switzerland, France, and Italy in comparable numbers during 2011.

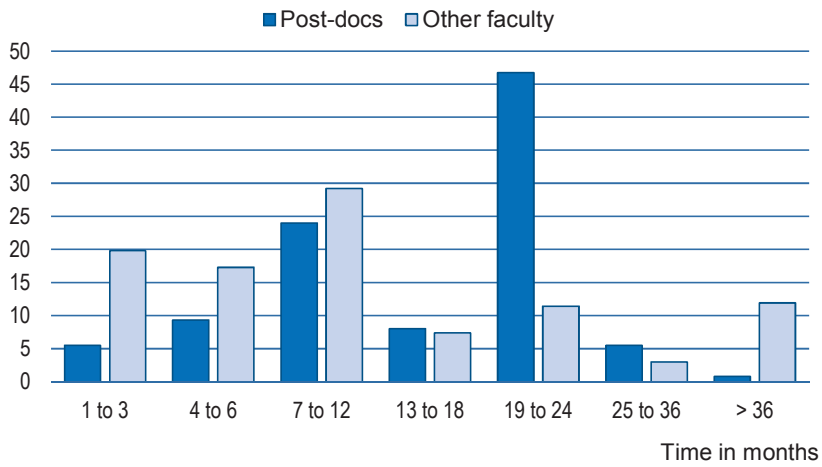
Figure 4.10. Researchers supported by a German research or scientific organisation, top five destination countries, 2011 and 2009



Source: DAAD and HIS-HF (2013), "Wissenschaft weltoffen 2013. Facts and Figures on the International Nature of Studies and Research in Germany", German Academic Exchange Service and HIS-Institute for Research on Higher Education, Table 158.

Figure 4.11 likewise shows the duration of stay for German researchers supported by scientific or research organisations while abroad. It appears likely that post-docs typically stay for one or two years. Other faculty stay more often for periods of up to one year, and a full 20% of them do not even stay longer than three months. At the same time, other faculty stay much more often than post-docs for periods longer than three years: 12% of them do, against less than 1% of the post-docs. However, these durations only refer to the supported stay, and it is not clear from these data whether the researchers subsequently return to Germany (they are normally not required to) or whether they stay abroad without any funding from a German organisation. The next section will look at the return of researchers in more detail.

Figure 4.11. Researchers supported by a German research or scientific organisation, by duration of stay abroad, 2011



Source: DAAD and HIS-HF (2013), "Wissenschaft weltoffen 2013. Facts and Figures on the International Nature of Studies and Research in Germany", German Academic Exchange Service and HIS-Institute for Research on Higher Education, Table 159.

Researchers' emigration and return flows

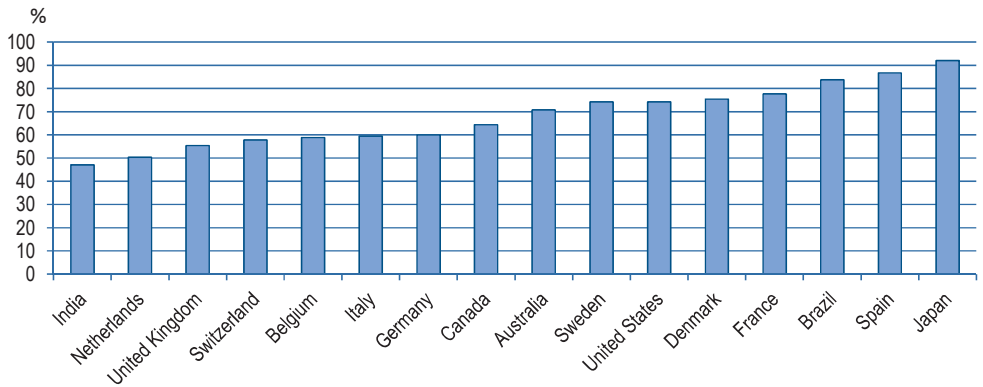
Databases on scientific publications allow estimating the flows of researchers between countries as the number changing their affiliation from an institution in one country to an institution in another country. While flows based on changes in affiliation cannot distinguish between researchers born in Germany and international researchers who temporarily stayed in Germany, they likely still capture trends in the movement of researchers linked to Germany, and these trends might extend also to the German-born.

Using this approach, the largest flows of researchers between OECD countries over the period 1996-2011 were identified in OECD (2013b), and Germany is the origin or destination country of several among these largest flows. The flow data suggest particularly strong scientific exchange with the United Kingdom and Switzerland. The difference between the gross flows to and from a given country – i.e. the net flow – also indicates whether or not researchers move predominantly in one direction. While the gross flows between Germany and France balance out almost exactly over the years 1996-2011, a net flow of about 1 800 researchers left Germany for Switzerland. Another 1 000 left for the United Kingdom, close to 500 for Austria, and about 250 for the Netherlands. By far the largest flows from and to Germany, however, involve the United States: more than

8 000 researchers moved from Germany to the United States between 1996 and 2011, while 6 200 moved in the opposite direction, leading to a net flow to the United States of more than 1 800 researchers.

When Franzoni, Scellato and Stephan (2012) surveyed more than 17 000 researchers publishing in biology, chemistry, material science, or earth and environmental sciences in one of 16 countries, they also asked where the researchers had lived at the age of 18, which could be seen as an imperfect approximation of the country of birth. Comparing it to the country where the researchers worked or studied at the time of the survey in 2011, they could estimate the percentage of researchers outside their country of origin. Of 1 254 researchers who had lived in Germany at age 18, almost a quarter was working or studying abroad. Fifty-eight percent had gained international experience, and 60% of these had returned to Germany by the time of the survey. As Figure 4.12 below indicates, this rate of return is very close to that of researchers who had lived in Italy, Belgium, or Switzerland at age 18, but lower than that of other neighbouring countries such as France, Denmark, and Sweden.

Figure 4.12. Returning scientists, as percentage of those with international experience, 2011



Note: Based on scientists surveyed in 2011 who had published in biology, chemistry, material science, or earth and environmental sciences. Return is defined as being back, following international experience, to the country where one had resided at age 18.

Source: Franzoni, C., G. Scellato and P. Stephan (2012), "Foreign-born Scientists: Mobility Patterns for Sixteen Countries", *NBER Working Paper*, No. 18067, Cambridge, United States, Table 2.

Box 4.1. Return programmes for researchers

An array of funding programmes and initiatives have been set up, mostly in recent years, specifically to support the return of German researchers. In addition, a number of programmes that fund research in Germany particularly welcome applications from German researchers abroad. Some programmes cater to researchers at an early stage of their career, while others are designed to help attract outstanding established researchers. Common to all is a primary, typically exclusive, focus on researchers, often further narrowed down to certain subjects. Consequently it is rare that any of these programmes leads to a return of more than a few dozen individuals. This, the short time that most of the programmes have thus far been in operation, and the question of where to look for a measure of their impact make it very difficult to evaluate them.

An overarching role is played by two networks that have existed for more than ten years: the German Academic International Network (GAIN), an initiative of public research organisations, and the German Scholars Organization e.V. (GSO), supported by private foundations and donors. The objective of GAIN is to connect German researchers in North Americawith each other and also with the research scene in Germany and current opportunities therein. Similarly, the GSO runs a network of German scholars who may in principle be located anywhere abroad, but many of them reside in the United States, Canada, and the United Kingdom. This network supports the recruitment efforts of German research institutions and firms through contacts and matchmaking, but also prepares German researchers for applications in Germany. Both GAIN and the GSO have assembled databases of about 4 000 German researchers; both can reimburse travel costs for interviews or presentations in Germany; and both organise a variety of events such as workshops, regular local meetings, and talent fairs. The only available evidence suggests very positive feedback from the researchers who participate in such activities.

The GSO especially has also implemented funding programmes specifically for returning German researchers, above all a programme funded by the Krupp Foundation between 2006 and 2012. Through this programme, German universities trying to recruit a German researcher abroad could receive additional funds to top-up the offered salary. Of the 52 professors who returned under this programme, one-half had been in the United States before and the other in Europe. In a survey among these professors, 50% indicated that the additional funding had been a very important factor in their decision to return, but only 16% ruled out that they would have come back without it. In a similar fashion, programmes with funding from the Else Kröner Fresenius Foundation and the Carl Zeiss Foundation support the recruitment of established researchers in medicine and STEM subjects or business studies, respectively.

Two initiatives specifically for Germans returning from abroad have been set up by German states. Since 2007, North Rhine-Westphalia's Rückkehrerprogramm has yearly called for applications from German researchers abroad who are at an early career stage, typically in medical or natural science. If selected, applicants can establish their own research group at one of this state's institutions. The salaries of the group, expenses for materials, and research-related travel are funded for up to five years. Thus far, 20 researchers have been recruited under this programme. Further south, the initiative Return to Bavaria was set up in 2012 as a network of regional employers and research institutes that recruit highly qualified Germans from abroad – primarily for research positions, but not limited to those. Apart from information and matchmaking events and services, this initiative also facilitates the practical reintegration upon return. As a rare additional advantage, the co-operation of various employers can help find a suitable position for the spouses of returning emigrants.

Box 4.1. Return programmes for researchers *(cont.)*

Several funding programmes have attracted German researchers back even though they were not specifically designed for this purpose. A number of them allow researchers at an early stage to establish their own research group, as in the programme in North Rhine-Westphalia. In such a programme of the Max-Planck-Gesellschaft (MPG), roughly half of the Germans heading a research group were recruited in the United States. In the case of the Helmholtz-Gemeinschaft, about a quarter are returning researchers, mainly from the United States. German researchers returning from the United States also represent a large share of those selected to head a group under the Emmy Noether Programme of the Deutsche Forschungsgemeinschaft. Given this attractiveness of research groups that allow independent projects at an early career stage, another such programme has been set up by the Deutsche Krebshilfe specifically for returning oncologists.

A comparable attractiveness has been observed for a few programmes catering to established researchers. The Alexander von Humboldt Foundation (AvH) offers a prize professorship for five years with additional funding. It has helped attract more than 40 internationally renowned researchers, and roughly half of them are returning Germans. Another prize professorship under the Heisenberg Programme also targets German researchers abroad. To researchers who do return, established or not, the German Academic Exchange Service (DAAD) offers fellowships for transitional periods of up to six months upon return to Germany. Such a reintegration phase has recently been merged with a scholarship for postdoctoral studies abroad (the P.R.I.M.E. programme). Finally, the European Union funds further opportunities, e.g. (re-)integration grants under Marie Curie Actions, and provides a wealth of information to those returning to Europe on the EURAXESS website.

Beyond the mere level of return flows among international researchers from Germany, the composition of the return flow might differ from that of the outgoing flow. The concern is sometimes expressed that the most promising researchers leave permanently. Using the database on scientific publications mentioned at the beginning of this section, an indicator of scientific impact is derived in OECD (2013b) from the publications recorded in this database, weighted by the impact of the respective journal (which reflects citations received by articles in this journal). Mobility is observed as a change in the researcher's affiliation – while researchers born in Germany or with German citizenship cannot be identified separately.

Figure A.7 in the Annex compares flows of researchers over 1996-2011 for some OECD countries. While it is not nearly always the case that the scientific impact of returning researchers falls short of the emigrating researchers' impact, this does appear to be the case for Germany. At the same time, the scientific impact of returning researchers nevertheless lies well above that of researchers who do not move to another country in this period. That could mean that both the outgoing and the returning researchers are a positive selection, in terms of scientific impact, from all researchers in

Germany. Alternatively, the differences in scientific impact could arise because the impact of German researchers increases as a consequence of their stay abroad. In principle, such differences in scientific impact might also simply reflect cohort effects. For example, a cohort of researchers that only begins publishing towards the end of the period of observation (1996-2011) would have much less time to publish, and would therefore often have a lower scientific impact. If particularly many researchers in this cohort returned rather than left permanently, this could produce the finding that returning researchers have less scientific impact than those leaving permanently. Yet this is likely not an explanation of the findings for Germany, because one would then expect, by the same cohort effect, that returning researchers also have less scientific impact than those not moving.

In any case, the departure of high-performing researchers has in all likelihood negative effects on the research performance of the colleagues they leave behind. In two articles (Waldinger, 2010 and Waldinger, 2012), negative effects on doctoral students and on fellow faculty members are identified from data on scientific output before and after the expulsion of Jewish professors from German universities in the 1930s. Immediate implications for the economy can arise from the departure of researchers who generate patents. Among German researchers who are employed in public institutions and who generate patents, comparatively many leave, heading primarily for jobs in the United States, Switzerland, and the United Kingdom (see WIPO, 2013). Against the negative effects of researchers' departure, one would have to weigh any positive effect from greater international exchange and collaboration in research that ensues after individual researchers move, and that can directly benefit other researchers who are left behind.

Researchers' reasons to leave and to return

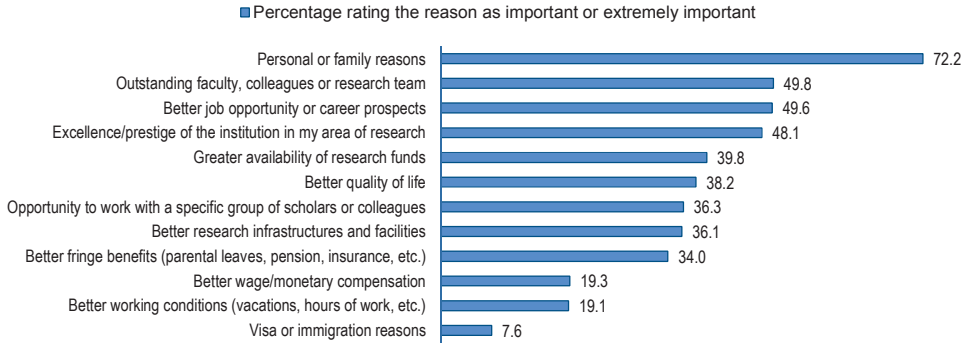
Several surveys among researchers have sought to find out why some leave and why some return. An extensive study by Stifterverband (2002) surveyed 1 690 Germans abroad; the majority were working in research, and many had been supported by a German scientific or research organisation. More than half of those working in research had first moved abroad for an academic qualification such as a doctorate or postdoctoral studies. The reasons they cited for leaving Germany were first and foremost the opportunity to work at a highly regarded research institution or on a specific research topic. More than half of the respondents pointed to better career prospects abroad than in Germany, and a majority did receive a job offer during their first substantive stay abroad. Overall, respondents were (highly) satisfied with their situation. A suitable job offer appears to be a precondition for their return, but family considerations also appear to play a

central role for the decision to return or to stay. With more than 60% of the respondents being married, they highlighted in particular the possibilities for spouses or partners to find employment and continue their careers as well.

Corresponding issues are raised in a 2012 survey among more than 800 participants of previous GAIN network conferences (see uzbonn, 2012) that brought together German researchers in North America. By the time of the survey, half of the respondents had returned to Germany and four-fifths of them were working in research. While 16% had returned without a job offer in hand, half of these researchers had found employment within three months. Many of the respondents in Germany indicated that friends and family had been crucial reasons for their return. While most of the researchers abroad were open to the idea of return, they would make this conditional on the availability of suitable positions and on career perspectives. As a major hurdle for their return, respondents identified problems finding suitable employment for their spouse. Such results are further supported by a survey of the German Scholars Organization among 51 researchers whose return was supported by the Krupp Foundation (see Jung, 2012). While two-thirds of these researchers were attracted by the particular offer, family considerations played an important role for half of them. Respondents were dissatisfied with the arrangements to support spouses and their own reintegration into the German context – both on and off campus.

Similar motives for leaving and for returning are even reported across the 16 countries considered in Franzoni, Scellato and Stephan (2012): researchers appear to leave primarily for career prospects and to work with outstanding colleagues or highly reputed institutions, and less because of salaries, different working conditions, or fringe benefits. Thirty percent of the researchers who had lived in Germany at age 18 consider it likely that they will return, 40% see this as depending on job opportunities, and a little more than 10% rule it out. Figure 4.13 shows the reasons given by those who did return to Germany. As before, personal or family reasons stand out, while job opportunities and career prospects remain important. Salaries, working conditions and benefits again only appear towards the end of the list.

Figure 4.13. Reasons for the return of scientists who lived in Germany at age 18, 2011



Note: Based on scientists surveyed in 2011 who had published in biology, chemistry, material science, or earth and environmental sciences. Return is defined as being back, following international experience, to the country where one had resided at age 18.

Source: Franzoni, C., G. Scellato and P. Stephan (2012), "Foreign-born Scientists: Mobility Patterns for Sixteen Countries", *NBER Working Paper*, No. 18067, Cambridge, United States, Table 5.

To conclude, there are two overarching trends in the mobility of international students and researchers from Germany. Firstly, the number of German students abroad is growing quickly, especially in Austria and the Netherlands, where considerable numbers are enrolled in subjects such as engineering and medicine. Secondly, German researchers go abroad – especially to the United States, the United Kingdom and Switzerland – to further their career, while those returning report personal and family reasons. Not all researchers return, however; in particular, the available evidence suggests that researchers with high scientific impact stay abroad.

References

DAAD and BMBF (2013), "7. Fachkonferenz 'go out! studieren weltweit' zur Auslandsmobilität deutscher Studierender. Ausgewählte Ergebnisse der 4. Befragung deutscher Studierender zu studienbezogenen Aufenthalten in anderen Ländern 2013", German Academic Exchange Service and Federal Ministry of Education and Research.

DAAD and DZHW (2014), "Wissenschaft weltoffen 2014: Facts and Figures on the International Nature of Studies and Research in Germany", German Academic Exchange Service and German Centre for Research on Higher Education and Sciences Studies.

DAAD and HIS-HF (2013), "Wissenschaft weltoffen 2013: Facts and Figures on the International Nature of Studies and Research in Germany", German Academic Exchange Service and HIS-Institute for Research on Higher Education.

Destatis (2013a), "Deutsche Studierende im Ausland: Statistischer Überblick 2001-2011", Statistisches Bundesamt, Wiesbaden.

Destatis (2013b), "Bildung und Kultur. Studierende an Hochschulen. Wintersemester 2012/2013", Statistisches Bundesamt, Wiesbaden.

EFI (2014), "Gutachten zu Forschung, Innovation, und technologischer Leistungsfähigkeit Deutschlands", Expertenkommission Forschung und Innovation.

Finn, M.G. (2012), "Stay Rates of Foreign Doctorate Recipients from U.S. Universities, 2009", Oak Ridge Institute for Science and Education (ORISE).

Finn, M.G. (2010), "Stay Rates of Foreign Doctorate Recipients from U.S. Universities, 2007", Oak Ridge Institute for Science and Education (ORISE).

Franzoni, C., G. Scellato and P. Stephan (2012), "Foreign-born Scientists: Mobility Patterns for Sixteen Countries", *NBER Working Paper* No.18067, Cambridge, United States.

Jung, S. (2012), "Rückkehr in die neue, alte Heimat. Ergebnisse einer GSO-Umfrage unter Professoren des Krupp-Förderprogramms", *Forschung & Lehre*, Vol. 5/12, pp. 386-388.

OECD (2014), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2014-en.

OECD (2013a), *Education at a Glance 2013: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2013-en.

OECD (2013b), *OECD Science, Technology and Industry Scoreboard 2013: Innovation for Growth*, OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2013-en.

OECD (2012), *Education at a Glance 2012: OECD Indicators*, OECD Publishing, Paris, http://dx.doi.org/10.1787/eag-2012-en.

Stifterverband für die deutsche Wissenschaft (2002), "Brain Drain – Brain Gain. Eine Untersuchung über internationale Berufskarrieren". Stifterverband für die deutsche Wissenschaft

uzbonn (2012): "Studie über den Verbleib von Teilnehmerinnen und Teilnehmern der GAIN-Jahrestagungen 2004-2011", Umfragezentrum Bonn.

Waldinger, F. (2012), "Peer Effects in Science – Evidence from the Dismissal of Scientists in Nazi Germany", *Review of Economic Studies*, Vol. 79, pp. 838-861.

Waldinger, F. (2010), "Quality Matters: The Expulsion of Professors and the Consequences for Ph.D. Student Outcomes in Nazi Germany", *Journal of Political Economy*, Vol. 118, pp. 787-831.

WIPO (2013), "Special Section. The International Mobility of Inventors", World Intellectual Property Organization, Geneva.

Database references

EU Labour Force Survey (Eurostat), http://ec.europa.eu/eurostat/web/lfs/overview.

OECD Database on Immigrants in OECD Countries (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

UNESCO-OECD-Eurostat (UOE) database on education, http://dx.doi.org/10.1787/edu-data-en.

Annex A. Additional tables and figures

Table A.1. Data sources for DIOC 2000/01 and 2010/11

Country	2000/01	2010/11
Australia	Census, 2001	Census, 2011
Austria	Census, 2001; LFS 1998-2002	European Labour Force Survey 2010/11
Belgium	ESEG, 2001; LFS 1998-2002	Census, 2011
Canada	Census, 2001; ESEG, 2001	National Household Survey (NHS) 2011
Chile	National Socio-Economic Survey, 2001	The National Socio-Economic Survey, 2011
Czech Republic	Census, 2001	Census, 2011; European Labour Force Survey 2010/11
Denmark	Register, 2002	Population Register 2011
Estonia	--	Census, 2011
Finland	Register, 12/2000; LFS 1998-2002	Population Register 2010
France	Census, 1999	Census, 2011
Germany	LFS 1998-2002	Micro Census, 2011
Greece	Census, 2001	Census, 2011
Hungary	Census, 2001; LFS 1999-2002	Census, 2011
Iceland	--	Census, 2011; European Labour Force Survey 2010/11
Ireland	Census, 2002	Census, 2011
Israel	National LFS, 2000	Labour Force Survey 2011
Italy	Census, 2001	Census, 2011
Japan	Census, 2000	Census 2010
Luxembourg	Census, 2001	Census, 2011
Mexico	Census, 2000	Census 2010
Netherlands	LFS 1998-2002	Census, 2011
New Zealand	Census, 2001	Census, 2013
Norway	Registers, 12/2003; LFS 1998-2002	Population Register 2011
Poland	Census, 2001	Census, 2011; European Labour Force Survey 2010/11
Portugal	Census, 2001; LFS 1998-2002	Census, 2011; European Labour Force Survey 2010/11
Slovak Republic	Census, 2001	Census, 2011
Slovenia	--	Census 2011
Spain	Census, 2000	Census, 2011
Sweden	Registers, 12/2003; LFS 1998-2002	Population Register 2010
Switzerland	Census, 2000; ESPA, 2003	European Labour Force Survey 2010/11
Turkey	Census, 2000	European Labour Force Survey 2010/11
United Kingdom	Census, 2001; LFS 1998-2002	Census, 2011
United States	Census, 2000	American Community Survey 2007-2011

Table A.2. Main origin countries for emigration to the OECD area, 2010/11

Total emigrant population aged 15 and above

OECD origin countries						Non-OECD origin countries					
	2000/01	2010/11	Growth (%)	2010/11 Emigration rate	2000/01 Emigration rate		2000/01	2010/11	Growth (%)	2010/11 Emigration rate	2000/01 Emigration rate
United States	886 691	1 191 959	34.4	0.5	0.4	El Salvador	835 779	1 224 260	46.5	19.5	17.1
France	1 159 634	1 402 186	20.9	2.6	2.3	Algeria	1 325 415	1 519 698	14.7	5.6	6.2
Portugal	1 260 860	1 473 059	16.8	14.0	12.8	Ukraine	1 022 826	1 633 066	59.7	4.2	2.5
Korea	1 446 632	1 770 843	22.4	4.1	3.8	Viet Nam	1 518 247	1 937 152	27.6	2.8	2.8
Italy	2 363 916	2 258 988	-4.4	4.3	4.6	Russian Federation	1 789 095	2 257 400	26.2	2.0	1.6
Turkey	2 113 476	2 619 784	24.0	4.4	4.3	Morocco	1 674 887	2 562 361	53.0	9.7	7.9
Poland	2 184 889	3 264 004	49.4	9.1	6.5	Romania	1 125 195	2 682 471	138.4	13.5	5.9
Germany	3 148 478	3 401 386	8.0	4.5	4.3	Philippines	1 938 538	3 011 250	55.3	4.7	3.9
United Kingdom	3 257 939	3 694 170	13.4	6.8	6.4	India	1 971 332	3 610 731	83.2	0.4	0.3
Mexico	8 330 822	11 319 738	35.9	12.2	11.2	China	2 071 248	3 628 074	75.2	0.3	0.3

Source: *OECD Database on Immigrants in OECD Countries* (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Table A.3. Emigrant populations from selected origin countries, 2010/11 and 2000/01

Total emigrant population aged 15 and above

	Total in 2010/11		Percentage of the 2010 emigrant population that was…					Total in 2000/01	
	Thousands	% of all emigrants in OECD area	Recent (≤5 years)	15-24	25-64	Highly-educated	Medium-level educated	Thousands	% of all emigrants in OECD area
Mexico	11 319.7	11.2	7.8	15.4	78.4	7.8	33.4	8 330.8	11.4
United Kingdom	3 694.2	3.6	11.3	6.4	66.0	39.8	37.3	3 257.9	4.5
China	3 628.1	3.6	21.2	18.5	69.2	42.2	27.8	2 071.2	2.8
India	3 610.7	3.6	24.8	9.8	78.6	62.0	19.2	1 971.3	2.7
Germany	3 401.4	3.4	14.5	11.1	68.0	35.7	42.7	3 148.5	4.3
Poland	3 264.0	3.2	24.3	8.6	77.3	30.6	45.7	2 184.9	3.0
Philippines	3 011.3	3.0	16.3	9.7	78.4	51.3	33.8	1 938.5	2.7
Morocco	2 562.4	2.5	16.0	10.6	78.8	16.6	24.2	1 674.9	2.3
France	1 402.2	1.4	19.7	9.6	74.1	42.4	29.6	1 159.6	1.6
United States	1 192.0	1.2	21.5	21.5	66.5	49.9	28.2	886.7	1.2
Canada	1 158.0	1.1	13.0	9.7	67.9	48.3	38.5	1 070.4	1.5
Spain	765.5	0.8	13.4	6.4	64.2	29.1	29.7	769.6	1.1
Switzerland	507.8	0.5	9.5	11.7	75.0	31.1	41.5	431.3	0.6
Austria	409.9	0.4	10.7	5.4	61.1	34.3	45.7	389.4	0.5

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Table A.4. German emigrants by destination country, 2010/11

	15-24 years old	25-64 years old	65 and over	Total	German-born share of foreign-born population	Share of women
United States	151 052	725 255	249 021	1 125 328	2.8	50.9
United Kingdom	45 807	193 202	36 037	275 046	3.8	51.9
Switzerland	14 520	222 567	36 868	273 955	17.1	51.8
France	17 848	140 500	45 776	204 124	3.0	51.5
Italy	23 600	151 286	16 977	191 863	4.4	56.2
Spain	11 360	135 215	39 140	185 715	3.7	49.7
Canada	10 325	83 320	71 155	164 800	2.5	52.4
Austria	18 952	112 561	21 358	152 871	15.1	53.0
Turkey	18 793	117 320	135	136 248	19.4	55.0
Greece	11 186	94 295	3 907	109 388	9.1	51.6
Australia	4 179	59 177	41 927	105 283	2.2	51.2
Netherlands	10 138	66 429	22 647	99 214	6.6	52.8
Belgium	9 455	51 717	15 997	77 169	5.6	51.1
Poland	8 409	11 611	49 755	69 775	12.3	60.5
Sweden	2 860	22 110	17 545	42 515	3.9	51.9
Denmark	4 017	19 726	7 495	31 238	7.2	51.5
Portugal	2 894	19 955	2 065	24 914	3.1	53.5
Norway	2 381	18 415	2 438	23 234	4.8	48.7
Hungary	2 512	12 587	5 065	20 164	6.1	55.5
Israel	266	8 508	7 889	16 663	1.0	55.1
Czech Republic	1 450	9 927	4 562	15 981	2.4	48.3
Luxembourg	936	8 596	3 601	13 133	7.6	50.0
New Zealand	1 431	8 763	1 746	11 940	1.4	52.0
Ireland	1 765	8 905	1 017	11 687	1.8	50.5
Mexico	662	4 302	1 715	6 692	1.6	49.6
Finland	628	3 925	590	5 143	3.2	45.6
Japan	586	2 770	294	3 650	0.3	56.5
Chile	584	821	976	2 381	1.1	57.0
Slovak Republic	184	599	489	1 272	1.0	55.2

Note: Includes only observations for which information on both age and sex is available. Figures for Iceland and Korea were not available. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Table A.5. Regional figures of German emigrants in selected destination countries, 2013

German-born population aged 15-64

Region	Total	Highly-educated	Medium-educated	Employed
I. Austria				
Niederösterreich	13 661	4 041	8 502	10 923
Wien	29 754	16 706	11 842	22 116
Kärnten	9 693		6 424	7 071
Steiermark	10 654		6 991	7 962
Oberösterreich	17 911	3 245	13 058	13 967
Salzburg	14 227	4 224	8 418	10 440
Tirol	24 504	7 273	15 303	17 974
Vorarlberg	11 670	2 920	7 373	9 750
II. Netherlands				
Groningen	4 433		2 449	3 416
Friesland	2 052			1 621
Overijssel	7 796		4 355	4 877
Gelderland	7 717	2 385	3 298	5 962
Flevoland	3 296		1 815	2 917
Utrecht	4 670	2 707	1 574	4 495
Noord-Holland	12 936	6 136	5 944	9 953
Zuid-Holland	9 869	4 522	3 944	8 215
Noord-Brabant	6 003		2 866	4 245
Limburg	13 433	2 072	7 270	9 901
III. Switzerland				
Genferseeregion / Région lémanique	10 567	6 341	3 442	8 148
Espace Mittelland	37 289	21 512	13 103	32 657
Northwest Switzerland	54 928	32 204	20 344	47 604
Zürich	74 982	48 257	23 970	66 380
East Switzerland	48 946	24 631	22 286	42 023
Central Switzerland	26 822	15 888	9 672	22 750
Ticino / Tessin	1 748	1 107		1 282

Note: The missing figures are not reported due to insufficient sample sizes. For the same reason, figures for the regions Burgenland (Austria), Drenthe and Zeeland (both in the Netherlands) are not reported.

Source: EU Labour Force Survey (Eurostat), http://ec.europa.eu/eurostat/web/lfs/overview.

Table A.6. Flows of German emigrants received by destination countries, 2000-12

German citizens (all ages), in thousands

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Australia	0.955	1.075	1.163	1.224	1.345	1.422	1.537	1.674	1.758	2.063	2.041	1.745	1.942
Austria	7.500	10.227	9.188	10.924	13.212	14.715	15.884	17.953	19.206	17.553	17.966	17.410	17.774
Belgium	3.037	2.884	2.966	2.942	3.307	3.250	3.290	3.385	3.763	3.401	3.302	3.141	2.892
Canada	2.369	1.846	1.624	2.098	2.387	2.635	3.030	2.555	4.057	4.080	3.190	2.255	1.890
Chile	0.201	0.219	0.227	0.232	0.247	0.310	0.322	0.329	0.425	0.409	0.468	0.488	
Czech Republic	0.142	0.244	0.811	0.849	1.305	1.431	0.797	1.932	4.308	1.975	2.002	1.338	1.319
Denmark	0.790	0.887	0.845	0.826	1.029	1.340	1.877	3.003	3.029	2.155	1.904	1.882	
Estonia										0.104			
Finland	0.204	0.244	0.242	0.234	0.312	0.312	0.353	0.504	0.447	0.347	0.296	0.307	0.303
Hungary	0.785	0.753	0.337	0.392	0.057	3.857	0.722	0.711	3.201	2.694	2.420	2.428	2.073
Iceland	0.167	0.178	0.146	0.071	0.135	0.300	0.314	0.301	0.314	0.200	0.191	0.154	0.109
Israel	0.078	0.062	0.055	0.058	0.085	0.096	0.110	0.096	0.086	0.096	0.119	0.097	0.100
Italy	2.519	2.372	2.275	2.418	2.119	2.662	2.489	3.703	3.132	2.538	2.099	2.034	1.877
Japan							4.677	4.924	4.847	4.499	4.277	3.676	4.141
Korea	1.016	1.055	1.261	1.150	1.290	1.825	1.218	0.900	0.963	0.927	1.087	1.017	1.241
Luxembourg	0.631	0.657	0.646	0.741	0.802	0.781	0.929	1.045	1.130	1.008	1.008	1.110	1.006
Mexico								0.279	0.311	0.323	0.338	0.268	0.285
Netherlands	4.855	5.064	5.091	4.814	5.305	5.930	7.150	7.450	9.010	8.714	9.812	9.604	8.730
New Zealand	0.382	0.432	0.325	0.355	0.411	0.781	0.710	0.762	0.666	0.712	0.650	0.591	0.537
Norway	0.993	1.083	1.241	1.187	1.396	1.735	2.281	3.794	4.325	2.818	2.678	2.315	1.765
Poland	0.707	1.083	1.576	1.495	2.196	6.125	4.623	6.694	2.927	1.681	1.774	1.915	2.281
Portugal	0.801	0.744	0.703	0.646	0.588	0.502	0.292	1.640	1.135	1.096	0.998	0.802	0.649
Slovak Republic				0.252	0.595	0.888	0.913	0.896	1.146	0.594	0.452	0.265	0.129
Slovenia								0.198	0.221	0.194	0.008	0.202	0.254
Spain	10.247	10.712	11.191	10.759	13.967	15.220	16.906	17.815	12.561	10.384	9.288	9.117	8.807
Sweden	1.461	1.639	1.676	1.775	1.832	2.016	2.883	3.614	3.405	2.773	2.202	2.205	2.150
Switzerland	12.516	14.631	15.538	14.937	18.100	20.360	24.786	41.058	46.385	33.941	30.745	30.506	27.123
Turkey											1.642		
United Kingdom	11.395	16.087					13.000	15.000	18.000	11.000	7.000	13.000	8.000
United States	7.565	9.790	8.888	5.064	7.099	9.264	8.436	7.582	7.091	7.583	6.888	6.125	5.812
Latvia	0.016					0.102	0.223	0.216	0.209	0.161	0.176		
Lithuania						0.100	0.084	0.070	0.060	0.046	0.015	0.057	0.080
Romania						0.238	0.252	0.423	0.526	0.496	0.438		
Russian Federation	1.753	1.627	1.962	2.692	3.117	3.025	2.900	3.164	3.134	2.585	2.621	4.520	4.239

Note: Figures do not include irregular migration. Information on flows is not available for France, Greece or Ireland. Figures for the United Kingdom from 2006 are estimates based on the International Passenger Survey. Figures for the United States only count permanent residence permits. A comparison with stocks in DIOC suggests that the flow to the United States is therefore substantially underestimated. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: OECD International Migration Database, http://dx.doi.org/10.1787/data-00342-en.

Table A.7 German emigrants by education and duration of stay, selected destination countries, 2010/11

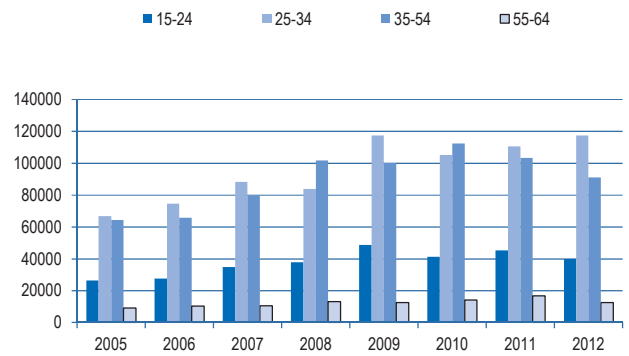
	High education				Medium education			
	Percentage resident for			Total	Percentage resident for			Total
	≤5 years	5-10 years	> 10 years		≤5 years	5-10 years	> 10 years	
United States	9.3	8.3	82.4	239 270	5.1	3.8	91.1	290 405
Switzerland	41.8	16.6	41.3	152 208	34.2	12.4	53.2	131 650
United Kingdom	24.7	10.6	63.9	118 139	13.7	6.4	78.4	93 268
France	12.7	8.3	60.4	77 803	9.5	6.0	61.8	77 033
Canada	5.2	3.6	78.8	75 720	3.2	2.1	85.6	67 090
Spain	18.6	15.3	66.1	73 120	15.5	12.2	72.3	51 880
Austria	24.9	20.8	54.3	47 715	23.3	17.6	59.0	102 563
Turkey	5.4	1.5	93.0	38 068	9.2	3.8	86.2	51 430
Australia	14.6	11.4	72.2	31 244	5.9	3.9	87.5	38 678
Greece	11.1	11.4	77.2	31 032	13.2	11.1	75.4	55 387
Netherlands	15.3	17.6	67.1	27 011	12.3	5.6	82.0	39 090
Italy	12.4	8.7	78.9	26 859	5.7	5.9	88.3	82 800
Belgium	5.0	4.9	90.1	15 907	2.8	2.6	94.6	19 744
Sweden	35.0	16.4	44.4	14 925	15.2	6.7	72.7	18 365
Norway	41.0	15.3	43.7	9 857	33.1	10.5	56.3	5 599
Israel	1.3	0.5	97.1	9 062	2.8	1.4	95.8	4 022
Denmark	9.6	11.1	35.0	8 339	6.4	7.5	30.4	9 534
New Zealand	22.5	23.3	53.0	7 317	25.6	19.4	52.5	3 675
Portugal	7.4	4.9	87.7	6 813	3.7	18.4	77.8	7 430
Ireland	34.0	19.2	31.9	5 816	29.5	16.3	32.4	4 133
Hungary	18.4	10.1	50.1	5 001	19.0	8.9	44.7	10 665
Luxembourg	25.1	17.7	54.0	4 083	14.5	11.1	70.8	4 379
Mexico	30.4			3 974	36.7			1 979
Poland	13.7	11.3	75.0	2 579	2.6	2.7	94.7	16 470
Finland	23.5	16.5	60.0	1 599	17.0	12.4	70.5	1 262
Czech Republic	26.1	23.2	50.8	1 533	8.4	18.9	72.7	3 960

Note: Figures for Chile and the Slovak Republic are too low to be reported. Details on duration of residence from five years are unavailable for Mexico. The totals found in this specific context do not necessarily match the totals given elsewhere.

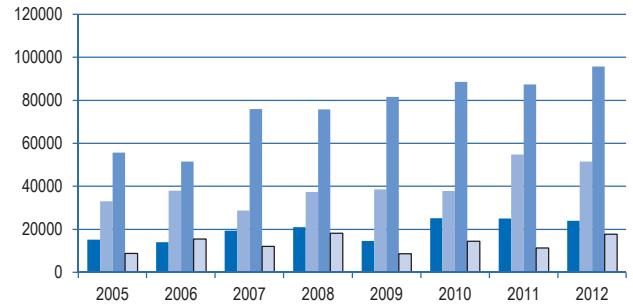
Source: OECD Database on Immigrants in OECD Countries (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Figure A.1. German emigrants in European OECD countries by age and duration of stay, 2005-2012

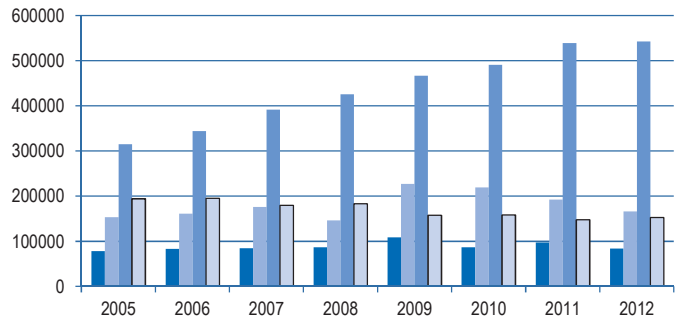
Panel A. Less than five years



Panel B. Five to ten years



Panel C. More than ten years



Note: The countries covered include Turkey, but do not include Belgium.

Source: EU Labour Force Survey (Eurostat), http://ec.europa.eu/eurostat/web/lfs/overview.

Table A.8 German emigrants in European OECD countries by age and duration of stay, 2005-12

Year	Age group				Total
	15-24	25-34	35-54	55-64	
a) Duration of stay of less than 5 years					
2005	15.9	40.0	38.6	5.5	166 728
2006	15.5	41.8	36.9	5.8	178 326
2007	16.3	41.3	37.4	5.0	213 688
2008	16.0	35.4	42.9	5.6	236 856
2009	17.5	42.1	35.9	4.5	278 794
2010	15.2	38.5	41.1	5.2	272 895
2011	16.4	40.1	37.4	6.0	276 044
2012	15.3	45.0	34.9	4.8	260 979
b) Duration of stay of 5 to 10 years					
2005	13.5	29.3	49.3	7.9	112 933
2006	11.8	31.9	43.2	13.1	119 237
2007	14.3	21.1	55.8	8.9	136 157
2008	13.8	24.5	49.7	12.0	152 513
2009	10.2	26.9	56.9	6.1	143 369
2010	15.1	22.8	53.3	8.7	166 088
2011	14.0	30.7	48.9	6.3	178 378
2012	12.7	27.3	50.6	9.4	189 095
c) Duration of stay of more than 10 years					
2005	10.6	20.7	42.5	26.2	741 222
2006	10.6	20.5	43.9	24.9	783 713
2007	10.2	21.2	47.1	21.6	831 123
2008	10.3	17.4	50.6	21.7	842 172
2009	11.3	23.6	48.6	16.4	959 966
2010	9.1	23.0	51.4	16.6	955 545
2011	10.0	19.7	55.2	15.1	976 181
2012	8.9	17.6	57.4	16.1	944 865

Note: The countries covered include Turkey, but do not include Belgium.

Source: EU Labour Force Survey (Eurostat), http://ec.europa.eu/eurostat/web/lfs/overview.

Table A.9. Number of working-age German emigrants by detailed education level, 2010/11

	ISCED level 3	ISCED level 4	ISCED level 5	ISCED level 6
United States	430 643		344 176	21472
United Kingdom	85339		103 834	2 326
Spain	42 120		56 875	3 575
Italy	68 415	7199	22 883	1 251
Canada	22 090	11690	48 685	2 250
Greece	44 170	9 570	29 555	513
France	63 658			
Netherlands	29 935	1 789	22 796	709
Australia	21 031	1 358	23 416	2 023
Belgium	15 149	1 624	13 367	523
Sweden	7 225	1 235	9 635	1 370
Portugal	7 082	700	7 080	204
Norway	4 314	136	8 136	940
Denmark	6 680	<100	6 037	207
Hungary	8 335	620	3 679	<100
Poland	7 581	369	2 286	161
Ireland	2 229	1 533	5 008	414
New Zealand	2 451	1 263	4 509	495
Israel	1 774		5 451	525
Luxembourg	3 121	228	3 177	428
Slovenia	3 392		1 335	<100
Czech Republic	1 890	<100	1 266	100
Finland	995	<100	1 329	111
Mexico	1 007	403		
Chile	533	<100	557	<100

Note: ISCED refers to the International Standard Classification of Education. Figures below 100 are not reported.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Table A.10. Characteristics of highly educated emigrants from selected origin countries, 2010/11 and 2000/01

Population 15 and above in thousands, ranked by total emigrant population

	Highly-educated in 2010/11		Percentage in 2010/11 of highly-educated emigrants that is…				Highly-educated in 2000/01	
	Thousands	% of all in OECD area	Female	25-64 years old	65+ years old	Recent (≤5 years)	Thousands	% of all in OECD area
India	2 237.5	7.4	45.0	86.2	7.6	27.7	1 002.3	5.7
Philippines	1 544.2	5.1	64.0	86.2	10.7	16.5	889.1	5.0
China	1 529.8	5.0	53.6	80.8	8.8	20.8	816.1	4.6
United Kingdom	1 469.8	4.9	47.9	78.4	19.2	13.9	1 082.2	6.1
Germany	1 213.0	4.0	52.6	82.4	14.0	19.1	864.2	4.9
Poland	998.5	3.3	57.2	86.4	9.1	29.5	467.0	2.6
Mexico	884.8	2.9	51.8	89.4	4.0	11.7	475.0	2.7
France	595.2	2.0	51.9	86.1	8.3	27.3	377.2	2.1
United States	594.4	2.0	53.1	82.0	12.3	25.2	418.0	2.4
Canada	559.5	1.8	52.6	82.4	13.7	14.9	422.9	2.4
Morocco	424.3	1.4	42.4	87.5	7.4	15.6	233.7	1.3
Spain	223.1	0.7	53.7	84.7	10.4	28.7	136.4	0.8
Switzerland	158.0	0.5	51.9	81.8	13.8	14.1	104.2	0.6
Austria	140.5	0.5	46.7	72.6	24.3	17.0	106.6	0.6

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Table A.11. Characteristics of medium-level educated emigrants from selected origin countries, 2010/11 and 2000/01

Population 15 and above in thousands, ranked by total emigrant population

	Medium-level educated in 2010/11		Percentage in 2010/11 of medium-level educated emigrants that is…				Medium-level educated in 2000/01	
	Thousands	% of all in OECD area	Female	25-64 years old	65+ years old	Recent (≤5 years)	Thousands	% of all in OECD area
Mexico	3 784.3	10.7	46.2	78.3	2.7	7.5	2 058.5	8.6
Poland	1 490.9	4.2	52.4	81.5	10.6	18.4	997.7	4.2
Germany	1 451.7	4.1	56.3	65.1	21.5	13.1	1 351.3	5.6
United Kingdom	1 378.1	3.9	50.0	62.8	29.4	9.9	1 195.8	5.0
Philippines	1 019.3	2.9	57.4	74.5	10.5	15.2	681.3	2.8
China	1 008.0	2.8	54.8	58.0	10.2	25.1	520.3	2.2
India	694.9	2.0	47.7	69.6	12.0	21.2	389.2	1.6
Morocco	621.2	1.8	43.6	80.4	7.9	14.1	407.2	1.7
Canada	445.4	1.3	57.6	60.0	27.4	11.5	435.4	1.8
France	414.5	1.2	55.1	69.7	17.5	15.2	358.7	1.5
United States	335.7	0.9	50.9	61.4	10.8	19.7	261.8	1.1
Spain	227.4	0.6	49.2	71.4	19.3	11.3	209.1	0.9
Switzerland	210.5	0.6	54.1	75.6	12.4	8.3	172.9	0.7
Austria	187.4	0.5	54.0	61.0	33.1	8.1	175.1	0.7

Note: Emigrants with an educational attainment at ISCED level 3 or 4 are counted as medium-level educated.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Table A.12. Characteristics of medium-level educated German emigrants in the main destination countries, 2010/11 and 2000/01

German-born population aged 15 and above

	Medium-educated in 2010/11		Percentage in 2010/11 of medium-educated emigrants that is…					Medium-educated in 2000/11	
	Thousands	% of total	Female	15-24 years old	25-64 years old	65+ years old	Recent (≤5 years)	Thousands	% of total
United States	564.7	38.9	59.8	15.6	60.7	23.7	5.1	539.0	39.9
United Kingdom	93.3	6.4	55.5	27.2	64.3	8.5	13.9	69.8	5.2
Switzerland	111.7	7.7	54.8	6.1	76.1	17.8	34.3	77.2	5.7
France	77.0	5.3	55.0	10.8	71.9	17.4	12.3	71.7	5.3
Spain	51.9	3.6	57.8	7.5	73.7	18.8	15.5	33.5	2.5
Italy	82.8	5.7	59.4	11.6	79.7	8.7	5.7	63.4	4.7
Canada	67.1	4.6	49.5	7.2	43.1	49.6	3.6	77.7	5.7
Austria	90.0	6.2	58.1	12.5	73.5	14.0	23.3	70.2	5.2
Turkey	51.4	3.5	49.7	16.5	83.5	0.0	9.2	98.0	7.3
Greece	55.4	3.8	53.3	10.0	87.1	2.9	13.2	48.3	3.6
Australia	38.7	2.7	38.2	6.4	51.5	42.1	6.1	37.3	2.8
Netherlands	39.1	2.7	59.8	12.6	68.6	18.8	12.3	41.0	3.0

Note: Emigrants with an educational attainment at ISCED level 3 or 4 are counted as medium-level educated.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Table A.13. Educational composition of recent emigrants from Germany, 2010/11 and 2000/01

German emigrants aged 15 and above

	Percentage in 2010/11 that is			Percentage in 2000/01 that is		
	Highly-educated	Medium-educated	Low-educated	Highly-educated	Medium-educated	Low-educated
United States	51	34	15	44	39	17
United Kingdom	63	28	9			
Switzerland	55	39	5	64	33	3
France	49	36	14	45	37	18
Spain	49	29	22	26	25	49
Italy	25	36	38	37	35	28
Canada	54	30	16	54	32	13
Austria	30	60	9	38	55	7
Turkey	20	45	35			
Greece	24	51	25	30	49	20
Australia	58	29	4	45	32	10
Netherlands	36	42	19	62	38	0

Note: Emigrants with an educational attainment at ISCED level 5 or 6 are counted as highly educated, at ISCED level 3 or 4 as medium-level educated, and as low-educated at a lower ISCED level. Where percentages do not add up to 100%, the remainder exhibits missing information on educational attainment. Information on educational attainment by duration of stay in 2000/01 is not available for Turkey or the United Kingdom.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Table A.14. German doctorate holders in the destination countries for which data were available, 2010/11 and 2000/01

	2010/11		2000/01	
	Total number of PhD holders	Share of recent arrivals among PhD holders	Total number of PhD holders	Share of recent arrivals among PhD holders
Australia	2 336	21.6	955	26.1
Belgium	691	4.1	885	35.0
Canada	3 515	11.4	2 170	8.8
Chile	82			
Denmark	211	18.5	75	6.7
Estonia	42	50.0		
Finland	132	9.1		
Greece	567	23.1	255	23.5
Hungary	86	39.5		
Ireland	462	33.3	213	42.3
Israel	902	0.0		
Italy	1 470	24.8	2 372	21.8
Luxembourg	518	26.8		
Netherlands	711			
New Zealand	570	26.3	843	33.5
Norway	1 000	37.3	406	26.1
Slovak Republic	20	25.0		
Slovenia	26	19.2		
Spain	4 660	22.0	960	41.7
Sweden	1 705	36.4	1 055	39.3
Switzerland			15 554	39.4
United Kingdom	2 569	22.6		
United States	24 060	12.6	22 324	23.2

Note: Levels below 50 are not reported, and cells are left blank where the relevant information is unavailable. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Source: *OECD Database on Immigrants in OECD Countries* (DIOC 2000/01; DIOC 2010/11). www.oecd.org/els/mig/dioc.htm.

Table A.15. Employed German emigrants in destination countries by education level, 2010/11 and 2000/01

Employed German-born population aged 15 and above

	Total		Highly-educated		Medium-educated	
	2010/11	2000/01	2010/11	2000/01	2010/11	2000/01
United States	645 134	636 620	305 112	263 350	309 133	319 425
Switzerland	202 421	101 597	119 310	46 453	75 653	44 176
United Kingdom	176 429	135 703	88 220	45 999	60 838	46 374
France	104 194	95 286	52 052	39 105	39 018	39 282
Italy	98 463	72 254	18 213	09 971	46 091	29 147
Austria	96 943	63 501	33 484	17 888	55 856	34 892
Spain	86 560	54 100	43 230	17 700	23 805	14 040
Canada	75 985	93 245	43 675	42 260	26 930	38 600
Turkey	70 040	91 130	27 650	27 335	24 451	36 643
Greece	64 976	53 026	23 780	15 856	32 359	27 524
Netherlands	55 999	55 796	20 689	16 764	23 320	24 959
Australia	46 913	50 270	21 104	15 061	16 887	18 407
Belgium	36 156	33 265	10 550	12 486	11 030	10 344
Sweden	17 085	14 790	8595	5640	6340	6905
Norway	16 253	7 241	8 129	2 800	3 746	2 248
Portugal	16 164	12 803	6 271	3 415	5 502	4 121
Denmark	15 440	12951	5 381	4 438	4 769	5 767
Hungary	8 755	4 543	3 074	1 481	4 913	2 381
New Zealand	8 025	4 623	5 553	2 094	2 157	1 938
Poland	7 059	15789	2 379	2 862	3 681	8 601
Ireland	7 032	4 512	4 181	2 433	2 295	1 398
Israel	6 231	7 468	4 584	3 878	1 153	2 321
Luxembourg	6 048	5 479	3 062	1 985	2 195	2 531
Mexico	4 056	2 892	2 822	1 936	920	471
Czech Republic	2 833	3 144	1 250	927	1 389	1 903
Finland	2 739	1 580	1 103	500	649	430
Japan	2 079	1 848	1 602	1 547	210	167
Chile	777	2 131	406	864	281	1 078
Slovak Republic	576	232	255	111	187	101

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Table A.16. Unemployed German emigrants in destination countries by education level, 2010/11 and 2000/01

Unemployed German-born population aged 15 and above

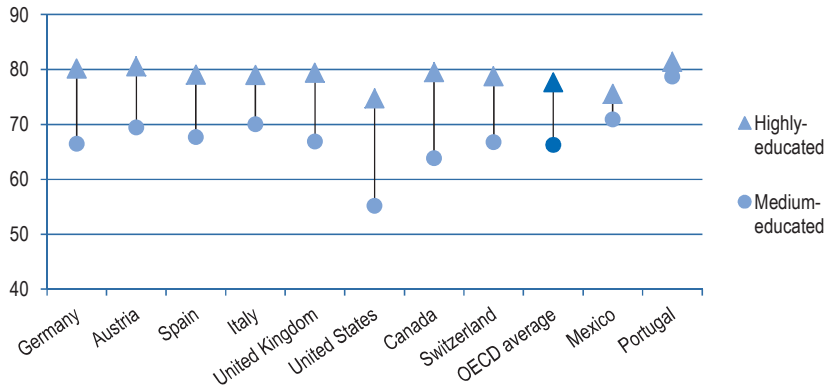
	Total		Highly-educated		Medium-educated	
	2010/11	2000/01	2010/11	2000/01	2010/11	2000/01
United States	47 714	27 550	13 315	6150	28 424	14 795
Switzerland	6 969	3 401	3 068	1 058	3 562	1 607
United Kingdom	12 514	8 367	3 383	1 543	5 446	3 004
France	10 408	10 893	3 614	2 903	4 676	5 099
Italy	18 969	21 553	1 616	1 024	7 960	7 891
Austria	5 403	4 442	1 333	0 559	2 969	2 637
Spain	29360	11300	8 865	2 520	8 600	3 080
Canada	4 540	5 030	2 120	1 835	1 945	2 155
Turkey	10 504	22 478	3 386	6 331	3 515	10 004
Greece	14 288	9 576	3 055	2 228	8 036	5 151
Netherlands	2 338		377		1 000	
Australia	2 352	3 802	873	739	959	1 575
Belgium	3 079	4 085	559	739	1 198	1 490
Sweden	4 145	665	1 385	185	1 795	385
Norway	481	275	157	<100	<100	102
Portugal	1 830	1 008	376	177	688	374
Denmark	617	697	168	159	241	348
Hungary	461	293	<100	<100	311	184
New Zealand	510	399	270	111	177	171
Poland	864	2 982	<100	156	583	1794
Ireland	950	354	333	153	421	126
Israel	347	618	216	186	131	263
Luxembourg	394	142	124	<100	176	<100
Mexico	134	<100	120	<100	<100	<100
Czech Republic	190	<100	<100	<100	105	136
Finland	293	200	112	<100	122	105
Japan	<100	<100	<100	<100	<100	<100
Chile	185	160	108	<100	<100	<100
Slovak Republic	<100	<100	<100	<100	<100	<100

Note: Levels below 100 are not reported. Figures for the Netherlands in 2000/01 are not available.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Figure A.2. Employment of working-age emigrants in the OECD area by country of origin, 2010/11

Percentage of the population (aged 15-64) that is employed

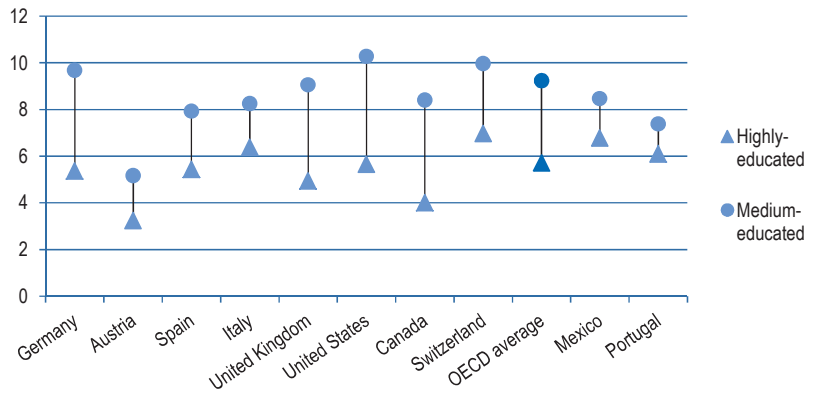


Note: Numbers are provided in full in Table A.17, along with 2000/01 data.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Figure A.3. Unemployment of working-age emigrants in the OECD area by country of origin, 2010/11

Percentage of the active population (aged 15-64) that is unemployed



Note: Numbers are provided in full in Table A.18, along with 2000/01 data.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Table A.17. Employment rates of working-age emigrants in the OECD area by selected country of origin, 2010/11 and 2000/01

Percentage of the population 15-64 years old that is employed

	2010/11		2000/01	
	Highly-educated	Medium-educated	Highly-educated	Medium-educated
United Kingdom	79	67	83	72
Austria	81	69	82	71
Spain	79	68	79	68
Italy	79	70	83	74
Germany	80	66	79	65
France	79	65	78	66
Canada	79	64	83	71
Switzerland	79	67	69	61
Mexico	76	71	70	63
United States	75	55	77	57
OECD average	78	66	77	66

Note: Only the destination countries present in DIOC in both 2000/01 and 2010/11 are used to calculate the average.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Table A.18. Unemployment rates of working-age emigrants in the OECD area by selected country of origin, 2010/11 and 2000/01

Percentage of the active population 15-64 years old that is unemployed

	2010/11		2000/01	
	Highly-educated	Medium-educated	Highly-educated	Medium-educated
United Kingdom	4.9	9.1	3.3	5.6
Austria	3.2	5.2	2.4	3.0
Spain	5.4	7.9	4.8	7.7
Italy	6.4	8.2	3.6	6.5
Germany	5.4	9.7	4.6	7.9
France	6.7	11.2	4.6	7.5
Canada	4.0	8.4	2.5	5.2
Switzerland	7.0	10.0	6.2	9.9
Mexico	6.8	8.5	5.2	7.7
United States	5.7	10.3	3.9	8.1
OECD average	5.7	9.2	4.3	7.5

Note: Only the destination countries present in DIOC in both 2000/01 and 2010/11 are used to calculate the average.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2000/01; DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Table A.19. Employment rates of the highly educated, working-age population in selected destination countries by place of birth, 2010/11

Percentage of the population (aged 15-64) that is employed

	Native-born	Foreign-born - Germans	Foreign-born - OECD	Foreign-born - Non-OECD	Native-born in Germany
Australia	86	78	82	77	89
Austria	88	87	76	66	89
Canada	82	77	77	76	89
France	82	75	70	68	89
Greece	73	79	69	60	89
Italy	78	74	71	65	89
Netherlands	88	87	83	73	89
Spain	76	70	66	59	89
Switzerland	91	90	81	72	89
United Kingdom	85	82	81	72	89
United States	82	80	76	78	89

Source: OECD Database on Immigrants in OECD Countries (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Table A.20. Unemployment rates of the highly educated, working-age population in selected destination countries by place of birth, 2010/11

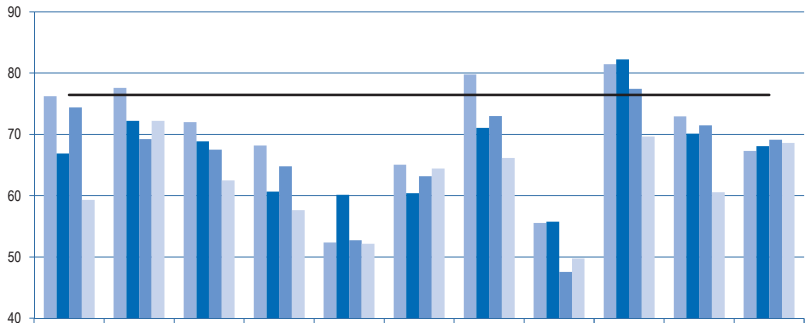
Percentage of the active population (aged 15-64) that is unemployed

	Native-born	Foreign-born - Germans	Foreign-born - OECD	Foreign-born - Non-OECD	Native-born in Germany
Australia	2.5	4.0	3.6	6.3	2.0
Austria	1.6	3.8	5.4	11.1	2.0
Canada	4.8	4.7	5.3	8.0	2.0
France	5.9	6.5	9.0	14.7	2.0
Greece	12.9	11.4	11.7	20.9	2.0
Italy	7.1	8.3	8.0	12.8	2.0
Netherlands	2.4	1.8	4.7	7.4	2.0
Spain	16.8	17.1	20.6	32.5	2.0
Switzerland	2.0	2.5	4.8	10.4	2.0
United Kingdom	3.3	3.7	4.5	8.0	2.0
United States	4.3	4.2	4.8	5.8	2.0

Source: OECD Database on Immigrants in OECD Countries (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Figure A.4. Employment rates of the medium-level educated, working-age population in selected destination countries by place of birth, 2010/11

Percentage of the population (aged 15-64) that is employed

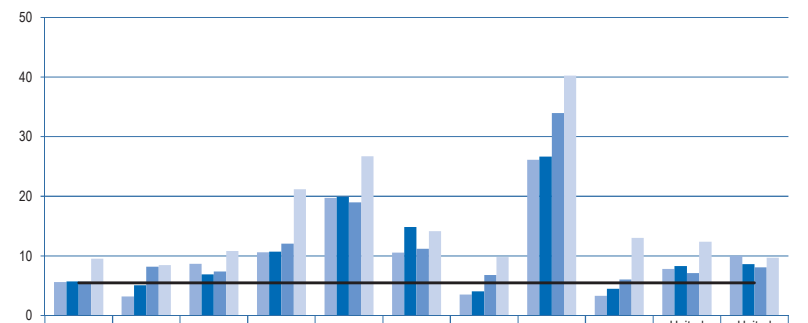


	Australia	Austria	Canada	France	Greece	Italy	Netherlands	Spain	Switzerland	United Kingdom	United States
Native-born	76	78	72	68	52	65	80	56	81	73	67
Foreign-born - Germans	67	72	69	61	60	60	71	56	82	70	68
Foreign-born - OECD	74	69	68	65	53	63	73	48	77	71	69
Foreign-born - Non-OECD	59	72	62	58	52	64	66	50	70	61	69
Native-born in Germany	76	76	76	76	76	76	76	76	76	76	76

Source: OECD Database on Immigrants in OECD Countries (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Figure A.5. Unemployment rates of the medium-level educated, working-age population in selected destination countries by place of birth, 2010/11

Percentage of the active population (aged 15-64) that is unemployed

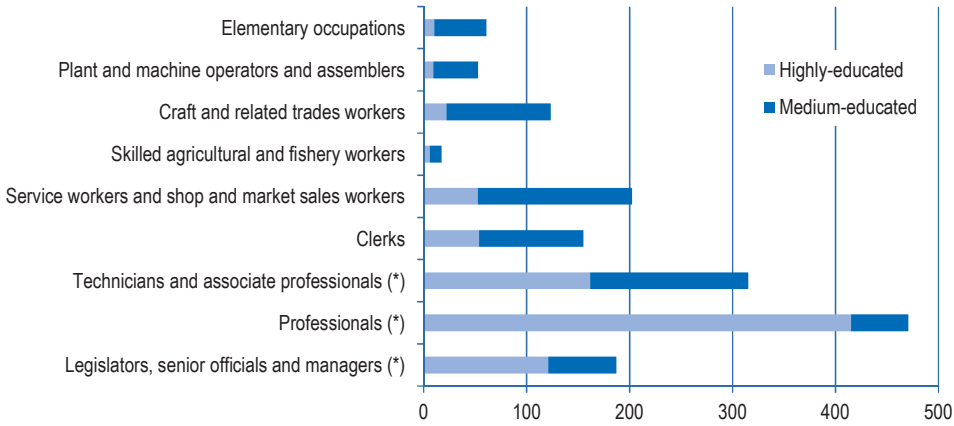


	Australia	Austria	Canada	France	Greece	Italy	Netherlands	Spain	Switzerland	United Kingdom	United States
Native-born	6	3	9	11	20	11	4	26	3	8	10
Foreign-born - Germans	6	5	7	11	20	15	4	27	4	8	9
Foreign-born - OECD	6	8	7	12	19	11	7	34	6	7	8
Foreign-born - Non-OECD	10	8	11	21	27	14	10	40	13	12	10
Native-born in Germany	5	5	5	5	5	5	5	5	5	5	5

Source: OECD Database on Immigrants in OECD Countries (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

Figure A.6. Distribution of German emigrants across occupations, by education level, 2010/11

German-born population aged 15 and above in thousands



Note: Asterisks (*) indicate high-skilled white-collar occupations. Only the destination countries that were present in both the 2000/01 and 2010/11 rounds of DIOC are used.

Source: OECD Database on Immigrants in OECD Countries (DIOC 2010/11), www.oecd.org/els/mig/dioc.htm.

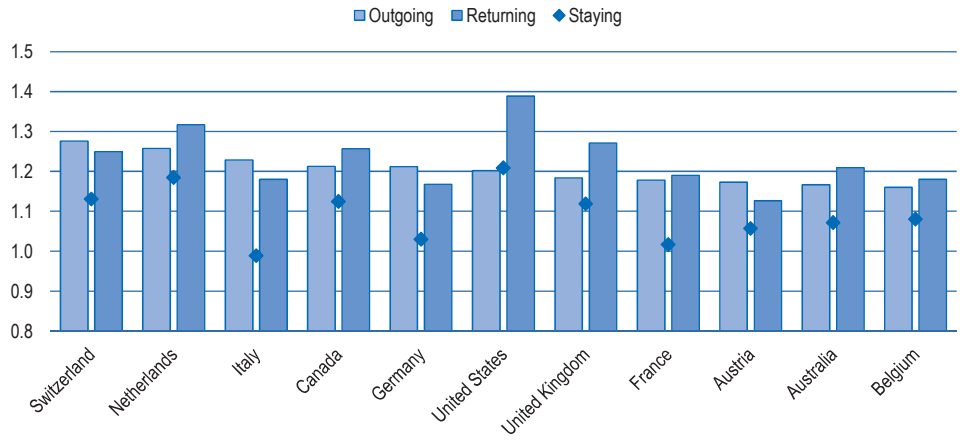
Table A.21. Outflows and inflows of German citizens to and from selected countries, 2001-13

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Gross outflows to European OECD countries	61 867	66 272	65 444	72 119	76 120	83 929	95 668	110 397	95 349	83 424	81 829	75 465	77 819
Gross inflows from European OECD countries	59 751	59 738	54 680	52 459	51 842	52 074	57 743	61 162	64 518	64 241	63 464	62 939	63 572
Gross outflows to non-European OECD countries	20 504	18 884	20 090	21 770	24 840	27 213	29 297	33 025	29 605	28 146	28 089	27 621	29 525
Gross inflows from non-European OECD countries	17 894	15 959	15 667	15 081	15 269	15 633	17 425	19 725	21 714	21 434	22 190	20 855	21 418
Gross outflows to EU27/EFTA countries	62 714	65 839	66 115	73 177	77 245	85 176	97 234	112 240	97 038	84 814	83 261	76 924	79 472
Gross inflows from EU27/EFTA countries	61 403	59 860	55 847	53 712	52 919	53 107	58 952	62 411	65 960	65 763	65 094	64 616	65 402
Net inflows from European OECD countries	-2 116	-6 534	-10 764	-19 660	-24 278	-31 855	-37 925	-49 235	-30 831	-19 183	-18 365	-12 526	-14 247
Net inflows from non-European OECD countries	-2 610	-2 925	-4 423	-6 689	-9 571	-11 580	-11 872	-13 300	-7 891	-6 712	-5 899	-6 766	-8 107
Net inflows from EU27/EFTA countries	-1 311	-5 979	-10 268	-19 465	-24 326	-32 069	-38 282	-49 829	-31 078	-19 051	-18 167	-12 308	-14 070

Note: Net inflows are defined as gross inflows minus gross outflows. Turkey is here counted with the non-European OECD countries. Information on flows to and from Mexico and Korea was unavailable for 2003 and 2004, and information on some of the smallest EU27/EFTA countries was missing for 2003 and 2013. Figures for 2013 are preliminary.

Source: Destatis (2004), "Wanderungen", Issues 2001-02, Statistisches Bundesamt, Wiesbaden; Destatis (2004-05), "Wanderungsstatistik", Issues 2003-04, Statistisches Bundesamt, Wiesbaden; Destatis (2006-14), "Bevölkerung und Erwerbstätigkeit", Issues 2005-13, Statistisches Bundesamt, Wiesbaden.

Figure A.7. Scientific impact of outgoing, returning and staying researchers, 1996-2011



Note: International mobility of scientific researchers is inferred from authors listed in the Scopus Custom database of peer-reviewed scientific publications, with at least two documents over the reference period, based on changes in the location of their institutional affiliation. Staying researchers maintain an affiliation in a given reference country over the period. Outgoing researchers are defined on the basis of their first affiliation. Returning researchers are defined as individuals who return to their original country of affiliation.

Source: OECD (2013), *OECD Science, Technology and Industry Scoreboard 2013: Innovation for Growth,* OECD Publishing, Paris, http://dx.doi.org/10.1787/sti_scoreboard-2013-en.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Commission takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

OECD PUBLISHING, 2, rue André-Pascal, 75775 PARIS CEDEX 16
(81 2015 03 1 P) ISBN 978-92-64-23169-6 – 2015-16

Talent Abroad: A Review of German Emigrants

Contents

Consult this publication on line at ***http://dx.doi.org/10.1787/9789264231702-en.***

This work is published on the OECD iLibrary, which gathers all OECD books, periodicals and statistical databases.
Visit ***www.oecd-ilibrary.org*** for more information.

OECD*publishing*
www.oecd.org/publishing

ISBN 978-92-64-23169-6
81 2015 03 1 P