

Beaumont, Karolina; Kullas, Matthias; Dauner, Matthias; Styczyńska, Izabela;  
Lirette, Paul

**Research Report**

## Female brain drain in Poland and Germany: New perspectives for research

CASE Reports, No. 486

**Provided in Cooperation with:**

Center for Social and Economic Research (CASE), Warsaw

*Suggested Citation:* Beaumont, Karolina; Kullas, Matthias; Dauner, Matthias; Styczyńska, Izabela; Lirette, Paul (2017) : Female brain drain in Poland and Germany: New perspectives for research, CASE Reports, No. 486, ISBN 978-83-7178-650-1, Center for Social and Economic Research (CASE), Warsaw

This Version is available at:

<https://hdl.handle.net/10419/179709>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

**CASE Reports**

# **Female brain drain in Poland and Germany: new perspectives for research**

Karolina Beaumont  
Matthias Kullas  
Matthias Dauner  
Izabela Styczyńska  
Paul Lirette

**No 486 (2017)**



WARSAW

BISHKEK

KYIV

TBILISI

CHISINAU

MINSK

The publication was prepared within the project “Brain drain/brain gain: Polish-German challenges and perspectives - Focus on the gender aspects of labour migration from 1989” with financial support from the Polish-German Foundation for Science and The Foundation for Polish-German Cooperation.



CASE – Centrum Analiz Społeczno-Ekonomicznych  
CASE – Center for Social and Economic Research



FUNDACJA WSPÓŁPRACY  
POLSKO-NIEMIECKIEJ  
STIFTUNG  
FÜR DEUTSCH-POLNISCHE  
ZUSAMMENARBEIT

DEUTSCH	POLSKO
POLNISCHE	NIEMIECKA
WISSENSCHAFTS	FUNDACJA
STIFTUNG	NA RZECZ NAUKI



The opinions expressed in this publication are those of the authors and do not necessarily reflect the views of CASE Network.

“CASE Reports” is a continuation of a “CASE Network Studies & Analyses” series.

**Keywords:**

Brain drain, brain gain, brain circulation, labour migration, intra-EU migration, Poland, Germany, gender equality, women’s migration, highly-educated migrants.

**JEL Codes:**

JEL Codes: J11, J16, J24, F22, O15, R23

© CASE – Center for Social and Economic Research, Warsaw, 2017

**Graphic Design:**

Katarzyna Godyń-Skoczylas | grafo-mania

EAN: 9788371786501

**Publisher:**

CASE – Center for Social and Economic Research on behalf of CASE Network  
al. Jana Pawła II 61, office 212, 01-031 Warsaw, Poland  
tel.: (48 22) 206 29 00, 828 61 33, fax: (48 22) 206 29 01  
e-mail: [case@case-research.eu](mailto:case@case-research.eu)  
[www.case-research.eu](http://www.case-research.eu)

# Table of Contents

<b>Authors</b> .....	<b>8</b>
<b>Executive summary</b> .....	<b>10</b>
<b>Introduction</b> .....	<b>13</b>
1. Background .....	13
2. Methodology and aim of the report .....	14
<b>Glossary</b> .....	<b>17</b>
<b>Key indicators for Poland and Germany</b> .....	<b>19</b>
1. Poland .....	19
2. Germany .....	20
<b>Map of Poland and Germany: regions</b> .....	<b>21</b>
<b>Chapter 1:</b>	
<b>Overall labour migration in Poland and Germany from 1989 to 2015</b> .....	<b>22</b>
1. Migration patterns between 1989 and 2004 .....	22
1.1 Political and economic background of migration between 1989 and 2004 .....	22
1.2 Evolution of migration patterns between 1989 and 2004 .....	23
1.3 Gender repartition of migration movements in Poland and Germany in the years following 1989 .....	27
2. Migration patterns between 2004 and 2011 .....	28
2.1 Political and economic background of migration between 2004 and 2011 .....	28
2.2 Evolution of migration patterns between 2004 and 2011 .....	29
2.2.1 Outflows from Poland .....	29
2.2.2 Inflows to Germany .....	29
2.3. Gender specific issues related to migration between 2004 and 2011 .....	31

2.4 Polish-German marriages and migration issues .....	31
3. Recent challenges of migration between Germany and Poland .....	32
3.1 Migration patterns after 2011 .....	32
3.1.1 Immigration in Germany.....	32
3.1.2 Emigration of Poles and Germans in Poland .....	33
3.2 Gender-specific issues related to migration after 2011 .....	35
3.3 Current issues and challenges of migration in Germany and Poland .....	37
<b>Chapter 2:</b>	
<b>The issue of brain drain .....</b>	<b>40</b>
1. Emigration of highly-educated individuals in Poland and Germany .....	40
1.1. Emigration of highly-educated individuals from and to Poland .....	40
1.1.1. Brain drain from Poland .....	40
1.1.2. Brain drain to Poland .....	43
1.2. Emigration of highly-educated individuals from and to Germany ..	43
1.2.1 Brain gain from Poland .....	43
1.2.2 Brain drain from Germany .....	44
2. Brain drain in specific sectors .....	45
2.1 Academic sector .....	45
2.2 Medical sector .....	47
3. Issues resulting from brain drain .....	46
3.1. Positive and negative effects of brain drain .....	46
3.2. Current issues of brain drain .....	48
<b>Chapter 3:</b>	
<b>Female brain drain in Poland and Germany .....</b>	<b>49</b>
1. Gender repartition of highly-educated female migrants in Germany and Poland .....	49

1.1 Gender repartition of highly-educated German female migrants . . .	49
1.2 Gender repartition of highly-educated Polish female migrants . . . . .	50
2. Issues related to female brain drain . . . . .	53
2.1 Gaps in academic literature . . . . .	53
2.2 Brain drain and gender equality . . . . .	54
2.3 Female brain drain in the academic sector . . . . .	55
3. Causes and consequences of female brain drain . . . . .	56
3.1 Non-professional reasons for female brain drain . . . . .	56
3.2 Brain waste and deskilling . . . . .	56
3.2.1 Characteristics and manifestations of brain waste . . . . .	56
3.2.2 Brain waste: a gender issue? . . . . .	57
3.2.3 Consequences of brain waste . . . . .	58
3.2.4 Policy recommendations against brain waste . . . . .	59
<b>Chapter 4:</b>	
<b>The aftermath of brain drain: Brain gain and re-migration . . . . .</b>	<b>60</b>
1. Socioeconomic impact of brain drain in Poland and Germany . . . . .	60
1.1 Population loss . . . . .	60
1.2 Skill shortages and skills mismatch . . . . .	61
2. Brain gain . . . . .	64
2.1 Brain gain and brain overflow . . . . .	64
2.2 Brain gain in Germany . . . . .	64
3. Return migration and re-migration . . . . .	65
3.1 Return migration in Poland . . . . .	65
3.2 Return migration in Germany . . . . .	68
4. Policy responses in favour of return migration in Poland . . . . .	68
<b>Conclusion, policy recommendations, and prospects for future research . .</b>	<b>70</b>
<b>List of references . . . . .</b>	<b>73</b>

## List of Tables and figures

Table 1. Most popular destination countries for Polish Migrants, 1990–2015 (stock) .....	24
Table 2. Most popular destination countries for German Migrants, 1990–2015 .....	25
Table 3. Evolution of migration flows from Poland to Germany, 1990–2014 .....	26
Table 4. Evolution of migration flows from Germany to Poland, 1990–2014 .....	26
Table 5: Top destination countries for Polish women living abroad, 1980–2010 .....	28
Table 6: Regional repartition of Polish migrants in Germany .....	30
Table 7: Top destination countries for Polish women living abroad in the post-accession period .....	31
Table 8. Regions of origin of Polish migrants in Germany (in 2011) .....	34
Table 9. Regional repartition of German immigrants in Poland .....	35
Table 10. Gender repartition of the inflow of Polish migrants in Germany, 2009–2015 .....	36
Table 11. Gender repartition of German migrants in Poland in 2014 .....	36
Table 12. Level of knowledge of Polish among German migrants in Poland	38
Table 13: Students of the EU–15 in Poland during the academic year 2015–2016 .....	39
Table 14. Number of highly-educated Poles since 2002 .....	41
Table 15. Gender repartition among German academics, 2000–2015 ....	49
Table 16. Tertiary-educated Poles according to gender, 2002–2015 .....	51

Table 17. Evolution of the skill level of Polish women in Germany, 1980–2010 .....	52
Table 18. Skill level of Polish migrants according to gender and pre- or post-accession period .....	53
Table 19. Skill shortages in Poland, Germany, and worldwide, 2006–2016	63
Table 20. Emigrants and re-migrants from Germany to Poland .....	67
Table 21. Reasons for Polish re-migrants to return from Germany .....	68



# Authors

**Karolina Beaumont** is an Expert at the Center for Social and Economic Research (CASE). She holds a Bachelor's degree in Law (Paris XI, Faculté Jean Monnet, France and Philipps Universität Marburg, Germany) and a Master's degree in Research in European Studies from the Université Paris III Sorbonne Nouvelle. She specialises in social affairs and gender equality issues. She gained extensive experience in policy research and analysis, data collection, and communication in various organisations in Paris and Brussels (the European Parliament, the Council of Europe, lobbying consultancy, and research institutes). She now deals with qualitative research and project implementation in the fields of population ageing, gender equality, and the labour market at CASE. She published two policy reports for the European Parliament and one at CASE on women in the collaborative economy, a subject on which she is starting a PhD.

**Dr. Matthias Kullas** is the head of division for Economic & Fiscal Policy as well as Single Market & Competition at the Centre for European Policy (cep). He graduated with a Master's degree in Economics from the University of Würzburg. He received his doctoral degree from the department of Economics at the University of Würzburg for his dissertation "The convergence process between eastern and western Germany". He specialises in spatial economics, federalism, institutional economics, and public choice. He gained experience in economic policy and data analysis from several research institutions in Würzburg, Beijing, and Freiburg. He now deals with European economic and fiscal policy as well as competition policy at the cep. In his work at the cep, he develops solutions for pan-European problems.

**Matthias Dauner** is a policy analyst in the Employment & Social Affairs division at the Centre for European Policy (cep). He holds a Master's degree in Economics from the Philipps-Universität Marburg. He specialises in new institutional economics and public choice. He gained experience in economic theory and policy, data collection, and analysis from several research institutions in Marburg and Hamburg (the chair for Ordnungsökonomik und internationale Wirtschaftsbeziehungen at the department of Economics

at the Philipps-Universität Marburg and the Institute of Law and Economics at the Universität Hamburg). He now evaluates EU policy proposals in the fields of Employment and Social Affairs, highlighting the economic and legal consequences of the proposed EU legislation at the cep.

**Izabela Styczynska**, PhD, is a researcher and expert in issues such as the labour market, social policy, and employment and is the Vice President of the CASE Management Board. She obtained her PhD from the University of Turin in 2011. She holds a Master's degree in Economics from Warsaw University and a Master's degree in Economics from CORIPE Piemonte in Turin. She has cooperated with CASE since 2005, participating in its numerous Polish and international projects. She is the author of publications in the fields of labour economics, social policy, and health economics.

**Paul Lirette** is a senior economist at CASE who specialises in macroeconomic policy and trade with 7 years of experience in economic analyses and evaluations. Previously to CASE, Paul was as a Senior Economist at the Canadian Department of Finance where the focus of his analysis was on fiscal and monetary policies. This included examining G20 economies' fiscal budget compositions, finding expenditure inefficiencies, such as gas subsidies, and uncovering ways to broaden the domestic tax base. Paul also acquired five years of professional experience as an Economic Market Analyst with the Canadian Department of Agriculture, where he led economic research and scenario analysis using partial equilibrium econometric models.

Contribution to data collection: Katarzyna Mirecka

#### **EXECUTIVE SUMMARY**

This report provides an analysis of the issues related to female brain drain between Poland and Germany in the years 1989-2015: female and male migration patterns during specific time periods, the challenges of female migration, the emigration of highly-skilled individuals in Poland and Germany, as well as the issues regarding brain drain from a gender perspective.

#### **AIM**

Global female migration is a topic frequently studied in academic literature; however, the topic of female brain drain is one that has long been ignored by academic research. This gap in research on female brain drain is closely related to a significant lack of relevant quantitative data, and, consequently, has led to gaps in policymaking. The aim of this report is to gather all available information on female brain drain and its impact on labour markets, gender equality, female migration, and human capital, while noting the gaps in data and policymaking. A further objective of this report is to highlight the issues that are important for policymaking, as well as to propose adequate policy recommendations. The report aims to provide a current and comprehensive analysis of female brain drain in Poland and in Germany – two neighbouring countries, with complex histories of population migration – as well as an analysis of the economic and societal consequences of this phenomenon for both countries.

#### **METHODOLOGY**

The methodology of the report is based on desk research, literature review from research published in Poland and Germany during the last 30 years, and quantitative data analysis from sources in Poland and Germany (such as national statistics offices) and international migration databases (such as from the United Nations, the Organisation for Economic Co-operation and Development, and the European Union, among others).

The research, analysis, and writing of the report was accomplished thanks to the close collaboration of CASE (for issues related to Poland and qualitative research) and the CEP (for the issues related to Germany and quantitative data).

The time period studied in the report was divided into three parts, with each period corresponding to a specific socio-economic and/or historic event.

To the best of our knowledge, there has been no study conducted focusing on intra-European Union female brain drain, or female brain drain between Poland and Germany. This highlights the relevance of the present report and its importance for research.

During the desk research phase, the following obstacles and limitations were identified: a lack of data in general, the absence of systematic data collection, a lack of gender-specific data, and a lack of data related to skill level. These lacks indicate possible prospects for future research in the context of brain drain.

As migration flows from Poland to Germany are higher than those from Poland to Germany, the report focuses on the situation in Poland because the topic is of a higher relevance. To each issue related to female brain drain identified in the report, a policy recommendation is proposed.

## **FINDINGS**

The major finding of this report is that brain drain from Poland to Germany can be observed in specific time periods corresponding to the dynamics of migration flows, and that female brain drain is a significant phenomenon, especially since 2010. Brain drain from Germany to Poland is almost non-existent, although it can be observed in some industry sectors and to countries such as the USA or Switzerland. Female brain drain from Germany to Poland is thus not an issue.

Findings from each time period:

- 1) 1989–2004: This period corresponds to the transformation period following the breakdown of the Soviet Union. This event had the effect of generating significant changes in society and, in the Polish economy, notably high unemployment.

In terms of migration flows, this period is characterised by high emigration from Poland to Germany, and by high brain drain between 1989 and 1995 and low brain drain between 1995 and 2004 due to high migration flows among low-skilled migrants. The gender differences observed show a higher number of women among the Polish migrants in Germany for the years 1989–1994 and a higher number of men in the years 1994–2004. Germany also showed higher migration flows after 1989 and the German reunification in 1991. By contrast, these flows were low in Poland, and the gender differences show that there were more women than men among German migrants.

- 2) 2004–2011: 2004 marks Poland's accession to the European Union and the opening of borders, which generated high migration flows from Poland until 2008, the first year of the financial crisis, when a decrease in overall migration can be observed.

The restrictions on the EU-8 and on the German labour market for certain industries limited the inflow of Polish workers to Germany. This period was characterised by a high inflow of low-skilled workers. In 2007, the gender differences showed a higher number of women than men among the Polish migrants in Germany.

- 3) After 2011: In 2011, all restrictions on the German labour market were lifted, but this event did not have a major impact on migration flows. Although Germany was the favourite destination of Polish migrants between 1989 and 2011, the situation changed in 2011 when the UK became the more popular destination country for Polish migrants. In 2016, the data show that Germany regained its popularity, which might have been caused by the Brexit.

After a brief absence, brain drain returned to Poland: in 2011, the number of highly-skilled individuals migrating increased. Changes can be observed in the gender differences among the migrants. This period showed a lower number of women migrants in the overall group of Polish

migrants, but among the highly skilled, the number of women was higher than that of men. This situation is similar to that which was observed at the beginning of the 1990s, and shows the relevance of the issue of female brain drain in Poland.

Other findings in the report show the importance of brain drain for the socio-economic situation of both the sending and receiving countries. Brain drain has been shown to cause positive effects on the sending country such as lower unemployment due to less competition among job seekers in the labour market; higher human capital following remigration due to the acquisition of job experience abroad; or through the remittances sent to the family. However, brain drain can also have negative effects for the sending country, such as population and work force loss; losses in investment in education and training; loss in educated human capital; skill shortages and skill mismatches; loss of income tax; a decrease of research and development activities; and, consequently, a decrease in economic growth. From the perspective of the receiving country, brain drain has been found to also have positive outcomes such as the gain of a highly-skilled labour force (or brain gain) and negative outcomes such as deskilling.

The report also focuses on the importance of female brain drain and its consequences for research in migration, gender studies, and labour economics. Indeed, the topic of female brain drain and female migration implied an analysis of gender-specific issues brought by the labour migration of highly-educated women. Therefore, the issue of double discrimination (based on both nationality and gender) is relevant in this context, but more importantly, the issue of deskilling is a phenomenon – observed in the context of labour migration – which, in this report, has been observed to be an outcome of brain drain likely to affect women. Other gender-specific issues, such as pay gaps and access to childcare facilities, have been found in this report to be linked with female brain drain. It was also observed that gender inequality in the sending country can be a push factor for women and, inversely, that improved gender policies limit brain drain and its negative effects.

#### **POLICY RECOMMENDATIONS**

The report proposes policy recommendations addressing each issue identified during our research on brain drain and female brain drain. Therefore, in order to prevent brain drain, we propose the improvement of gender mainstreaming in Poland and the improvement of family policies enabling highly-skilled women to thrive in the labour market. In order to limit the negative effects of female brain drain, such as double discrimination and deskilling, we propose the improvement of services accompanying labour migrants in the sending country before their departure and in the receiving country after their arrival through language courses and career advice on the destination country's labour market. Lastly, we encourage collaboration between Poland and Germany in brain drain policies. All policy recommendations can be applied to other countries experiencing the issue of female brain drain.

# Introduction

## 1. Background

The intra-European Union (EU) emigration – temporary or permanent – of highly-skilled individuals is seen to be on the rise in the past decades due to three main reasons: 1) the opening of borders between EU countries, 2) cross-country agreements relative to the recruitment of professionals with the aim of filling labour market shortages as well as agreements regarding studying abroad, and 3) the increase of intra-EU mobility due to the development of low-cost airlines and lower prices on telephone communications.

About 20 million people of Polish heritage do not live in Poland, which is equal to more than a half of the Polish population living in Poland. These high diaspora numbers are the reflection of Poland's tumultuous history. The Russian, Austrian, and Prussian partitions of the 18th century, increasing rural poverty in the 19th century, the First and Second World Wars, and the Soviet era have all incited Poles to leave their country, at first as refugees and then as labour migrants looking for better opportunities. Since 1950, about 2.5 million Poles have moved to Germany, and now, 6.5% of all foreigners living in Germany are Polish, among which the number of women is high. In 2010, 60% of Polish migrants were seasonal workers (Eichhorst & Wozny, 2012).

In the 1980s, the Solidarity period saw an increase in emigration from Poland, especially among highly-educated people, as 15% of the Polish immigrants who settled in Germany in that period were highly educated. At the national level, figures show that only 7% of Poles were university graduates during this period, indicating the presence of brain drain. Indeed, one quarter of Polish university graduates emigrated in the 1980s. The wave of highly-educated migrants from Poland stopped in the early 1990s and, at that time, the profile of Polish emigrants began to change: the share of emigrants with a lower education increased, while that of emigrants with a higher education decreased (Kaczmarczyk, 2006) thus leading to a decrease of brain drain. This situation continued until the 2010s, when the profile of Polish emigrants saw an increase in the emigration of well-educated people. About 20% of the Polish emigrants of the post-accession period possess a university degree, as compared with 15% for the emigrants of the pre-accession period (Kaczmarczyk, 2009).

This shows a return of brain drain in recent years; however, the popularity of Germany as a receiving country of highly-skilled Polish migrants shifted towards the UK, but became the first choice for migrants again in 2016.

Migration in Germany, for its part, is characterised by considerable inflows of Turkish immigrants (at over 25% of the total foreign residents in Germany), but the accession of the EU-10 to the EU in 2004 changed the patterns of migration experienced by Germany. Immigration from the EU-10 increased by over 28% between 2004 and 2008. As a result, the migrant population of the EU-10 accounted for 55% of the foreign residents in Germany in 2008. That same year, the number of Polish migrants was 1.5 million (migrants' stock) (UN data, 2016). As far as emigration from Germany to Poland is concerned, the numbers are low. Firstly, because Poland is a country with low rates of immigration, and secondly, because German migrants prefer other destination countries such as Switzerland or the USA.

## **2. Methodology and aim of the report**

The methodology of the report is based on desk research and consists of two elements: a qualitative and a quantitative perspective. For the qualitative perspective, we proceed to a thorough literature review based on existing literature at the national level from Poland and Germany on topics related to migration in Poland and Germany, focusing on labour migration and brain drain and paying special attention to female migration and the migration of highly-skilled women. For the quantitative perspective, we use statistical data from various national (e.g. national statistics offices and statistics from national think tanks or private companies) and international (e.g. the Organisation for Economic Co-operation and Development (OECD), the United Nations (UN), and the EU, among others) sources covering the same topics. Brain drain is a term which emerged from research in the 1950s, and described the phenomenon related to the migration of highly-educated and highly-skilled people from one country to another for professional reasons. From a gender perspective, female brain drain has been absent from academic literature until very recently: Dumont et al. (2007) were the first researchers to provide gender-specific data on brain drain in OECD countries. Docquier et al. in 2009 and 2012 analysed this issue more deeply, and lastly Naghsh Nejad and Young (2014) pursued the analysis further using theoretical models. The existing research on female brain drain focuses on global migration-mostly between developing and developed countries-and no study, to our knowledge, has been conducted that focuses on intra-EU female brain drain, or female brain drain between Poland and Germany. The most relevant work on female brain drain from a female and EU perspective was the WOMEN project, which focused

on female brain drain in rural Europe (Wiest et al., 2014). However, our report is the first focusing on female brain drain between two European countries, and the only one proposing gender-specific recommendations responding to the negative effects of female brain drain. It is also one of the first studying this topic on an EU scale, which makes it ground breaking and a possible model for further bilateral research on female brain drain between countries with a rich migration history.

During our desk research, we identified several obstacles and limitations-notably, a significant lack of data due to the absence of systematic data collection, a lack of gender-specific data, and a lack of data related to skill level. These lacks indicate possible future prospects for research in the context of brain drain. Therefore, this study aims at filling the gaps in research regarding the migration of highly-skilled women between Poland and Germany through qualitative and quantitative data analysis from each country and by conducting comprehensive analyses of the existing literature. Even though the latter is mainly focused either on international female migration, on brain drain in general, or on intra-EU mobility and migration regardless of gender, we analysed the findings of the existing qualitative research from Poland and Germany. Therefore, the literature review involved comparative and complete analysis. Moreover, the research implicated detailed and disaggregated analyses of existing quantitative data, which were also almost non-existent for the specific issue of female brain drain. Whenever possible, data on labour migration and migrant skill level were disaggregated by gender to examine gender differences. Data from the OECD, the Institut für Arbeitsmarkt- und Berufsforschung, the EU, and the UN were very helpful in that regard, although statistics on migration presenting gender differences are not available for every year.

We observed discrepancies and differences between statistical data in the national and international databases. Comparisons with the data used by the literature enabled us to choose the most relevant and reliable data. Thus, data from international databases were selected the most often for three reasons: first, for their repetition in national and international literature; second, because comparisons between the data of different countries are the most reliable when they are gathered by the same institution; and lastly, because the data from international databases was observed as being the most recent (2015), which was not always the case with the national data.

The major effects and outcomes of brain drain and female labour migration analysed in the general literature showed socio-economic issues, which we analysed according to the German-Polish and female perspectives. Women in the labour market is the core topic at stake, but more specifically, the issues of deskilling and double discrimination are the main identified effects of female brain drain. We analysed their implications on women and propose adequate policy recommendations. We also analysed the relationship of gender



equality policies with the economy and the labour market, which enabled us to emphasise the importance of gender economics and gender mainstreaming, while making connections between brain drain and gender equality. We pursue a comparison of trends and analyses which enable us to produce the hypothesis that there is a correlation between brain drain and the socio-economic factors in a given countries, as well as discuss its effects. The report covers a period from 1989 to 2015, which we divided into three time periods corresponding to three major historic events that impacted migration flows and patterns: 1989–2004, which is the period corresponding to the breakdown of the Soviet Union and the ensuing transformation; 2004–2011, which corresponds to the period following Poland's accession to the EU; and 2011–2015, which corresponds to the period in which the German labour market's restrictions on immigration from most of the EU-10 have been lifted.

The terms highly skilled and highly educated require some clarification before we proceed with this report. In our study, we define highly-skilled or highly-educated professionals as workers who have completed tertiary education, i.e. university, and workers who did not complete tertiary education but who work in professions at a level in which similar qualifications are required. The issue of brain drain also requires focusing on the issues that are related to the phenomenon: brain gain, brain waste and deskilling, and brain circulation, terms which are explained in the glossary below and are important for our analyses.

The above-mentioned academic and statistic references were used to answer to the following research questions: "What is the evolution of migration patterns in Poland and Germany since 1989?", "What are the characteristics of the migration of highly-skilled individuals in both countries?" and "What are the challenges of female labour migration and female brain drain in Poland and Germany?" To answer these questions, we have structured the report as follows: the first chapter covers overall migration movements in Poland and Germany from 1989 to 2015, the second chapter is devoted to analysing the issue of brain drain, the third chapter analyses into details the issues brought by female brain drain, and the third chapter deals with the challenges related to brain drain in both countries.

The glossary below provides definitions of the terms related to our topic of research.

# Glossary

## **Brain circulation**

Brain circulation or brain exchange is the situation generated by the intermittent migration of highly-educated individuals and the opportunities given by international mobility. It consists of the constant fluctuation of brain drain and brain gain between the sending and receiving countries.

## **Brain drain**

Brain drain, as mentioned above, is the migration of highly-skilled and highly-educated individuals from one country to another. It consists of the transfer of human capital, which results in the loss of highly-educated individuals in the sending country and the gain of human capital in the receiving country.

## **Brain gain**

Brain gain is the phenomenon generated by brain drain for the receiving country, and is caused by the inflow of highly-educated individuals from abroad and the beneficial effects of their participation to the labour market on the receiving country.

## **Brain waste**

Brain waste is the situation generated by labour migration in which migrants take an employment opportunity in the receiving country that requires skills below their own skill or education level. Brain waste is also defined as “deskilling”: the individuals experiencing brain waste after migration are overqualified for the work they have and their qualifications are not exploited to their fullest potential in the labour market.

Brain waste is the consequence of numerous factors inherent to the situation in the receiving country: lack of demand for specific skills in the labour market, non-recognition of diplomas, or lack of language knowledge.

### **EU-8**

The EU-8 represents the group of eight countries who joined the EU in 2004: the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia.

### **EU-10**

The EU-10 represents the EU-8 group to which two countries accessed in 2007: Bulgaria and Romania.

### **Länder**

Name given to the 16 federal states of Germany.

### **Migration**

Migration is the movement of an individual from his home country to another country (the sending country and receiving country, respectively), temporarily or permanently. Migration is motivated by **pull and push factors** that influence an individual's decision to migrate. Push factors are associated with the sending country and can consist of poor career prospects; constraints on freedom, low wages, unemployment, poor living conditions, poor working conditions (benefits and social insurance, among others), social insecurity, and political instability; while pull factors are associated with the receiving country and can consist of the availability of job positions in the labour force, better living and working conditions, higher wages, and a safe political environment.

### **Remittances**

Remittances are the amount of money sent by emigrants working abroad to their family and relatives remaining in their home country, thus improving their living conditions. Remittances from developed countries to developing countries are likely to improve the GDP of the sending country. **Return migration or re-migration**

Return migration is the phenomenon generated by temporary migration. Emigrants leave their country for a period of time and then return to their home country. The re-migration of highly-educated individuals who experienced successful migration is seen as a benefit for the country similar to brain gain, as the professionals gained additional education, additional work experience, and additional language skills, which are valued in the labour market of their home countries because they improve human capital. The OECD defines a re-migrant as a person who returns to her home country after having lived (short- or long-term) in another country for at least a year.

### **Voivodship**

Name given to the 16 provinces or regional administrative areas of Poland.

# Key indicators for Poland and Germany<sup>1</sup>

## 1. Poland

### OVERVIEW

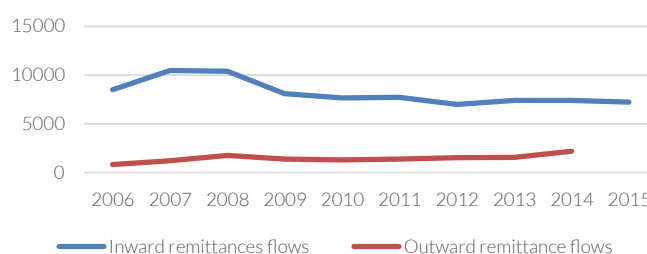
**Population:** 38 million (2014)  
**Population growth** (average annual % 2005–2014): 0.0  
**Unemployment rate** (% of labour force): 9.2 (2014)  
**Female employment rate:** 56.7% (native-born), 49.3% (foreign-born) (2015)  
**Female unemployment:** 7.8% (native-born), 13.7% (foreign-born) (2015)  
**Gender pay gap:** 7.7% (2014), **unexplained gender pay gap:** (9.2%) (2013)  
**Urban population** (% of pop.): 60.6 (2014)  
**Surface:** 312,700 sq. km.  
**GDP growth** (average annual % 2011-2014): 2.8  
**GNI per capita** (\$US): 13,690 (2014)  
**Poverty rate** (% of pop): 28.1 (before taxes), 10.5 (after taxes) (2013)

### MIGRATION

**Stock of emigrants:** 3,883,000 (2013).  
**Stock of emigrants as % of the pop:** 10.2% (2013)  
**Stock of female migrants:** 441,777 (2000)  
**Top receiving countries:** the UK, Germany, the USA, Italy  
**Share of tertiary-educated emigrants:** 29.3% (2011)  
**Share of tertiary-educated women as % of female emigrants:** 30.8% (2011)  
**Emigration of physicians:** 8,553 or 9.1% of the physicians trained in Poland (2010)  
**Stock of immigrants:** 663,800 (2013)  
**Stock of immigrants as % of the pop:** 1.7% (2013)  
**Women as % of immigrants:** 58.8% (2013)  
**Top sending countries:** Ukraine, Germany, Belarus, Lithuania

### REMITTANCES

Remittances in Poland 2006-2015 (\$US million)



<sup>1</sup> Source: Most recent available data from the World Bank and Eurostat databases.

## 2. Germany

### OVERVIEW

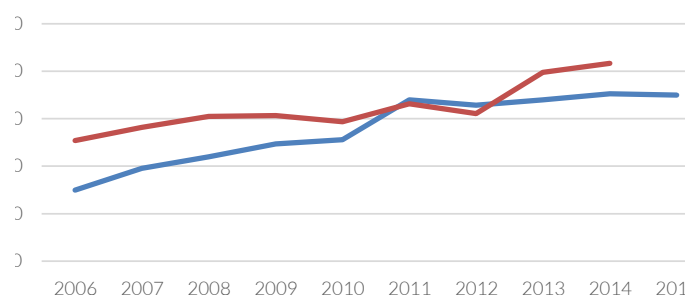
**Population:** 80.9 million (2014)  
**Population growth** (average annual %, 2005-2014): -0.2  
**Unemployment rate:** 5.0% of the labour force (2014)  
**Female employment rate:** 72.1% (native-born), 60.0% (foreign-born) (2015)  
**Female unemployment:** 3.7% (native-born), 7.3% (foreign-born) (2015)  
**Gender pay gap:** 21.6%, **unexplained gender pay gap:** 6.6%  
**Urban population** (% of pop.): 75.1 (2014)  
**Surface:** 357,200 sq. km.  
**GDP growth** (average annual %, 2011-2014): 1.5  
**GNI per capita** (\$US): 47,640 (2014)  
**Poverty rate** (% of pop): 32.8 (before taxes), 9.1 (after taxes) (2013)

### MIGRATION

**Stock of emigrants:** 4,141,400 (2013)  
**Stock of emigrants as % of the pop:** 5.1% in 2013  
**Stock of female migrants:** 3,893,873 (2000)  
**Top receiving countries:** the USA, Switzerland, the UK, France  
**Share of tertiary-educated emigrants:** 33.6% (2011)  
**Share of tertiary-educated women as % of female emigrants:** 32.1% (2011)  
**Emigration of physicians:** 13,047, or 4.6% of all physicians trained in Germany (2011)  
**Stock of immigrants:** 11,110,900 (2013)  
**Stock of immigrants as % of the pop:** 13.8% (2013)  
**Women as % of immigrants:** 51.3% (2013)  
**Top sending countries:** Turkey, Poland, Romania, Italy

### REMITTANCES

Remittances in Germany 2006-2015 (\$US million)



# Map of Poland and Germany: regions



# Chapter 1:

## Overall labour migration in Poland and Germany from 1989 to 2015

### 1. Migration patterns between 1989 and 2004

#### 1.1 Political and economic background of migration between 1989 and 2004

Before the breakdown of communism in Europe, the citizens of Poland and Eastern Germany experienced strong restrictions towards their cross-country mobility. Therefore, migration was difficult and risky, and meant to be permanent, since returning to the home country was impossible due to the fact that migration was considered a criminal offence (Brzozowski, 2008b). Hence, many individuals emigrated during tourist or business trips.

The years 1989-2004 are representative of the years following the breakdown of the communist bloc and the different issues resulting from the political and economic transformation of Poland, which led to an increase of migration. Indeed, push factors such as worldwide competition, the decrease in labour demand from the former USSR, the restructuring of public institutions, and mutations in the labour market due to its liberalisation and high unemployment, which resulted in strong reasons for people to leave their country. Coupled with pull factors, such as better working conditions, better wages, more job opportunities, and access to consumption and wealth, these elements explain the increase in migration flows from Poland to the West.

The discrepancies between Poland and Western countries were indeed enormous, and generated concerns within the population. In 1991, about 68% of Poles declared in a survey that they expect their economic situation to deteriorate in the following months. Among the 68%, a majority of respondents expressed their wish to emigrate to the West. All in all, 13 million people living in Central and Eastern Europe were actively considering moving to Western Europe (Gwiazda, 1992). In Germany, the construction sector experienced a boom after the reunification (Eichhorst & Wozny, 2012). The need for additional labour force attracted Polish workers and recruiting policies were implemented by Germany to fill labour force shortages, which had the effect of boosting emigration from Poland to Germany.

Given the size of migration flows in that period, the Polish diaspora began to organise: the Senate established a commission for contact with Polish citizens living abroad, and a

new TV channel accessible through satellite, Polonia (which means “Polish diaspora”), was created. This is when policymakers started to measure the importance and influence of Polish communities abroad.

Apart from emigration, the 1990s also opened Poland to the arrival of foreigners such as tourists, refugees (mainly from the former Soviet Union), Western entrepreneurs and businessmen, temporary workers, and students (Kicinger & Weinara, 2007). Data shows that the number of foreigners coming to Poland grew by 10 times in the period between 1989 and 1999 (from 8.2 million to 88.6 million) (Iglicka, 2000), which shows the high impact of opening the borders and a growing interest in the country. However, despite high rates of foreigners circulating in Poland for tourism or business reasons, the 2002 census revealed that 0.2% of the Polish population were foreigners, which made Poland one of the countries with the lowest proportion of immigrants in Europe (Kicinger & Weinara, 2007). Current data shows a proportion of 1.7% of the population are immigrants in the country in 2013 (World Bank, 2016).

After the breakdown of the Soviet regime, given the improvements in Poland's socio-economic situation, such as the progress of the transformation process and the fact that the country offers an attractive market and many opportunities for development, the country became attractive for investment from Western foreign companies-notably from German companies. Telecommunications and agri-food were the main sectors attracting investors in the 1990s: the agri-food sector accounted for 20% of all foreign investments in 1995, with the new addition and high demand of fast foods in Poland (Hillmann & Rudolph, 1997).

### **1.2 Evolution of migration patterns between 1989 and 2004**

Between 1950 and 1989, while official Polish statistics estimate the migrant stock to Germany at 271,000, the reality shows an amount of 1.3 million individuals. This difference in figures can be explained by the manipulation of state-controlled statistical data. By 1985, about 1.7 million Germans lived abroad, mainly in the USA, Canada, and Switzerland (Brücker et al., 2013).

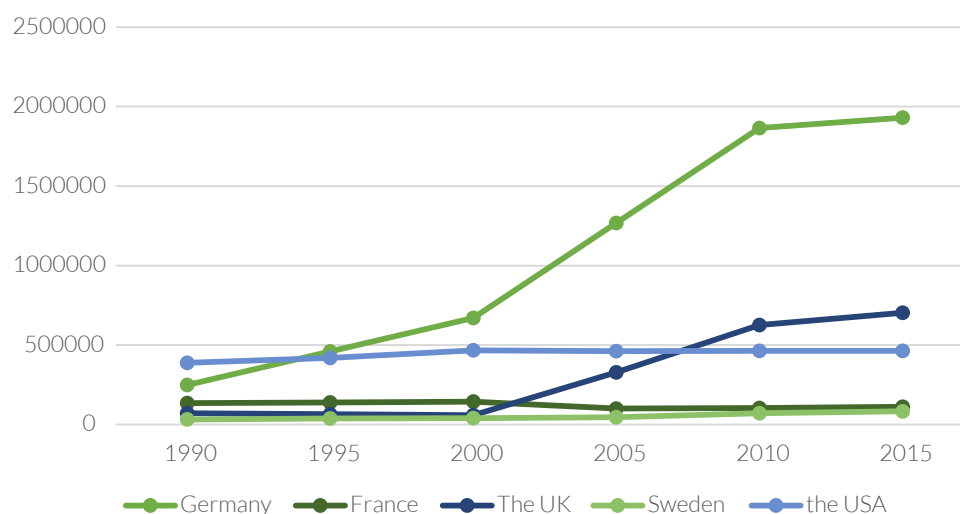
Between 1988 and 1999, the composition of the immigrant group in Poland changed notably concerning country of origin: in 1988, 22.9% of immigrants were from the USA, 12.7% from Germany, and 12.5% from the former Soviet Union. In 1999, the share of immigrants from the USA dropped to 15.7% and the share of immigrants from the former Soviet Union to 8.1%, while the share of immigrants from Germany increased to 33.1%. These migration patterns might be explained by the high numbers of re-migrating Poles in the 1990s, who returned from abroad and had gained foreign citizenship (Iglicka, 2001a). The proportion of remigrants and migrants living in Poland is very rarely considered when looking at immigrants in Poland, which constitutes a limitation in our analysis.



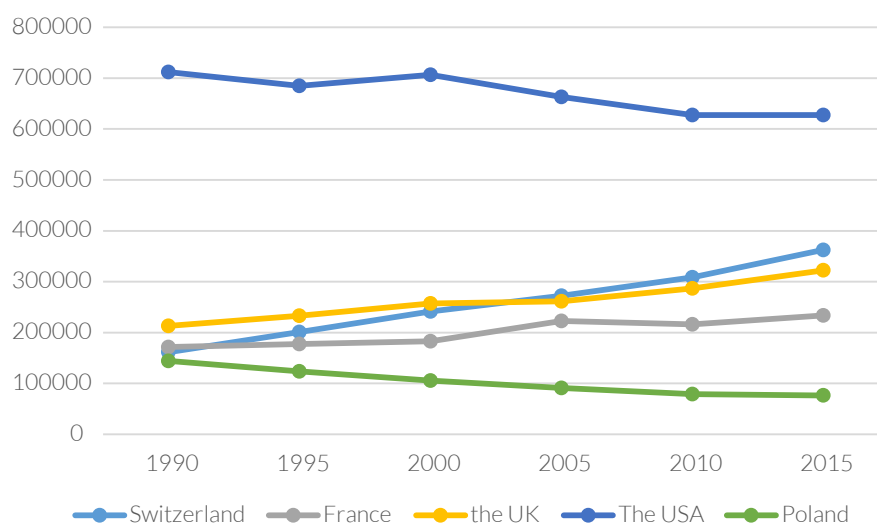
In 1999, the stock of immigrants in Germany consisted of Turks (28.8%), citizens of Yugoslavian republics (9.8%), Italians (8.4%), Americans (6.3%), and Greeks (5.0%). Poles accounted for 3.9% of the migrant population (Galgóczy et al., 2012). The most important immigrant groups in Germany are the seasonal workers employed on the basis of cross-country agreements established between Poland and Germany in the 1990s. In 2004, 320,000 Polish immigrants were seasonal workers in Germany (Kaczmarczyk, 2006).

Tables 1 and 2 below show the most popular destination countries for Polish and German migrants. We see that for the Poles, Germany and the UK replaced the USA as the most preferred destination countries, and for Germans, while the USA has always been the top destination country, the UK and Switzerland have been growing in popularity since the 1990s. The popularity of Poland, while not very high, is decreasing.

**Table 1. Most popular destination countries for Polish migrants, 1990–2015 (stock)**



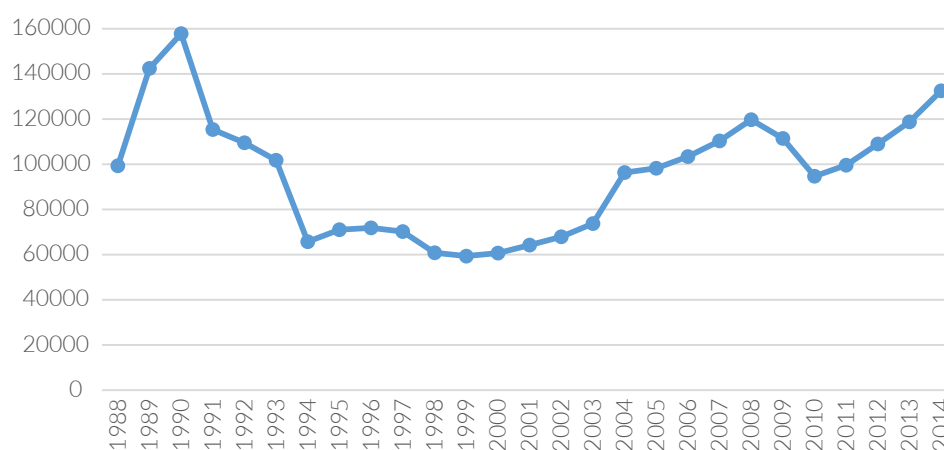
Source: Own elaboration based on data from the UN database, 2016

**Table 2. Most popular destination countries for German migrants, 1990–2015 (stock)**

Source: Own elaboration based on data from the UN database, 2016

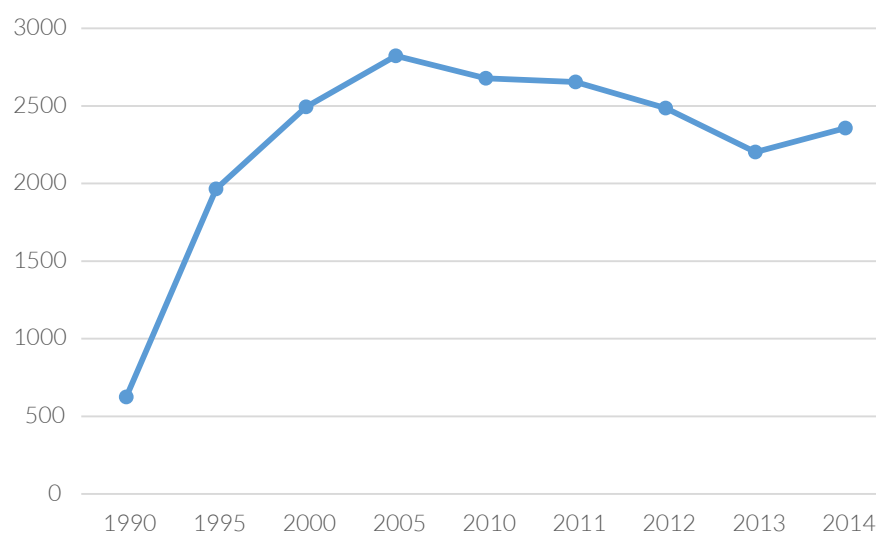
Tables 3 and 4 below show the evolution of migration flows from Poland to Germany and from Germany to Poland. We observe that while the migration movements from Poland to Germany correspond to major historical and socio-economic events (peaking in 1990 due to the breakdown of the Soviet Bloc and in 2004 due to Poland's EU accession, and decreasing in the mid-1990s due to its transformation and in 2008–2010 due to the financial crisis), the migration movements from Germany to Poland have been slowly but constantly growing following the major peak in the 1990s.

**Table 3. Evolution of migration flows from Poland to Germany, 1990-2014 (yearly outflow)**



Source: Own elaboration based on data from the OECD (International Migration Database), 2015

**Table 4. Evolution of migration flows from Germany to Poland, 1990-2014 (yearly outflow)**



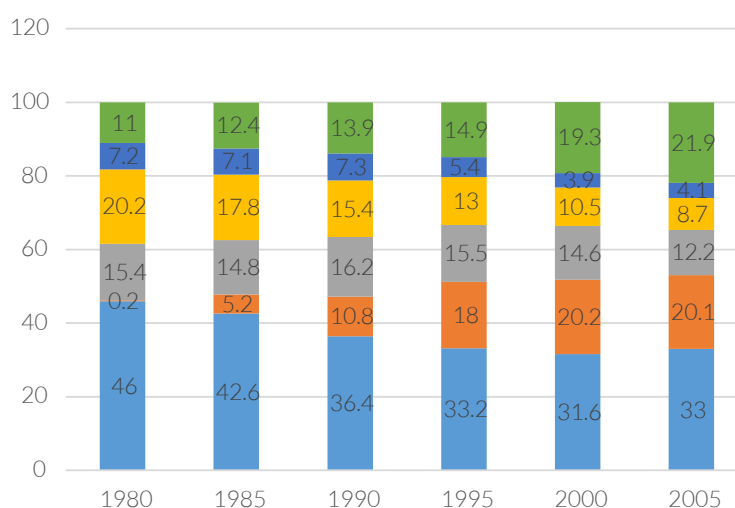
Source: Own elaboration based on data from the Polish National Statistics Office, 2015

### **1.3 Gender repartition of migration movements in Poland and Germany in the years following 1989**

In Poland, gender segregated statistics show that regardless of the year, between 1975 and 1994, more women than men emigrated from Poland, with higher numbers especially among women aged 20–29 and over 60 years old (Polish Statistics Office, GUS, 1991). The situation changed in 1994, when the share of migrant men became higher than that of women by 8% (Iglicka, 2000). This tendency continued until the end of the 1990s: in 1997, the migration of men aged 10–24 was higher than that of the women of the same age, while the migration of women aged 25–44 was higher than that of the men of the same age group. Data from the same year shows the prevalence of the urban population over the rural population (Iglicka, 2000). Between 1980 and 2000, the majority of male Polish migrants were single, with married men constituting the second largest group among the migrants, whereas the number of married female migrants declined in the same period (53.4% in 1981–1990 to 48.8% in 1991–2000). Concerning the migration of single women, it is now equal to that of married women (Długosz & Biały, 2014).

For Germany, data from the German National Statistics Office show that while the numbers of German living abroad have increased throughout the years, the share of women was always superior (by 30%, on average) to that of men. This fact raises the issue of female migration and the gender issues related to the migration of German women, although we lack data in this context (German Federal Statistics Office, Statistisches Bundesamt, 2011).

As far as destinations are concerned, the most popular destination for Polish women was the USA, and this has been the case since 1980. However, female migrants began choosing Germany as a destination country in 1985, and the number of female migrants has been increasing since. Table 5 below shows the most popular destinations for Polish female migrants between 1980 and 2010 and suggests that the stock of women migrants to Germany is increasing while that of female migrants to the USA is decreasing.

**Table 5. Top destination countries for Polish women living abroad, 1980–2010**

Source: Own elaboration based on data from the Institut für Arbeitsmarkt -und Berufsforschung, 2015

## 2. Migration patterns between 2004 and 2011

### 2.1 Political and economic background of migration between 2004 and 2011

On 1 May 2004, Poland became a Member State of the EU, which entailed the opening of European borders, the opening of foreign investments, and a move towards a unified Europe. Some countries, such as the UK, Ireland, and Sweden opened their labour markets to Polish migrants without restriction, while others, such as Germany, had restrictions in place until 2011 (Duszczek & Wiśniewski, 2007). The goal of such restrictions was to prevent the saturation of labour migrants in some sectors of the German labour market. However, in line with bilateral agreements established in the 1990s between Germany and Poland regarding the access of Polish workers to some sectors of the labour market, the German labour market remained open in 2004 for professionals of the agricultural sector, the construction sector, and for seasonal jobs in the services sector. Figures show that Polish workers carried out 90% of all seasonal work in Germany in the mid-2000s (Duszczek & Wiśniewski, 2007).

The opening of borders as a pull factor was not the only reasons for Poles to migrate after Poland's accession to the EU: similar to the previous migration period, push factors also contributed to an increase in emigration in that period. Indeed, the unsatisfactory

economic situation of Poland, which persisted from the 1990s to the 2000s, contributed to the decision for Poles to move to another EU country to find work.

## **2.2 Evolution of migration patterns between 2004 and 2011**

### **2.2.1 Outflows from Poland**

Even though Poland has always been an emigration country, the years 2004–2005, which corresponded to Poland's accession to the EU, were a turning point in terms of annual flows. In 2005, the number of Poles emigrating abroad increased by 17% (by 22,200 people) as compared with 2004 (Duszczek & Wiśniewski, 2007). Between 2004 and 2007, the number of Poles temporarily residing in another EU country doubled, reaching almost two million people. This migration flow had the consequence of reducing the Polish working age population: migration during the post-accession period represented 2.8% of the total population, but 4% of the working age population (15–59 years old) (Galgóczy et al., 2009).

In 2008, which is considered a peak year, the annual flow of temporary emigrants from Poland was 2.3 million, which corresponds to 6.6% of the Polish population. According to the OECD, 74.2% of all Polish migrants emigrating during 2005–2006 established themselves in Germany (45%), the UK (12.4%), or the USA (16.8%). Data showed that among Polish migrants, 70% to 80% had a job during their stay abroad (Kaczmarczyk, 2010). In the framework of the bilateral agreements in the German labour market established in the 1990s, 250,000 Poles migrated to Germany for seasonal jobs in 2004–2005, notably in the construction sector (Duszczek & Wiśniewski, 2007).

Data from Polish statistics, which differs from the OECD data shown in Table 3, shows that between 2004 and 2011, the number of Polish migrants in Germany increased from 385,000 to 470,000 (a 22% increase). Compared with the UK or Ireland, the duration of Polish migrants' stays in Germany were shorter due to the seasonal nature of the jobs available for Poles in the German labour market (Kaczmarczyk, 2010).

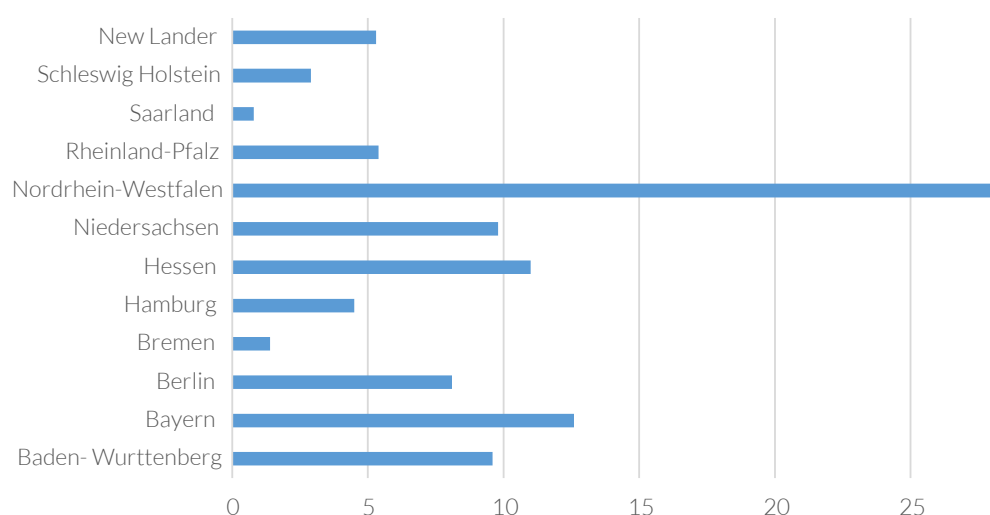
### **2.2.2 Inflows to Germany**

Despite restrictions on access to the German labour market for workers of the EU-8, Germany was the leading destination for the citizens of these countries, followed by the UK and Spain. However, the situation changed in 2009, with the UK becoming the favourite destination, followed by Germany and Ireland (Galgóczy et al., 2009). That same year, most countries were hit by the financial crisis as well as an increase in unemployment. While the employment rate of migrant workers tends to be more affected by economic crises than domestic labour, oddly, the employment rate of citizens of the EU-8 increased more than that of national citizens in Germany during the crisis (Galgóczy et al., 2009).

In 2006, 361,700 Poles were legally living in Germany, alongside 52,300 Hungarians, 33,300 citizens from the Czech Republic, 23,800 Slovaks, 21,100 Lithuanians, 9,800 Latvians, and 4,000 Estonians. However, the most important minority in Germany remained the Turks (1.7 million people) (German Federal Statistics Office, Statistisches Bundesamt, 2007). In 2010, 60% of the new immigrants to Germany came from EU Member States, among which 25% were from Poland (Eichhorst & Wozny, 2012). Germany remains a large receiver of migrant populations. However, when considering the migration of German citizens, we see that this number is 10 times smaller than that of the migrants settling in Germany. However, a 2009 survey by Heimer & Pfeiffer showed that one in eight Germans think about emigrating.

Table 6 below shows the distribution of Polish migrants in Germany in the years following Poland's accession to the EU. We observe that the most popular German regions chosen by Poles are Nordrhein-Westfalen, Bayern, Hessen, and Niedersachsen. The choice of the regions of Hessen and Nordrhein-Westfalen could be explained by the migration traditions of these regions among earlier Polish migrants. The German regions close to Poland—for instance, Brandenburg—were not as attractive for migrants because the unemployment rate in these regions was considerably higher than in the western regions of Germany during that time.

**Table 6. Regional repartition of Polish migrants in Germany (in %)**

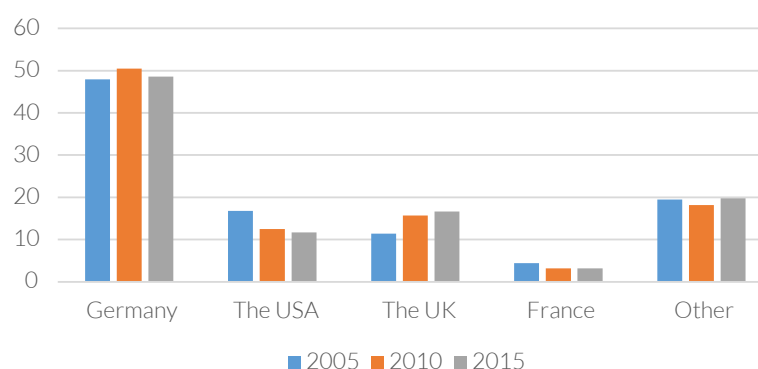


Source: Own elaboration based on data from the Polish National Statistics Office, 2013

### 2.3 Gender specific issues related to migration between 2004 and 2011

Figures show that in 2007, the share of Polish female migrants in Germany was higher than that of men (51.2% of women), which corresponds to the overall trend of the prevalence of females in migration flows from Poland (German Federal Statistics Office, Statistisches Bundesamt, 2007). Table 7 below shows the share of female migrants by receiving country in the post-accession period. We see that Germany remained the most popular destination for Polish migrants, whereas the USA and France lost popularity among Polish female migrants. We also see an increase in the popularity of the UK.

**Table 7. Top destination countries for Polish women living abroad in the post-accession period**



Source: Own elaboration based on data from the UN, 2016

Regarding seasonal labour, which we have seen to be a sector in which many Polish migrants work due to the specific policies implemented by Germany, the sex of immigrants is seen to be a selection criteria in farming, because many agricultural holdings—for example, fruit farms—prefer to recruit women over men because women are said to handle the crops more carefully (Becker, 2010).

### 2.4 Polish-German marriages and migration issues

The data concerning mixed marriages is quite interesting, because it can be considered as a factor of successful migration and integration. Between 1990 and 1998 in Poland, the number of mixed marriages between German and Polish citizens was significant, probably due to re-migration: in 1990, the number of marriages in which the bride was German was the highest among foreign populations living in Poland, but these figures declined between 1995 and 1997 before increasing again in 1998. Concerning the marriages where the groom was German and the bride was Polish, we observe that this configuration represented the



highest amount of mixed marriages among foreigners living in Poland in the 1990s – this was the case for all years (especially 1990), except between 1995 and 1998 where we observed a slight decrease (Iglicka, 2001a). In 2014, however, the situation was very different, as the data indicates there was a 60% reduction in Polish-German marriages: among the 2,810 marriages involving one or two foreigners in 2014, 207 marriages where both members were German were registered (GUS, Polish Office of National Statistics, 2015).

From the side of Germany, 3,538 German-Polish marriages were registered in 2010, which represents 8.5% of all marriages between Germans and foreigners (second highest, after German-Turkish marriages), despite a decrease in figures since the middle of the 2000s. Among these unions, we observe a prevalence of marriages where the groom is German and the bride is Polish (87% of cases). In 2011, 4,000 children were born from Polish-German unions. Data shows that 40% of these children speak Polish daily at home (Jaroszevska, 2012).

This decrease in marriages from both countries can be explained by various factors: the decrease of marriages in general, the decrease of marriages contracted for residence permits (white weddings) due to freedom of movement, and, lastly, the decrease of migrants from Poland to Germany and from Germany to Poland.

### **3. Recent challenges of migration between Germany and Poland**

#### **3.1 Migration patterns after 2011**

##### **3.1.1 Immigration in Germany**

The lifting of the restrictions of the German labour market led to an increase of migration flows from Central and Eastern Europe after 2011. The number of migrants settling in Germany doubled between 2007 and 2013, and this figure was especially concerning for people from the EU-8 (Teney & Siemsen, 2015). Between 2011 and 2015, the number of Poles emigrating to Germany increased from 470,000 to 655,000 (a 39% increase) (GUS, Polish National Statistics Office, 2016b). Here as well, we find that the data contradicts that of the OECD. Interestingly, the re-migration of Poles from Germany increased by 7% between 2011 and 2012 (Aksakal & Schmidt-Verkerk, 2014).

In 2013, Germany was ranked the third country in the world in terms of stock of immigrants, after the USA and Saudi Arabia, with 11.1 million immigrants. In 2011, 6.8% of all migrants in Germany were from Poland and, on average, these Polish migrants stayed 9.7 years, which is far below the average stay of 19 years observed among all migrants in Germany (Aksakal & Schmidt-Verkerk, 2014). In terms of emigration, the country ranked 11th in the world and second in the EU after the UK in terms of stock of emigrants (4.1 million). Interestingly, Poland is not far behind – it was ranked 15th in the world and third in the EU, with

a stock of 3.9 million emigrants that same year (World Bank, 2016). When comparing the migration flows between Poland and Germany, we see that more Poles migrate to Germany than Germans migrate to Poland; however, looking at the data on a more international scale, we see that Germany has a higher emigration population than Poland, but that those emigrants choose to move to countries other than Poland.

Among people emigrating from Germany in 2010, we can observe that 52% moved to another EU Member State, among which 3% moved to Poland (United Nations, 2015). However, the figures do not tell us whether these migrants are Polish migrants re-migrating to Poland after staying in Germany, Germans emigrating to Poland, or people from other countries emigrating to Poland (Eichhorst & Wozny, 2012). In 2012, however, there were more German people emigrating from Germany than German people living abroad coming back to Germany, which caused a negative balance of 18,000 Germans (Aksakal & Schmidt-Verkerk, 2014). In 2013, over 57,000 Germans emigrated to another EU Member State and 52,100 German migrants returned to Germany (Teney & Siemsen, 2015).

### **3.1.2 Emigration of Poles and Germans in Poland**

By the end of 2015, about 2.4 million Poles had emigrated, which was an increase of 3.3% compared to the previous year. Among EU countries, the most popular destination for Poles that year was the UK (720,000), followed by Germany (655,000, an increase of 7% compared to the previous year), the Netherlands (112,000), Ireland (111,000), and Italy (94,000). The reasons for the increase of Polish migrants to Germany is the full opening of the German labour market, Germany's proximity to Poland, as well as its low unemployment rates (GUS, Polish National Statistics Office, 2016a). It is noteworthy that a survey conducted in 2016 states that 34% of respondents – mainly those who are low-skilled – plan on emigrating to Germany, followed by 18% to the UK, which shows a gain in popularity for Germany among Polish migrants, which might be due to the Brexit, but also shows interesting future patterns of migration between the two countries (WorkService, 2016).

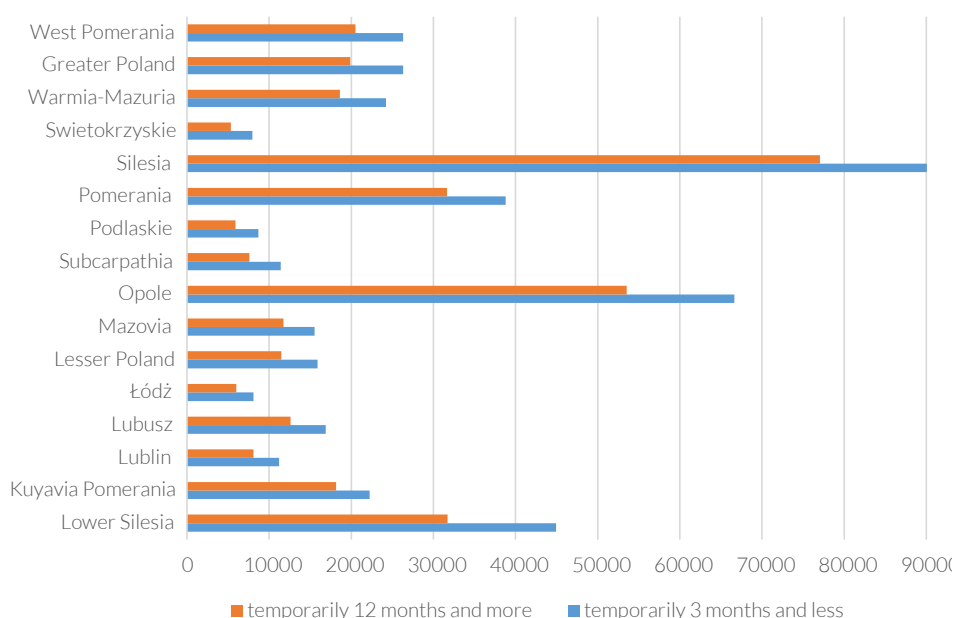
As far as the foreign population in Poland is concerned, in 2015, there were 80,000 foreigners (born abroad) aged between 15 and 64 years old residing in Poland for the past 12 months. The 2011 census reported the presence of 148,000 Germans in Poland (while there were 152,900 people declaring German ethnicity in the 2002 census), among which 64,000 declared themselves as Polish-German and 45,000 as solely German (GUS, Polish National Statistics Office, 2013).

As far as the regions of origin of Polish migrants are concerned, in the pre-accession period, Polish migrants from the Opolskie voivodship (eastern part of Upper Silesia) chose Germany as a destination country because of strong historic ties between both countries and a significant number of Polish-German citizens in the region. Similar patterns

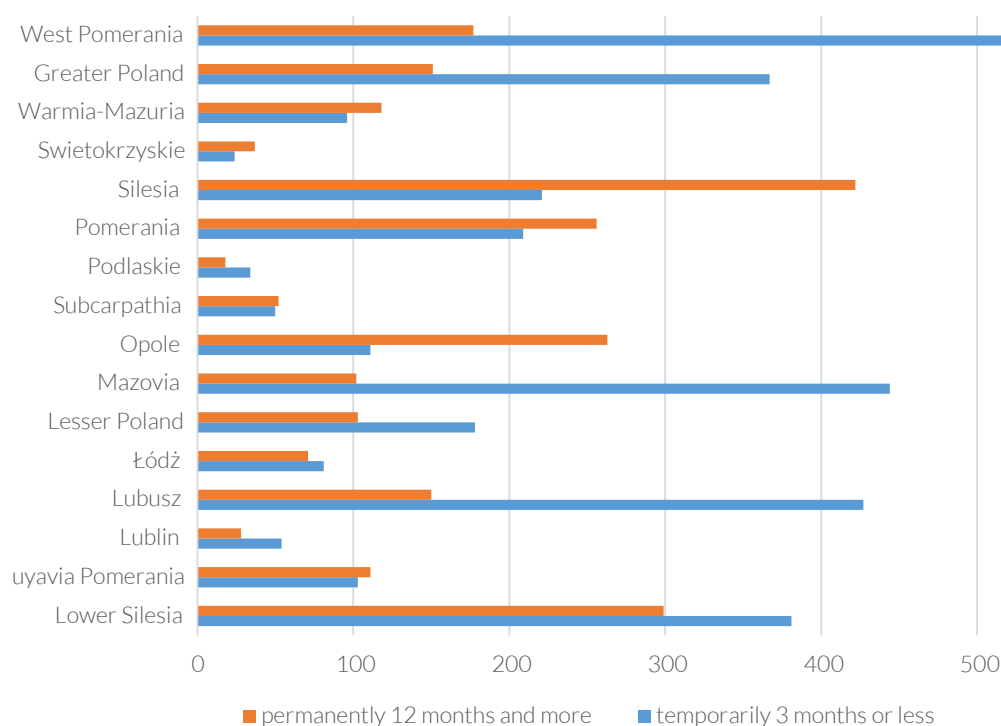
can be observed from Polish migrants from the Lubelskie (eastern Poland) and Małopolskie (southern Poland) voivodships. In the post-accession period, however, emigration from Opolskie and Małopolskie decreased and migration from other voivod-ships, which was lower before 2004, increased (mainly from Mazowieckie, Śląskie, Łódzkie, and Kujawsko-Pomorskie) (Okólski & Anacka, 2010).

Tables 8 and 9 below show the Polish regions of origin for Polish emigrants to Germany and the geographical repartition of German immigrants in the Polish regions. We can observe that similar regions can be identified as hosting the most German migrants and being the region of origin of Polish migrants. Indeed, the regions of Silesia, Opole, Pomerania, and Lower Silesia are common to both German migrants in Poland and Polish migrants in Germany. The geographical disposition of these regions is located alongside the German border. Thus, we can assume that migration choices and regions of origins are related to the geographical proximity of these Polish regions to Germany. However, it is also to be noticed that these regions bear a common historical past with Germany, as they had been seized by Prussia and then occupied by Nazi Germany until the Potsdam Conference established the Oder-Neisse line as the border between both countries.

**Table 8. Regions of origin of Polish migrants in Germany (in 2011)**



Source: Own elaboration based on data from the Polish National Statistics Office, 2013

**Table 9. Regional repartition of German immigrants in Poland**

Source: Own elaboration based on data from the Polish National Statistics Office, 2015

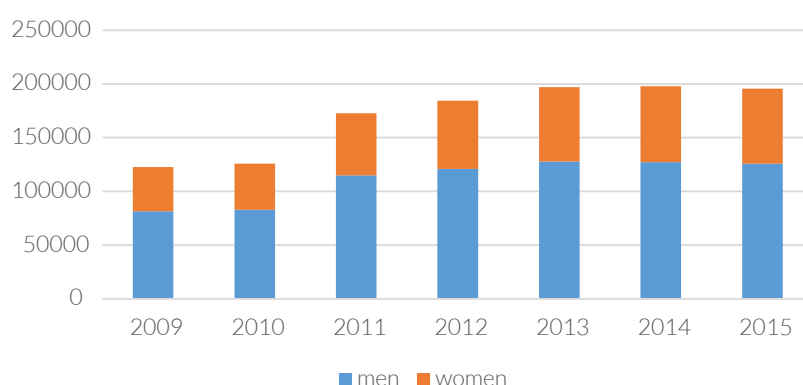
The other relevant observation that can be made from these two tables is that, in both cases (though it is more obvious for German migrants in Poland), there are discrepancies between the temporary and long-term migrants in the given regions. Regarding long-term German migrants, we see that they often choose the regions that traditionally attracted German migrants, while temporary German migrants are more numerous in regions that are economically more dynamic. This enables us to make the assumption that temporary German migrants are moving to Poland for professional reasons.

### 3.2 Gender-specific issues related to migration after 2011

Between 2011 and 2015, despite an overall increase in the inflow of Polish migrants in Germany, the share of women migrants did not change. Moreover, the overall number of Polish women migrants was, in some years, lower than that of the men, unlike what was observed in the pre-accession period, where the share of women migrants was larger than that of men in every year of this period. In the post-accession period, and especially af-

ter 2009, as Table 10 shows us, the share of women in the Polish migrants' group was less than half that of the men.

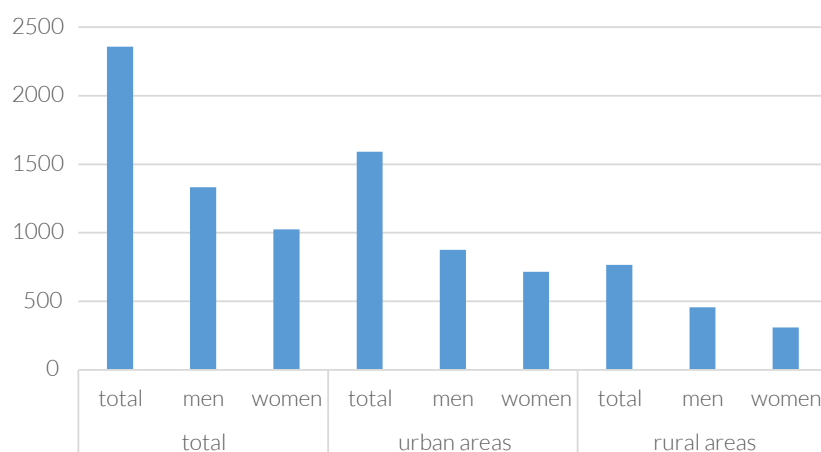
**Table 10. Gender repartition of the inflow of Polish migrants in Germany, 2009–2015**



Source: Own elaboration based on data from the German Federal Statistics Office, 2015

On the side of Germany, gender-segregated data shows that the gender gap between German migrants in Poland is lower than the gender gap observed among Polish migrants in Germany, even if men still prevail. Moreover, among German migrants in Poland, the number originating from urban areas is higher than that of those originating from rural areas. Table 11 below illustrates these assertions.

**Table 11. Gender repartition of German migrants in Poland in 2014**



Source: Own elaboration based on data from the Polish National Statistics Office, 2015

Data from the Polish National Statistics Office reveals that for the year 2015, the number of German migrants who received a permanent residence permit in Poland was significantly higher among men than women (109 men and 30 women), thus contrasting with the low gender gap observed between the overall number of female and male German migrants in Poland. This enables us to assume that German female migrants stay only temporarily in Poland, while men stay long enough to request a document for permanent stay.

We observe a typical repartition of jobs among Polish migrants: while low-skilled Polish male migrants work in fields such as construction or manufacturing, low-skilled Polish female migrants usually work in fields such as cleaning services, geriatric care, domestic work, or gastronomy. This shows traditional gender roles among low-skilled male and female migrants from Poland, reflecting on the rather traditional Polish society regarding gender roles (Scharle, 2015). In the context of care work, we observe that middle-aged women, while having a weak position in the Polish labour market, are in high demand in Germany, because they have the necessary skills, unlike younger women (Lutz, 2008). This can be linked to the issue of “care drain”, which describes the migration of women with the aim of becoming domestic workers or pursuing jobs in the care sector, which are in high demand in Western European countries. Higher wages are a pull factor for these women, but their emigration has negative consequences on their own children, who are left in their home countries and who suffer from a loss of care (Dumitru, 2014).

Low-skilled migration gender differences show that men are more likely to work full-time than women and thus become “full-time migrants”, returning to their country only for special occasions, whereas married women with children who migrated prefer to return to their home country more often, which makes them “part-time migrants”. This also has the consequence of preventing them from evolving professionally and acquiring better jobs and higher income (Lutz, 2008).

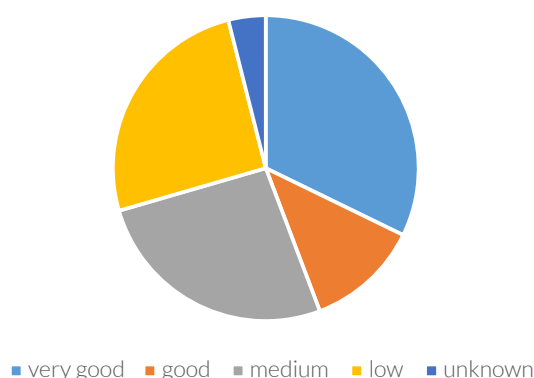
### **3.3 Current issues and challenges of migration in Germany and Poland**

Despite the economic crisis that hit the EU, Germany was the only OECD country whose unemployment rate among migrant populations decreased between 2008 and 2012 (Teney & Siemsen, 2015). This shows that immigration had no negative effect on the German labour market. Nevertheless, Germany is seen as having difficulties adapting to the current changes occurring as a result of migration flows, and some authors do not recognise the positive effects of immigration, focusing on the inefficiency of integration policies, the burden on the social system, and the endangerment of Germany’s competitiveness instead of on the positive outcomes of immigration, such as the contribution of migrants as part of the workforce, especially for filling vacant job positions and contributing to economic growth.

Integration policies were a major concern for German policymakers in the past. Inefficiencies and issues regarding integration policies have been a focus of attention within German society. We find differences in labour market outcomes among children of immigrants compared to native Germans, with a higher unemployment rate (1.6 times higher) for the former. Level of education is lower for children of immigrants as well. However, Polish immigrants do better when compared to the total migrant population and are well integrated in German society. This can be explained by the long migration tradition between Poland and Germany as well as cultural similarities between both societies (Eichhorst & Wozny, 2012).

For German migrants living in Poland, despite the lack of data, we can assume that the level of integration is satisfactory. Indeed, as Table 12 below shows, 44% of German migrants in Poland have a very good or good command of the Polish language.

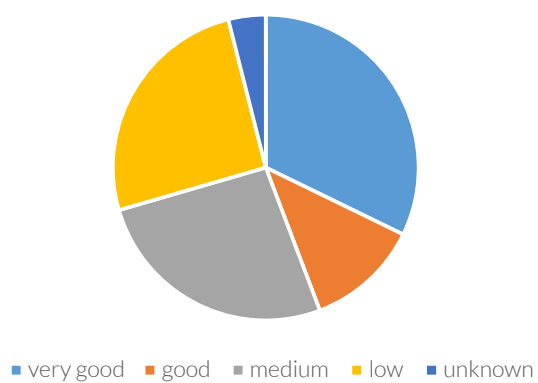
**Table 12. Level of knowledge of Polish among German migrants in Poland**



Source: Own elaboration based on data from the Polish National Statistics Office, 2015

When looking at Table 13, which represents the amount and gender repartition of foreign students from the EU-15 who study in Poland (mainly from France, Germany, Spain, Sweden, the UK, and Austria), we see that German students comprise the third largest national group of foreign students after Spain and Sweden, despite the fact that the size of each country and their student population must be considered. The data show very slight differences between the number of men and women among German students, while the discrepancies are higher in the other countries.

**Table 13. Students of the EU-15 in Poland during the academic year 2015–2016**



*Source:* Own elaboration based on data from the Polish National Statistics Office, 2016b



# Chapter 2:

## The issue of brain drain

### 1. Emigration of highly-educated individuals in Poland and Germany

#### 1.1 Emigration of highly-educated individuals from and to Poland

##### 1.1.1 Brain drain from Poland

The Soviet era in Poland was characterised by the ideology of social justice, which meant similar wages for all workers regardless of profession or qualification. With the arrival of the free market, wages were determined by supply and demand, properly reflecting scarcity for the first time. As a result, highly-educated people generally received higher wages. This led policymakers to encourage students to acquire a higher level of education, a key condition to a successful career, thus neglecting low-educated people and vocational education. The share of university graduates was almost three times higher between 1990 and 1999 as compared to the Soviet era, and continued to increase.

Even though the increasing number of university graduates is considered to be a success of the transformation period in Poland, some problems are linked to this phenomenon—notably that job creation did not keep pace with the rising number of young graduates. The increased number of educated people in some areas did not match the available job positions in the labour market, creating skill mismatches and thus unemployment among young graduates. This situation has persisted since the late 1990s and fuels the emigration of young highly-educated individuals abroad, thus becoming a push factor and creating brain drain (Schellinger, 2015). However, figures show that the emigration of highly-educated Poles decreased in the mid-1990s and the beginning of the 2000s, especially among researchers implementing research programmes, and in the first years following Poland's accession to the EU, due to easier access to EU research funding.

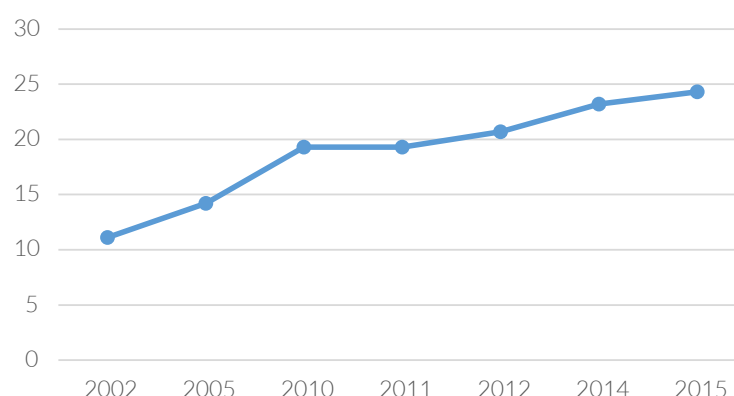
Between 1981 and 1988, we observe high brain drain among Polish professionals, as 15% of the Polish emigrants of that period were highly educated and 31% had secondary education, while the share of university graduates in Poland was 7%, which showed an overrepresentation of highly-educated Polish migrants in comparison to the national Polish population. With 15,000 university graduates emigrating every year during the 1980s (25% of all university graduates), the issue of brain drain was highly relevant. However,

the situation changed after 1989, when we can observe the emigration of lower-educated people increasing throughout the 1990s (37% of Polish migrants in 1988 had elementary education or lower, compared to 55% in 2003), while the share of well-educated people emigrating declined.

In 2002, 7% of Polish migrants living abroad held a PhD, 10% an advanced university degree, and 3.2% other tertiary education degrees. The corresponding figures for the national Polish population were 0.3%, 7.4%, and 2.7%, respectively, which shows that more Poles living abroad were highly educated than Poles living in Poland, and which enables us to identify the possible presence of brain drain even in periods when the emigration of the highly skilled declined (Kaczmarczyk, 2010).

These observations must be put into perspective with the fact that between 1970 and 2001, the share of university graduates among the Poles increased from 2% to 12%. By the end of the 1990s, there were 2.6 times more university students than in 1990. In the early 2000s, 50% of young people aged 19-24 were university students. In the 2010s, there were about two million students, which shows that Poland has almost reached the standards of developed countries regarding university education. Therefore, we must consider that the increase of well-educated migrants is a consequence of the educational developments in Poland these past few years (Kaczmarczyk, 2010); although, we observe higher emigration rates among the low skilled as a result of unemployment in low-skilled professions. Table 14 below presents the total number of highly-educated Poles from 2002 to 2015. We observe that these figures are growing steadily over time, in line with the changes that occurred in the 1990s.

**Table 14. Number of highly-educated Poles since 2002 (in millions)**



Source: Own elaboration based on data from the Polish National Statistics Office, 2016b

Between 1990 and 2004, we observe an increase in the number of low-skilled migrants. In absolute numbers, this might question the existence of brain drain compared to the period before 1989. The reason is that few opportunities were left for lower-educated people, and they had trouble adapting to the new requirements of the Polish labour market. At the beginning of the 2000s, Germany attracted low-skilled Polish migrants, seasonal workers, and workers with basic vocational training, mainly from rural areas (Mioduszevska, 2008).

Despite being very high in the 1980s and relatively low in the 1990s and 2000s, the issue of brain drain in Poland became an important issue again in the 2010s: the migration patterns of highly-skilled Poles showed an increase in emigration after 2011 among people who graduated from a university: +5% in total, +3.6% for men, and +9% for women. There were more highly-educated female migrants as compared to highly-educated male migrants (+27% for women, as opposed to +15.6% for men) after Poland's accession to the EU. The fact that the share of highly-educated women migrants was higher than that of men is a justification of the need for further research on this topic (see Chapter 3). More precisely, during the first post-accession years (2004-2006), highly-educated people aged 20-29 accounted for 16.3% of the total stock of migrants (Kaczmarczyk, 2009), while they accounted for 33.7% in 2011 (as compared with 10% in 2003).

Comparing these figures with those of the national population, we see that 19% of Poles of that same age group were highly educated, which shows the existence of brain drain among 20-29 year olds. In addition, the profile of migrants changed with Poland's accession to the EU: the proportion of migrants from urban areas increased while the share of migrants from rural areas declined. Among countries of the EU-10, data shows that, in 2010, Poland had the second highest emigration—after Romania—of the tertiary-educated (Institut für Arbeitsmarkt- und Berufsforschung, 2010).

Despite the increase of highly-educated migrants after 2010, we observe a decline in the popularity of Germany as a receiving country for highly-educated Poles: the figures showed that in the mid-2000s, 28.9% of Polish migrants in Germany were low skilled while 16.9% were highly skilled. By contrast, the number of highly-skilled Polish migrants in Germany was roughly less than half that in the UK or the USA, suggesting a lower attractiveness of Germany as a receiving country for highly-skilled Polish migrants. There could be three explanations for this phenomenon: first, the highly skilled are more mobile than the low skilled and are more likely to choose to migrate to more distant countries; second, the German labour market focuses on attracting workers from the agricultural and services sectors, which attracts lower-educated individuals; and third, low-skilled individuals are more likely to migrate temporarily for seasonal jobs (e.g. in the construction or agricultural sectors), and so for mobility reasons are more likely to choose a country with a closer geographical proximity to Poland. Moreover, it is to be noted that many

of the young better-educated Poles can speak English, which makes them more likely to choose the UK, Ireland, or the USA as destination countries, while the older migrants of the pre-accession period relied on existing Polish migrant networks to emigrate to Germany: for them, English language skills did not play such an important role (Kaczmarczyk, 2010).

Among the EU-8 Member States, Poland is the country with the highest share of students studying abroad, even though the mobility of Polish students is lower than that of students from the EU-15: in 2006-2007, 31,000 Polish students were studying in the EU-15, among which 15,000 studied in Germany, 7,000 in the UK, and 3,000 in France (Kaczmarczyk, 2010).

### **1.1.2 Brain drain to Poland**

An interesting analysis is that of brain drain to Poland. The human capital of highly-qualified people is an important factor of the national production, as the highly qualified possess valuable soft and hard skills. Countries such as Poland, which experienced changes in the production system due to the transformation of the economy, require adequate human capital. As human capital cannot be produced short-term, it needs to be imported or developed over time. After the breakdown of communism, Poland underwent numerous changes, and now, as the transformation process is advanced and the market economy is well developed, the country has become very attractive for foreign investment from Western companies (Hillmann & Rudolph, 1997). This investment has occurred primarily in the sectors of IT and agri-food, and the companies generally use their own technical and management personnel, implying that they expect geographical mobility from their employees; however, they also employ Poles. This also reveals that Western companies investing in Poland bring with them a flow of highly-educated professionals-expatriates, or “expats”—who move to Poland sometimes for several years, and occasionally even start a family and settle in Poland for the long term.

## **1.2 Emigration of highly-educated individuals from and to Germany**

### **1.2.1 Brain gain from Poland**

In Germany, there is no apparent change in the skill level of Polish immigrants between pre- and post-EU accession periods. In 2004, 18% of the Polish population living in Germany held a university degree, while in 2014 this number increased to 20% following a brief decrease. The figures tend to increase during the last few years. By comparison, in 2004 in the UK, 10% of Polish immigrants possessed a university degree; this figure increased to 26% in 2014 (EU Labour Force Survey, 2015). This illustrates the increasing popularity of the UK as a receiving country for highly-educated Poles.

### 1.2.2 Brain drain from Germany

Statistics show that more than half of German emigrants aged 25–64 possess tertiary education, while only 25% of German nationals do. Data from the OECD shows that Germany has one of the highest levels of citizens with tertiary education among the 25–64 years old: 86% compared to an OECD average of 75%. It also has among the lowest levels of NEETs<sup>2</sup> (10% compared with 16% for Poland and an OECD average of 15%). However, it is to notice that the average literacy skill level is slightly below average (269 score points compared to 272 score points), and the lowest among those without tertiary education (OECD, 2014a).

Data from 2010 shows that the emigration of highly-educated German individuals has increased in the previous decades, while the number of highly-skilled re-migrants has been increasing as well, raising the question among some authors of the presence of brain circulation rather than brain drain. However, it is to note that Germany ranked fifth in the world and second in the EU after the UK in terms of the highest number of tertiary-educated migrants in 2010 (1,220,000 emigrants). Here again, Poland was not far behind (sixth in the world and third in the EU) with almost one million tertiary-educated emigrants (World Bank, 2016). These figures show that even if on a local scale, brain drain from Poland to Germany is more important than brain drain from Germany to Poland. It seems that on a global scale, brain drain from Germany is higher in some sectors, although tertiary-educated German emigrants choose to emigrate to countries other than Poland.

A survey conducted in 2010 showed that among highly-educated migrating Germans, few of those who left to improve their quality of life had the intention of re-migrating (39%). Among German academics who expressed the wish to emigrate, the main motives were an unsatisfactory income and the absence of job opportunities. In this group, the intention of re-migrating was high (more than 50%). The same was true for young academics who emigrated to gain experience abroad. Among highly-skilled professionals who emigrated for new professional opportunities, two-thirds intend to re-migrate. Lastly, among family-oriented skilled professionals who emigrated in order to improve their family life, re-migration intentions were very low. However, the reality of these survey results must be considered, as intentions to emigrate and actual emigration often show huge differences (Smoliner et al., 2011).

---

2 NEETs are people who are Not in Education, Employment, or Training.

## 2. Brain drain in specific sectors

### 2.1 Academic sector

There were 119 German academics living in Poland in 2007, which corresponds to 6% of all foreign researchers employed in Poland. Furthermore, 22% of the Polish universities employing foreigners employ German academics. German academics in Poland received an average monthly salary of EUR 4,500 during 2006-2007, which corresponds to the third highest salary earned by foreign academics (behind American academics: EUR 8,520 and British academics: EUR 6,350) (Mucha & Łuczaj, 2013).

Brain drain in the 1980s in Poland was especially relevant among academics and scientists leaving Poland for the USA during the Solidarity and Martial Law period (Iglicka, 2000). Low income, poor labour conditions, low prestige and recognition, low social status of jobs in the science and education sectors, poor equipment, poor laboratories, lack of funding, restricted access to foreign academic literature, and limited opportunities were the push factors explaining the emigration of Polish scientists. The 1980s and early 1990s were also characterised by the massive emigration of computer programmers, biologists, physicians, engineers, and academics (Gwiazda, 1992). However, while the number of Polish migrants among the scientists was high in the 1980s, it decreased in the mid-1990s (from 52% to 11%) (Kaczmarczyk, 2010). In 2000, 39.4% of tertiary-educated Polish migrants had a degree in science and engineering and 33.3% in humanities and social sciences (OECD, 2008).

In the 1990s, Poland suffered from reduced budgets for science, and the number of research personnel decreased drastically (-13.3% between 1990 and 1994). The institutions which were affected the most by these personnel reductions were not universities, but academies of science and state research institutes. Poland lost 24.1% of its technical and engineering sciences staff who, attracted by higher wages abroad and better working conditions, emigrated to the USA, Germany, France, and the UK. A survey conducted in 1997 showed that a majority of scientists (48.6%) considered themselves to be a part of the middle class, whereas 42% considered themselves to belong to the poorest part of Polish society. That same year, the regional mapping of scientific migrants showed that the highest share were from Warsaw, making this city the most affected by brain drain among scientists (Bobeva, 1997).

Since the 1980s, well-educated Polish migrants chose the USA as destination country. In the 2000s, this tendency changed thanks to the growing attractiveness of EU countries and the development of EU research programmes and research grants, which had the consequence of reducing the emigration of scientists and academics. The opening of EU's job market led Polish researchers to prefer emigration to an EU Member State. Hence, France,

Germany, and the UK became the main destination countries for Polish researchers after 2004. That same year, there was 450 Polish PhD students living and studying in Germany, which exceeded the number of Polish PhD students in the USA (Żebrowska & Konarzewski, 2014).

## **2.2 Medical sector**

Focusing on medical professions, we see that about 1,900 German doctors left Germany in 2013, mainly migrating to countries such as Switzerland, Austria, and the USA. This issue has partially corrected, as Germany continues to attract doctors from Central and Eastern Europe. As more doctors migrate to Germany (3,345 non-German doctors immigrated to Germany in 2013), the country experiences a brain gain among highly-skilled professionals in the medical sector.

The phenomenon of brain drain among Polish doctors to Germany is a reality, although reliable numbers are non-existent (Teney & Siemsen, 2015). Indeed, research has been focusing on the brain drain of Polish doctors to the UK rather than to Germany. A survey published in 2012 and conducted among medical students estimated the percentage of the likelihood of emigration among its respondents to being between 26% and 36% (Krajewski-Siuda et al., 2012). We can also observe that during the period 2004-2007, 1.5% of Poland's employed nurses emigrated from Poland (Ionescu, 2014).

## **3. Issues resulting from brain drain**

### **3.1 Positive and negative effects of brain drain**

The work of Beine, Docquier and Rapoport (2008) revealed that brain drain has a positive effect on the human capital of the migrant stock. More precisely, it has been shown that people who achieve higher education and possess high skills adjust to economic crises, unemployment, and job losses more easily than people with lower education. Highly-skilled individuals are said to contribute to improving human capital by fostering sustainable and balanced economic growth and are seen as generating innovation and social progress, while the demand for low-skilled labour is decreasing due to societal and technological advances (International Labour Office, 2011). Therefore, it has been demonstrated that migrants with higher educations are likely to boost the productivity and competitiveness of the economy of their country of destination similar to the way productivity and competitiveness are boosted by highly-skilled native individuals (Kuptsch, 2012).

Brain drain is seen as having positive and negative effects on the economy of the sending country. Indeed, some authors (Zaiceva, 2014) observe a decrease in unemployment rates and an increase in wages in countries in which emigration is high. Moreover, remittances are also seen as a positive aspect of emigration and especially the emigration of the highly skilled, as the more educated an emigrant, the better the job and the higher the wages will be, assuming the migrants in question are not affected by deskilling. Working in a Western country in their field of expertise enables them to increase the standards of living of the families and relatives who remained in the home country. It has been found that highly-educated migrants remit more to their home country than low-educated migrants (Brzozowski, 2008a).

Another positive aspect of brain drain is the creation and extension of social capital: emigrants, while living abroad, establish contacts with natives and with other emigrants from their home country, thus contributing to the development of their social capital through contact with foreigners and their activity in diaspora networks. However, it is to be noticed that the most positive impact is that on the receiving country – the experience of brain gain and, thus, the increase in economic growth (see Chapter 4). Nevertheless, the receiving country can also be affected by the negative effects of brain drain, such as the saturation of specific job sectors in the labour market, or brain overflow, where the number of specialists in a specific sector is higher than the number of available jobs.

However, other authors assess the effects of brain drain on the economy as negative. Unlike unskilled migration, which is showed as being beneficial for the emigrants, the sending country, and the receiving country (Ionescu, 2014), the migration of tertiary-educated individuals is considered as having a negative impact on the sending country, such as through losses in human capital, skill shortages in the labour market, losses in terms of investment in education and training, and losses in the income tax of emigrants. It also has the effect of harming economic growth (Caritas Internationalis, 2012). These observations have been demonstrated by other authors, as GDP losses as well as labour market shortages have been observed in countries in which emigration is high – notably in Poland (Zaiceva, 2014). Haque and Kim (1995) demonstrate that highly-educated individuals from developing countries, by moving to developed countries, positively affect the income level and economic growth of the home country.

These negative effects are significant when emigration is permanent, but could transform into positive effects if the emigrants decide to return to their home country. The re-migration of highly-skilled people brings additional human capital: after relevant experience abroad, highly-skilled migrants often bring back additional work experience, education from a foreign university, and language skills, among others.



### **3.2 Current issues of brain drain**

Brain drain, and labour migration in general, is caused by push and pull factors. Low salaries, high unemployment, lack of opportunities, and poor working conditions (weak benefits and low health insurance, among others) are push factors. Employment opportunities, recruiting strategies from the receiving country in order to prevent skill shortages and skills mismatch, historical or social ties between the countries, contacts or relatives abroad, better wages, and better working conditions are pull factors. Migration is usually caused by a mix of push and pull factors. However, when it is caused only by push factors, the emigrants are likely to be confronted with deskilling and brain waste. Moreover, when the receiving country does not present enough job opportunities corresponding to the skills of foreign professionals, the latter are likely to be confronted with unemployment due to the excess labour force. Lack of experience in the labour market after having graduated, unemployment in the receiving country due to brain overflow in some sectors or due to an economic crisis, and integration issues are the potential factors that are likely to make labour migration unsuccessful.

Today, societies suffer from a new kind of brain drain—there does not need to be geographical migration of the highly-skilled labour force for a country to be affected by brain drain. Brain drain can happen within a country: the possibilities offered by freelancing enable professionals to work from their home country for a company located in another country, only requiring occasional business trips. Another phenomenon of “static brain drain” occurs when foreign multinational companies present in the country recruit highly-skilled local professionals. This means that the professionals work from their country but not for their country. These phenomena are likely to develop in the future and are interesting topics for further research.

# Chapter 3:

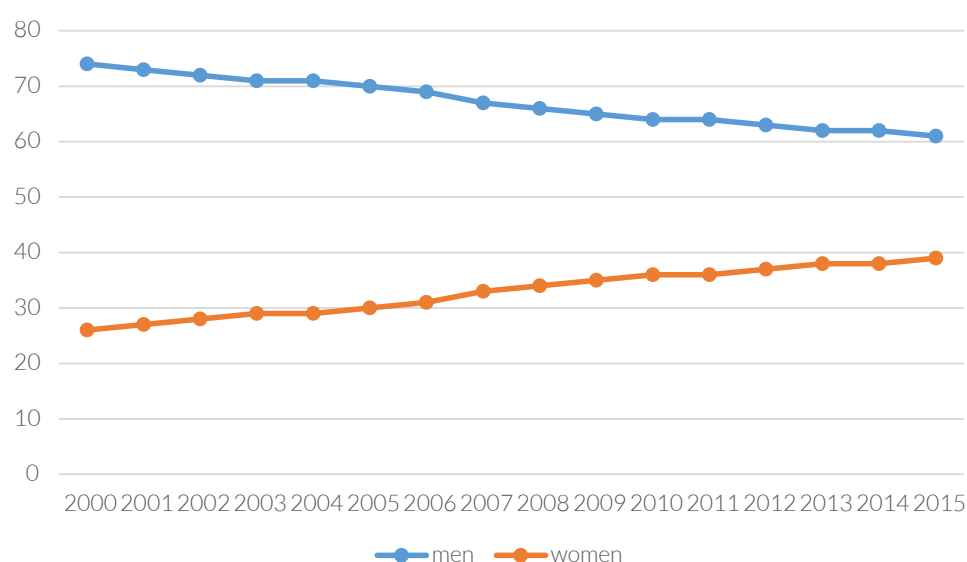
## Female brain drain in Poland and Germany

### 1. Gender repartition of highly-educated female migrants in Germany and Poland

#### 1.1 Gender repartition of highly-educated German female migrants

German women choose to study sciences more than women from other OECD countries, as 44% of tertiary degrees in sciences were attributed to German women (compared to an OECD average of 40%), among which 59% were in mathematics and statistics (compared to an OECD average of 46%) (OECD, 2014a). Table 15 below shows the gender repartition among men and women academics. In the past 15 years, we can observe that the proportion of women is increasing compared to that of men.

**Table 15. Gender repartition among German academics, 2000-2015**



Source: Own elaboration based on data from the German Federal Statistics Office, 2016

Figures from the OECD show that in the 2000s, out of 20 countries, German migrants were among the most skilled, after migrants from the Philippines, the UK, and the former Soviet Union. Among these German migrants, there were more women than men during the 2005 and 2010 migration waves (the same can be observed for the Philippines and the former Soviet Union). Poland was in the seventh position in terms of skilled migrants, and here we also observe a prevalence of skilled migrant women over men. In total, 11 countries out of 20 show the prevalence of skilled women over men among the migrants (Dumont et al., 2007).

When looking at women, we see that 30.5% of foreign-born women were highly skilled in Germany, compared with 46% of German-born women in 2004. Compared with data from other EU countries—excluding Hungary and Ireland, where there are more foreign-born highly-skilled women than native-born highly-skilled women—Germany is the second country, after Greece, showing the largest gap: 15.5%. Among well-educated migrants, there are more women than men on the secondary, vocational, and Bachelor's degree levels, while there are more men than women on Master's degree and PhD levels (Kofman, 2012).

### **1.2 Gender repartition of highly-educated Polish female migrants**

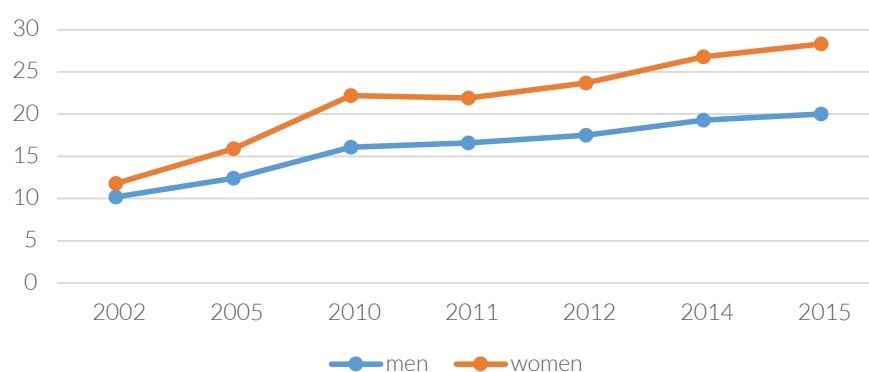
Data shows that the number of Polish students in Germany is growing. At the beginning of the 2010s, the majority of students were female, and this proportion is increasing. Hence, it provides the possibility of an increasing population of Polish female migrants if these students decide to remain in Germany after completing their studies (Franzke, 2014). It has been shown that Poles who graduated in Germany have better chances of finding a highly-qualified job than highly-educated migrants who arrive in Germany after their studies, which can be a pull factor for Polish women living in their home country and thinking about emigrating. This means that female brain drain could experience a new boost in the coming years.

We saw in the previous chapters that among migrants from Poland, we see a higher prevalence of men than women. However, the figures show otherwise among highly-skilled Polish migrants, where the share of women prevail over the share of men. In the 1980s, 15% of all Polish migrants had a university degree. During that decade, 25% of the staff of scientific institutions emigrated abroad, among which 52% were women, which shows a disproportional female brain drain during that decade (Franzke, 2014). Since then, the number of Polish women graduating from tertiary education continued to grow, eventually surpassing that of men, and justifying the issue of female brain drain.

Table 16 below shows the development (in percentage) of tertiary-educated Poles since 2002. We can observe that the number of tertiary-educated women is constantly growing, unlike that of men, and that the gender gap in this regard is deepening. Table 16,

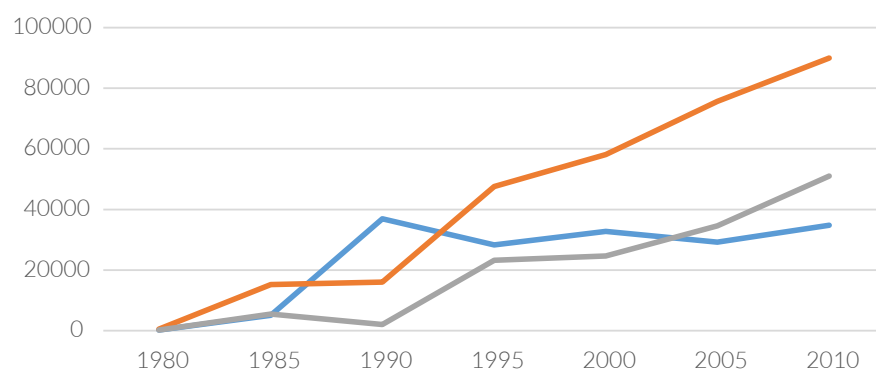
although based on national data, reflects the situation of the migrants in other countries (in the UK, Germany, and France): skilled women outnumber skilled men among migrant populations (Kofman, 2012).

**Table 16. Tertiary-educated Poles according to gender, 2002–2015 (in %)**



Source: Own elaboration based on data from the Polish National Statistics Office, 2016a.

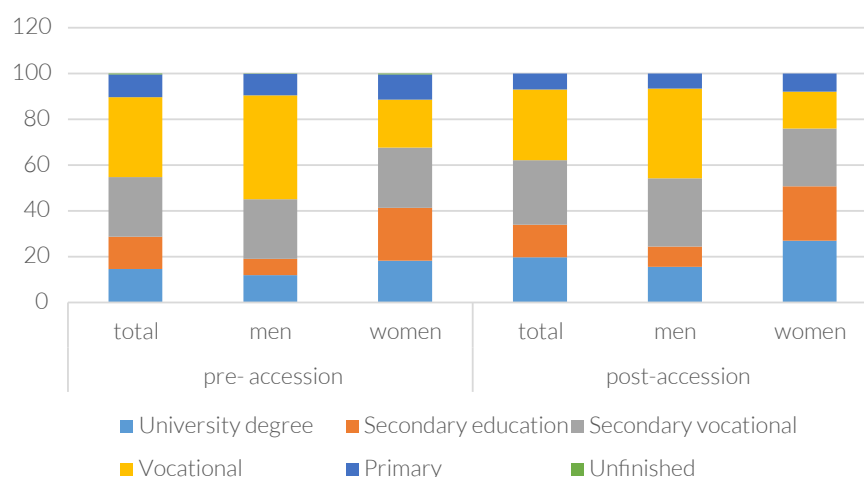
Table 17 below shows the development in the number of low-skilled, medium-skilled, and highly-skilled Polish female migrants in Germany between 1980 and 2010. As shown before and as seen in the literature, the graph shows that the proportion of low-skilled women reached a peak in 1990 and has constantly decreased since then. We can also see that the number of medium-skilled women is growing the most constantly and rapidly since 1980 (except in 1990, when the migration of skilled people was lower) due to an increase in the migration of low-skilled women. Lastly, the total number of highly-skilled women surpassed the number of low-skilled women in 2005.

**Table 17. Evolution of the skill level of Polish women in Germany, 1980–2010**

Source: Own elaboration based on data from the Polish National Statistics Office, 2013

Data shows that in the global ranking of countries of origins of highly-skilled migrants, Poland is seventh out of 11 countries, while Germany is fourth (after the Philippines, the UK, and the former Soviet Union) (Kofman, 2012).

Table 18 below provides an overview of the gender repartition of Polish emigrants according to gender and skill level by pre- or post-accession period. First, we can see that more Polish women migrants have a university degree and secondary education than men, and this is the case in both periods, although the figures are higher in the post-accession period for those with a university degree. Second, we can see that among men, a higher proportion of migrants have a vocational degree, in both periods, but with decreased numbers in the post-accession period. Lastly, we can see that the overall proportion of migrants who hold a university degree is higher in the post-accession period, confirming what was stated at the end of Chapter 2, and confirming female brain drain among Polish women.

**Table 18. Skill level of Polish migrants according to gender and pre- or post-accession period**

Source: Own elaboration based on the Polish National Statistics Office, 2013 (data from 2006)

## 2. Issues related to female brain drain

### 2.1 Gaps in academic literature

Comprehensive studies about female migration, and studies about the specific case of female brain drain are scarce. To our best knowledge, few studies make use of gender-segregated data, and few qualitative studies on the challenges met by Polish women abroad have been pursued.

Many modern studies have focused on skilled women who, when emigrating abroad, enter low-skilled professions predominantly occupied by the female workforce, such as domestic work, care work, or sex work. However, other gender-specific issues related to brain drain need to be examined, such as gender pay gaps among highly-skilled female migrants, the double discrimination of gender and nationality in the labour market, deskilling, and brain waste, as well as access to childcare facilities for migrant women who are professionally active. However, these aspects are not well developed in the literature and there is a significant lack of qualitative and quantitative data on these aspects of the issue.

## **2.2 Brain drain and gender equality**

Many studies (Dollar & Gatti, 1999; Klasen, 2000) have revealed that gender inequalities hamper economic growth, and that, inversely, gender equality as well as a high participation rate of women in the labour market are conducive for economic development. The World Economic Forum has demonstrated the relationship between GDP per capita and the Global Gender Gap Index, showing links between human development, the gender gap, and global competitiveness, identifying a correlation between the three indicators, and demonstrating that women's empowerment and the reduction of gender inequality enhances economic growth (World Economic Forum, 2016). The flight of female human capital is linked with several push factors (see Chapter 2) and it is necessary to wonder whether gender inequality or gender discrimination could be one (Naghsh Nejad & Young, 2014).

The issue of female migration is closely linked to that of female brain drain, and we find similar issues in the phenomena of female brain drain and female migration, such as discrimination in the labour market, deskilling, gender pay gaps, and unemployment due to the lack of available childcare and the lack of gender-oriented labour policies focused on female migrants.

Examining gender equality in the Polish labour market provides mixed results: while the gender pay gap (GPG) is among the lowest in the EU (an explained GPG of 7.7%, as compared to an EU average of 15.7%, and an unexplained GPG of 9.2%), poor reproductive health and rights' policies, the lack of childcare facilities and long-term care infrastructures, as well as low-developed work arrangements leads to the low participation rate of Polish women in the labour market and a lack of access to managerial positions. These issues can be considered as a push factor for highly-educated women to move abroad as long as the level of gender equality is higher in the receiving country. Therefore, we can assume that improvement of gender equality in Poland would prevent female brain drain. Indeed, gender equality in the labour market has been demonstrated by studies on a global scale to boost economic growth by enabling more women to enter the workforce and contribute to economic growth (World Economic Forum, 2016).

Women who are wives and mothers and who leave their families to migrate abroad for labour purposes are seen as the breadwinners, while the husbands who stayed with the children in the home country are seen as the ones who care for them. However, women migrants are also seen as being responsible for weakening family ties and "abandoning" their families, while men who leave their families to earn money abroad are stereotypically seen as "heroes". The reversal of gender roles is a phenomenon that is not well considered in society and leads to a poor representation of women migrants, especially mothers (Cieślińska, 2012).

It has been observed that the social and economic inequalities that existed before emigration do not disappear with migration: gender inequality and social inequalities related to social status are reproduced and worsened by migration. Thus, women migrants are even more affected by economic and social inequalities than native-born women, as their particular vulnerabilities are not only related to the labour market but also to the society of the receiving country (i.e. due to a lack of knowledge about the receiving country's legal aspects on the labour market or a lack of knowledge about access to social security).

Solutions have been proposed to lower the negative effects of migration on women: cooperation between transnational support groups, women's organisations, and migrants' organisations (Walczak, 2010). We need to add as a recommendation strong awareness raising among public authorities and policymakers from sending and receiving countries about tackling the push factors and improving the pull factors specific to women. This awareness raising would enable their thorough engagement towards addressing the issues related to female migration and female brain drain.

### **2.3 Female brain drain in the academic sector**

Traditionally, skilled female migrants fill positions in fields such as education and health, while skilled male migrants work in fields such engineering, construction, and IT, which is also a reflection of the situation in many countries where certain fields are male-dominated and others are female-dominated (European Commission, 2009).

In the EU, 26% of academic staff are women. In some countries with higher proportions of women in academia, we notice the prevalence of women in junior positions and few women professors. In Poland for the academic year 2006-2007, 52% of the academic assistants were women, lecturers encompassed 55% of women, adjuncts, 41% of women, and among the professors, 22% were women (GUS, Polish National Statistics Office, 2007). In Germany in 2015, the share of women professors was 39% (see Table 16), whereas 45% of all PhD students were women. As far as salaries are concerned, the wage difference between female and male academics is similar to the EU average, where women earn about 25% to 30% less than their male counterparts, with lower wage gaps observed in Scandinavian countries. These differences are related to the fact that women are still the ones who bear the responsibilities of motherhood (Grigolo et al., 2009) and that co-parenting is a relatively rare phenomenon.



### **3. Causes and consequences of female brain drain**

#### **3.1 Non-professional reasons for female brain drain**

Some studies have analysed the motives for educated Polish women to emigrate to another country. The reasons for migration are many and constitute gender-specific push factors: difficulties to adapt to changes that resulting from political and economic transformation, better career opportunities abroad, escaping socio-economic problems in the home country, such as unemployment or gender inequality, or following a migrating husband (Kicingier & Weiner, 2007). Among highly-educated women, the push factors are related to unsatisfactory living and working conditions, notably wages.

Another issue that is worth analysing is that of skilled female migrants who emigrate for personal reasons, such as marriage, family reunification, or accompanying their husbands who emigrated for work. These women are categorised as migrating for personal reasons and their skills or the fact that they are highly educated are not the angle that is paid attention to (Kofman, 2012). In a study conducted in Germany on mixed marriages, where Polish women married German men, we observe that it was a personal, and not an economic factor, that was the main reason for Polish women to leave their country (Jaroszevska, 2003). The small amount of qualitative information available about the living and working conditions of these women prevents us from analysing their work experiences or their career strategies, and thus the issues of brain drain that they might experience. Consequently, this aspect of the issue would be an extremely relevant topic and subject for data collection and qualitative research.

#### **3.2 Brain waste and deskilling**

##### **3.2.1 Characteristics and manifestations of brain waste**

We observe that for the same level of skills, the level of wages and social status of migrants is lower than that of natives. This shows that either the migrants have insufficient language skills, or that the migrants professional skills often have a low level of transferability between countries, which means that the human capital and education acquired in their home countries are less valued in the receiving countries. In Germany, recent studies have shown large wage gaps between natives and immigrants who obtained education abroad, confirming the phenomenon of brain waste among migrants from Eastern Europe (Garcia Pires, 2015). However, even though we know of the existence of the brain waste issue in Germany, almost no data is available in this area of research, and the figures concerning the number of migrants affected by brain waste are thus quite unknown in the issue of brain drain from Poland to Germany.

Brain waste and deskilling are experienced by highly-skilled migrants for two reasons: the first is that their qualifications might not be recognised in the labour market of the receiving country, and the second is related to the fact that unemployment and difficulties finding a job – abroad or in the home country – can lead migrants to accept the first available job offering a stable income, regardless of their own qualifications and skills. The risk of this decision is that after starting the new job, it is difficult to find another job because of a lack of time or motivation, but also because there are noticeable difficulties among job seekers to find a job corresponding to their qualifications if another, lower-skilled job has been undertaken in the meantime. Indeed, workers are likely to lose experience and skills in their area of specialisation, which might harm their future career prospects.

Brain waste and deskilling are related to the difficulties migrants face in order to find employment suitable to their skills. One explanation of deskilling among Polish migrants is the fact that, as we have mentioned in Chapter 1, they often are temporary migrants and thus have less time to learn the language, settle, make contacts with natives, integrate within networks that might be helpful when looking for a job, and integrate into the society of the receiving country. Some (Galgóczi et al., 2012) argue that the difference between the recent generations of migrants and those that emigrated in the 1990s are more related to the fact that the former are more attracted by higher wages, and that the latter were more focused on fleeing a country in economic ruins with little employment prospects. Comparing the youth unemployment rate in Poland (20.8%) and Germany (7.2%), the former might be indeed a cause for this situation, at least for young migrants.

Figures show that a little over half of the Polish migrants working in the field of academics and research have the opportunity to continue working in a scientific field after emigrating, which means that the other half either needed to change sectors, or was affected by deskilling and brain waste. Here again, we cannot formulate a hypothesis supported by data as there is a lack of data in the context of deskilling and brain waste. Some (Kaczmarczyk, 2010) argue that the likelihood of deskilling for highly-skilled Polish migrants is not negative as the migrants who worked abroad – even if not in their sector – earn money and have better living standards than what they had while working in Poland, and the money earned abroad allows them a higher standard of living if they choose to re-migrate.

### **3.2.2 Brain waste: a gender issue?**

When highly-skilled female migrants are confronted with deskilling and brain waste, then working in a job requiring a lower skill level than one corresponding to their skills could mean a possible loss of social and professional status. We can wonder whether female migrants are more affected by the phenomenon, which might manifest in two ways: either it means working below their qualifications, or it means working in another field than the

one in which the person is skilled. In Germany, about 10% of German women were over-qualified for their jobs, compared with 23.6% of migrant women. This gap of 13.7% is similar to the gap we observe among 11 other European countries (13.6%). The largest gaps are found in Greece (44.4%) and Italy (23.2%), and the lowest in Switzerland (2.1%), Hungary (3.2%), and France (4.6%) (Kofman, 2012).

The main reasons for deskilling are related to the lack of recognition of diplomas (before 2004, since the Bologna system harmonised all degree levels), the lack of access to information about employment and a lack of support for newly arrived migrants, the lack of access and affordability as well as time to take language courses, and to stereotypes: migrants, whatever their qualifications, are often the victims of stereotypes about their country of origin. These above-mentioned causes of brain waste among migrants are common to both men and women, but one gender-specific cause must be mentioned: childcare responsibilities, which prevent women from working full-time and/or in high-responsibility professions and which are a significant factor for brain waste for women (Kofman, 2012).

While some migrants succeeded in obtaining a job in their field, some did not, and the gender difference shows higher difficulties for women to work in the same sector as before emigrating: in the 2010s, 70.5% of women worked in their field compared with 81.5% of men (Kofman, 2012). This allows us to assume that more women than men are likely to be affected by brain waste and deskilling, thus making these phenomena a gender issue.

### **3.2.3 Consequences of brain waste**

The consequences of brain waste might be seen as negative for the sending country, the receiving country, and the migrants. For the sending country, the migration of skilled workers implies brain drain, and thus a loss of human capital. This might lead to significant negative outcomes when migrants affected by deskilling return to their home country: their skill level is lower than what they had before leaving because they worked in jobs below their qualifications. Therefore, it is likely that their contribution to the economy would be lower than before they migrated abroad. In the receiving country, as the human capital of migrants is not fully used, inefficiencies arise. Instead of brain gain and the potential for economic growth which comes as a consequence, the receiving country's economy is negatively affected by brain waste.

For migrants, as brain waste lowers the levels of qualification of migrants, it also lowers the levels of human capital and possibly affects migrants' self-confidence. This could lead to social isolation and possibly amplify the existing negative stereotypes about migrants held by the population of the receiving country and increase discrimination. Moreover,

brain waste when related to informal work, can endanger the migrants' safety as they lack legal protection, unemployment benefits, or health coverage (Hardy, 2010).

#### **3.2.4 Policy recommendations against brain waste**

The phenomenon of brain waste has been noticed by policymakers and has been the subject of policy initiatives from both the sending and receiving countries of migrants, which notably aimed at encouraging employers to accept professionals with unfamiliar qualifications or work experience that has not been gained locally (Sumption, 2013). Moreover, some sending countries have been working on improving their education systems in order to allow the international transferability of skills: in order to prevent brain drain, receiving countries invest in the evaluation of foreign education systems in order to allow the better transferability of the migrants' qualifications obtained abroad (Garcia Pires, 2015).

To avoid a mismatch between the qualifications of migrants and the availability of jobs in the receiving country, there is a need for a harmonisation of educational systems, the recognition of diplomas (even though this is not an issue between Poland and Germany), and for migrants to learn the language of the receiving country. It has been shown (Galgóczy et al., 2012), that learning the receiving country's language is the key to avoid deskilling: figures from the UK showed that about 30% of the migrants from the EU-8 who did not speak the language had difficulties in finding or keeping employment.

Hence the need for educated women and men to prepare for their emigration: learning the language, establishing contacts through networking with people in the same sector or through networks of professionals and expats in the receiving country, and looking for work equivalent to the skill level of the migrant before migrating are solutions to avoid brain waste after immigration (Franzke, 2014).

# Chapter 4:

## The aftermath of brain drain: Brain gain and re-migration

### 1. Socio-economic impact of brain drain in Poland and Germany

#### 1.1 Population loss

Poland's accession to the EU and the migration flows that occurred following the opening of borders for the EU-8 had consequences for the Polish population: Poland saw 0.5% of its domestic population move abroad between 2004 and 2008. Despite the fact that migration leads to lower unemployment in the home country, the loss of population related to migration and brain drain can also have negative consequences for the home country, not only as far as the loss of educated individuals is concerned, but also in terms of the loss of workforce in a broader sense. In the context of loss of educated populations in the sending country resulting from brain drain, Poland experienced population loss mainly among men with secondary educations and among women with tertiary educations (Okólski & Anacka, 2010).

The Polish regions which have suffered the most from population loss (all social and age groups, skill levels, and destination countries) due to labour migration are Subcarpathia (7.2%) and the Holy Cross (Świętokrzyskie) (6%), with larger losses among men than among women, and mainly in the rural areas of these regions. Lublin and Podlaskie also suffered from population losses due to migration, with higher losses among urban men for Podlaskie and among rural women for Lublin. As far as the region of the capital is concerned, Warsaw is one of the regions which is least affected by emigration as the region offers many employment opportunities and holds a major position in politics and culture, which prevents the population from emigrating (Okólski & Anacka, 2010).

In Germany, emigration flows are seen as a marginal phenomenon in the country, therefore, population loss due to emigration is not considered as a significant issue. Even though we observe a loss of the educated population related to brain drain in some sectors (see Chapter 2), brain gain compensates for this phenomenon in Germany, unlike in Poland where brain gain is almost non-existent.

## **1.2 Skill shortages and skills mismatch**

The Wilfried Martens Centre for European Studies defines skills mismatch as being “the gap between an individual’s job skills and the demands of the job market”. By contrast, skill shortage is the lack of jobs for skilled workers or the lack of skilled workers for a given job position (Wilfried Martens Centre, 2016).

In Poland, the transformation period led to changes in the labour market: some industries collapsed, while others were created and developed over time due to technological progress, which led to changes in the structure of employment. While unemployment grew in declining sectors, employment rose in developing sectors and new industries that demanded different skillsets, thus generating skills and jobs mismatches and triggering labour migration among people experiencing skill mismatches and shortages. In a given country, policies aiming at eliminating skills and jobs mismatches can be implemented only when the labour market is flexible, with flexible wages, flexible prices, and the mobility of labour, making it easier for individuals to assess the scarcity of certain skills and jobs, thus providing information to the labour force on how to react to changes in the labour market. In Poland, difficulties ensuring this flexibility had the consequence of generating skill shortages in some sectors of the economy and surpluses in others, as well as generating regional disparities, as particular branches of the economy were located in specific regions, such as the shipping industry in the north or agriculture in the east (Grabowska-Lusińska, 2010). These changes could be observed in 1990: in the Katowice and Kraków regions, there were 2,000 job offers for one job seeker due to the high performance of the mining sector, while in the Ciechanów, Kalisk, Łomża, and Rzeszów regions, there were only one or two offers (Zjawiona, 2004). The phenomenon of skills mismatch in certain sectors of the economy served as a push factor in certain regions of the country, triggering the emigration of educated people.

Before 1989, the allocation of workers to specific industries was done according to the economic plan. Therefore, skills mismatch was larger during communist times than in market economies due to the lack of information that a price system ensures (Tronoski, 1992). However, despite flexible wages and prices after 1989, skills mismatches were large when considering gender discrepancies or when looking at the highly educated and the low educated (more jobs were available for low-educated workers than for highly-educated job seekers, which was the other way around in Germany), as well as age groups, since young people under the age of 25 were the most affected by unemployment. The latter was caused by the low competitiveness of Polish companies on the world market, low and old capital stock, obsolete production procedures, and the overall restructuring of the economy.

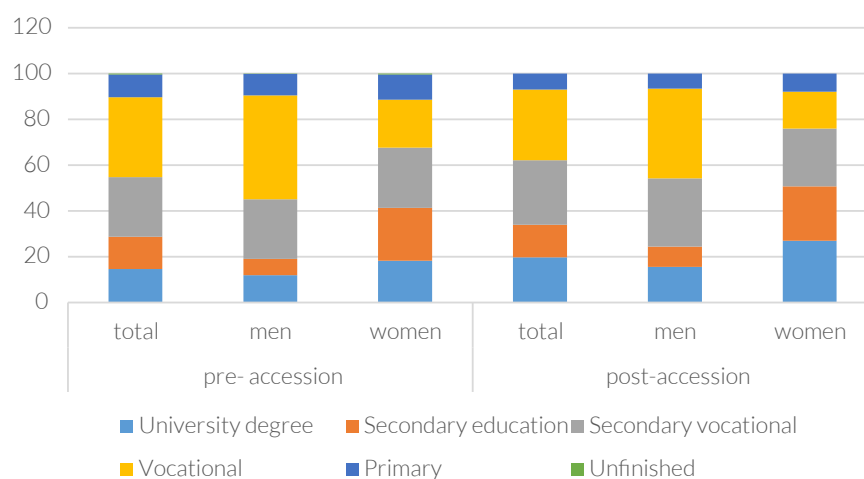
In the 1990s, vocational trainings were implemented to fill skill shortages. In the mid-1990s, 8.5% of employers reported skill shortages, while this figure increased to 14% in 2005. This can be interpreted in three ways: either the transformations in the labour

market as well as its liberalisation needed to be handled differently—towards more flexibility; the process of increasing capital stock, rearranging production processes, and finding new customers took time; or the increase in skills mismatch is the result of labour emigration: migration flows following Poland's accession to the EU were very significant and might have led to an increase in skill shortages.

Fields of activity such as furniture production, forestry, electronics, construction, or the automobile industry were the most affected by skill shortages after 2004. Skill shortages have the effect of creating divergence in the labour market, as the lack of professionals in a given sector leads to less production, less economic growth, less income taxes paid by taxpayers, and less investment in infrastructure and education, among others. Skill shortages also lead to the slow adaptation to global markets, the underdevelopment of infrastructure, and the underutilisation of human capital, thus creating development differences between countries. The migration of workers can have the effect of lowering unemployment between countries, and—if happening on a wide scale without compensation from immigration flows—of creating brain drain among highly-educated professionals who cannot find a job in their home country but do find one matching their skills abroad (Grabowska-Lusińska, 2010).

In 2016, skills mismatch and skill shortages were still an issue: a report from the ManpowerGroup showed that 45% of employers cannot find employees with matching skills and competencies in Poland. The professional groups lacking the most labour force were qualified workers (welders, locksmiths, and mechanics, among others), engineers, production operators, sales managers, drivers, IT specialists, and project managers. These shortages were due to the fact that candidates lacked technical skills.

On a global scale, the above-mentioned report states that 40% of employers point out skill shortages as reason for difficulties in finding adequate employees in 2016 and, over time, we observed a constant increase in these numbers. Table 19 below illustrates the development of skill shortages in Poland, Germany, and on a global scale. In Poland, the figures are higher than the global average after having experienced a decrease between 2010 and 2013. For Germany, the figures are higher than those for Poland and the global average since 2013, and have shown consistent growth after experiencing decreases in 2007 and 2010.

**Table 19. Skill shortages in Poland, Germany, and worldwide, 2006–2016**

*Source:* Own elaboration based on data from the ManpowerGroup Talent Shortage Surveys 2009, 2010, 2011, 2012, 2013, 2014, 2015 and 2016

Observing these numbers, we can consider the causes for this increase on the global level and, especially, whether labour migration played a role in the generation or attenuation of skill shortages in the Polish and German labour markets. We can see for Germany that skill shortages decreased in 2007, which might correspond to the peak of Polish emigration in the years following its EU accession, thus bringing labour force to the country in the sectors that were threatened by skill shortages.

There are solutions to prevent skill shortages and mismatches in the labour market: implement activation policies, notably among older people; establish activation and training programmes among the unemployed; guide young people through educational paths that are in line with the skill shortages in the labour market; increase the attractiveness of the professions in which shortages are observed; stimulate geographical mobility at the national level; and attract migrants through recruiting skilled professionals abroad. Brain gain caused by immigration can address the issue of skill shortages and mismatches in the receiving country's labour market (European Parliament, 2015).



## **2. Brain gain**

### **2.1 Brain gain and brain overflow**

The phenomenon of brain overflow, which describes the oversupply of the highly educated and highly skilled in sending countries and thus limits the effects of brain drain, has been a subject of research in Poland (Fihel et al., 2007). The country experienced high rates of unemployment between 2000 and 2007 among its medium- and highly-educated population, showing difficulties in absorbing this group into the labour market. This situation can be explained either by a surplus of educated workers due to the increased investment in human capital, thus creating brain overflow, or by a lack of adequate job positions in the labour market, thus leading to skill mismatches. The emigration waves in the decade following Poland's accession to the EU partly contributed to solving the issue of unemployment, as the emigration of educated people reduces the difficulties in the labour market met in their home country, assuming that they will not experience unemployment or brain waste in the receiving country.

Brain gain is the phenomenon involving the filling of available job positions in the labour market by skilled foreign workers, but it also entails the addition of the skills and competencies migrants bring with them when they return to their home country after working abroad. The extent of the phenomenon of brain gain through the migration of highly-skilled Poles and Germans and the gain in human capital brought by Polish migrants after re-migration has rarely been studied by scholars, at least not in the context of Polish-German migration. However, we can assume that the existence of brain drain in Poland brought brain gain in Germany, and that the absence of brain drain in Germany led to the absence of brain gain in Poland.

### **2.2 Brain gain in Germany**

After 2010, Germany experienced an economic boom which led to the fall of its unemployment rate to 6%, its lowest rate in decades. Germany also had the highest number of job vacancies in the EU, thus attracting migrant workers. The negative demographic outlook of the country due to low fertility rates and an ageing population contributed to leading German authorities and employers to seek skilled labour from abroad (Schellinger, 2015).

The country implemented a few programmes aiming at attracting foreign skilled workers, for example, in Spain, through the diffusion of information campaigns, partnerships with German companies, language courses, relocation support, and assistance in successful integration. Other programmes involved the creation of welcome centres (e.g. the Job of my Life programme), online information portals (e.g. Make it in Germany), or provide

funding for apprentices in order to tackle the barriers to mobility (e.g. MobiPro-EU) (Barslund & Busse, 2014).

German political parties have different approaches towards the immigration of highly-skilled migrants. While the SPD and the CDU parties focus on high-skilled migration and its positive impact on skilled labour shortages, the Greens prefer to focus on immigration in general and its added value in the labour market. Both the AfD and FDP parties consider highly-skilled immigration as indispensable given the needs brought by an ageing population (Schellinger, 2015). As a result of these policies and approaches, the intra-EU immigration flows to Germany doubled between 2007 and 2013 with a sharp increase of immigrants from Southern and Eastern Europe (Schellinger, 2015).

Brain gain in Germany can be particularly noticed among medical professions, notably doctors: the number of foreign doctors from EU countries practicing in Germany doubled between 2005 and 2015, and the number of non-German doctors in Germany is higher than the number of German doctors emigrating abroad since 2011 (Schellinger, 2015), confirming the absence of brain drain in the country and the presence of brain gain.

### **3. Return migration and re-migration**

#### **3.1 Return migration in Poland**

With migration flows from Germany to Poland being low, we focus this part of our study on the return migration—or re-migration—of Polish emigrants from Germany, as the data show important points of reflection. The literature shows that two flows of return migration have been observed since 1989: the first in the 1990s, corresponding to the opportunities offered by the breakdown of the communist regime in Poland, and the second in years 2008–2009, in response to the difficulties encountered in Western labour markets in the aftermath of the financial crisis and the Euro-crisis (Fihel & Górny, 2013).

The first wave of return migration encompassed mainly Polish emigrants from Germany (31% of all re-migrants) and from the USA (17% of all re-migrants), which were the two main receiving countries of Polish migrants during the 1980s and 1990s. It is to be noticed that 42% of emigrants who returned to Poland with the first wave of re-migration (1989–1990) left Poland within a year. In addition, 28% of the re-migrants who returned to Poland between 1990 and 2002 left Poland again after that year (Smoliner et al., 2011). This might indicate that there were difficulties for re-migrants to adapt to the changing society and transforming economy (Fihel & Górny, 2013), or that there were difficulties in the labour market related to high unemployment rates in Poland.

Research (Jonczy, 2003) has shown that the Polish re-migrants of the transition period who emigrated to Germany can be divided in two categories: men and individuals with children were more likely to be permanent emigrants, and women and individuals without children tended to be more temporary migrants. Many re-migrants were Poles who emigrated abroad together with their children, born abroad. As far as level of education is concerned, the 2002 census showed that among the re-migrants of the transition period, 30% possessed university degrees and 36% completed secondary education. Of the re-migrants, 43% were service workers, 18% were white collar workers, 18% were qualified workers, and 12% were unqualified blue-collar workers in the receiving country. Among the professions registered by the re-migrants, we also find teachers, managers, doctors, IT|specialists, or professionals in marketing, commerce, and finance, which shows the considerable added value in human capital brought by Polish emigrants returning to Poland (Fihel & Górny, 2013).

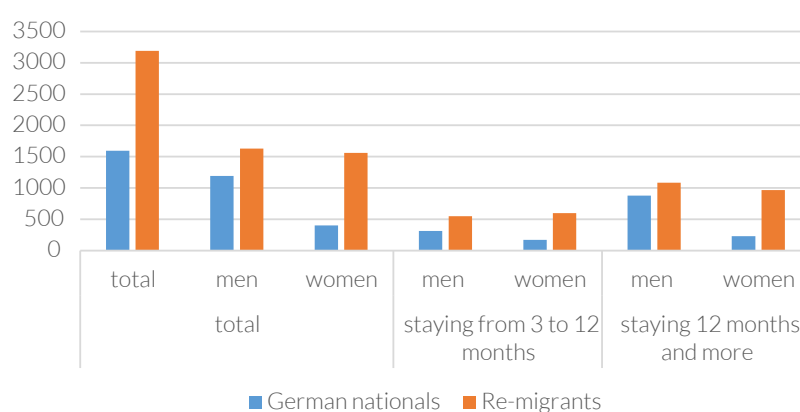
The second wave of re-migration during 2008-2009 was much larger than the previous, with about 580,000 Poles returning to their home country, as compared to about 100,000 in the early 1990s. However, the first wave of re-migration showed more diverse social groups. Research has shown that for the period 2002-2007, the predominant age group of re-migrants were young people under 29 years old. Additionally, a majority were single and tertiary educated. By contrast, for the period 2007-2012, the prevailing age group was older than the average age of re-migrants and possessed either a higher or primary education level (Fihel & Górny, 2013).

The patterns of re-migration of the second wave show gender differences: in a study conducted among re-migrants of three southern Polish voivodships, highly-educated women and young people under the age of 30 were more reluctant to return to Poland (Fihel & Górny, 2013). A survey conducted in Poland in 2008 among 338,000 Polish migrants showed that almost 50% plan on returning to their home country at one point (Brzozowski, 2008b). A 2009 survey by Iglicka revealed that the re-migrants of the second wave found it difficult to integrate into the labour market: after re-migrating, only 60% of the respondents from five cities of the survey were active in the labour market. This issue particularly affects young highly-educated people who studied and/or worked abroad, leading them to decide to emigrate again.

After returning, re-migrants indeed tend to encounter issues and difficulties in their home country, especially when they have been away for a long time. One of the main issues encountered by re-migrants is the opportunities found in the labour market of the home country. Another issue is that of social integration: an emigrant who returns to his home country might find it has changed. Hence, the implementation by public authorities of policies and programmes facilitating the re-migration process (Cieślińska, 2012).

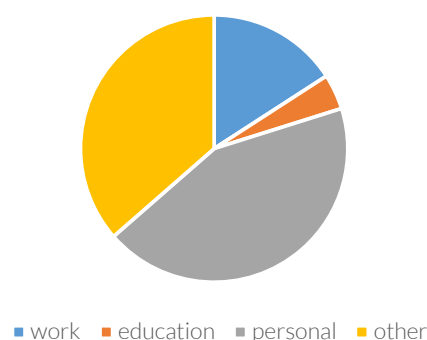
Table 20 below gives an overview of the re-migration patterns of Polish migrants returning from Germany in 2011. It shows that the largest group of migrants from Germany to Poland are re-migrants, and that there are no significant differences in the figures between men and women among re-migrants.

**Table 20. Emigrants and re-migrants from Germany to Poland**



Source: Own elaboration based on data from the Polish National Statistics Office, 2013

Unlike the previous waves of re-migration observed in the 20th century and which showed the prevalence of permanent migration, the two waves discussed above have been more temporary. When returning to Poland, re-migrants chose urban areas and big cities, and women represent the highest share of re-migrants (55%) (Fihel & Górny, 2013). Among the reasons for returning, when interviewed, many Polish re-migrants mentioned their wish to contribute to the economic, social, and political reconstruction and development of their country as a personal goal. These reasons for re-migrating show the potential of Polish re-migrants as actors of change and development and possibly brain gain for their home country. The reasons for leaving after having returned are said to be linked to their disappointment in the country's perspectives and opportunities when confronted with the reality (Smoliner, et al., 2011). Table 21 below shows the different reasons Polish re-migrants gave for returning to Poland after emigrating to Germany. With the main reason being personal reasons, the above-mentioned results seem to be confirmed.

**Table 21. Reasons for Polish re-migrants to return from Germany**

Source: Own elaboration based on data from the Polish National Statistics Office, 2013

### 3.2 Return migration in Germany

In 2008, 68% of the total number of German emigrants returned to their home country, and about 115,000 Germans returned in 2009. We can observe higher re-migration rates among Germans who were employees abroad than among the self-employed. Research shows that a majority of Germans, especially those who are highly-educated, spent between three and five years abroad before returning. The main reasons given by the re-migrants were firstly personal reasons—proximity with their families—and then job-related issues (Smoliner et al., 2011).

Other studies based on surveys have shown that the Germans who had successful experiences abroad after re-migrating often wish to emigrate again. These results must be put into context with those of the Polish migrants who re-migrated after staying abroad for a few years, as they also tended to move abroad again, but likely for different reasons (Smoliner et al., 2011).

## 4. Policy responses in favour of return migration in Poland

In reaction to brain drain and the loss of the highly-educated actors of the labour force, Poland implemented return migration programmes and policies aimed at convincing educated emigrants abroad to return home. For instance, the Foundation for Polish Science initiated return grants for researchers, as well as programmes assisting pregnant women and researchers raising children to continue their research projects (Żebrowska & Konarzewski, 2014). In Germany, the equivalent programme aimed at encouraging the re-migration of scientists is the Alexander von Humboldt Professorship.

The programme “masz plan na powrót?” (Do you have a plan to come back?) was launched among Polish emigrants in 2008 by the Ministry of Labour and Social Policy alongside the chancellery of the Prime Minister, which invested about EUR 1 million in its implementation. Its focus is to provide emigrants with the tools to enable an easy return to Poland, of which the most important was a dedicated website developed with the aim of providing comprehensive information regarding the issues surrounding re-migration. It was incorporated in 2011 as a part of the “Green Line” service, implemented by the Polish Public Employment Service as an online information centre for individuals looking for a job in Poland. The service includes the possibility to ask a question to a consultant and receive a response within 14 days. Between 2008 and 2013, 800,000 visits were recorded, with 350,000 visits alone in 2011 (Lesińska, 2013). The programme also proposed a handbook for the returnee, online employment services, as well as business and investment advice for returnees willing to start a business in Poland after their return.

Other programmes were focused on the regional level, such as “zostań w Polsce swoim szefem” (stay in Poland, become your own boss) for Mazovia, which aims, since its creation in 2010, at returnees aged 45+, mainly women, and assists them in creating their own business. The programme “Opolskie – tutaj zostaję” (Opolskie – here I stay), implemented in 2009, assisted young people looking for a job abroad in finding a job in the region so as to prevent emigration (Kaczmarczyk, 2012).

Targeting highly-skilled migrants, the programme [wracajdopolski.pl](http://wracajdopolski.pl) (comebacktopoland.pl) was implemented between 2007 and 2011 and focused on encouraging professionals from sectors such as IT, banking, or finance to return to Poland. Its aim was to address skill shortages in these sectors. Other policies have been implemented in order to ease procedures for returnees, such as the Tax Abolition Act established in 2008 aimed at avoiding double taxation, the recognition of diplomas obtained abroad, the training of professionals dealing with returnees, and easier procedures for the acquisition or restoration of Polish citizenship (Kaczmarczyk, 2012).

# Conclusion, policy recommendations, and prospects for future research

The EU – as well as Poland and Germany—face many socio-economic challenges, such as an ageing population, issues related to global competitiveness and growth, and a rapidly changing labour market. Post-accession migration is an issue which is related to these challenges, and especially the migration of highly-educated individuals, hence its importance for research and policymaking.

Our analyses of the statistical data show that a large share of today's highly-skilled migrants are women. Together with the existing literature on the incidence of the labour migration of highly-skilled women in the economy, our analyses of female brain drain confirm the importance of women's role in the labour market as well as on economic growth, productivity, and innovation. Therefore, we suggest the necessity of policies encouraging female economic activity and improving women's working conditions, as deficiencies in childcare facilities and flexibility in working hours, as well as gender discrimination, are still observed. The issue of female brain drain, with mixed consequences – negative and positive – in both the sending and receiving countries and the issues related to it, such as brain waste and deskilling, skill mismatch, and re-migration, are issues that need to be addressed through effective policymaking.

When looking at Poland and Germany, Poland is more affected by brain drain. The structural weaknesses and segmentation of the Polish labour market, insufficient competitiveness, and poor internal mobility affect the country's performance and hampers the use of human capital at the national level. The rate of female employment is low due to weak family policies and deficiencies in childcare and elderly care. Lastly, unemployment rates in some regions have significant consequences on the economic growth, competitiveness, and innovation of the country. All of the above-mentioned socio-economic issues in Poland have negative outcomes on living and working conditions, and need to be addressed in order to prevent the emergence of push factors leading to emigration and brain drain, and in order to encourage the re-migration of Polish migrants living abroad. Poland lacks assets that would contribute to its economic growth, and these assets are driven away by push factors. Recovering these assets through effective policies aimed at mitigating the push factors could have positive outcomes for the country. Germany is not

affected by brain drain in general, but is affected by it in specific sectors. However, Germany benefits from brain gain from highly-skilled Polish professionals. The country's emigration rates are lower than in Poland and the emigration of highly-skilled professionals is compensated by brain gain from other countries. Therefore, cooperation between both countries is needed today in order to allow for the successful emigration and immigration of Poles and Germans, with measures from employers to avoid deskilling and brain waste, and to allow a smooth re-migration.

The migration of women is increasing compared to that of men, and among the migrants, the figures from Germany and Poland after 2010 show a prevalence of highly-educated women over men. Female brain drain is due to push and pull factors that are somewhat similar to those of male brain drain, but there are additional gender-specific factors. These factors, which are part of gender mainstreaming policies, are mainly gender equality, childcare facilities, gender discrimination in the labour market, work-life balance, and the gender pay gap. Accessible and effective childcare facilities for working mothers, extended work-life balance policies, such as flexible working hours and the possibility to work from home, or gender equality in the labour market, in the workplace, and in working conditions when implemented in the sending country are preventing female brain drain, while their absence in the sending country or their presence in the receiving country is a push factor.

Other gender-specific issues are related to the manifestations and consequences of female brain drain for women in the labour market of the receiving country. The main issue experienced by women after emigrating abroad for professional reasons is deskilling and brain waste and double discrimination. Deskilling – or the fact that migrant women cannot find jobs corresponding to their skills and education and must settle for less – is experienced by more women than men and has negative consequences for both the sending and receiving countries as well as for the migrant, as we saw in Chapter 3. Double discrimination in the labour market is characterised by the fact that women migrants are discriminated based on their gender and on their nationality.

Both deskilling and double discrimination are experienced by female migrants and highly-skilled migrants. Thus, policy responses must be developed in the countries experiencing female brain gain and affected by female brain drain and initiatives need to be implemented before and after moving abroad in both sending and receiving countries. Before moving abroad, migrants must conduct extensive research about the receiving country's labour market, existing vacancies, and the current opportunities. They could also contact expat or female migrant networks in the receiving country, as well as start learning the country's language in order to better integrate. After moving abroad, the female migrant should benefit from the guidance and support of the migrant



organisations in the receiving country, from city migrant services, or from migrant associations, notably concerning job searching and language courses. Lastly, the role of migrant organisations should be to initiate awareness raising campaigns directed at local authorities and policymakers about the gender issues related to the phenomenon of female brain drain and female labour migration.

Our main observation while developing this report is that there is a significant lack of academic literature on the topic of female brain drain, which prevents us from answering many important questions. Comprehensive data—especially time series data, gender-specific data, and data on age and skill level—are needed in order to conduct further research for both Poland and Germany. Furthermore, we have very scarce information concerning the gender repartition of migrants and highly-skilled migrants in Germany before 2007. In Poland, even though data is comprehensive, very few datasets show gender differences. The issues related to highly-skilled individuals—female or male—are under-researched due to a lack of data. Moreover, neither Poland nor Germany offer any comprehensive data on the issue of brain waste and deskilling. No qualitative analyses of the living and working conditions of highly-skilled Polish or German women can be found, and, lastly, the issue of re-migration, even though addressed by policymakers in Poland, does not consider gender differences.

The issue of brain drain is important for research as it has been found to affect several socio-economic outcomes, notably employment, human capital, labour migration and female migration, gender equality, and international mobility. Therefore, the lack of qualitative and quantitative data in the literature could inspire future research in social sciences. Moreover, on a European scale, the policy recommendations for the issues generated by female brain drain between Poland and Germany are likely to be transferable to other countries where the issue of female brain drain is a reality – notably for Poland and the UK, as well as the border regions of many EU countries.

# List of references

## Academic authors

- Aksakal**, Mustafa and Kerstin Schmidt-Verkerk, "New Migration Trends in Germany-Characteristics, Actors and Policies", COMCAD Arbeitspapiere - Working Papers No. 128, 2014.
- Barslund**, Mikkel and Matthias Busse, "Making the Most of EU Labour Mobility, Report of a CEPS Task Force", CEPS, 2014.
- Becker**, Jorg "Erdbeerpflücker, Spargelstecher, Erntehelfer. Polnische Saisonarbeiter in Deutschland – temporäre Arbeitsmigration im neuen Europa", Bielefeld 2010.
- Beine**, Michel, Frederic Docquier, Hillel Rapoport, "Brain Drain and Human Capital Formation in Developing Countries: Winners and Losers", The Economic Journal, Vol. 118, no. 528, pp. 631–652, 2008.
- Bobeva**, Daniela, "Brain Drain from Central and Eastern Europe", European Commission, 1997.
- Bollard**, Albert et al., "Remittances and the Brain Drain Revisited: The microdata show that more educated migrants remit more", The World Bank Economic Review 25 (2009–26).
- Brücker**, Herbert et al., "Education, gender and international migration: insights from a panel-dataset 1980–2010", 2013.
- Brzozowski**, Jan, "The economic implications of brain waste for the countries of emigration: transitional countries perspective", Cracow University of Economics, 2008a.
- Brzozowski**, Jan, "Brain Drain or Brain Gain? The New Economics of Brain Drain Reconsidered", Cracow University of Economics, 2008b.
- Caritas Internationalis, "The female face of migration – advocacy and best practices for women who migrate and the families they leave behind", EMS Creative, 2012.
- Cieślińska**, Barbara, "The Experience of Labour Emigration in the Life of Married Women: The Case of Podlasie", 2012, International Migration Vol. 52, No. 1.
- Długosz**, Zbigniew and Szymon Biały, "Selected aspects of permanent emigration from Poland (2001-2010)" in Szymańska, D. and Biegańska, J. (eds), Bulletin of Geography. Socio-economic Series, No. 23, Toruń: Nicolaus Copernicus University Press, 2014, pp. 25–37.
- Docquier**, Frédéric et al., "A Gendered Assessment of the Brain Drain", The World Bank Development Research Group Trade Team, Policy Research Working Paper No. 4613, 2008.
- Docquier**, Frédéric et al., "A Gendered Assessment of Highly Skilled Emigration, Population and development review Vol. 35, issue 2, 2009.
- Docquier**, Frederic et al., "Are skilled women more migratory Than skilled men?" World Development 40, 251–265., 2012.

**Dollar**, David and Roberta Gatti, "Gender inequality, income, and growth: are good times good for women?" Policy Research Report on Gender and Development, Working Paper Series, No. 1, World Bank, 1999.

**Dumitru**, Speranta, "From "brain drain" to "care drain" : Women's labor migration and methodological sexism", Women's Studies International Forum Vol. 47 Part B, Nov-Dec 2014, pp. 203-212.

**Dumont**, Jean-Christophe et al., "Women on the Move: The Neglected Gender Dimension of the Brain Drain" IZA Discussion Papers Series No. 2920, Institute for the Study of Labor, 2007.

**Duszczyk**, Maciej and Jakub Wiśniewski, "Analiza społeczno-demograficzna migracji zarobkowej Polaków do państw EOG po 1 maja 2004 roku - Ekspertyza przygotowana na zamówienie Ministerstwa Spraw Zagranicznych, Instytut Spraw Publicznych, 2007.

**Eichhorst**, Werner and Florian Wozny, "Migration policies in Germany", Warsaw Institute of Public affairs, 2012.

**Fihel**, Agnieszka et al., "Brain drain, brain gain and brain waste" in "Labour mobility within the EU in the context of enlargement and the functioning of the transitional arrangements", Centre of Migration Research, University of Warsaw, 2007.

**Fihel**, Agnieszka and Agata Górny, "To Settle or to Leave Again? Patterns of Return Migration to Poland During the Transition Period", Central and Eastern European Migration Review Vol. 2, No. 1, June 2013, pp. 55-76.

**Franzke**, Coletta Maria, "Female migration from Poland to Germany from 1980", Tomsk Polytechnic University, 2014.

**Galgóczi**, Béla et al., "Intra-EU labour migration: flows, effects and policy response", European Trade Union Institute, Working Paper 2009/03, updated spring 2011.

**Galgóczi**, Béla et al. (eds), "EU Labour Migration in Troubled Times, Skills Mismatch, Return and Policy Responses", Ashgate, 2012.

**Garcia Pires**, Armando, "Brain drain and brain waste", Journal of Economic Development Vol. 40, No. 1, Centre for Applied Research at NHH, Norwegian School of Economics, Norway, 2015.

**Grabowska-Lusińska**, Izabela, "Skills shortage, emigration and unemployment in Poland: Causes and implications of disequilibrium in the Polish labour market", in "A Continent Moving West? EU Enlargement and Labour Migration from Central and Eastern Europe", Richard Black et al. (eds.), 2010.

**Grigolo**, Michele et al. "Shifting from academic 'brain drain' to 'brain gain' in Europe", Academic Careers Observatory, Max Weber Programme, 2009.

**Gwiazda**, Adam, "Economic emigration from Poland to western Europe", Mobility and Human Resources, Mact-Most. N.3, 1992.

- Haque**, Nadeem & Se-jik Kim, "Human Capital Flight: Impact of Migration on Income and Growth". IMF Working Paper. 94/155, p1-40., 1995.
- Hardy**, Jane, "'Brain Drain', 'Brain Gain' or 'Brain Waste': East-West Migration after Enlargement", Heinrich Boell Stiftung, 2010.
- Heimer**, Andreas & Iris Pfeiffer, "Gründe für die Auswanderung von Fach- und Führungskräften aus Wirtschaft und Wissenschaft", 2008.
- Hillmann**, Félicitas and Hedwig Rudolph, "Au-delà de la 'fuite des cerveaux': la mobilité des personnes hautement qualifiées de l'ouest vers la Pologne", in *Revue européenne des migrations internationales*, Vol. 13, No. 1, 1997, pp. 71-94.
- Iglicka**, Krystyna, "Migration movements from and into Poland in the light of the East-West European migration" ISS, Institute for Social Studies, University of Warsaw, Series: *Prace Migracyjne*, No. 33, 2000.
- Iglicka**, Krystyna, "Poland: Between Geopolitical Shifts and Emerging Migratory Patterns", ISS, Institute for Social Studies, University of Warsaw, *Prace Migracyjne*, No. 42, 2001a.
- Iglicka**, Krystyna, "Migration Movements from and into Poland in the Light of East-West European Migration", *IOM International Migration* Vol. 39, No. 1, Blackwell Publishers Ltd., 2001b.
- Ionescu**, Luiza, "Emigration from Eastern Europe with a Focus on Brain Drain", Aarhus University, 2014.
- Jaroszewska**, Emilia, "Małżeństwa polsko-niemieckie w RFN", Warszawa: Oficyna Wydawnicza Aspra JR, 2003.
- Jonczy, Romuald, "Migracje zarobkowe ludności autochtonicznej z województwa opolskiego". *Studium ekonomicznych determinant i konsekwencji*, Opole 2003.
- Kaczmarczyk**, Paweł, "Współczesne migracje zagraniczne Polaków – skala, struktura oraz potencjalne skutki dla rynku pracy", Fundacja Inicjatyw Społeczno-Ekonomicznych, Program Polsko-Amerykańskiej Fundacji Wolności, 2006.
- Kaczmarczyk**, Paweł, "Brain overflow? Post-2004 migration and the Polish labour market – impacts and future prospects", Centre of Migration Research, University of Warsaw, 2009.
- Kaczmarczyk**, Paweł, "Brains on the move? Recent migration of the highly skilled from Poland and its consequences", in "A Continent Moving West? EU Enlargement and Labour Migration from Central and Eastern Europe", Richard Black et al. (eds.), 2010.
- Kaczmarczyk**, Paweł, "Matching return migrants' competencies and labour market needs – the case of Polish returnees", Centre of Migration Research, University of Warsaw, 2012.
- Kicingier**, Anna and Agnieszka Weiner (eds.), "State of the Art of the Migration Research in Poland", CMR working papers 26/84, Centre of Migration Research, University of Warsaw, 2007.

- Klasen**, Stephan, "Does gender inequality reduce growth and development? evidence from crosscountry regressions", Policy Research Report on Gender and Development, Working Paper Series, No. 7, World Bank, 2000.
- Kofman**, Eleonore, "Gender and skilled migration in Europe", Middlesex University, Cuadernos de Relaciones Laborales, Vol. 30, No. 1, 2012, pp. 63–89.
- Krajewski-Siuda**, Krzysztof et al., "Emigration preferences and plans among medical students in Poland", Human Resources for Health, 10:8, 2012.
- Kuptsch**, Christiane, "The Economic Crisis and Labour Migration Policy in European Countries, Comparative Population Studies", Zeitschrift für Bevölkerungswissenschaft Vol. 37, No. 1–2, 2012, pp. 15–32.
- Lesińska**, Magdalena, "The Case of Poland After the EU Accession - The Dilemmas of Policy Towards Return Migration", Central and Eastern European Migration Review, Vol. 2, No. 1, June 2013, pp. 77–90.
- Lutz**, Helma, "Gender in the migratory process", Conference on Theories of Migration and Social Change, St. Ann's College, 1–3 July 2008.
- Mioduszevska, Marta, "Najnowsze migracje z Polski w świetle danych Badania Aktywności Ekonomicznej Ludności. Centre of Migration Research Working Papers. Warsaw: Warsaw University, 2008.
- Mucha**, Janusz and Kamil Łuczaj, "Polska w świecie 'krążących umysłów' – ilościowa analiza struktury zatrudnienia zagranicznych uczonych". Zagadnienia Naukoznawstwa 1 (195), 2013.
- Naghsh Nejad**, Maryam and Andrew T. Young, "Female Brain Drains and Women's Rights Gaps: A Gravity Model Analysis of Bilateral Migration Flows", IZA DP No. 8067, March 2014.
- Okólski**, Marek and Marta Anacka, "Direct demographic consequences of post-accession migration for Poland", in "A Continent Moving West? EU Enlargement and Labour Migration from Central and Eastern Europe", Richard Black et al. (eds.), 2010.
- Scharle**, Agota, "Attitudes to gender roles in the Czech Republic, Hungary and Poland", GRINCOH, Budapest Institute and Institute of Economics, HAS, P.5.9 (T8), January 2015.
- Schellinger**, Alexander (ed.) "Brain Drain – Brain Gain: European Labour Markets in Times of Crisis", a Friedrich-Ebert-Stiftung Project, 2015–2017.
- Smoliner**, Stefanie et al., "RE-Turn, Regions benefitting from returning migrants - Comparative report on remigration trends in Central Europe", European Union, 2011.
- Steinhardt**, Max Friedrich, "The Dimensions and Effects of EU Labour Migration in Germany", Helmut Schmidt University, 2013.
- Sumption**, Madeleine, "Tackling brain waste – strategies to improve the recognition of immigrants' foreign qualifications", Migration Policy Institute, 2013.
- Teney**, Céline and Pascal Siemsen, "A major intra-EU brain gain country? Overview of available statistics and the position of key actors", in Schellinger A. (ed.) "Brain Drain

– Brain Gain: European Labour Markets in Times of Crisis”, a Friedrich-Ebert-Stiftung Project 2015–2017.

**Tirapani**, Alessandro N., “Skills Mismatch – Youth attitudes on the labour market: overcoming the skills mismatch”, Think Young, 2012.

**Tronoski**, William, “Labor and the Transition to a Free Market Economy”, 1992.

**Walczak**, Bartłomiej, “Labour migration and the systems of social protection” - Country report Poland, Centre Prague, Flexi-in-Security Project, 2010.

**Wiest**, Karin et al., “Dealing with Female Brain-Drain in Rural Europe: Results from the CENTRAL EUROPE Project WOMEN”, Leibnitz Institut fuer Laenderkunde, Heft 26, 2014.

**Zaiceva**, Anzelica, “Post-enlargement emigration and new EU members’ labor markets”, IZA, 2014.

Żebrowska, Grażyna and Marek Konarzewski, “Choosing between the United States and the EU: Emigration of Polish Researchers, 1996-2012”, Science & Diplomacy, Vol. 3, No. 1, 2014.

**Zjawiona**, Ewa, “Kształtowanie się rynku pracy w Polsce przed i po przekształceniach systemowych”, Uniwersytet wrocławski, 2004.

## **International organisations, national statistics offices, European institutions, and think tanks**

**European Commission**, “Gender Segregation in the labour market”, European Commission’s Expert Group on Gender and Employment (EGGE), 2009.

**European Parliament**, “Labour market shortages in the European Union”, Policy department A: Economic and scientific policy, IP/A/EMP/ST/2013-06 March 2015 PE 542.202 EN.

German Federal Statistics Office, Statistisches Bundesamt, 2007, 2011.

**GUS**, Główny Urząd Statystyczny (Polish National Statistics Office), Concise Statistical Yearbook Of Poland 2007 and ‘Higher Schools in Academic Year of 2006/2007’.

Eurostat, EU Labour Force Survey, 2015.

**GUS**, Główny Urząd Statystyczny (Polish National Statistics Office), “Struktura wykształcenia 1.1. Wiek i płeć a poziom wykształcenia Polaków ludności Polski, 1. Struktura wykształcenia ludności Polski”, 2010.

**GUS**, Główny urząd Statystyczny (Polish National Statistics Office), “Migracje zagraniczne ludności – Narodowy spis powszechny ludności i mieszkań”, Warsaw, 2013.

**GUS**, Główny Urząd Statystyczny (Polish National Statistics Office), “Informacja o badaniu. Sytuacja na rynku pracy migrantów i ich potomków”, Warsaw, 2015.

**GUS** Główny Urząd Statystyczny (Polish National Statistics Office), "Rocznik demograficzny", Warsaw, 2016a.

**GUS**, Główny Urząd Statystyczny (Polish National Statistics Office), "Notatka informacyjna – Informacja o rozmiarach i kierunkach czasowej emigracji z Polski w latach 2004–2015", Warsaw, 2016b.

**Institut für Arbeitsmarkt - und Berufsforschung**, 2010, 2015

**International Labour Office**, "A Skilled Workforce for Strong, Sustainable and Balanced Growth - A G20 Training Strategy", International Labour Organisation, 2011.

**ManpowerGroup**, "Talent Shortage", surveys 2009, 2010, 2011, 2013, 2014, 2015, and 2016.

**OECD**, "A Profile of Immigrant Populations in the 21st Century - Data from OECD Countries", 2008.

**OECD**, "Education at a glance 2014" - Country Note Germany, 2014a.

**OECD**, "Études économiques de l'OCDE" – Pologne, Synthèse, 2014b.

**United Nations**, "Population Division", UN Department of Economic and Social Affairs, 2015.

**United Nations data**, United Nations database, 2016.

**Wilfried Martens Centre for European Studies**, (Howard, Charles and Michele Rimini) "Skills Mismatch 3 – Apprenticeship supply in the EU, youth engagement and the labour market", 2015.

**WorkService**, "Migracje Zarobkowe Polaków IV", 2016.

**The World Bank**, "Migration and remittances factbook", third edition, 2016.

**World Economic Forum**, "The Global Gender Gap Report – Insight Report", 2016.