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Veröffentlichungsversion / Published Version
Dissertation / phd thesis

Zur Verfügung gestellt in Kooperation mit / provided in cooperation with:
W. Bertelsmann Verlag

Empfohlene Zitierung / Suggested Citation:
Melzer, S. M. (2016). *Causes and consequences of the gender-specific migration from East to West Germany.* (IAB-Bibliothek (Dissertationen), 358). Bielefeld: W. Bertelsmann Verlag. https://doi.org/10.3278/300902w

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Bibliografische Information der Deutschen Nationalbibliothek

Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über http://dnb.ddb.de abrufbar.

Dissertation zur Erlangung des Doktorgrades an
der Fakultät für Soziologie der Universität Bielefeld
23. April 2013
vorgelegt von Silvia Maja Melzer
geboren am 21. Juni 1979, in Danzig (Polen)

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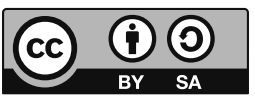
Zweitgutachter: Prof. Dr. Herbert Brücker, Otto-Friedrich-Universität Bamberg und Institut für Arbeitsmarkt- und Berufsforschung



Herausgeber der Reihe IAB-Bibliothek: Institut für Arbeitsmarkt- und Berufsforschung der Bundesagentur für Arbeit (IAB), Regensburger Straße 104, 90478 Nürnberg, Telefon (09 11) 179-0 ■ **Redaktion:** Martina Dorsch, Institut für Arbeitsmarkt- und Berufsforschung der Bundesagentur für Arbeit, 90327 Nürnberg, Telefon (09 11) 179-32 06, E-Mail: martina.dorsch@iab.de ■ **Gesamtherstellung:** W. Bertelsmann Verlag, Bielefeld (wbv.de) ■ **Rechte:** Kein Teil dieses Werkes darf ohne vorherige Genehmigung des IAB in irgendeiner Form (unter Verwendung elektronischer Systeme oder als Ausdruck, Fotokopie oder Nutzung eines anderen Vervielfältigungsverfahrens) über den persönlichen Gebrauch hinaus verarbeitet oder verbreitet werden.

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ISBN 978-3-7639-4103-2 (Print)
ISBN 978-3-7639-4104-9 (E-Book)
Best.-Nr. 300902 www.iabshop.de www.iab.de

Contents

Acknowledgement

Unquestioningly, I am tremendously indebted to my supervisors Martin Diewald and Herbert Brücker for their advice and tuition. They enabled the pursuit of my research interest, were always ready if a piece of advice was needed, and opened up the (financial) means to participate in the research community. I am also thankful to Hans-Peter Blossfeld for the possibility to attend his research colloquium and for his advice. During the time of my dissertation I was a member of the Graduate Program of the Institute of Employment Research and was partly also employed there. Later I was employed at the Collaborative Research Center 882. Both institutions provided the right environment to work on my thesis.

Some of the work was conducted during my stay at the Swedish Institute for Social Research at Stockholm University. I want to thank Michael Tåhlin for being a wonderful host and for advice he gave regarding my work. More work was carried out at the Tilburg University. I want to thank Ruud Muffels for his encouragement and for our pleasant cooperation. I really enjoyed working with you! I also want to thank other members of the SOFI and Tilburg University for the great time. There are two articles written in cooperation included in my dissertation. I want to thank Natascha Nisic and Thomas Hinz for their cooperation. I am happy to work with you!

Writing a dissertation is not possible without the help of others, who's advice and help point (more likely push or pull) you in the right direction. Many persons supported me and my work in small or large ways and I am able to mention only a few of them by name. Without their support this work could not exist and I am grateful to all of them. Sometimes the support was the right guidance at the right time, as the advice from Timo Baas on how to write an article. Sometimes it was a shared cigarette or a coffee break to calm down my nerves after an important meeting. Other help occupied more time and resources as the help from Kathi Ruppe, who not only revised a lot of my writing, but also brought me through the first year at the IAB, providing not only advice on my work, but also on life.

I am also thankful to many of the GradAB members who worked at their dissertation around the same time as I did. I learned a lot from you guys! I am thankful for your academic support. I enjoyed especially our preparation meetings before conferences. However, most grateful I am for the great time I had with you guys! After my relocation to Bielefeld I found a highly supportive environment and great new colleagues. I would especially like to thank the B3 team and Anja Abendroth, Björn Andernach, Mareike Reimann, Stephanie Pausch, and Reinhard Schunck for the possibility to work in the project, while finishing my thesis.

A lot of this thesis was in circulation in several papers, was presented at different conferences, and was discussed by several people face-to-face. There are

lot of people who read my articles. Dominik Morbitzer you read every article twice, thank you! I am also grateful to Alexia Mayermann for her extensive help with the German summary. Katja Freistein helped me in various ways with my thesis and gave me a lot of academic advice. I especially enjoyed our Sunday dinners with Tatort.

Most importantly I would like to thank my parents for their love, constant encouragement, and support. Michael, it is great to have a brother like you. Marcus, thank you for your support, I profited immensely from your relaxed way and the programs for the weekends you put together.

Chapter I

Introduction

1 Motivation

Increased migration of women has been among the major trends in international migration in the last two centuries (Castles and Miller 1993). Women comprise half of the migration flow worldwide (Dumount et al. 2007) and occasionally even outnumber migrating men (United Nations 2006), a trend that also occurs in East-West migration[1] in Germany. These trends are not necessarily new, as evidenced by the feminization of transatlantic migration in the 19th and 20th centuries (Castles and Miller 1993; Diner 1983).[2] At the same time, the migration of women is under-researched; women are perceived as following their partners and exerting limited influence on the household decision to migrate (Lutz 2010, p. 1648). Such assumptions render it unnecessary to account for women's characteristics or the systematic differences in the migration behavior of men and women. Factors that may cause differences in the migration decisions of men and women are ignored. Women's migration remains overlooked. Ignoring the differences in men's and women's migration behavior is problematic not only because half of all migrants are women and their reasons behind migration remain uninvestigated but also because the recent increase in migration flows is mainly caused by women's greater participation in migration (cf Castles and Miller 1993). Therefore, to investigate recent developments, the focus must shift to women's migration. There are several reasons why women's and especially highly qualified women's migration behavior is under-researched.

First, assumptions prevail that women migrate mostly to join their families, although researchers have long recognized that women also behave as independent economic actors (Donato 1993; Donato 1999; Hugo 1993; Pessar 1986; Pessar 1988; Zlotnik 1993). The migration of women as independent actors is understudied (Cohen 1995; see also: Kofman 1999; Zlotnik 1995). Women are rarely understood as workers who participate in the labor market because their work in the domestic services (cf Ehrenreich and Russell Hochschild 2002; Lutz 2009; Lutz 2010; Pedraza 1991; Raijman et al. 2003) is often overlooked. By ignoring women's economic participation and economic motives for migration, we fail to reflect the real-life situation that migrating women face and may reach biased and oversimplified interpretations of migration patterns.

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1 I use the term *migration* because it is commonly used in the English-speaking world in which migration is understood as relocation across and within countries. However, I also use this term to refer to the unique situation in East and West Germany and to stress that relocation between East and West Germany refers to a relocation between two regions that are now parts of the same country but that once represented two separate countries. Historical differences and similarities, economic situations, and normative aspects create a unique situation in which East-West migration cannot be understood as a simple relocation from one region of a country to another; it is also not international migration.

2 The abundant participation of women in migration was already common in the 19th century (Gabaccia 1996; Harzig 2003), when women accounted for a large share of the migration from Ireland to the US (Diner 1983).

Second, focusing on the migration of women as part of a family implicitly results in a lack of research on the migration of highly skilled women (Kofman 1998; Kofman and Raghuram 2009; Pedraza 1991), which is key because the availability of highly qualified workers is important for countries' long-term economic growth (cf Lucas 1988) and because increasingly more countries are attempting to attract highly skilled migrants. In general, migration research pays scant attention to the fact that migrant women also hold professional and managerial positions (Kofman 1999).[3] This is true even though the migration of highly skilled women combines the two most current trends in migration research: the feminization of migration and the migration of highly skilled workers (Dumont et al. 2007). Bringing women's mobility into focus should therefore widen our understanding of migration, including the "brain gain, brain drain" dimension.

Third, the main body of research seeks to explain the migration of women using qualitative studies. As Curran et al. (2006) note, by the mid-1990s the focus of migration studies shifted from research on the migration of women to research on gender and migration. Moreover, the methodological framework shifted from quantitative to qualitative research. The qualitative studies concentrate on the gender issues of migration, whereas the quantitative research generally fails to address gender differences. Quantitative research on women's migration can help to deepen our understanding of migration by accounting for factors that influence men's and women's migration decisions at the micro, macro and meso levels differently.

Finally, as Calavita (2006, p. 125) indicated, *"If there is one bias that penetrates much of [migration] literature, it is an almost singular focus on immigrants who are poor".* The migration flows that receive the most attention originate in (poor) developing countries, where the migrants aim to relocate to (wealthy) industrialized and post-industrialized countries (e.g., Durand et al. 2001; Massey and Espinosa 1997; Taylor 1987). Migration within industrialized countries receives less attention; however, the reasons for migration may differ for people who relocate from or within developing and industrialized countries. Factors such as income levels and access to jobs, which generate migration in industrialized countries, may also lead to migration in developing countries. Nevertheless, it can be expected that the manner in which these factors influence the migration decisions varies according to the degree of industrialization, the culture and the political context of the country.

3 For research on the mobility of highly qualified women, see Hugo (1993); Kofman (1998); Kofman and Raghuram (2009); Pedraza (1991).

2 Contribution

This work aims to fill at least some of the gaps in the literature focusing on the East-West migration in Germany, which represents one of the recent migration flows in which women outnumber men. This study examines the reasons behind women's higher migration rates from East to West Germany. The fact that women are more likely than men to leave East for West Germany (cf Dienel and Gerloff 2003; Gerloff 2004; for the higher migration rates among women, see also Hunt 2006; Windzio 2007) is particularly curious because their higher migration rates are not consistent with the predictions of most theoretical frameworks. Moreover, a comparison of the wage differences between East and West Germany shows that the wage gap between East and West Germany is smaller for women than for men, which suggests that men should be more likely to migrate.

This topic deserves attention because it reinforces problematic demographic developments as aging of the population. Moreover, together with other trends as lower return migration to East Germany by women or higher migration of women abroad it leads to severe demographic consequences. For example, in 2007, in nearly all regions of East Germany, there were fewer than 90 women in the age group between 21 and 25 for every 100 men. This ratio was even worse for slightly older women (see Figure 1 and cf Grünheid 2009; Kröhnert and Klingholz 2007). In the age group between 26 and 30, fewer than 86 women lived in East Germany for every 100 men.

Gender and migration

I investigate which factors at the micro, macro and meso levels may influence migration decisions and outcomes in a gender-specific manner. The main challenge of analyzing the causes and consequences of women's migration is not only that migration can be influenced in a gender-specific manner at the micro and macro levels but also that women's social networks may determine different migration decisions and outcomes for single women compared with women in partnerships. I expect that gender alone does not account for the differences between migrant men and women but that gender and partnerships interact and play a mediating role in migration. The interrelation of these two dimensions results in not only different migration patterns between men and women but also entirely different migration outcomes for single women and women in partnerships. I focus on individual migration in the first two articles and on family migration in the three last articles.

The manner in which gender influences migration creates a highly complex research scenario, placing high demands on the data and empirical methods used.

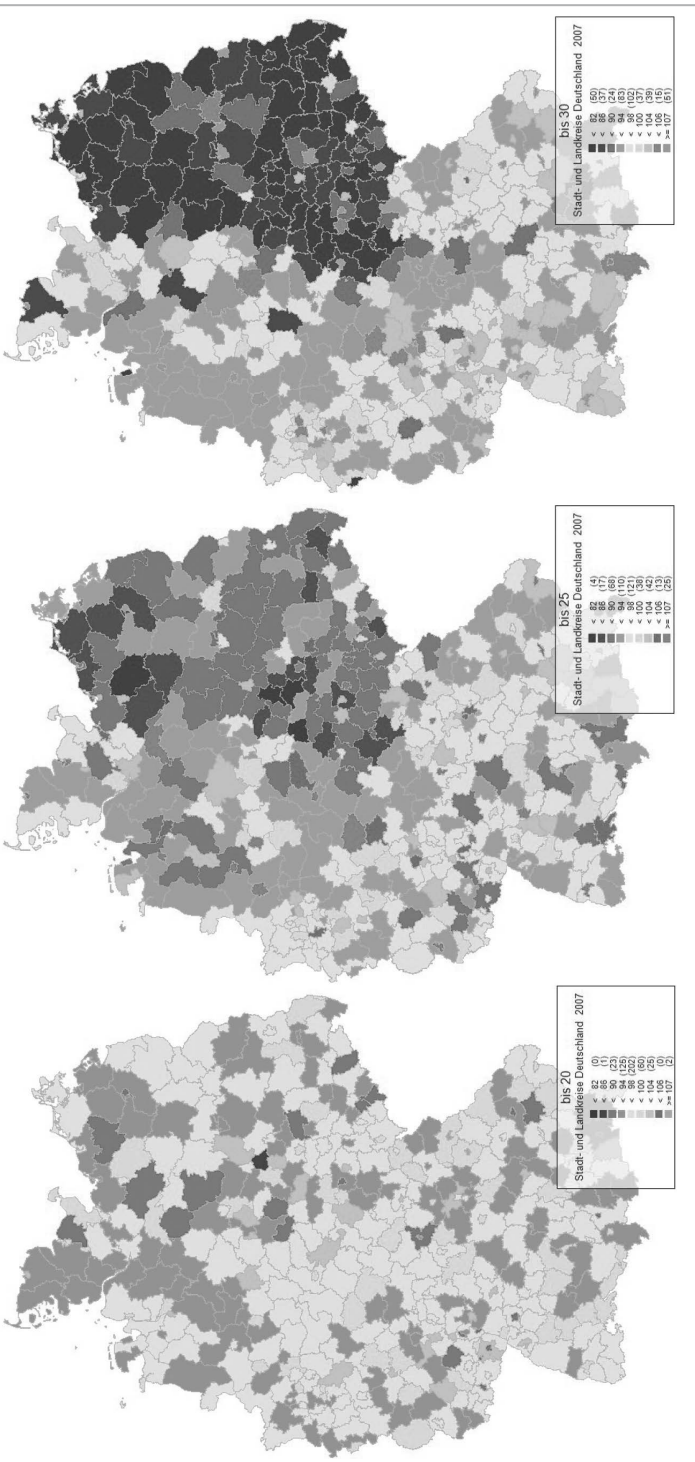


Figure 1: Ratio of women living in Germany per 100 men; the first age group is 16 to 20 years; the second 21 to 25 and the third age group is 26 to 30

Source: Statistical Federal Office Germany; data 2007; own calculations.

To account for the topic's complexity, I investigate migration from different angles (causes and consequences of migration) and examine different groups (singles and couples) while maintaining a focus on the influence of central factors such as education and qualifications. Finally, I also compare the mobility patterns of persons who relocate under different economic conditions, more precisely, people relocating from East to West Germany and within West Germany.

Gender and migration theories

This study adds to the limited theoretical discussion of women's migration by providing an overview of theoretical frameworks. The fact that women's migration can only be understood when investigated from different angles is reflected in the choices of the migration theories reviewed. First, I present an overview of the classical migration theories that are used to investigate individual migration and can also be used as a theoretical framework for the special case of East-West migration in Germany. I also provide a summary of the migration theories used to investigate family relocation. Although the role that gender plays in the decision to migrate is central to family relocation, that role is mostly neglected in migration theories that focus on individuals. Finally, I discuss briefly two theoretical ideas that are specially designed to describe the differences in migration patterns of men and women who relocate individually.

Data and methods

For the empirical investigation of the causes and consequences of migration, I use the German Socio-Economic Panel (SOEP) data that were collected by the German Institute of Economic Research (DIW) beginning in 1990. The existing research on the specific context of East-West migration in Germany was primarily conducted shortly after reunification, with the longest period investigated at the individual level spanning into the year 2001. Meanwhile, the available data since reunification cover more than 20 years and allow for more complex research questions, such as analyses of gender-specific influence of education on the decision to migrate and the application of more sophisticated research methods such as multilevel models with random (see Rabe-Hesketh and Skrodal 2012a; Rabe-Hesketh and Skrodal 2012b) or fixed effects (see Engel 1998; Snijders and Bosker 1999) or Heckman selections (see Heckman 1979; Heckman and Smith 1996).

3 Historical context East-West migration in Germany

3.1 Differences and similarities

Over 20 years ago, East and West Germany were combined to form a single country with the same institutional framework. Reunification equalized the political system in East and West Germany and other aspects of people's lives such as pensions, education, and systems of taxation.

However, East and West Germany remain divided by their historical past, their economic situation and certain cultural aspects. The Federal Republic of Germany (FRG) and the German Democratic Republic (GDR) have experienced significantly different historical pasts: the FRG was a western liberal democracy, and the GDR was a socialist Warsaw Pact country. Moreover, the economic systems in the FRG and the GDR also differed significantly, and East Germany's economy continues to lag far behind that of West Germany in terms of development.

In 1991, the gross domestic product (GDP) of the new federal states (excluding Berlin) accounted for only seven percent of the GDP of the united Germany (with East and West Berlin, eleven percent), even though the new federal states held approximately one-third of the territory and approximately one-fourth of the population. Until 2009, this GDP percentage rose by only five percentage points to a level of twelve percent (with East and West Berlin included, fifteen percent) (calculations on data of the Statistical Agency of the Federal Union and the Länder). In addition, income levels vary between East and West Germany. In 2009, the hourly wage for West German men was 20.1 Euros, whereas the hourly wages for East German men was 30.3 percent lower at 14 Euros per hour. The difference between East and West German women's incomes was only 12.9 percent; the East German women's incomes were 13.2 Euros per hour, and the incomes of West German women were 15.2 Euros per hour (Statistisches Bundesamt 2010, p. 49). Notably, the gender wage gap is higher in West Germany than in East Germany (in the East, the incomes of women are only 80 cents, or 5.7 percent, lower). In West Germany, the difference is 24.7 percent or 5 Euros (Statistisches Bundesamt 2010, p. 49). Moreover, the unemployment rates remain nearly twice as high in the East as in the West (Bundesagentur für Arbeit Statistik 2013).

The political ideology in the GDR emphasized gender equality and the labor market participation of women. In the FRG, the main breadwinner family model was common (Pfau-Effinger 1996). In the GDR, the employment of both partners was most common (Lauterbach 1994) and men and women led more similar lives in the GDR (Blossfeld et al. 1995). Currently, women in East Germany participate in the labor market more often than their West German counterparts and contribute

a greater amount to the household income. The percentage of household income contributed by women, according to various sources, is between 40 (Lemke 2002) and 43 percent (Dölling 2002). The incomes of West German women account for only 18 percent of the entire household income (Dölling 2002; Lemke 2002). Until today, East German men and women express more egalitarian gender views than West Germans (Kreyenfeld and Geisler 2006; Lück and Hofäcker 2003; Matysiak and Steinmetz 2008).

Finally, the structure of families in East and West Germany remains significantly different. In 2009, in East Germany, 40.2 percent of adults were married compared with 46.3 percent of the West German population. Moreover, in East Germany, 8 percent of couples cohabited compared with 6.2 percent in West Germany during the same year. Thus a higher share of the East Germany population lived alone. Although the current breadwinner model, encompassing traditional gender roles, is supported by the German tax system (Dingeldey 2000, p. 125), alternative living arrangements are more common in East than in West Germany. It is also notable that the differences in East and West Germany were greater in 2009 than they were in 1996, which indicates that at least in this domain, there is little harmonization.

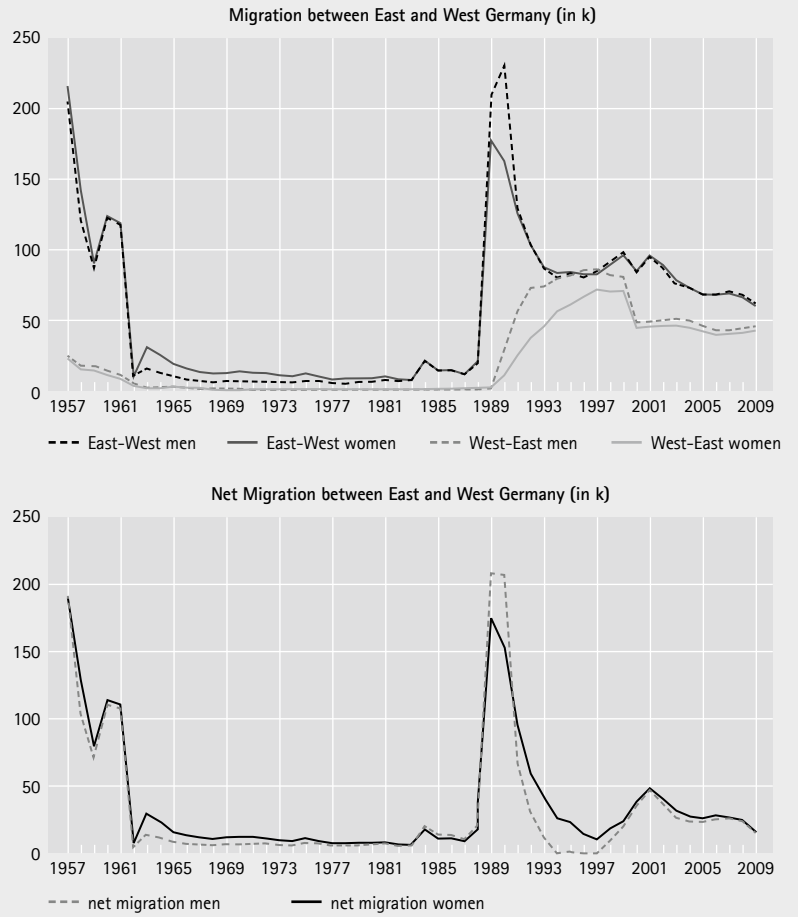
3.2 East–West migration in Germany

The East-West migration in Germany is indivisible from German reunification and the historical changes that occurred in 1989. The most prominent event was the fall of the Berlin Wall, which was visible evidence of the breakdown of the GDR and the entire Eastern Bloc as well as the end of the Cold War (Zelikow and Rice 1996). The fall of the Berlin Wall on November 9, 1989 enabled the East German population to freely and legally relocate to the FRG for the first time in 28 years. For the GDR, the fall of the Berlin Wall was only one step in the direction of reunification; that event was followed by the first free election in March 1990 and then the Unification Treaty, which accomplished the consolidation of the monetary, economic and social union of Germany in July 1990 (Bahrmann and Links 1999; Pond 1993). The final step occurred in October 1990, when the GDR and the FRG became politically unified.

For the people of East Germany, this process opened the possibility of migrating to the West and removed the restrictions on where they could live. Unsurprisingly, East Germany experienced high outmigration, with 400 thousand people migrating to West Germany in 1990 alone (Figure 2). However, the connection between migration and German reunification goes deeper. Apart from the poor economic situation in the GDR, which went hand-in-hand with the economic crisis in the

Soviet Union, the mass protests and outmigration that occurred shortly before the fall also contributed to the breakdown of the GDR. Migration to West Germany became feasible. The Hungarian government opened its borders to Austria in May 1989, disregarding the conventions of the Warschauer Pakt (Bahrmann and Links 1999; Pond 1993). By 1989, 390 thousand people had migrated to the West (Figure 2).

Figure 2 and 3: East-West migration in Germany



Source: Statistisches Bundesamt (2011) Bevölkerung und Erwerbstätigkeit. Wiesbaden: Statistisches Bundesamt, p. 53 ff.

The high migration rates in 1989 and 1990 matched the migration outflow of 1957, the highest figures of outmigration before the Berlin Wall was built. In the first two years after the fall, more men migrated to West Germany than women

(Figure 3). This picture changed after 1991, when more women migrated than men (cf also Grünheid 2009; Mai 2006; Schlömer 2004). However, beginning in 1991, the migration flows for both men and women declined steadily. In 1993, the flow of those leaving East Germany stabilized at approximately 80 thousand men and women per year. Beginning in 2003, the level dropped again by ten thousand to approximately 70 thousand. This indicates that even if the migration flows declined shortly after reunification, the eastern portion of Germany has continued to lose approximately 25 thousand men and slightly more women every year since reunification. Overall, by 1995, the East German population had declined by 7.9 percent compared with its pre-reunification levels, and by 2000, it had declined by 10.7 percent.[4] By 2008, the East German population had declined by 11.7 percent, or 1.7 million people. However, other factors also contributed to this decrease in the population, including declines in fertility and migration abroad (Statistisches Bundesamt 2010, p. 10).

The German reunification allows for the investigation of unique research questions possible and should also enable this study to improve our understanding of the East-West migration in Germany and international migration. For example, the identical political and institutional framework in combination with extensive economic differences renders comparisons of the migration patterns between East and West Germany particularly useful, primarily because reasons for migration that are connected to political or educational systems common in international migration can automatically be eliminated.

4 The structure of this work

This study begins with an overview of the theoretical frameworks that exist in the migration literature. In addition to the discussion of the most common individual-level migration theories, this overview reviews theories that describe family migration and outlines the few theoretical ideas that focus on the differences in migration behavior between single men and women. The theories are presented as theoretical concepts that can be utilized simultaneously rather than as competing frameworks (cf Massey et al. 1993).

The second section comprises the empirical contribution of this work, which is structured into five chapters, each containing one article. All of the articles focus on the causes or the consequences of East-West migration for men and women, although the articles have various emphases.

4 For the population of the GDR in 1989, please refer to the Staatliche Zentralverwaltung für Statistik (1989, p. 335). The figures presented do not include Berlin because the statistics office does not differentiate between East and West Berlin after 2000.

The first article focuses on the causes of individual migration from East to West Germany for both men and women. The purpose is to investigate the gender-specific differences in the migration process. This article focuses on the influence of education on migration and the self-selection processes involved in migration. This article is motivated by findings in recent international research that indicate that level of education influences the migration decisions of men and women differently (Dienel and Gerloff 2003; Dumount et al. 2007; Feliciano 2008; Gerloff 2004; Stecklov et al. 2010).

This article accounts for the gender-specific interplay of factors at the micro and macro levels. For example, it can be shown that education determines women's migration decisions to a greater degree than it determines men's migration decisions. Women are self-selected with regard to their education. Only women with at least an upper secondary education are able to profit from migration and are thus willing to relocate. Because the economic conditions are more favorable for men, men are able to profit from migration even if they have less education. Thus, self-selection based on education is lower for men who migrate from East to West Germany.

The second article shifts the research perspective and focuses on the consequences of migration for men and women from East to West Germany. This section focuses on the effects of migration on non-monetary factors such as subjective well-being (SWB). This article adds to the understanding the development of SWB through the process of migration. This topic has not yet been investigated using longitudinal data and information from before and after relocation. The results indicate that migrants are indeed able to improve their SWB relocating. For men, this improvement can be associated with better economic conditions in West Germany.

The third article goes beyond the investigation of the determinants of East-West migration in Germany and investigates a broader spectrum of mobility decisions of men and women. This article accounts for the complexity of mobility decisions and that commuting between East and West Germany and migration may be interrelated. Commuting may serve as an alternative or stepping stone to migration. The aim of this article is to show how the mobility choices of men and women differ, which factors have gender-specific influence on the decision to commute and to migrate and, finally, how these processes are interrelated. A question motivating this article is whether the different choices in mobility forms men and women prefer may help explain the higher migration rates found in East-West migration for women than for men.

To seriously consider the effect of marital status on the migration of men and women, researchers must not only control for the family context but also investigate the forces that drive family migration decisions as both partners' characteristics. The fourth article presented here investigates the migration patterns of men and

women who relocate with their partners, with the migration of persons who relocate alone and, thus, do not need to consider the location preferences of partners. This article adds to the literature on East-West migration in Germany by investigating the meso level and analyzing how a partner's characteristics influence men's and women's migration decisions. This article's contribution to international research is an analysis of the migration of people who have been socialized in a post-socialist country. Information on the interplay of marital status, family groupings and gender norms in determining the migration behavior of men and women and comparing individual and family migration is provided. The importance of being in a partnership for migration decisions is emphasized. Women are much more restricted in their mobility decisions due to partnership than are men. Moreover, whereas men abstain from migration because their partner's characteristics, such as high income, restrict migration, women in partnerships retreat from migration simply because of the presence of a partner, regardless of that partner's characteristics.

The last article presented here contributes to the topic of family migration by investigating both the determinants and consequences of family migration. Although family migration is a joint decision, migration may have different effects on the income and employment of men and women in partnerships. This article focuses on these differences. In addition, this article takes advantage of the fact that the situation in the labor market differs significantly in East and West Germany even though the institutional settings are identical. Merging the analyses on the causes and consequences of migration, this article combines the inconsistent results obtained at individual and family levels. Moreover, this article examines why East German women in partnerships, who appear to be more egalitarian and make greater contributions to household income, are unable to benefit from their higher education when relocating.

The work concludes by combining the results of the different articles and providing a more general overview and description of the East-West migration of women in Germany.

The results of this study may prove interesting for future research and policy makers. Politicians may be interested in the mechanisms that drive migration from East to West Germany. Moreover, information gained from research on East-West migration may enhance our understanding of other migration flows such as the relocation of people to Germany following the enlargement of the EU because data on such recent developments remain limited.

Most importantly, the investigation of women's migration should add to our understanding of the general phenomenon of migration, not only because gender is often neglected but also because gender may be a dimension that causes inequality (cf Portes 1997, p. 816).

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Chapter II

Overview of migration theories

1 Introduction

No migration theory exists that can be used generally or that provides a theoretical subordinate framework for all the different aspects of migration (Arango 2000; Bakewell 2010; Castles 2010; Molho 1986). As Massey et al. (1993, p. 432) indicate, *"[a]t present, there is no single coherent theory of international migration, only a fragmented set of theories that have developed largely in isolation from one another, sometimes but not always segmented by disciplinary boundaries"*.[1] Migration research is characterized by a variety of theories focusing on different aggregation levels (i.e., micro vs. macro levels) and describing the migration of different units (i.e., families vs. single individuals) providing various explanations for the relocations.

2 Selection of migration theories

The selection of theories presented here was driven by consideration of suitability to investigate migration from East to West Germany focusing on gender-specific differences. Because of some very fundamental characteristics of Germany and because East-West migration takes place within one industrialized country, some migration theories, such as the institutional theory of migration, are a priori not applicable. Other theoretical frameworks, such as network theory (see, e.g., Haug 2000a; Haug 2008; Massey 1990; Massey et al. 1987; Massey et al. 1993; Massey and Gracía España 1987) are not discussed, as the available data does not allow to investigate the theoretical ideas.

One of the selection rules applied to the theoretical overview is that the theoretical frameworks presented here should place individual action in their center, should provide specific selection rules for the migration, and should inform us about the reasons why individuals choose migration. Therefore, all chosen theoretical frameworks should provide us with an explanation of why individuals or families with certain characteristics migrate and why others do not. In this respect, these theories differ from macro-level theories that address aggregated movements and the influence of structural conditions such as unemployment, which simultaneously abstracts from the description of the mechanisms at the individual level (Haug 2000a, p. 32). Therefore, none of the common macro-level theories are presented here. At the same time, those selection rules may even be problematic for some of the theories presented

1 For an overview of migration theories, see, for example, Faist (2000), Gross and Lindquist (1995), Haug (2000b), Kalter (1997), Massey et al. (1993), Massey et al. (1998) and Molho (1986).

here. Both signaling and segmentation theory place the employer rather than the migrant at the center of their consideration, while the individual is only able to react, making more or less rational decision based on her understanding of the selection processes employers impose. Moreover, the gender role theory, as presented among the theories of family migration, is problematic, when the selection criteria are taken seriously. The gender role theory is based less on utility maximization than on the assumption that people act according to their socialization.

Finally, the presented theories are not limited to one discipline. Economic and sociological theories are described. As Cooke (2008, p. 258) noted when referring to the work of Halfacree (1995) concerning theories on family migration, disciplines develop theories and, thus, assumptions that are not challenged but rather taken for granted. This reduces not only the comparativeness of migration research across disciplinary boundaries but also the scientific gain from the empirical work based on those theories. Using a broader selection of theories, regardless of their originating discipline, I try to avoid any unnecessary limitation and to view the phenomenon of migration from various angles.

Flexible use of theories

As Massey et al. (1993) and others (e.g., Faist 2000; Kurekova 2009; Portes 1997) suggest, it is important to understand these theories not as competing ideas but as complementary frameworks that can be mixed together. This understanding has two implications for the development of a theoretical framework aimed at explaining a specific empirical situation. First, ideas can be summed and borrowed (Boswell 2008; Boswell and Mueser 2008). The second possible implication is that varying theoretical approaches can be applied simultaneously. To account for the specific situation an individual faces, it might be reasonable to adapt the theoretical framework to a person's living situation using different theoretical implications for singles and for married individuals.

Overall, the more flexible use of multiple theories should allow not only for a better understanding of the development of migration and the explanation of persistent and new migration trends, but it also lowers the danger of pressing the empirical findings into an unfit theoretical construct.

In the following discussion theories referring to individual and family migration, which might provide a theoretical framework for the investigation of the gender-specific East-West migration are selected.

2.1 Individual theories

The first set of theories presented below provides explanations for individual migration. In the following, neoclassical migration theory, new economics of migration, signaling, and segmentation theory are discussed.

The theories discussed in this section make no special assumptions about how the migration behavior of women differs from the migration patterns of men, and they assume that the processes are gender-neutral and that men and women behave alike. Regarding the research question this assumption is clearly a disadvantage. However, the theories bear the potential to investigate the differences of migration patterns using assumptions on differences in the characteristics of men and women and to derive in this way gender-specific hypotheses. Moreover, in Section 2.2 two theoretical ideas that try to explain individual migration of women are sketched briefly.

2.1.1 Neoclassical migration theory

Building on the connection between wage differentials and migration, which was already central in the neoclassical macroeconomics literature (Hicks 1932; Lewis 1954), neoclassical migration theory provides the first theoretical framework focusing on individual migration within a microeconomic model.

Sjaastad treats migration as an "*investment increasing the productivity of human resources*" (Sjaastad 1962, p. 83), which is analogous to investments in schooling or on-the-job training. Similar to investments in education, an investment in migration increases a person's future rates of return in the form of higher earnings. A precondition for benefiting from migration, however, is that regional or international income differences must exist. The greater these differences are, the more individuals can profit from relocation. The decision to migrate is based on a comparison of the benefits and costs of migration. Individuals compare both the monetary and non-monetary costs and benefits (Sjaastad 1962; Speare 1971). As Sjaastad explains, "*The private costs can be broken down into money and non-money costs. The former include the out-of-pocket expenses of movement, while the latter include forgone earnings and the "psychic" costs of changing one's environment*" (Sjaastad 1962, p. 83). The main contribution of Sjaastad (1962) model is the idea that individual characteristics influence the benefits and costs of migration. Characteristics such as age, education and firm-specific experience might incentivize certain groups to migrate, while creating barriers for other groups. To define this idea, Sjaastad (1962) examined the effect of age on migration behavior. Because younger people face longer employment periods at their destination, they experience greater long-term profits from

the investment in migration. Thus, younger people should be more willing to relocate. Additionally, the fact that younger individuals usually have more general human capital in relation to firm-specific human capital allows them to earn higher returns from migration. Firm-specific knowledge is obtained from the company or the job in which a person is employed and is strongly associated with seniority; therefore, it is not easily transferred, and it loses its value if the person changes employers. In contrast, people usually acquire general knowledge in educational institutions. The universal nature of this knowledge enables them to switch employers more easily, as their productivity should be comparable among different companies. Because younger individuals usually have invested less in firm-specific capital than older individuals, a young person's ratio of general-to-specific knowledge favors migration and binds them less to the current location than an older person's knowledge ratio.[2]

Neoclassical migration theory provides an intuitive and appealing explanation of the migration process (Arango 2000; Bielby and Bielby 1992). Its credibility is bolstered by its universality. In terms of Colman's (1990) boat or bathtub concept, this theoretical approach incorporates not only the individual-level conditions for migration but also accounts for the fact that individuals react to macro-level conditions such as changes in income levels.

The advantages of this theory may explain why scholars have extended it in several ways. Two extensions of the model were proposed by Chiswick (1999), who concentrated on the costs of migration to explain the selectivity of migrants more accurately. The first extension is related to the concept of efficiency. Highly educated migrants should be more capable of finding the best location to migrate to and to coping more quickly with the new situation, e.g., by finding a new job or a new accommodation. They may use better search strategies or be more familiar with modern search tools such as the internet. Their abilities, which usually help them be more productive, also make them more efficient in migration (Chiswick 1999). Highly educated individuals might also have better language skills. Because 'time is money', the higher efficiency of highly educated individuals should result in lower absolute migratory costs, which implies that more highly educated individuals will benefit from migration in situations in which less-educated individuals can no longer profit. The second extension is related to the idea that for highly educated migrants the relative migration costs are lower. More highly educated individuals face similar (or lower) absolute costs but lower relative costs than less-educated individuals because of the higher incomes the highly educated

2 There are several other reasons individuals with varying human capital or occupations are more or less likely to migrate. For example, individuals with higher general knowledge usually have lower non-monetary costs of migration because of, for example, their broader friendship networks (Brücker and Trübswetter 2007, p. 374).

already earn more in the country of origin, which allows them to spend a smaller fraction of their income on the relocation.

The larger the monetary costs of migration, the greater the differences between the migration costs of highly and less-educated individuals. As a result, the selectivity of migrants is higher when the costs of migration are higher. Because the monetary costs of migration are relatively small in the case of regional mobility, this extension of the human capital model should be less important to regional migration. However, this concept should confer higher explanatory power for international migration, where the monetary costs of migration differ considerably among countries.

Borjas (1987) extends the classic human capital approach based on the Roy (1951)[3] model. Borjas (1987) provided a model that accounts for the selectivity of migrants by considering specific income structures in the labor markets of the sending and receiving countries. Because of the variance in the income distributions, individuals with different educations might gain varying returns from migration even if relocating from the same sending country to the same receiving country. If the income gap between two countries or regions is large enough, then every group in the population should profit from migration regardless of the income distributions in the sending and receiving regions, and the selection of migrants remains low. However, the smaller the income gap becomes, the more dependent the individual gains are on the differences in the income distributions of both regions and the more important migrants' skills become. Borjas' (1987) model assumes that education is positively and similarly connected to the earnings in all countries. However, in a country with a broader income distribution, the value of an additional year spent in education is higher, and thus, the difference between the income received, for example, with upper and lower secondary degrees, is greater. When differentiating between two groups, it can be shown that highly educated individuals prefer regions with broader income distributions as they face a comparative advantage in productivity in such regions. Thus, it can be expected that if earnings in the destination are less equal people with higher educational levels will migrate.

3 Roy (1951) illustrates this point by using two occupational groups: hunters and fishers. His model shows that if the productivity levels and the incomes of two occupations differ with regard to ability, then the more-able individuals will make occupational choices different from those who are less able. The model incorporates two occupations that differ in the scope of their outcome distributions and incomes to show that more-capable individuals choose those distributions that are more unequal and therefore broader. Less-able individuals working in an occupation with a broader income distribution may suffer extremely low incomes; concurrently, individuals who are more able and work in the same occupation may earn exceptionally high incomes. Because occupations with broader income distributions are more dependent on ability, capable individuals can obtain incomes that are unattainable in occupations with narrow income distributions and are therefore attracted to those occupations. In contrast, less-able individuals are more likely to choose occupations with narrow productivity and income distributions. Individuals cannot obtain high incomes within these occupations, but they are also protected from very low outcomes because these distributions bear less risk for less-educated individuals.

Less educated migrants, in turn, favor destinations with narrow income structures. In regions or countries with more equal incomes, the penalty for the lack of education is lower because the divergence in living standards of highly and poorly educated is smaller. Therefore, if earnings in the destination country are more equal than in the country of origin, less-educated people will migrate. However, a broader income distribution in the sending country than in the receiving one does not necessarily indicate that migrants are negatively selected with regard to their skills. Just because the income distribution is unfavorable it does not mean that highly educated migrants lose all the other advantages of migrating, such as the higher generality of their human capital, their greater search efficiency or the relative advantages relating to migration costs, as neoclassical economic theory implies. More likely, the selection is less positive than it would be if the incomes were distributed differently.

Using information on the income distribution of the sending and receiving countries, Borjas' (1987) extended human capital approach can explain why the characteristics of individuals migrating between two countries with similar income gaps but different income distributions might vary considerably. This concept also suggests that the income allocation in the receiving country might not always be favorable for highly educated individuals and that, in such a case, individuals migrating might be in the group of middle- or less-qualified persons. This is the major difference between the ideas expressed in the simpler neoclassical model described by Sjaastad (1962), which always expects highly educated individuals to be more migratory in nature, and in Borjas' model. This theoretical framework provides a more flexible mechanism for analyzing migration than Sjaastad's classical model. However, despite all the positive characteristics provided by Borjas (1987), his model extension can also be criticized. Because the Roy (1951) model, which serves as the basic framework, does not include any costs, Borjas' (1987) migration model treats the costs of migration in a rudimentary fashion. Borjas only defines migration costs as a stable fraction of the incomes of the migrants' destination country, which is the same for all migrating individuals regardless of their abilities or educational levels. However, this condition is not very realistic (Chiswick 1999). Brücker and Defoort's (2009) contribution to this problem proposes an additional extension of the human capital model based on Roy (1951). The authors suggest, as in earlier work, that costs exhibit education-specific variations (Brücker and Defoort 2009; Brücker and Trübswetter 2007). Their approach is similar to the ideas expressed by Chiswick (1999) and goes back to the idea that education and migration costs are connected. However, the main difference is that Brücker and Defoort integrate this idea into a more demanding model based on Roy's (1951) and Borjas' (1987) consideration of extended human

capital. Their model accounts for the fact that the costs of migration should decline with higher education. This idea is exactly the opposite of the way Borjas (1987) treated migration costs. Brücker and Defoort (2009) propose that one reason for the declining migration costs is the broader regionally spread networks that highly educated individuals usually have. Chiswick's (1999) argument regarding the efficiency of highly educated individuals can be used here as well. Brücker and Defoort's (2009) extension implies that highly educated migrants might not only receive higher gains from migration to regions with advantageous income distributions but may also have an additional advantage as they spend a lower proportion of their incomes on the relocation.

Despite the various model extensions, which can be partly criticized by itself, some general critiques remain. The most important, perhaps, is that within the neoclassical economic framework, migration is motivated by economic considerations only (Castles 2010, p. 1573; Faist 2000, p. 36; Massey et al. 1998, p. 8). However, migration also occurs because of non-economic reasons, such as political or cultural. The focus on monetary costs and gains and the subsequent failure to include non-monetary factors constrains the adaptation of additional ideas and the development of new hypotheses (Kalter 1997, p. 51). Moreover, as was demonstrated by Massey et al. (1998) based on an overview of the empirical literature, the neoclassical theory assumes a linear connection between migration and regional wage differences (see also Kurekova 2009). It ignores market imperfections and the fact that people are usually unable to make their migration decision based on perfect information (Castles 2010, p. 1573; Kalter 1997, p. 51; Kurekova 2009; Molho 1986, p. 397). Concentrating on economic behavior, the neoclassical migration theory reduces migrants to workers (Arango 2000; Schwenken and Eberhardt 2008). Moreover, it assumes that migrants make their decisions as autonomous individuals, and it does not account for the influence of family members, friends and social networks (de Haas 2010; Massey 1990; Massey et al. 1987; Mincer 1978; Radu 2008; Stark 1991; Stark and Bloom 1985; Stark and Levhari 1982).

Despite the efforts made by Sjaastad (1962), this theoretical framework is unable to explain why so many people do not migrate even in the face of significant wage discrepancies between two countries (Arango 2000; Kalter 1997, p. 51; Kurekova 2009). Finally, the theoretical framework is unable to account for the social and historical changes influencing migration (for a discussion of this critique point see: Massey 1990).

2.1.2 New economics of migration

Together with several coauthors, Stark proposed a theoretical framework, which challenges the ways of thinking in traditional neoclassical economics

and its migration models (Arango 2000; de Haas 2010; Kurekova 2009; see also Stark and Bloom 1985). The most important feature of Stark's framework (Stark 1991; Stark 2006; Stark and Bloom 1985; Stark and Levhari 1982; Stark et al. 2009; Stark and Taylor 1989; Stark and Taylor 1991; Stark et al. 1986; Taylor 1999) is that migration is no longer the decision of an autonomous individual, a point that was criticized with regard to neoclassical economic theory (Arango 2000, p. 288; Kurekova 2009, p. 4; Massey et al. 1993, p. 436), but is rather the joint decision of a household. Even if only a single person actually migrates, families decide together on the relocation of one or more household members. The family chooses the member best suited for the migration. Stark and his coauthors do not provide a selection rule or describe the characteristics a person might have to be chosen from the family to migrate. However, it can be assumed that the ability to find work and the expected incomes are important to the decision. From a sociological point of view, cultural norms might also influence which of the household members must migrate. A possible connection with regard to gender is that different familiar expectations for men and women might determinate migration behavior (Kanaiaupuni 2000; Kandel and Massey 2002).

Contrary to neoclassical economics, in the new economics of migration, the income gains at the individual level do not influence migration decisions but the gains of the entire family do. This feature of the migration decision is included in a concrete model by incorporating the utility of the household members who stayed behind into the utility function of the migrant (Stark 1995). Thus, the migrant's well-being depends on the household members' utility; simultaneously, the household members' well-being depends on the utility of the migrant. This connection is possible to determine, as this approach focuses not on income maximization but on risk minimization (Stark and Levhari 1982). Families migrate and diversify the sources of income, thus minimizing their risks. With this aspect, Stark follows the ideas expressed by Hicks (1967) regarding risk minimization through spreading (see Stark 1991, p. 41), particularly when some of the family members are employed in geographically removed regions. This ensures, that if the family's total income is derived from more than one source then the loss of one of the income sources is less traumatic. What this means in technical terms has mainly been demonstrated by Stark's (1995) later work on altruism. In Stark's model on altruism, a family should be able to achieve gains from scale economics if its income sources are negatively correlated and if the likelihood that the family loses all its income sources at the same time is nearly zero. Therefore, the theoretical framework of risk minimization can also explain why migration occurs between countries with no significant income differences.

This feature of the model contradicts the assumptions from the neoclassical models, i.e., that income is a homogenous good, indicating that the source of the income matters (Massey et al. 1993, p. 438). Moreover, this feature of the model integrates the theme of remittances into an economic framework of migration (Taylor 1999). Because the family members profit from each other's well-being, remittances increase the well-being of the sending family member and of the receiving members (Stark 1991; Stark et al. 1986; Taylor 1999).

Stark's approach is especially fruitful for the investigation of return migration, as the time perspective used is rather myopic. Persons migrate for limited periods. The family's principal source of income and main state of residence remains in the region of origin. After the end of a successful migration project (e.g., the migrant earns enough money to purchase a desired good), the migrant returns home. Thus, this concept implicitly accounts for return, repeated and circular migration. Despite its substantial differences, the new economics of migration and the neoclassical economic theory can be criticized for a similar reason. Stark's model also treats migration as being purely motivated by economic considerations (Faist 2000, p. 41). Even if persons migrate to minimize their risks, the ultimate aim is of an economic nature and the decision is based on a rational decision (Arango 2000). Similar to neoclassical theory, Stark's model does not consider family migration, i.e., migrations in which one family member follows her partner, or other non-economic migration flows (Arango 2000). Faist (2000, p. 41) indicates two additional shortcomings of the new economics of migration approach. Even this theoretical approach assumes that migration is a household strategy. The approach ignores conflicts and power relations within the household and is unable to note who made the decision and how it was legitimized. Gross and Lindquist (1995, p. 327), citing Folbre (1984, p. 5), note that *"the household [is used] as an individual by another name"* (see also Bakewell 2010, p. 1693). Another, problem of the concept is that even though migration decisions are made to account for future developments, the past is ignored. However, it can be expected that experiences in the past make people believe they need a type of insurance, which was cited as the reason families differentiate income sources (Faist 2000, p. 41). In a second approach, Stark and coauthors (Stark 1991; Stark and Taylor 1989; Stark and Yitzhaki 1988) contributed to the sociological idea of social comparison, which was described in 1966 by Runciman (Stark and Taylor 1989). Runciman (1966) suggested that individuals compare themselves with others or with a picture of themselves years into the future and that they might feel relatively deprived if they want something others have or if they want to have something in the future they do not (yet) have. Stark and Taylor (1989) replace Runciman's (1966) somewhat vague concept by beginning their analysis with a

bundle of goods (X) owned by a person. This more objective description of relative deprivation is also in line with Sen's (1983) approach. A bundle of goods (X) represents all the goods the individual has. At the same time, X symbolizes all the goods of which she is deprived. Using this concept, Stark and Taylor argue, *"The deprivation concept and the utility concept are two sides of the same coin: whereas utility is defined on "having", deprivation is defined on "not having""* (Stark and Taylor 1989, p. 3). However, the two concepts also differ considerably, as utility is an absolute concept and relative deprivation is a comparative concept where a relation is considered. Technically, this indicates that an individual is relatively deprived in comparison with the fraction of individuals who have higher incomes than the person in question (Stark and Taylor 1989).

Individuals might not migrate solely to raise their absolute incomes but also to improve their relative position. Because migration increases the individual's income compared with people in the origin country, individuals who are unsatisfied with their social position might consider migration as a solution (Liebig and Sousa-Poza 2004; Stark 2006). However, it is important to realize that the relationship between relative deprivation and migration goes in both directions. On the one hand, relative deprivation in the country of origin might cause migration as described above. On the other hand, because of reverse causality, migration to the destination country might cause relative deprivation. It might cause relative deprivation among people in the sending society, who are confronted with the migrant's higher living standards, but the migrant herself can face relative deprivation too. Individuals who migrate to raise their absolute incomes might overestimate their relative position within the new society and underestimate the relative deprivation and the negative influence of this position on their well-being. This will be especially true when migration causes a switch of the reference group from persons in the country of origin to the new peers in the destination country. Because of the generally higher incomes in the new destination, the new peers in the destination are likely to earn even more than the migrant. Thus, even if the relocation improves the migrant's absolute income, the relative income position in the country of destination might actually deteriorate despite gains in absolute income, and the migrant might experience relative deprivation. This phenomenon might occur when the economic situation in the country of origin is much better that it is in the destination country. Additionally, it is more likely that the individual will changes her group of comparison when integration in the destination country is more likely, such as when the originating society is similar. This should be especially true for relocations. A person migrating within a country usually does not face large cultural, social or language barriers and should therefore be able to integrate quickly into the new environment. A

possible solution is the migration to societies with entirely different cultural and normative features. Migrants who go abroad to an entirely different society and face language barriers will have more problems integrating. Migration abroad might, therefore, be more attractive because of the higher earnings available and because integration and, more importantly, relative deprivation can be avoided. When integration does not take place and people still compare themselves to the persons living in their destination, they are indeed capable of improving their income in comparison with their neighbors and should experience higher subjective well-being.

Stark and coauthors provide an empirical framework that extends the traditional migration framework, including the idea of social comparison, and provide the concept of relative deprivation, thus allowing for the inclusion of more subjective measurements (see Stark 1991; Stark et al. 2009; Stark and Taylor 1989; Stark and Taylor 1991; Stark and Yitzhaki 1988). This framework indicates that the government's influence on migration decisions is stronger than anticipated. It implies that redistribution policies might cause migration and that governments should be able to reduce migration by improving insurance policies and credit markets (Massey et al. 1993). The new migration theory links also well-being and relative deprivation to risk minimization and migration, even if the nature of the connection between these factors remains unclear and the link between the two described ideas is missing. Several questions remain unanswered: Are the concepts supposed to be used in parallel? Do individuals migrate because they want to minimize risks or because they feel relatively deprived? Does relative deprivation play a role in the migration decision made by a household, or does this concept affect only the actual migrants?

The main critique is that rather than providing a single stringent theory, Stark and coauthors provide separate ideas to different topics concerning migration research, which are combined under the umbrella of new migration theory (de Haas 2010; Kurekova 2009). Arango (2000, p. 288) even expressed doubts about whether this theoretical framework can be called a *"constructive and coherent theory"*.

2.1.3 Signaling theory

In the early 1970s, a new framework aimed at explaining the influence of education on the job search, and focusing on job changes within a region was proposed by Spence (1974; 1973) and Arrow (1973). Adding to the ideas already used in the human capital approach and addressing the differences in productivity among workers, this approach can be better understood as an extension (Weiss 1995), rather than an alternative, to the neoclassical migration theory. The theoretical

framework was called signaling (Spence 1974; 1973), or sometimes screening or filter theory (Arrow 1973), and it addresses the recruiting process in a company. The main idea driving this theoretical framework is that employers can only guess employers' productivity they can guess. In other words, employers hire people having only imperfect information. An individual can anticipate these actions and can react to the behavior of employers.

Contrary to the human capital theory, which assumes that education increases the productivity of workers, the signaling theory suggests that either this assumption is untrue (cf Arrow's Model) or that education has a continuative influence that goes beyond the sole effect of skill extension (Arrow 1973; Spence 1974; 1973). In the human capital theory, productivity increases through cognitive skills and the process of socialization, where pupils learn punctuality or discipline. The signaling theory assumes that productivity is only correlated with factors such as ability and that productivity is not necessarily increased by participation in schooling (Spence 1973).[4] It can be observed indirectly via signals such as education (Arrow 1973; Spence 1974; 1973; Weiss 1995). The necessity of estimating an employee's productivity is caused by the impossibility of measuring all relevant characteristics of the employee that influence the productivity and the fact that, even after hiring, there is a certain time span necessary (a training period) to identify the worker's true productivity. Education remains the most important signal. The idea here is that differences in worker productivity are caused by unobserved characteristics that defined the workers' prior educational choices and achievements but which also affect their current performance (Spence 1974; Weiss 1995). At this point, education provides a reliable proxy for productivity. Indeed, individuals with higher educational levels are not a random sample of the population but are generally healthier, less likely to smoke or take drugs and are also less likely to quit (Weiss 1995).

In the analytical model developed by Spence (1974; 1973), the hiring process was described as a lottery game, where the employer is a risk-neutral player who hires a person and pays a wage. The wage can be understood as the costs of taking part in the lottery. The employee may fulfill the expectation of the employer and be as productive as expected, or even more so, but the expectation of the employer may also fail, such as when the employee is not productive enough. To increase the chances that the employee will be productive and that the lottery game is a winning one, the employer may also rely on signals, such as education, that are usually connected with superior productivity. Moreover, even if the employer does

4 Extending the idea of Spence (1974; 1973) and Arrow (1973), other signaling mechanisms were used, for example, for layoffs and unemployment (Canziani and Petrongolo 2001; Gibbons and Katz 1991; Schmelzer 2010) or the influence of entry-level jobs (Scherer 2004; Steijn et al. 2006).

not know the individual's productivity, she might know the productivity of persons with similar education and can base the hiring process on that information. Signals the employees send might also be used to adjust the wage offered.

Just as the employers are interested in hiring highly productive workers, employees are interested in signaling superior productivity regardless of whether they are really productive. Thus, to be useful to employers for distinguishing the productivity of employees, signals must be connected with costs (Spence 1974; 1973). Specifically, the signaling costs must be negatively correlated with productivity, as they are in the case of education, which demands effort and time and is connected to opportunity costs. The negative correlation between the signaling costs and productivity implies that the higher the costs of education, the lower the percentage of people willing or able to invest in them.

As previously mentioned for migrants, education, and especially destination country specific education, plays an even more critical role than it might for the native population (Katz and Stark 1987; Stark and Bloom 1985). Employers have a more difficult time to access the skills of workers who did not previously work in the region or country. The employer therefore takes a higher risk by hiring a person from another country or region (Chiswick 1978, p. 900). Destination country educational and vocational qualifications reduce this risk.

Katz and Stark (1987) proposed a similar idea as an extension of the simple human capital model described earlier. The authors argue that potential employers in the destination country cannot easily estimate the true productivity of their workers from abroad and that doing so requires time, effort and additional information. With this approach, the authors followed up on the idea of statistical discrimination described by Phelps (1972) and Arrow (1973).[5] Employers in the country of origin can evaluate the true potential of their employees and pay every worker according to her true productivity level. Although highly qualified and productive workers earn higher wages than workers with lower qualifications in the country of origin, this cannot be guaranteed abroad. Employers in the destination region require much more time to evaluate the productivity of migrants, if they are able to do so at all. Therefore, the employers at the destination discriminate against foreign workers and pay them average incomes. Apart from a general loss of human capital associated with the migration, for example due to a change in language (Chiswick 1978; 1999), discrimination creates varying migration incentives for less- and highly qualified workers. Highly qualified workers who are better paid in their region of origin realize lower income gains when they relocate abroad and are

5 Statistical discrimination suggests that employers are unable or unwilling to recognize the true productivity potential of all employees and that they are therefore paid according to their group means.

paid according to their group average. This leads to a negative selection process, where less qualified workers have higher incentives to migrate.

It can be expected that the acceptance of certificates and employment in a corresponding position is more likely when the country of origin's labor market conditions and education systems are similar to those in the destination country (Kogan 2004; 2011; Nielsen 2011; Quinn and Rubb 2005). Because the acceptance of qualifications is crucial for highly educated and well-qualified individuals, the attractiveness of the labor market abroad should increase sharply if it is possible for an employee to work in an occupation that corresponds to her education and occupation (Radu 2008, p. 536).

A major critique of this approach is that it concentrates nearly completely on the demand side and the receiving country and lacks a clear individual rationality.

2.1.4 Segmentation theory

The migration theories discussed thus far have ignored that markets differ not only regionally but also within regions, e.g., between industries or companies.[6] Even individuals employed in the same company might face entirely different working conditions if they differ in their characteristics (Baron and Bielby 1986; Borjas 1987; Borjas and Bratsberg 1994; Chiswick 1978; Hudson 2007) or are employed in different occupations. The segmentation theory takes exactly this feature of markets into account. Segmentation theory was originally designed to investigate job mobility (e.g., the job changes between companies), but it can also be used to explain migration with small adaptations. The main idea behind this approach is that not all 'segments' of the labor market offer similar conditions (Cain 1976; Doeringer and Piore 1971; Piore 1970; Rosenberg 1979; Ryan 1979). As a result, these segments require different adoption strategies from the persons employed, which induces different behaviors in the segments of the market. Additionally, not all markets obey the laws of supply and demand; rather, some markets are ruled by agreements or social norms (Doeringer and Piore 1971; Piore 1970).

Primarily, one must distinguish between internal and external markets, which represent the original division of the labor market identified in the literature (Cain 1976; Doeringer and Piore 1971; Piore 1970; Rosenberg 1979; Ryan 1979). Conditions in the internal and external labor markets differ significantly; specifically, the internal market offers much better working conditions than the external segment. In general, internal labor markets offer high job stability, high prestige, good pay and well-defined career opportunities. One reason for the favorable characteristics of the internal market is that employers are dependent on their employees. The

6 Boje (1986, p. 171) noted that this is a typical critique of the neoclassical theory.

employees recruited into this part of the market take positions that are crucial for the productivity of the company; they play a key role in production and development. Usually, the employees also have skills that cannot be acquired outside the company but that must be learned by practicing them. The companies invest great amounts of time and money in the training of these employees, which creates extremely high costs for the hiring of employees. Therefore, the companies are not only interested in the short-term productivity of their specialized personnel but also in the continuity of the work performed by those employees and in long-term gains. This is also the reason why companies will be reluctant to layoff such employees, even in times of economic hardship.

In internal markets employees are not hired for a single job but have long-term contracts that include a sequence of jobs with a clear career definition. Employees also do not receive "made-to-measure" salaries, which would be calculated based on their actual productivity, but are paid according to the job executed and the hierarchy level they occupy. With each higher step on the career ladder, higher income and better conditions are offered. When such a step takes place is defined on the basis of seniority.

Entry into this highly privileged market is defined through education and qualifications. Individuals are hired when they possess the required skills, as indicated by their educational degrees or vocational training that occurs in entry-level jobs, which further regulate their subsequent careers.

The opposite of the internal market is the external, secondary or everyone market (Cain 1976; Doeringer and Piore 1971; Piore 1970; Rosenberg 1979; Ryan 1979). In this segment, no specific skills are required and employees are interchangeable. In contrast to the internal market, the laws of supply and demand are followed here, which means that the employees are hired in economically prosperous times and are fired in times of economic hardship. The companies are only interested in the actual productivity of the workers and pay them accordingly. The companies even tend toward statistical discrimination, paying employees according to the average productivity of a certain group. When there is no work, there is also no reason to keep the employees. The work stability is low in the external labor market, as everybody else can do the work, new employees can be hired as soon as there is a demand for workers. In general, the incomes in the external sector are low and flexible, the working conditions are bad, and there are hardly any opportunities to be promoted or to make a career. Employees working here are usually unskilled and have little experience. Employers and employees are independent from each other. Because the employees can find other jobs with the same conditions at any time, they are less motivated, quit frequently and are more often late or absent (Piore 1970). It is difficult for employees from the external

market to find a job in the internal labor market. Migrants, people with other ethnic backgrounds and women especially face greater disadvantages and might have problems accessing the internal labor market, despite adequate education (Gordon 1995; Hudson 2007).[7]

For Germany, Sengenberger (1987) distinguishes a third fraction of the market, the craft-specific labor market, which accounts for the high share of individuals with specific occupational qualifications who work in small- and middle-sized companies.[8] This partial market shares some of the characteristics of the internal market and, simultaneously, some of the characteristics of the external market, and they can be set between the external and internal labor markets (Blossfeld and Mayer 1988). Gordon (1995), referring to his own work (see Gordon 1994) and that of McNabb and Ryan (1990), noted that the presented ideas of internal and external markets can also be understood as two extreme positions of a continuum. As with the internal market, the income structure of the craft-specific market is well defined, where individuals face a predefined career path. Here also, the interdependency between employer and employee is high (Blossfeld and Mayer 1988). However, as previously mentioned, most of the firms in this part of the market are smaller, which has two implications for the market (Blossfeld and Mayer 1988). First, the companies are unable to absorb all economic shocks; therefore, as with external markets, employees are let go in times of economic hardship. Second, these companies cannot offer such well-defined career paths within the company. To climb the career ladder, individuals must change their employer. Correspondingly, the fluctuation between firms is higher in this sector than in the internal labor market, but it is still lower than in the external market. Similar to the internal market, qualifications are the key to the craft-specific market. These qualifications are acquired during vocational training, which is highly differentiated and occupationally orientated in Germany. Craft guilds and legal restraints guarantee highly standardized vocational training and highly generalizable apprenticeships. While the differences between the craft-specific and external labor markets are obvious, and the qualifications play a key role in the division, it is more difficult to clearly differentiate between the craft-specific and internal markets.

In a sense, the migration decision faced by people relocating between countries is similar. Within a country, however, the legal framework ensures the general

7 Gordon (1995) indicates that the argument is sometimes made that women are less committed to their work. According to the author, even if this argument is not supported empirically, it has negative effects on the excess of women in the internal market as it works as a signal for potential employers. Moreover, women are crowded into specific jobs, with a continuous and more flexible supply of workforce than for men, thus reducing the value of their work and their earnings (Gordon 1995).

8 For a description of the development of the segmentation theory, see Köhler et al. (2007).

comparability of educational and vocational certificates. For individuals migrating abroad, the approval of the qualifications is not guaranteed, which is especially important for those who have higher skills. Thus, the segmentation theory would focus once more on the elements borrowed from the signaling theory and on discrimination.

Katz and Stark (1987) indicate that it could be more difficult for an employer to evaluate the true potential of an employee with a foreign certificate. For the employee, this means she cannot be certain that her qualifications are indeed approved and that her position and her earnings are appropriate for her qualifications. Moreover, employers may be reluctant to offer immigrants jobs that require investments in human capital or on-the-job training, as they may fear the immigrants will only stay at the destination temporarily (Offe and Hinrichs 1977). Persons with good qualifications, such as those employed in internal and craft-specific markets in their home country, should be reluctant to relocate, as their qualifications are not necessarily approved abroad. Moreover, highly qualified individuals already have relatively good pay and stable jobs and, therefore, face higher incentives to relocate abroad than do individuals who are employed in the external labor market. Even if the wage gap is extensive, it should be less attractive for highly qualified individuals to give up their positions as qualified workers and to work in the external labor market.

If the employees are unable to certify the individual's qualifications, these individuals are only able to find employment in the external sector. Thus, the highest willingness to migrate abroad should be found for the individuals employed in the external labor market because other individuals would be more reluctant.[9]

Relying on segmentation theory, Gordon (1995) proposed a similar idea where he differentiates between speculative and contracted moves. Contracted moves allow workers to change jobs within a region or over regions with relatively low risk, as they move after receiving a job offer. Thus, such job changes are associated with the primary market. Speculative job changes, on the other hand, bear higher risks and are associated with the secondary market. Speculative job changes are less attractive, especially when entry jobs into the primary market are missing and the unemployment at the destination is high. Gordon (1995) differentiation

9 The idea that migrants usually find employment in the external labor market was also expressed by Piore (1979), who suggested a division of the labor market into two segments (see also Footnote 5). However, Piore's (1979) argument follows a different reasoning. Because of the demand for work in the external market and because it is not possible to raise the incomes of the individuals at the bottom of the income hierarchy without increasing the incomes higher up, the demand for unskilled work in the industrialized countries can only be satisfied by hiring workers from abroad. Because migrants are more interested in the financial aspects of their work than in such factors as occupational hierarchies or prestige, they are willing to fill those positions. However, Piore's (1979) concept is on the macro level and thus does not offer an explanation on the micro level as to why migrants decide to relocate.

between contracted and speculative moves also allows also for gender-specific hypotheses on the mobility behavior. First, while the relocation of the primary wage earner is usually a contracted move, the following partner has to find a job after the arrival and must change her job speculatively. The roles in the households, however, are not distributed randomly, and women are usually play the role of secondary earners.[10] Thus, it can be expected that women who follow their partners more often experience speculative job changes. Moreover, Gordon (1995) notes that women usually work in less-specialized occupations, so there is less need to search for female workers over regionally.

Segmentation theory provides a more sociological explanation of migration that emphasizes the differences between market segments. The idea that certain markets do not obey the economic forces of supply and demand but are ruled by social norms (Doeringer and Piore 1971; Piore 1970) provides a concept that is entirely different from the ideas discussed earlier. For the dual-labor market and segmentation theories, it is relatively difficult to determine who is employed in which market sector, a problem that induces a general inaccuracy in this concept (cf Arango 2000; Kurekova 2009). A clear theoretical and methodological distinction of the segments is missing (Gordon 1995; Leontaridi 1998). The problem of segmentation is intensified by the changes that occur in the labor market and the trend toward diversification within the segments (Cappelli 1995).

2.2 Migration of women

The theoretical frameworks discussed thus far are gender-neutral and do not account for differences in the migration behaviors of men and women.

Among the theoretical approaches that account for the differences in men's and women's migration patterns, there are two lines of argumentation that remain unconnected. First, several frameworks explain the gender-specific differences based on the migration behavior of married persons, arguing that constraints associated with the relocation of the entire household and the regional preferences of at least two household members must be considered. These constraints influence the migration behavior and the migration outcomes gender-specifically. These theoretical ideas concerning household migration will be discussed in section 2.2.2. Less common are approaches that explain the migration patterns of unattached women and how their migration behavior differs from those of men. These ideas will be sketched only briefly in the following section. The discussion starts with Markham and Pleck's

10 The existing research provides several reasons for women's positions as secondary earners. The explanations range from gender-norms over lower education and labor market participation of women to explanations that note the importance of the gender pay gap.

(1986) suggestions, which follow neoclassical economic theory and explain why women should relocate less often. Next, the analytical model of Thadani and Todaro (1979) is examined. This model is the oldest approach to explaining the migration of unattached women and was originally designed to explain the migration behavior of women in developing countries. The model suggests that women should be more likely to migrate than men. The last framework, developed by Edlund (2005), is mentioned only briefly, as the main conclusions are in line with Thadani's and Todaros' (1979) implications.

2.2.1 Migration of unattached women

2.2.1.1 Why do women migrate less often?

In a series of papers, Markham and coauthors proposed various explanations for the differences in men's and women's migration patterns, drawing from neoclassical economic theory (Markham et al. 1983; Markham and Pleck 1986). Markham's ideas cannot serve as an independent theory. Rather, they can be understood as an extension of the neoclassical economic framework. The explanations for the differences in the migration patterns of men and women rely on various auxiliary constructions and the general assumption that the migration behaviors of men and women are identical, as was present in the neoclassical framework. Both men and women act rationally, comparing the costs of migration and balancing them against the gains, but differences in their living situations result in varying strategies. Thus, the central idea is that periods of family formation reduce women's labor market participation, their labor market outcomes and, therefore, their mobility patterns. This pattern is not only true for women who already have a family but also for young women who face future periods of family formation. Based on the very problematic concept of perfect information, the theory assumes that actors are able to see ahead and that young women take into account their desire to have children as they plan their careers and make migration decisions. Anticipating career interruptions and that the overall benefits from their career are lower, young women adjust their behavior and invest less in their employment, which reduces their labor market experience (cf also Anker 2001; Hakim 1991; Hakim 1995) and automatically reduces their mobility.

The concept of Markham and his coauthors (1983; 1986) is based on a rigidly conservative gender role understanding (cf Schwenken and Eberhardt 2008). The assumption that women's primary focus is on marriage and children, not on their labor market participation, is built on conservative gender stereotyping, as was Becker (1991) specialization idea. Markham's argumentations, which may have been accurate in the 1980s when the theoretical concept was developed, must not

necessarily mirror modern societies' and women's thinking 30 years later. Using those concepts today seems dependent on overly conservative patterns.

2.2.1.2 Why do women migrate more often?

As early as 1979, Thadani and Todaro (1979) noted a lack of theoretical or analytical frameworks able to explain the migration of unattached women. Although some theoretical considerations, such as the ideas expressed by Mincer (1978, discussed below), Sandell (1977) and Blood and Wolfe (1960), provide explanations for the differences in the migration patterns of married women and men, few theories and models explain why single women migrate and how their migration behavior differs from that of men. Based on observations from developing countries and emphasizing the fact that women in developing countries usually move to their husbands' locations when marrying, Thadani and Todaro's (1979) model provides explanations for the higher migration rates of women. In this model, as in neoclassical economic theory, migration takes place in response to economic considerations. Men and women try to improve their financial situation by migrating. The economic conditions of men improve because of occupational factors if they are, for example, able to find a better paying job. In line with the argument used in neoclassical economic theory, the main force driving male migration is higher remuneration in the country or region of destination resulting from the wage gap. This driving force also applies to women, who can improve their economic status through better employment opportunities offered at the destination. However, women may also improve their situation by marrying, which is the main difference between women and men. Although the authors make no clear statement on this point, the idea is based on the expectations that a woman's employment is secondary and that the defining factors of the family's status and economic situation are the husband's occupational and social status.

In an attempt to categorize the different types of female migrations, the authors differentiate between migrations entirely motivated by economic situations and migrations motivated by marital obligations. They also differentiate between married and single women. In this way, four categories of motives for migration emerge. The migration of married women might be motivated by economic considerations, such as the desire to earn higher wages by themselves, or married women may have non-economic reasons for migration and follow their partners who have found work at a new location. Single women, in turn, migrate because of better employment opportunities and, secondly, because they want to marry at the destination. Because a woman's social status is dependent on her husband's status, men with higher earnings and better social statuses are more

attractive to women than low-status men. Thus, the authors argue that the wage differential between two regions might increase the attractiveness of husbands in the region with higher earnings, which could motivate women to migrate.

At first glance, it seems difficult to apply these ideas to a more economically developed society in which women are independent and marriage may play a subordinate role. However, women are still responsible for the upbringing of children in the modern societies of economically developed countries (Coltrane 2000; Hochschild 1989; Poortman and Van der Lippe 2009), and they interrupt their employment more often than men when their children are young. During such times, women are more dependent on their partners' earnings and employment status (Edlund 2005). Moreover, the literature covering the marital behavior of men and women indicates the persistence of marital patterns in which women marry men of higher, or at least equal, status (Blossfeld 2009; Blossfeld and Timm 2003; Matthijs 1998; Schulz 2010; Skopek et al. 2011). If the availability of high-income men varies between regions, for example because more highly educated men live in cities (also true for economically better-developed countries or regions), cities might be more attractive for women (Cooke 2011; Edlund 2005; Gautier et al. 2010).[11] As Edlund (2005) noted, the connection between economic and non-economic motives, and therefore of the migration categories, which are separate in Thadani and Todaro (1979) model, produce a double advantage for women with higher education levels in the case of migration and can help to adapt this framework to economically developed countries. First, it can be assumed that women, especially those who are highly educated, profit economically from migration to a region with better financial compensation. This assumption can also be derived from neoclassical economic theory. Second, women might profit from the higher availability of potential partners with higher earnings (Edlund 2005). Such an assumption goes beyond neoclassical economic theory.

In their analytical model, Thadani and Todaro (1979) account for the homogeneity of marriages and develop three scenarios to explain why the availability of higher-status men in some regions might attract not only highly educated women but also those with lower education levels. Their model shows that the migration of less-educated women is especially likely when highly educated women are less likely to marry or if highly educated men do not differentiate between women with higher and lower education levels when looking for a partner. When women are more likely to find and marry a high-status man in another region, and by doing so improve their own economic status,

11 Other approaches that highlight the marriage markets to explain the migration were provided by Gautier et al. (2010) and Behrman and Wolfe (1984).

migration might also become attractive for less-educated women, who would not otherwise profit from the wage differences between the regions.

Bringing the non-economic and economic factors together, as in Edlund's concept (2005), and relying on the assumption proposed by the general neoclassical economic theory that more-educated individuals are more likely to migrate, the following scenario emerges: more-educated women might profit from the economic conditions at the destination as well as from the higher earnings of their potential partners, which should encourage them to migrate. For less-educated women, the incentives to migrate should be lower, as they profit only from the higher earnings of potential partners, whereas improvements in income alone should not be high enough to cover the migration costs. However, if the density of high-earning male partners differs significantly between two regions or, as proposed by Edlund (2005), between cities and rural areas, migration might also be attractive for less-educated women.

The main and at the same time the most serious cirique of Thadani's and Todaro's (1979) is that it focuses strongly on marriages, but women's migration is driven by many more factors than just interest in finding partners (Lim 1993, p. 228 refering to; Ware 1981).

2.2.2 Theories on family migration

Scholars realized early on that analyzing the migration patterns of atomized actors could not explain all features of the different migration patterns of men and women, and they began to include the family perspective. The developed theoretical approaches depart from the earlier common assumption that women are passive actors in the migration process who migrate only if their partner has decided to do so (Lutz 2010, p. 1648; see also Lee 1966 who expressed this opinion). They consider the migration decisions of two actors simultaneously, which also represents the main challenge these theories have to overcome.

In the first step, two economic approaches are outlined. These approaches describe how rational actors behave to maximize their utility with regard to migration based on two different maximization strategies. Similar to the migration decisions described in neoclassical economic theory, the first discussed framework, the household economy, conceptualizes migration as an investment in the productivity of individual human capital. Within this framework, however, the migration decision can actually lead to financial disadvantages for one of the partners (Kalter 1998; Mincer 1978; Ott 1992). This approach and the second approach based on bargaining theory assume that rational individuals and families migrate if they can obtain financial benefits. Household economy relies on a framework of utility maximization based on household income. Bargaining

theory uses a utility maximization approach based on individual calculations, which takes the view that individuals try to maximize their individual incomes through household migration.

The third theoretical approach deviates entirely from this reasoning, as it is based on sociological concepts that suggest that the behavior of individuals is also influenced by learned cultural and normative patterns (Fenstermaker and West 2002; West and Zimmerman 1987; West and Zimmerman 2009). These patterns are different for men and women, who play different roles in the decision-making process regarding migration (Bielby and Bielby 1992).

2.2.2.1 Household economy

In the 1970s, several economists attempted to incorporate a family perspective into the analysis of migration decisions (see: DaVanzo 1972; Mincer 1978; Polachek and Hovath 1977; Sandell 1977). The proposed models differ in their designs and are based on different ideas. Sandell (1977), for example, incorporates migration into a framework of work and leisure choices. Nevertheless, these models all highlight the influence of both partners' characteristics, such as employment and earnings, on the family's migration decision.

Starting from the ideas of Sjaastad (1962) and Becker (1974), Mincer (1978) proposed a model in which the family maximizes its gains from the productivity of the human capital due to migration. The following section discusses Mincer's (1978) model in greater detail. Among all the models developed during the early 1970s, this model gained the most attention in the migration literature (e.g. Compton and Pollak 2007; Cooke et al. 2009; Geist and McManus 2012; Nivalainen 2004; Shauman and Noonan 2007; Smits et al. 2003; Tenn 2010) because of its simple and persuasive structure (Bielby and Bielby 1992, p. 1242). Like atomized individuals, families migrate if the net household returns from migration are high enough and if the potential gains at the new location exceed the migration costs and earning prospects at the current place of residence.

Families migrate if they expect net gains G_f at the household level.[12] G denotes the net gains, and the subscript f indicates the family level. The net household income combines the net gains of both partners, denoted by G_m for men and G_w for women. Within this framework, the family migrates if the net returns are higher than zero. Theoretically, this outcome can occur in three different situations. First, if both partners experience positive net gains ($G_m > 0$ and $G_w > 0$). This outcome

12 Actually, the situation in which the family stays intact and both partners migrate together or stay where they are is described as a special case of the Mincer's model. Mincer (1978, p. 756) notes also that a partner's incentives to take a job in another region may have a destabilizing effect on the relationship. The relationship between marriage instability and increased migration rates is characterized as a *"two-way street"*.

is unusual (Mincer 1978; Kalter 1998). More common is the case in which one of the partners (either male or female) experiences a net gain and the other partner a loss.

Thus, individuals within a household might relocate despite individual disadvantages. This might be the case because the decision to migrate is based on the greater common household welfare and occurs ($G_f > 0$, $G_m > 0$, $G_w < 0$, and $|G_w| < G_m$), if the gains of one of the partners from migration exceed the losses of the other partner. The person who moves despite experiencing individual losses is called a "tied mover."

Mincer's (1978) model is gender-neutral in principle and does not imply specific disadvantages for women. That is, the model does not suggest that men can more easily convince their families to relocate. However, the empirical research based on this model clearly indicates that families will migrate more often to support the husband's career (e.g. Compton and Pollak 2007; Geist and McManus 2012; Nivalainen 2004; Smits et al. 2003; Tenn 2010). How this is possible is discussed below.

Mincer's model is based on a comparison of incomes. Within this framework, a migration takes place if the gains of one partner can compensate for the losses of the other. If the incomes are asymmetrical, i.e., if one partner has a high income and the other earns little, then the partner who is financially better off can easily compensate for the losses of the other partner (e.g., the loss of this partner's job). Even if the assumption itself is completely gender-neutral, this feature of the model predicts that women will initiate migration less often. Based on the persistence of income inequality between men and women and women's lower labor market participation, this model predicts that women are less often financially able to compensate for the losses of their partners due to migration and will initiate migration less often. Another argument frequently used to explain male dominance in the migration decision is that women are likely to invest less in their human capital (cf Markham et al. 1983; Markham and Pleck 1986).[13]

Empirical research shows that despite the disadvantages associated with the role of the tied mover, women follow their partners more often than do men (Bielby and Bielby 1992; Bird and Bird 1985; Boyle et al. 2001; Compton and Pollak 2007; Duncan and Perrucci 1976; Jacobsen and Levin 1997; Jürges 1998; Jürges 2006; Long 1974; Nivalainen 2004; Shihadeh 1991; Smits et al. 2003; Tenn 2010; for a review see: Cooke 2008). This pattern indicates that when men receive job offers at new locations, they are more likely to realize high-enough gains

13 However, this argument is becoming increasingly irrelevant, as young women now invest more in their education than young men (cf for the educational participation of women OECD 2011, p. 44 ff).

to compensate for the losses of their partners. In turn, men are also more likely to be the tied stayer because men often find that they can realize high-enough income gains to offset their migration costs and those of their partners, especially if their partners are employed (Mincer 1978; Shaklee 1989; Spitze 1984). This theoretical approach appears to be capable of explaining the situations of men and women with regard to the migration process based on economic factors alone and without relation to cultural, normative or biological differences. However, it is an important point of critique that gender-specific differences in incomes might themselves result from gender-specific behavior or culturally and normatively motivated forms of gender discrimination, which undermines the earlier argument (Elson 1999; Halfacree 1995). Migration exacerbates the inferior labor market positions of women, and the inferior labor market positions of women reinforce their positions as tied movers. It is possible that only the worse labor market integration of women allows families to migrate and makes the financial gains of their male partners high enough to outbalance their losses. Thus, the reason the actual migration can take place is not because the income of the female partner is lower, but it can be traced back to the socialization of women as secondary earners and housewives.

The term "tied" indicates that the individual's migration outcome is dependent on other family members. For both the tied mover and the tied stayer, another situation will maximize their individual gains. Based on the individual gains and losses, remaining in the location of origin would be more profitable for the tied mover. In contrast, the tied stayer would profit individually from moving to the destination. However, for the tied mover, the calculation at the household level reveals that the benefits of moving outweigh the losses. Therefore, the migration occurs. The reverse situation is true for the tied stayer. The tied stayer's gains are not high enough to offset the losses of the partner in the case of a migration.

As long as the characteristics of the partners are very different and the partners specialize in, for example, labor or household work, as suggested by Becker (1991), the "tied" phenomenon is rare. However, a crucial feature of this model is its prediction of a greater commutation of the "tied" phenomenon the more similar the earnings of men and women are. Because gains and losses can be distributed differently, this model also predicts that migration goes hand in hand with specialization (Geist and McManus 2012, p. 199).

In a second step Mincer (1978) provided an extended version of this model that considers the role of location. This model can explain why couples occasionally live in regions that are not ideal for either of the partners. To understand this extended model, we must imagine that certain regions would be ideally suited to the respective needs of each partner. However, these regions are not necessarily

the same for both partners. In fact, it would be rather unusual if the two individuals could maximize their incomes in the same area (Mincer 1978; Kalter 1998). In addition, the region that offers one of the partners the best outcomes does not necessarily offer the highest benefits to the family as a unit. Finally, the region in which the family as a unit obtains the highest benefits may only serve as the second-best solution for both partners when considered individually.

If the partners could maximize their outcomes independently, they would choose other regions. However, as a family, they are limited to the second-best solution. In this case, both partners compromise and become tied movers or tied stayers. Nonetheless, in this situation one spouse will still likely make higher financial compromises than the other. If the woman does not participate in the labor market or if her contributions to the household income are small, then the couple will generally not have to compromise in their migration decisions and can live in the region that is optimal for the husband. However, with the increasing participation of women in the labor market and the growing proportion of women who are employed full time, the problem is becoming increasingly important. As the share of household income provided by women continues to rise, more partners will block the others' career progression, as neither partner can initiate a decision to relocate (Jürges 2006; Mincer 1978; Nisic 2010).

Scholars have criticized this model for several reasons. The main criticism is that human capital theory does not account for potentially divergent individual interests, conflicts over the allocation of resources or internal power struggles within households (cf Abraham 2006; Berk and Fenstermaker Berk 1983; Bernasco and Giesen 2000; Lundberg and Pollak 2001; Ott 1989; 1991; 1992; 1993; 1998).[14] On this note, Ott writes, *"an intrafamily consensus is assumed and the internal structure of the household is neglected."* (Ott 1992, p. 2). Mincer's (1978) model of family migration implicitly assumes that partners have similar opinions, beliefs, needs and preferences for goods and that they like to consume similar products. Moreover, this model implies that household members are willing to accept individual disadvantages; they are willing to make compromises and can come to a consensus that improves the general well-being of their household as a unit (Lundberg and Pollak 1996).

Moreover, several scholars have demonstrated that the joint-preferences function assumed by Mincer (1978) and other common preferences models, such as Becker's (1974; 1991) and Samuelson's (1956) models, are not empirically supported (Lundberg and Pollak 1996, p. 143 ff). In addition, qualitative research

14 Gross and Lindquist (1995, p. 327) critique on the new economic of migration theory fits here as well. Mincer (1978) also uses *"the household as an individual by another name"* (see also: Folbre 1984, p. 5).

demonstrates that migration decisions are negotiated by both partners (Green 1997; Hardill et al. 1997; Hiller and McCaig 2007; Stark and Levhari 1982). Moreover, Mincer's (1978) model can be criticized for not providing a clear explanation of how a partner is recompensed for her losses (Lundberg and Pollak 1996: p. 143 ff). Mincer simply assumes a joint-utility function based on the individual functions.[15]

An additional point of critique is that the model assumes the stability of the analyzed family. Cooke (2008, p. 260) outlines the critique as follows: *"The decline in traditional married couple nuclear families and the increase in heterosexual and same-sex cohabiting couples, single-parent families, and blended families suggest that the dynamic within which family migration decision is made is quite distinct from that assumed (Cooke 2005; Cooke and Rapino 2007)."*

Finally, as previously noted, some sociologists criticize this theory as ignoring the possibility that the values ascribed to the male and female earnings might differ (Bielby and Bielby 1992) and that the model is gender blind (Kofman 2000; Schwenken and Eberhardt 2008). According to Schwenken and Eberhardt, *"[Mincer's model] is deeply rooted in a mode of thinking, which has met with fierce criticism from the side of feminist economists for the naturalization, rationalization and legitimization of while, middle-class Fordist and patriarchal family arrangements (Bergmann 1995; e.g. Ferber and Birnbaum 1977)"* (Schwenken and Eberhardt 2008, p. 9). The authors note that beyond the surface of the gender-neutral model, the understanding of family migration is based on a conservative view, in which the forces that disadvantage women in the labor market and in the family are attributed to different tastes for employment, work and education. The fact that women's choices are influenced by earlier socialization processes and that the underlying mechanisms are therefore far from being gender-neutral are also ignored in these types of family migration models.

2.2.2.2 Bargaining theory

The bargaining models developed by Ott (1989; 1991; 1992; 1993; 1998) is discussed in this section. It integrates individual preferences into the theoretical framework and address the main criticism of household economic theory (cf Abraham 2006; Berk and Fenstermaker Berk 1983; Bernasco and Giesen 2000; Lundberg and Pollak 2001; Ott 1989; 1992). Similar to household economy models, bargaining models rely on the assumption that individuals can achieve higher gains

15 Becker (1974; 1991), for example, has provided such an explanation. He assumes that an altruistic household head exists who transfers goods to the other household members and maximizes his and the household's utility. However, this assumption can also be criticized in light of the empirical studies regarding the consumption of households presented above.

from cooperation in marriages or partnerships. In contrast to household economy models, bargaining models accounts for the decisions made within the household based on the individual utilities and preferences of the household members. It is no longer sufficient for a migration to take place to generate gains at the household level, as was the case for the simpler model of household economy. Rather, both partners must gain individually for the migration to occur.

Partnerships are understood as "exchange" relationships (Blau 1964; Curtis 1986; Ott 1989; 1992).[16] Within the bargaining approach, partners trade goods such as love, tenderness, time and financial resources (Abraham 2006; Blau 1964; Curtis 1986; Ott 1989; 1992). The issues of how goods are distributed within the household and which household member receives how much are more central in bargaining models than household economy models. The "exchange rate" and distribution of goods between partners depend on the distribution of power within the partnership, an idea that was used by Blood and Wolfe (1960) and partly by Mincer (1978) in his extended models. The more power a partner has, the more goods she can use and the more personal goals and preferences she can achieve.

These types of models miss a mediating factor that would guarantee gains from the cooperation, which is also the main difference between these models and In the following cooperative bargaining models in which partners can communicate (Ott 1989; 1992) and gain from cooperation because of the economies of scale (cf Becker 1991) are discussed. Cooperative models depend on each partner's "outside" and "exit" options, i.e., the utilities a partner can realize outside the marriage or relationship (Ott 1989; 1992). Within the cooperative bargaining models, outside options cover two important tasks (Auspurg and Abraham 2007; Ott 1989; 1992). First, they define the minimum utility a person can hope to gain from a partnership. Second, they regulate the distribution of goods. Rational actors will invest in their relationship as long as no preferable outside or exit option is available; if the utility drops below this threshold, then the person will be better off single. Therefore, the partner who loses the least from a breakup is less dependent on the partnership, compromises and invests less and can derive more profit from the relationship. This idea can be traced back to the "principle of the least interest" from Waller and Hill (1951; see also Nauck 1989, p. 48) or the "law of personal exploitation" (Ross 1921).

As already noted, the outside options depend on the partner's financial resources, employment characteristics, education and work experience, among other things (Bernasco and Giesen 2000; Blau et al. 1992; Blood and Wolfe 1960; Ott 1989; 1992) These factors define the financial means and living standards available to the partners

16 However, the social rules of exchange adapted here differ from economic exchange (Blau 1964).

if they live alone. If the relationship ends, then the partner who is participating in the labor market and is financially independent has a better position than the partner who stays at home. Specialization in the production of household goods, such as housework and caregiving, is less advantageous because the tasks involved perpetuate financial dependence. In addition, transferring the skills acquired at home is more difficult without bringing about a decline in value, regardless of whether they are transferred for use in the labor market or within another relationship (Abraham 2006). Making a living from such skills is also more difficult because they depend on the preferences of the persons involved (Abraham 2006; Ott 1989; 1992; 1998). As Abraham (2006, p. 31 ff) and Nisic (2010, p. 522) note, it is also easy to substitute these goods. Instead of eating a homemade meal, a person can go to a restaurant or buy a ready-made product. These considerations indicate that participation in the labor market provides greater advantages and that the employed partner should have better outside options and, therefore, higher bargaining power within the relationship than the partner whose tasks are limited to the household.

Partnerships do not rely on the once-determined "exchange rate," but the partners continually negotiate. Changes in the status quo of one or both partners lead to new negotiations. The outside options of both partners define a field within which the couple can negotiate the "rate of exchange" and the distribution of goods. This field defines the possible outcomes of the negotiation process; outcomes outside this field result in one partner using his or her outside options. It is important to realize that even if the model makes assumptions regarding the bargaining process, the theoretical framework is not able to describe or model the actual negotiations. As Nisic (2010, p. 522) noted, this framework only makes assumptions that should explain the decision making, but the decision itself remains a "black box."

There are two ways to describe this negotiation process. The first method uses a static perspective. Both partners make a decision based on their current distribution of power and ignore the effects that their agreement has on the future balance of power and, therefore, on future decisions (for a description of such models see Ott 1992, chapter 3–5). For couples with an unequal power distribution, a migration can occur if the partner holding the main bargaining power profits from it. For couples with an equal power distribution, a migration can occur in the uncommon case that both partners will profit individually from the relocation. In addition, for couples with an equal power distribution, the gains of one partner are usually not enough to compensate for the losses of the other, in which case the migration does not take place.

However, the real advantage of bargaining models is their utility for describing the decision making within a dynamic framework assuming that the partners

consider not only the current power distribution but also the impacts their decision will have on the future (Abraham 2003; Abraham 2006; Auspurg and Abraham 2007; Nisic 2010; Ott 1989; 1992).

In a dynamic bargaining framework, decision making is more complex. For example, a job offer in a new region improves the outside options of the partner receiving the offer (i.e., the initiator) because the new position is most likely accompanied by higher earnings or other important amenities and because higher earnings and professional success make it not only easier to be single but also renders the initiator more attractive to other potential partners. The partner who did not receive the job offer (i.e., the respondent) has to reconsider the personal consequences of such a move. As Kalter (1998) and Mincer (1978) demonstrated, it is highly unusual that both partners can improve their situations in the new location. Therefore, the relocation decision will usually negatively impact the respondent's career. which should be enough to make the respondent reluctant to relocate. However, if the respondent gives in and agrees to the relocation, then her financial and career setbacks will also impair her bargaining position within the partnership. For example, the respondent's financial dependence during the transition period should worsen the respondent's outside options because it makes threats of ending the relationship less plausible. Also, the fact that the respondent emphasizes the high value of the relationship by following the partner to a new location automatically worsens the negotiating position. Therefore, the respondent should be highly reluctant to relocate because doing so implies a shift in power and a decline in consumption.

Anticipating the reluctance of the partner to move, the initiator will try to persuade the respondent and will offer solutions to make the relocation more promising. These solutions may consist of financial payments, as already anticipated in the new household economic theory, or other concessions. However, if the relocation occurs, then the initiator has strong incentives to break the previously agreed upon terms and to renegotiate the situation. Moreover, it can be expected that even if the initiator does not directly break the promises, the bargaining power will slowly shift to her advantage (Kohlmann and Kopp 1997, p. 263). It is important to realize that the term "cooperative models" does not refer to agreements made for the future but indicates that partners are able to cooperate in terms of the exchange of goods. This distinction means partners are unable to negotiate agreements binding in the future and that if the initiator does not uphold the former agreement, then the respondent has few options to enforce her rights. The respondent cannot take any legal steps if the initiator refuses to uphold the former bargain (Bernasco and Giesen 2000; Nisic 2010; Ott 1989; 1991). Social networks, which can serve as an authority or a force of control and

help the respondent enforce couples' agreements (cf Coleman 1956), are seldom available because good friends and family are likely to live in the place of origin. Thus, the respondent's anticipation of this development will contribute to her reluctance to agree to the migration.

The initiator's situation is no better. If the initiator does not take the job, then her outside options will decline to their former level, and new advantages in the distribution of bargaining power will diminish. Therefore, the initiator will not only relinquish the financial gains that the new position offers but will also lose the superior negotiation position within the relationship. Finally, the initiator cannot be sure that the respondent will hold to the agreement after she rejects the migration. The lack of obligation in the former agreement leads to a situation scholars usually describe as a prisoner's dilemma (Abraham 2006; Auspurg and Abraham 2007; Lundberg and Pollak 1996): even if cooperative behavior enables both partners to realize the highest gains, the best individual strategy is to behave non-cooperatively.

The bargaining approach predicts that migration occurs less frequently than predicted by household economic theory (Kalter 1998; Nisic 2010). However, the hypotheses derived from bargaining theory and household economic theory tend to be similar even though the bargaining approach has a more complex framework, which has been a major criticism of the theory.

In line with household economic theory research, the theoretical framework suggests that couples usually migrate if the income distributions in the households are asymmetrical or if the partners have different characteristics. However, there are also situations in which couples migrate even though they show a balanced power distribution, such as the highly unlikely scenario in which both partners find better jobs at the place of destination (cf Kalter 1998; Mincer 1978). The second possibility is that one partner improves so immensely that the tied mover's absolute utility increases despite her relative loss in bargaining power. In this case, the gains at the household level are high enough that the respondent who agrees to follow the partner and loses some bargaining power still receives a higher utility. An additional prediction of bargaining theory compared with household economic theory is that migration is less likely to occur when it would involve a severe shift of power (Auspurg and Abraham 2007; Nisic 2010).

Another reason for a migration to proceed is that couples trust one another or have already made so many joint investments that the outside options are extremely unsatisfying. Existing joint investments increase breakup costs or decrease alternatives at the same time they expand the margins for compromises and allow for higher transaction costs (Abraham 2003; Abraham 2006; Ott 1989; 1992). Those costs describe how much effort or time it takes a couple to come to

an agreement. As the costs increase, the outside options become more attractive. This implies that persons or couples with extremely good outside options will not invest much time or effort into finding a solution or in their relationship, which might result in shorter relationships. Joint investments include children or the purchase of joint goods such as real estate, the amount of time spent together or certain legal arrangements (e.g., marriage) (Abraham 2003). The higher the investments already are, the greater are a couples' incentive to hold to the bargained agreements and the higher the likelihood the couple will relocate. This correlation holds even if one of the partners has to endure personal setbacks to relocate.

This framework provides not only assumptions about how the partners' characteristics and their relationship influence the migration decision but, as Nisic (2010) demonstrates, allows for assumptions about how regional factors may influence migration decisions. In line with the arguments of Chiswick (1999) and Borjas (1987) for individual migration, Nisic (2010) notes that depending on the income distribution in the sending and receiving countries, the migration pattern of couples might differ. Couples who can expect greater regional income gains will be less positively selected (e.g., lower education levels) than couples who can expect very small regional income differences upon migration. The higher the income gaps, the more likely couples are to profit from the relocation. This relationship implies that couples are more likely to realize high gains at the household level from the migration even if the "tied mover" loses relatively. When the income gaps are smaller, only couples who are able to secure especially high profits, such as when both partners profit independently from migration, will migrate.

The main criticism of the bargaining theory, as already mentioned, is that its extended and complex framework ultimately produces hypotheses that are very similar to those generated by household economic theory, which is a much easier framework (cf Nisic 2010, p. 521). Moreover, as previously stated, the sociological criticisms of the household economy model apply here as well; the approach does not take into account the possible existence of cultural and normative beliefs that ascribe different values to the earnings or employment of men and women (Bielby and Bielby 1992).

2.2.2.3 Gender role theory

These approaches "ignore the household roles husbands and wives occupy, the gender-role beliefs they subscribe to regarding those roles, and the effect of these beliefs on both the process and outcome of couples decision making" (Bielby and Bielby 1992, p. 1245). According to the household economy model and the

bargaining theory discussed above, a woman should not experience additional disadvantages, and her partner should pay the same respect to her migration wishes as the woman affords to those of the man, if both migration proposals guarantee the same gains. However, recent research shows that this statement is not necessarily true, as many characteristics, such as the educational and employment characteristics of men, are of greater importance for the migration decision (Compton and Pollak 2007; Nivalainen 2004; Tenn 2010). Women are usually unable to initiate a move and lose in terms of earnings and employment (Boyle et al. 2001; Boyle et al. 2009; Clark and Withers 2002; Mincer 1978; Rabe 2011; Shauman and Noonan 2007; Shihadeh 1991), even if they previously earned more or had a higher status than their partners (Boyle et al. 2009; Shauman and Noonan 2007). Therefore, the sociological research proposes explanations of male and female behavior based on the normative and cultural values individuals learn in the process of socialization (Fenstermaker and West 2002; West and Zimmerman 1987; West and Zimmerman 2009). This framework indicates that partners might react differently depending on their gender attitude and on whether the male or the female proposes the migration plan (Bielby and Bielby 1992).

Bielby and Bielby's (1992) framework implies that gender attitudes are the moderating factors, and it refers to the distribution of financial means between partners as secondary factors. Gender role attitudes can explain why one family agrees to migrate and the other does not even though the two households have identical migration gains, costs and income distributions between the partners. This theoretical framework suggests that both partners behave during the migration decision-making process in accordance with their normative and cultural values. The idea that men and women must behave a certain way to succeed in society can be traced back to Goffman (1974; 1977). In his main work, (Goffman 1974) developed the idea that people adapt their behavior to certain frameworks, which dictate how they should behave in different circumstances. In subsequent work, Goffman (1977) adapted the idea to the behavior of men and women, indicating that not only do specific situations influence the way people react but so does the person herself, whose gender is "framed" by specific activities. Following this argument, to succeed in their roles as men and women, people must behave accordingly. This concept can also be applied to migration. By meeting their expectations and behaving like women, women support their gender roles. The gender roles used by men and women conform to the dominant pattern within the society (Schulz 2010, p. 93).

Couples with traditional views assign varying degrees of importance to the earnings of men and women; their roles are not interchangeable (Potchek 1997). Even if women contribute significantly to the household's income, men's

jobs remain more important for traditional couples. The position of women as secondary providers and unequal co-providers determines the varying behaviors after men and women receive a job offer. Within a family with traditional views, women are likely to be tied movers or tied stayers, depending on whether they would have been able to obtain better job opportunities at the place of origin (when the family moves) or in another place (when the family stays). Men with traditional gender norms are more likely to migrate when they receive a better offer in another region.

This situation is different for household with non-traditional gender role views. In these households, a job offer with the same features given to the male or the female partner should result in the same outcomes. The husband should be much more reluctant to relocate for the sake of his own career than the husband of a traditional couple because his wife's career is accorded the same value as an equal co-provider's career. Relocations that occur because of the male partner's career should be less common for couples with non-traditional views because they are not automatically agreed upon by both partners. At the same time, relocations for the sake of the woman's career will increase because these relocations will not be automatically dismissed, as would be the case for traditional couples. For non-traditional couples, the characteristics of either partner will similarly influence the decision to migrate. Couples with egalitarian views, therefore, behave in a way that was already described by the economic and bargaining theory.

One major critique of the model can be derived from the general critique of the doing gender framework. Even if traditional vs. non-traditional or egalitarian gender models are considered, this framework cannot explain how "new" gender arrangements develop (Schulz 2010, p. 93). Thus, within this type of framework, it is difficult to explain why some couples have more traditional views and others less traditional in the same society. Within this framework, it is impossible to explain development within the society. This framework describes only two possible extreme positions, but nothing between those poles.

3 Critique

3.1 General critique

As Massey et al. (1998) note, empirical investigations usually support all theoretical concepts to a certain degree. All theories have aspects that might be preferable for the explanation of some specific migration flows; however, these theories also have weak points and aspects that are not supported empirically and are open to criticism. Because theories are selected to fit specific situations, the entire concept

of theoretical testing can be undermined (Portes 1997, p. 804), as a rejection of the hypotheses does not necessarily lead to a rejection of the theoretical idea but only indicates that the theory does not fit the specific situation (Bakewell 2010, p. 1692). In the discussion above, specific critiques have already been outlined; however, other general critiques remain. All the theoretical concepts exclude the influence of policies, as Arango (2000) notes (see also: Kurekova 2009). International agreements, quotations and, of course, immigration policies play a powerful role in migration, as they define the migration costs and, thus, who is able to profit from the relocation. Ignoring political aspects might lead to wrong interpretations. Ignoring political features might be especially unsatisfactory for research comparing migration flows because political barriers may explain why two countries with similar economic characteristics have differences in migration patterns.

Second, the theoretical frameworks usually concentrate either on the sending or the receiving country or region (Castles 2010, p. 1571) but are mostly unable to account for the characteristics of the countries of destination and origin at the same time. In sociology, the focus has long been on theories that concern the conditions at the destination and that take into account the integration of migrants into the labor market while ignoring the reasons migration occurs in the first place (Brettell and Hollifield 2000; Schmitter Heisler 2000).

Third, the theoretical frameworks usually ignore historical contexts (Massey 1990) and focus, as already implied, on economic factors (Bakewell 2010, p. 1690; Castles 2010, p. 1573; Faist 2000, p. 36; Massey et al. 1998, p. 8). Another point of critique is that most of the concepts are unable to explain why migration does not take place even when it would improve the individual's or family's situation (Kalter 1997). Here, the concept "bounded rationality" (Jones 1999; Simon 1997) may be helpful to deepen our understanding of migration and explain why many people do not even consider migration (Kalter 1997, p. 51). In addition, research that understands migration as more of a step process, in which the first step is to develop the intention to migrate (see De Jong 2000; Kalter 1997), can help address this criticism.

Finally, most of the theoretical frameworks have a static perspective and are unable to explain changes in migration when the external circumstances remain stable (cf Kurekova 2009).

3.2 Critique from a gender perspective

The overview of the migration theory clearly outlined that the existing theoretical concepts do not focus on gender differences in the migration patterns of men and women. As Kofman et al. (2000, p. 17) noted, studies providing theoretical

frameworks for women's migration are missing. Although the theoretical concepts of migration are usually described as being gender-neutral, they are better fitted to explain the migration patterns of men than of women, and they rely on the assumption that women are tied movers (Kofman 2000; Kofmann et al. 2000; Schwenken and Eberhardt 2008). This is especially true because the understanding of migration and the underlying mechanisms on which the concepts rely are based on a 'prototype' of migrants that is often referred to as *"homo economicus,"* a man whose characteristics have been described as *"narrow rationality, selfishness and social isolation"* (Schwenken and Eberhardt 2008, p. 13).

A view from the gender perspective reveals that when analyzing the migration of men and women and relying on the described concepts, gender-specific differences might be ignored even if the theoretical framework is described as gender-neutral, and gender in fact remains a reason for the differences revealed. For future work in this field, it is important to realize that such problems exist and that the picture presented by the models might be oversimplified. A great challenge for future research is to find a balance between taking into account that men's and women's migration patterns might be influenced by different types of socialization or discrimination on the one hand and, on the other hand, ensuring a certain generality that theoretical concepts and models can rely on. The answer to the problem is not to abstain from quantitative research, but to be aware of the limitations of the models used and that gender differences exist.

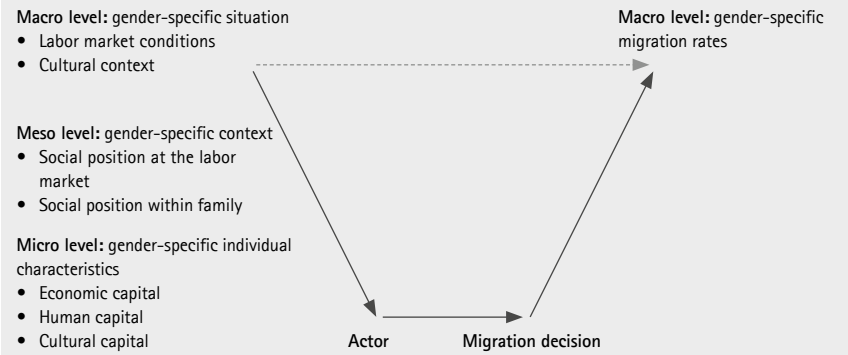
4 Discussion

Migration is a complex phenomenon in which rational actors make decisions. These decisions might be influenced not only by individual characteristics but also by conditions at the macro-level in the origin and the destination countries and those at the meso-level (e.g. Coleman 1990; de Haas 2010; Esser 1991; Haug 2008).

As already mentioned above, the theoretical frameworks described herein already provide some solutions to integrate the differences into the theoretical construct and, thus, to account for gender-specific differences, even if such a process has received criticism. At the same time, considering the living circumstances of men and women and all three levels of explanation (the micro-, meso- and macro-levels) is a challenge to every theoretical framework. Every level might bear gender-specific differences, which might be more or less important for the specific migration flows and target group under investigation (cf Coleman 1990; and also Esser 1991, p. 113; Haug 2008, p. 590; Lutz 2010, p. 1658), as we can see in Figure 1. For married women, the meso-level and their position in the household as well as the gender role beliefs of their partner should be especially

important. How female participation in the labor market is understood is also important for them, for example, as secondary earners or equal co-providers. For single women, in turn, their labor market position, such as a hierarchical position in the company, might enable them to access attractive jobs in other regions. Finally, married women might also migrate not because it is beneficial from their own cost-benefit calculations but because their partners wish to migrate.

Figure 1: Macro-meso-micro model of migration



It is practically impossible to account for all the different aspects, situations and conditions that a theoretical framework would have to consider to explain all aspects of men's and women's migration behaviors within a single framework (cf Bakewell 2010; Castles 2007; Castles 2010; Portes 1997). Especially at the macro-, meso- and micro-levels, it is difficult to account for the different migration patterns of married and unattached women, which is why it might be better to rely on the various theoretical frameworks and to adapt or combine them to fit the specific situation under investigation. It might be advantageous to aim not for the grand theory of migration, which cannot explain all aspects of migration at the destination and origin or the differences in men's and women' behavior, but for *"theories of the middle-range"* (Arango 2000; Bakewell 2010; Castles 2007; Castles 2010; Portes 1997).[17] These middle-range theories have the benefit of accounting for some patterns and similarities of the highly fractured phenomenon of migration without being able to account for all its aspects (Castles 2010, p. 1574). This point brings us back to the argument put forth by Massey et al. (1993) and clarifies why it is necessary to understand migration theories as theoretical constructs, which can be combined and used simultaneously, rather than as competing frameworks.

17 Castles (2010, p. 1574) refers to Merton's (1957) "theories of the middle-ranges".

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Chapter III

Reconsidering the effect of education on East-West migration in Germany[1]

1 This chapter is published in *European Sociological Review* 29 (Issue 2 April 2013), p. 210–228.

Abstract

This article analyzes migration from East to West Germany, focusing on the influence of education on migration and on the self-selection processes involved in decisions regarding education and migration. Using human capital, signaling, and segmentation theory, hypotheses are derived on the influence of education on migration. The migration patterns for men and women are investigated on the basis of SOEP data from 1992 to 2007. The results of the hierarchical logit regression models show that the level of education influences the migration decisions of both men and women. However, Heckman selection models reveal that only the migration patterns of women are defined by a selection of upper secondary education. For women, the results suggest that the same mechanisms drive their participation in upper secondary education and in migration.

1 Introduction

Twenty years after reunification, incomes and corresponding living standards continue to vary considerably between East and West Germany. In 2006, for instance, the average gross income of men in East Germany was only 69 percent of the income in West Germany, having already reached 57 percent in 1992 (for women, the gap declined from 32 to 19 percent).[2] Hardly any other European country has such large regional income differences and such high incentives for relocation; such income differences are more pronounced for international migration. In contrast, to international migration, in the case of East-West migration, the costs of relocation are extraordinarily low due to the lack of legal constraints, low transportation costs, and absence of language barriers. This remarkable combination should represent powerful incentives to migrate for all population groups. However, even in East Germany, migrants tend to be self-selected; only those who will profit from migration are willing to relocate, and these individuals usually have different characteristics than the remaining population. In East Germany, migrants show more favorable characteristics than the average population, e.g. they are younger and better qualified than the remaining population. This relationship between migrants and their favorable characteristics and its consequences have been the focus of public discussions and political debates for some time. Some new federal states have even launched programs to reduce migration or to attract former migrants back and facilitate return migration.[3]

2 My calculations are based on the IAB *Beschäftigten-Historik* (BeH) V7.01, Nuremberg 2007.

3 Mecklenburg-Western Pomerania launched the Internet site mv4you, which provides information on child care, working conditions, transport connections, and job offers for those interested in relocation.

Although numerous studies and various disciplines have addressed East-West migration using individual and aggregate data, our understanding of the migration process, and especially the influence of education on migration, remains limited. Demographic studies at the macro level primarily focus on migration trends that influence the development and structure of the population, marking differences between East and West (e.g., Heiland 2004). In contrast, economic studies based on aggregate data focus on the economic push and pull factors driving migration (cf Arntz 2010; Hunt 2006). Macro-level studies focusing on the impact of education on migration and investigating the "brain drain" are lacking in the case of East-West migration.

For East Germany, research on the influence of education on migration tends to be based on individual data, though this line of research provides mixed evidence. Although it is apparent that migrants tend to be younger (Hunt 2006; Schwarze and Wagner 1992; Wagner 1992; Windzio 2007) and to have earned already more in East Germany than comparable "stayers", i.e., those who decided to stay instead of migrate (Brücker and Trübswetter 2007; Hunt 2006; Windzio 2007), no clear trend is evident for the influence of education on migration.

Using ordinal logit models and controlling for commuting or backward commuting, Hunt (2006) states that migrants and commuters are generally more likely to have higher education than people who stay in East Germany. According to Hunt (2006), individuals with a tertiary education are 83 percent more likely to leave East Germany than those without an educational or vocational degree. Young college graduates are especially mobile: they are five times more likely to migrate to the West than persons without an educational or vocational training. Hunt (2006) also identifies a group of young migrants with low education, who can be described loosely as pupils or students, who migrate to continue their education or start apprenticeships. Other studies do not identify any effect of education on migration (e.g., Brücker and Trübswetter 2007; Windzio 2007).[4] Instead, Brücker and Trübswetter (2007) show that migrants are positively selected from the remaining population with regard to their income and thus are likely to have unobserved positive characteristics. These authors also point out that the wage premium for highly educated individuals is lower in the East than in the West, which would create additional incentives for this group to migrate. Recent international research (cf Carrington and Detragiache 1999; Docquier and Rapoport 2007) has also suggested that migrants are self-selected

4 The data samples used by authors who find an influence of education differ from those who do not find this influence. Hunt (2006) uses SOEP data, whereas Windzio (2007) and Brücker and Trübswetter (2007) base their analyses on IABS data.

on education.[5] These analyses have provided initial indications that individuals who move to the West might be self-selected according to their education. However, migration and education are probably interwoven with each other to a higher degree. The human capital approach implies that the reasons for participating in education and migration are defined by the same mechanisms, as both processes can be understood as investments. The first process can be understood as an investment in human capital, and the second can be understood as an investment in the productivity of human capital. A strong career orientation, for example, can influence the decision to invest in both education and migration. Migration can also serve as a tool to realize full gains from previous educational investments. To account for the relationship between education and migration, it is therefore necessary to control for observed and unobserved characteristics of individuals.

The second issue that has received significant public attention is the lack of young women in the East. In the public opinion, highly educated young women leave East Germany, whereas less educated men with right-wing political views remain there.[6] In fact, there are 115 men between the ages of 18 and 30 who live in East Germany for every 100 women who live there (Grünheid 2009, p. 36 ff). This large difference between the numbers of young men and women living in East Germany can be used as an "argumentum e contrario" for the higher migration rate of young women. Moreover, these numbers may indicate different migration patterns for men and women.[7]

Although these numbers seem demographically and socially alarming, this topic has seldom been addressed in empirical research. The few studies that do address gender differences in the German East-West migration explicitly link gender-specific participation to education and migration and explain the higher migration rates of young women by their higher educational achievements (Dienel and Gerloff 2003; Gerloff 2004). Analyses of extended data considering both the gender and heterogeneity of migrants are needed to provide further insight into the influence of education on migration in East Germany. If the migration patterns of men and women indeed differ, investigating education without taking gender-specific behavior into account would provide an incomplete if not a biased picture.

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5 Doquier and Rapoport (2007), for example, used data spanning five continents to show that the share of highly skilled workers is usually higher among migrants than among the remaining population.

6 See, e.g., Berlin-Institut für Bevölkerung und Entwicklung (2007) Not am Mann: Vom Helden der Arbeit zur neuen Unterschicht?; DRadio Wissen-Kultur (05.08.2010) Not am Mann; The Economist (28.06.2007) We ain't got dames; Die Welt (30.05.2007) Im Osten fehlen die Frauen.

7 Recent international research on developing as well as industrialized countries provides additional evidence of differences in the mobility patterns of women and men (Dumount et al. 2007). In the UK, for example, young women are more likely than young men to leave their city to study. After finishing their tertiary education, young women are again more likely to leave their city for a new destination, whereas their male fellow students are more likely to stay in their current residence or return to their city of origin (Faggian et al. 2007).

This article aims to fill these gaps, focusing on the influence of education on migration and on the self-selection processes involved in the education and migration decisions of males and females. The aim is to answer the following questions. First, to what extent does education influence migration from East to West Germany? Second, are migrants self-selected based on education? Third, do men and women differ in terms of education and self-selection?

In the following, I use theories of human capital, signaling, and segmentation to derive hypotheses about the influence of education on migration. I then investigate the migration patterns of men and women based on the individual behavior causing the macro-level movements.

This analysis is based on SOEP data from 1992 to 2007 and includes measures for education, on-the-job training, and labor market participation. The dataset is composed of men and women between 18 and 60 living in East Germany. Using hierarchical regression models, I investigate the influence of education on migration from East to West Germany. I estimate separate models for men and women to examine migration patterns and carry out combined estimations to investigate factors with a gender-specific influence. Analyzing the migration patterns of men and women not only improves our understanding of sources of gender-specific inequalities but also provides general information on the causes of migration and how these might be influenced or even reduced. Finally, the analysis provides information that can be useful in estimating the migration potential of future events, such as the eastern expansion of the EU.

The individual decision to migrate is also embedded in the process of regional change. Therefore, I control for regional factors, including time-dependent, gender-specific variables of regional unemployment and income levels (NUTS 3 level) as well as time-stable characteristics of the region, such as population density.

In a further step, the Heckman selection model is used to control for unobserved characteristics of migrants that influence both the decision to pursue further education and the decision to migrate. The analysis of selectivity should deepen our understanding of migration and provide information for further research on the processes driving migration.

2 Theory

2.1 Human capital theory

In human capital theory, migration is treated as an allocation strategy to maximize individual income and consumption based on education and work experience

(Borjas 1987; Chiswick 1999; Chiswick 1978; Sjaastad 1962). Migration is a risky investment in the future, similar to schooling or on-the-job training. Therefore, people must be willing to carry present costs to gain future benefits (Sjaastad 1962). The costs of migration are of a monetary and non-monetary nature. Whereas the monetary costs are mostly transportation costs, non-monetary costs are more substantial. They cover the location-specific costs such as, for example, the loss of family and friendship networks (DaVanzo 1983) and opportunity costs.

Spatial income gaps offer incentives for migration: the higher they are, the more individuals can profit. Two kinds of human capital, specific and general knowledge, dictate the returns of migration. Specific knowledge includes information obtained through the institution in which a person is employed; it is usually acquired on the job and is strongly associated with seniority. It cannot be easily transformed and loses its value after a change of employer. As a result, productivity as well as financial compensation should drop in a new job. *Individuals with higher levels of specific knowledge should be less likely to migrate (H1: human capital theory).* General knowledge, however, is usually acquired in educational institutions. Its universality enables people with high levels of general education to switch employers more easily and permanently, as productivity levels should be comparable among institutions. *Individuals with higher levels of general education should be more likely to migrate (H2: human capital theory).* Moreover, individuals with higher general knowledge usually have reduced non-monetary migration costs, for example, due to broader friendship networks (cf Brücker and Trübswetter 2007, p. 374).

The ratio of specific to general knowledge defines the gains from migration. Individuals with low proportions of specific to general knowledge will profit most from relocation. The ratio differs strongly but not randomly among population groups. Younger people who have recently left general education and are at the beginning of their careers have a lower ratio of specific knowledge to general education than older employees. *Younger individuals should be more likely to migrate (H3: human capital theory).* This also follows from the fact that younger individuals have a longer remaining duration to spend in the labor force, during which time they profit from higher wages.

The theoretical approach by Sjaastad (1962) provides general hypotheses, which do not take into account the situation in the East and West German labor markets. Borjas (1987) and Chiswick (1978; 1999) extend this classic human capital approach, taking into account discrepancies in income distributions that cause different returns on migration for individuals with varying education levels. This provides a way to account more precisely for the specific situation in East and West Germany. If the income gap is large enough, all groups of the population should

profit from migration regardless of the income distribution in the sending and receiving regions. If the gap is small, the individual's gain is dependent on income distribution, and only certain groups profit from migration. If the earnings at the destination are less equal than at the origin, people at the higher end of the income distribution – usually those with higher educational levels – will migrate. They benefit not only from the income gap but also from the higher marginal value of their education at the destination. The lower educated, in turn, favor destinations with narrow income structures. The penalty for the lack of education is lower in those regions because the divergence in living standards between rich and poor is smaller. As a former socialist country with high income equality, East Germany is still influenced by the past and shows considerably lower income inequality than West Germany (Statistisches Bundesamt 2004, p. 627 ff). Due to the differences in income distribution between the two parts of Germany, highly educated individuals from the East should profit most from migration.[8] The extended human capital theory thus provides the same prediction as summarized in H2.

2.2 Signaling theory

Signaling theory extends the human capital approach by addressing differences in productivity among workers that can only be observed indirectly via education (Spence 1974; Weiss 1995). Employers are usually not able to measure all characteristics that influence workers' productivity of directly, and they are prohibited from asking some questions. At the same time, companies that need highly qualified employees – requiring expensive on-the-job training – are interested in productive and reliable workers. The main idea behind this approach is that differences in worker productivity are caused by unobserved characteristics that drove the workers' prior educational choices and achievements and that affect their current performance (Spence 1974; Weiss 1995). At this point, education provides a reliable proxy for productivity. Individuals with higher educational levels are not a random sample of the population; they are generally healthier, less likely to smoke or take drugs, and less likely to quit (Weiss 1995).

For migrants, education plays an even more critical role (Katz and Stark 1987; Stark and Bloom 1985). For example, employers have a more difficult time checking previous employment references for individuals who did not previously work in the region because they cannot easily make use of unofficial channels for background checks. The employer therefore takes a higher risk by hiring a person

8 There is a potential counter-mechanism that must be mentioned. In societies with compressed income structures, high-skilled jobs are less expensive relative to low-skilled jobs. This might encourage companies with high demand for skilled work to relocate to East Germany and reduce the migration of highly skilled workers.

from another country or region. Educational and vocational qualifications reduce this risk. In Germany, every effort has been made to ensure the comparability of educational and occupational qualifications between East and West Germany.[9] The Unification Treaty (article 37) enables East Germans to verify their educational and vocational qualifications.

The hypothesis derived from signaling theory agrees with H2, which is derived from human capital theory. Individuals with higher levels of general education should find jobs more easily in West Germany and thus should be more likely to migrate.

2.3 Segmentation theory

The idea behind this approach is that the different "segments" of the labor market offer different conditions and thus require different adoption strategies. Not all of these market segments obey the law of supply and demand; some are ruled by agreements or social norms. In their original articulation of these segments, Doeringer and Piore (1971) and Piore (1979) distinguish between the internal and external market. For Germany, Lutz and Sengenberger (1980) and Sengenberger (1987) broaden this approach and distinguish between two external markets, defining a third segment: the professional labor market.

The internal labor market offers high job stability, high prestige, good pay, and well-defined career opportunities (Blossfeld and Mayer 1988). The possibility that an internal market exists increases with the size of the company. It is characterized by high interdependency between employers and employees and a need for special skills. Such skills cannot be acquired outside the company, and training costs are high. In the internal market, employers are interested not only in short-term productivity but also in the continuity of work and long-term gains. Additionally, because replacing workers is expensive, employers offer workers incentives to prevent them from quitting. Consequently, employees are not hired just for a single job but rather are given a contract stipulating progressive job responsibilities with a clear career definition, and they are paid based on the position they occupy.

The opposite of the internal market is the unstructured external market, which is governed by the neoclassical laws of supply and demand.[10] Incomes are low and

9 The Unification Treaty (article 37) ensures the comparability of vocational and educational qualifications. Initial steps in this direction were taken as early as August 1990 with the passage of West German legislation on vocational training. Vocational training was already relatively similar between East and West Germany due to the standardization and formalization of occupations (Konietzka 2003).

10 Kleber (1988) points out that internal and external markets are not equivalent to primary and secondary. He shows that although the differentiation between internal and external labor markets can be derived from the special conditions in those segments, the differentiation between primary and secondary is based to a greater degree on a description of the phenomena.

flexible, and there are no possibilities for promotion. In Germany, this is only partly true, as the professional labor market differs from this classical description. This description is more representative of the unskilled labor market, where have little experience and employers and employees are not interdependent. Here, employers tend toward statistical discrimination, and employees are less motivated, quit frequently, and are more often late or absent. The professional labor market, in turn, shares some of the characteristics of the internal market, even though it is an external labor market. In the professional labor market, income structures are well-defined, and the interdependency between employers and employees is high. At the same time, most of the firms in the professional segment are smaller and unable to absorb economic shocks. Correspondingly, the fluctuation between firms is higher in this sector than in the internal labor market, although jobs are more stable than in the unskilled labor market. As in the internal market, qualifications are key in the professional market; they are acquired through vocational training. According to segmentation theory, those with the highest education are not necessarily the most mobile. *Individuals employed in the internal labor market with high but also highly specific skills are less likely to relocate to West Germany than individuals employed in the professional market with moderate general education and vocational training (H4: segmentation theory).* Due to the advantageous conditions in the internal labor market, the conditions offered in West Germany must be far better than those in the East to outperform the current benefits and the monetary and non-monetary costs. This view is supported by recent research focusing on the US that suggests that people already employed in a good position are less likely to change jobs (Fuller 2008). As previously described, the unskilled labor market is characterized by high job fluctuations, so we would usually expect the highest mobility in this sector. However, the situation in the case of East and West migration should be different because such relocations require high financial investments. Even if someone employed in the East German unskilled labor market were able to cover the migration costs, a job in this segment in the West does not provide security that the financial investments will be compensated. *Individuals employed in the unskilled labor market should be least likely to migrate to the West (H5: segmentation theory). Meanwhile, individuals employed in the professional labor market should be the most likely to relocate (H6: segmentation theory).*

2.4 Gender-specific differences

Comparison of the gender-specific wage gap shows that the differences between Eastern and Western wages are smaller for women than for men. Moreover, considering that women are more likely to interrupt their careers for child-rearing,

it could be expected that women are less likely to migrate. However, analyses at the aggregate level (e.g., Grünheid 2009) as well as the dataset's indication of women's higher likelihood to migrate refute this logic and reveal that the process in East Germany deviates from classical gender patterns. Education seems to be one of the main factors that influence the migration of women more than the migration of men (Dienel and Gerloff 2003; Gerloff 2004). Moreover, the individual rates of return from migration are defined by personal characteristics and do not necessarily follow the general trend as defined by the income gap. If women who migrate are highly skilled, they may show even higher rates of return from migration than men. In East Germany, 90 percent of the population between 25 and 64 has finished at least intermediate secondary school or completed vocational training. This is higher than the OECD average (67 percent) and is even higher than the percentage in West Germany (84 percent) (Statistische Ämter des Bundes und der Länder 2006, p. 29 ff). Moreover, the percentage of the population with secondary and tertiary education is higher among East German women than among men (Statistische Ämter des Bundes und der Länder 2006, p. 29 ff). As discussed in the human capital approach, the highly educated should gain more from migration. Because a larger percentage of women are highly educated, they should obtain significant gains from relocation. If this is true and if the higher education of females is the driving force behind women's greater likelihood to migrate, then education should have a greater impact on women's migration patterns.

The extended human capital theory from Chriswick (1978; 1999) and Borjas (1987) provides a similar prediction. The income structures in East and West Germany encourage highly educated individuals to leave the East. The smaller income gap between East and West Germany for females compared to the gap for males should narrow the group of females who are able to profit from the migration. Therefore, the following can be hypothesized: *Women who migrate to West Germany are more likely to be positively selected on education from the remaining population than males who migrate to the West (H7: human capital theory).*

3 Data, measures, and methods

3.1 Data

For this study, I use the 1992 to 2007 waves of the German Socioeconomic Panel (SOEP). The SOEP is a representative longitudinal survey of private households that began in 1984 for West Germany and West Berlin (Wagner et al. 2007). In 1990, the sample was extended to the former GDR. The sampling procedure is based on a random selection of households; every household member over 16 is surveyed. Here,

I analyze an unbalanced sample, including individuals who entered the sample after 1992 in the estimations. I also include persons who were absent in one or more waves in the sample. The SOEP dataset contains over 220,705 cases from the years 1992 to 2006.[11] Because I am only interested in migration from the East to the West, the study is restricted to East Germany and contains 55,599 cases. People with missing values for the independent variables are kept in the sample, whereas the missing values are estimated by single imputation. The sample selection left 7,917 persons (56,234 cases) between 18 and 60 years. The relationship between men and women in the dataset is balanced: 50.2 percent of individuals surveyed are female. Over the years, 602 persons (264 men and 338 women) moved to West Germany, which equals 7.6 percent of persons meeting the selection criteria. At 8.5 percent, the migration rate is slightly higher for women than for men (6.7 percent).

3.2 Measures

Dependent Variable

People are defined as migrants when they move from East to West Germany and when the interview is actually carried out at their new place of residence. The dependent dummy variable "migration" takes the value one if a person relocates from East to West Germany and is zero otherwise. Only the first relocation from East to West Germany is considered. All periods following the migration are censored. To ensure the comparability of migrants and stayers, all features of migrants are measured in the last year spent in East Germany.

Independent variables

I use independent variables at the individual and regional levels. Each variable is described briefly in the following section.

Education: I distinguish among four categories of completed education. The first category combines individuals with lower secondary education, those with no secondary education, and those who did not answer this question. The other categories of education levels are defined as follows: intermediate secondary education, upper secondary education, and tertiary education or higher.

Vocational training: A dummy variable indicates whether an individual completed vocational training (1) or not (0).

Duration spent in the last company measures seniority using years of employment experience in the most recent job.

11 The data contain information on migration if a person relocated between two waves, e.g., between 2000 and 2001 from East to West Germany. In this paper, the last year spent in East Germany is considered, and migration is coded as the year 2000.

Duration spent in unemployment approximates the loss of firm-specific human capital in years taking all previous periods of unemployment into account.

Educational degrees of parents: A dummy variable is used to identify persons whose parents completed upper secondary education. The dummy takes the value one when at least one parent successfully completed upper secondary education.

Income: The logarithm of individual deflated monthly gross wage is used.[12]

Employment status: This variable distinguishes between four categories: full-time employment, part-time employment, apprenticeship, and maternity leave, irregular employment or unemployment.

Age is measured in years; years squared is added to capture non-linear relationships.

Marital status: A dummy variable takes the value one if a person is cohabiting with a partner or married and may therefore be restricted in their migration decisions.

Children: Two dummy variables indicating the presence of children younger than 6 and between 7 and 18 in the household. They take the value one if children in the age category are present.

House owner is a dummy variable that takes the value one if a person owns the property.

A range of time-stable and time-dependent regional variables that are used to describe the institutional framework are included in the analysis.

Daily income levels: All information on average daily incomes (rounded to €1) is taken from the data of the Federal Employment Agency, which are based on the IAB Beschäftigten-Historik (BeH) V7.01, Nuremberg 2007. The variable provides gender-specific values. In the first step, individual daily income is estimated using information on the length of the employment period (in days) and the aggregated gross income over the entire period. Subsequently, the average daily income in a region is estimated, taking into account all persons employed over the marginal threshold.

Regional unemployment rates: The unemployment rates (rounded to 1 percent) from 1998 to 2006 were taken from the official data of the Federal Employment Agency. Gender-specific unemployment rates on the NUTS 3 level are not available before 1998. Nevertheless, the IABS data make it possible to approximate the gender-specific unemployment rates for the period from 1992 onward. Therefore, the information on local unemployment rates is derived from two sources.

Geographic distance: The distance is measured, in ten-kilometer intervals, from the district town in the source region to the next West German district town or to West Berlin.

12 The income is thus ln(Z+1), where Z is the total income in 1992 Euros.

Density of population: The last variable providing information on regional features is a dummy measuring the density of population in a region. It takes the value one if the region in question is urban with more than 100,000 residents and thus accounts for the different conditions in cities that may discourage or encourage migration.

The distributions of all variables are presented separately for men and women in the Appendix (Tables 4 and 5).

3.3 Methods

3.3.1 Random effects regressions

In the SOEP data, respondents are surveyed on multiple occasions, creating a hierarchical structure of the data. The repeated observations are "nested" within the individuals. In this analysis, the individuals (level 2 unit) provide information on various occasions (level 1 unit). Therefore, time-invariant variables are displayed at the second level, whereas time-variant ones form the first level. Hierarchical logit regressions are used to estimate the relationship between individual and regional characteristics and migration accounting for the structure of the dataset. They control for the nonindependence of the likelihood of migration of individuals over time. Even when they are based on different assumptions, both applications, the random effects and the fixed effects hierarchical models, control for unobserved heterogeneity among individuals.

Ideally, fixed effects logit regressions would be used. They account for the changes an individual undergoes over time while controlling for the time-stable unobserved heterogeneity (Singer and Willett 2003). In practice, however, random effects logit regressions[13] must be used because the great advantage of fixed effects models, the limitation to within variance, is at the same time its greatest weakness. Because most individuals entered the survey after completing their education, the fraction of the within variance of the educational variables is relatively small. Using fixed effects models would leave a large part of the variance, the between variance, unexplained.[14] Random effects models, in turn, describe the likelihood of migration for an entire group that displays a specific characteristic, such as a university degree, compared to the group without this feature. Between and within variance are both integrated into the estimations.

13 The Hausman test confirms that the random effects models are consistent.

14 See Tables 6 to 9 in the appendix for the distribution of between and within variance for the educational variables.

Fixed and random effects hierarchical models share many advantages; for example, they do not require the same number of observations over time for all households included in the analysis. This makes it easier to deal with missing data. Because in this investigation both the frequency of interviews carried out and migration itself are highly dependent on age, a method based on a balanced data set would underestimate the percentage of individuals at risk of migration. Individuals with gaps between the periods under consideration can be included in the estimation. This also reduces the likelihood of underestimating the population at risk, as the likelihood of missing a wave is higher for individuals in single households and singles are more likely to relocate. The main disadvantage of random effects models compared to fixed effects models is that they require an additional assumption regarding the structure of the unobserved characteristics, assuming that the unobserved characteristics are not correlated with the explanatory variables. This is a strong assumption because, for example, it must be assumed that the unobserved career orientation is not correlated with the educational degree after all control variables are included. Therefore, in a second step, I use Heckman selection controls to account for the unexplained heterogeneity without relying on assumptions that are as strong as those required in random effects models.

In the analytical application of random effects models, I allow the individuals to vary in their intercept but not in their slope. Therefore, a separate intercept for every individual included in the data is estimated. The deviation of the individual values from the general mean is captured in an additional error term.

3.3.2 Selection bias

Unobserved heterogeneity occurs when characteristics related to the dependent variable of interest, which in this case is the decision to migrate, cannot be estimated. Usually, the information is missing because of the lack of variables in the data. Sometimes, it is not possible to capture all of the factors that may influence a process. If the unobserved heterogeneity is not controlled for, the results may be biased, which usually leads to estimated factors indicating stronger effects than those that actually exist. The Heckman selection model controls for unobserved heterogeneity and can estimate the unbiased effect of education on migration (Heckman and Smith 1996).[15]

Individuals may choose to move to the West not because they have a certain educational degree but because of their unobserved characteristics, such as career orientation. To investigate the relation between education and migration while

15 One crucial advantage of this method compared to the instrumental variable method, which can be also used to control for unobserved heterogeneity, is that the Heckman selection does not require such strong behavioral and statistical assumptions (Heckman and Smith 1996, p. 70).

taking the unobserved heterogeneity into account, a selection control described by Hackman and Smith (1996, p. 69 ff) is used.[16] In their empirical application, Heckman and Smith (1996) investigate the impact of employment and training schemes on re-entry into the labor market. The aim was not only to analyze the direct impact of the scheme on re-entry but also to consider that the unobservable characteristics of people participating in such programs may differ from those who do not participate. A similar situation can be found in the case of migration. People participating in education are more likely to migrate. However, this might not be due solely to the fact that they have a higher educational degree; rather, it may be because of unobserved characteristics such as career orientation that drive participation in both education and migration. Finally, other than fixed and random effects regressions, the Heckman selection not only controls for unobserved heterogeneity but can actually show whether the estimations are influenced by unobserved heterogeneity. In this approach, y defines the probability of migration, and z^* defines the probability of attending upper secondary school and serves as a correlation bias. The Mills ratio is estimated from z^* (Equation 2) and is introduced into the first estimation to investigate the process of interest: migration (Equation 1). δ defines the impact of the probability of upper secondary school attendance on migration for all individuals, even those who have not yet completed upper secondary schooling.[17]

$$y = x_i\beta + z\delta + \mu_i \tag{1}$$

$$z^* = w_i\gamma + \varepsilon_i \tag{2}$$

$z^* > 0$ if $z_i = 1$; $z_i = 0$ otherwise

y dependent variable of interest
x variables that predict the dependent variable
β coefficient of x
ε_i, μ_i error terms
z^* selection rule
w variables that predict the z^*
γ coefficient of w
z inverse Mills ratio
δ coefficient of z

16 Björklund and Moffitt (1987) show that this mechanism could be used for other applications, such as to investigate the impact of migration, union membership, or education on earnings.

17 For the formulas, see Heckman and Smith (1996) and Björklund and Moffitt (1987).

4 Results

In this section, the results of the random effects hierarchical logit regressions for migration from East to West Germany are discussed. Table 1 presents the results for women, and Table 2 presents the results for men.

The estimations indicate that women with upper secondary education are more likely to migrate to the West than those without upper secondary education, with a lower secondary degree or with tertiary education. The high mobility of the group with secondary education may be partly due to the fact that they migrate to continue tertiary or vocational education. Individuals with tertiary education are less likely to relocate than those with upper secondary education. The migration of such highly educated individuals may be lower because the highly educated may have better chances of finding jobs in the East; for example, unemployment rates are generally lower for more qualified individuals. In addition, having received their tertiary education in the East, these individuals may also be able to establish better networks, which could improve their access to the labor market.

With every year a women spends in a company, her likelihood of migration declines by five percent.[18] Firm-specific knowledge cannot easily be transferred between companies. Therefore, for migration to become attractive to individuals who have spent a long time with a company and have accumulated significant specific knowledge, other factors must take precedence over the loss of seniority, and the rewards of education or general labor market experience must be exceptionally high. At the same time, seniority increases wages over the life course in East and West Germany to the same degree, such that for each additional year of seniority, the wages rise by the same degree in the East and in the West (Orlowski and Riphan 2009). However, this is not true for the labor market experience gained in all jobs over the life course in East German companies. Experience accumulated in the East is valued less in West Germany than experience accumulated in the West (Orlowski and Riphan 2009), which is especially important for individuals who have already accumulated significant experience. Workers with higher seniority who migrate to the West are at a disadvantage not only because it is difficult to transfer firm-specific knowledge but also because their overall labor market experience gained in East German companies is valued less in the West.

18 Note that the effects found in random effects models cannot be interpreted as causal effects of x on y. For an interpretation of the effects, odds ratios can be calculated with the following formula: exp(-0.0550)-1=0.0535.

Table 1: Determinants of the migration from East to West Germany; females, 1992–2006; application of random effect logit regressions

women	I	II	III	IV
individual characteristics				
reference group: lower secondary education				
intermediate secondary education	-0.0310	-0.1161	-0.0855	-0.0925
	(0.1714)	(0.1800)	(0.1825)	(0.1830)
upper secondary education	0.6514***	0.4805*	0.4699*	0.4337*
	(0.1884)	(0.1913)	(0.1976)	(0.1985)
tertiary education	1.3176***	0.2611	0.2672	0.2484
	(0.2332)	(0.2327)	(0.2425)	(0.2446)
vocational training	-0.5671***	-0.1700	-0.1865	-0.1367
	(0.1302)	(0.1355)	(0.1388)	(0.1394)
age		0.0897	0.1300*	0.1042
		(0.0493)	(0.0543)	(0.0541)
age squared		-0.0020**	-0.0024**	-0.0020**
		(0.0007)	(0.0007)	(0.0007)
partner		-1.1046***	-1.0515***	-0.9990***
		(0.1494)	(0.1501)	(0.1450)
reference group: no children in the household				
children younger than six		-0.0986	-0.1537	-0.1861
		(0.1828)	(0.1910)	(0.1908)
children between six and 19		-0.4500*	-0.4706*	-0.3935
		(0.2011)	(0.2036)	(0.2044)
duration spent in the last company			-0.0547**	-0.0550**
			(0.0182)	(0.0184)
cumulative duration spent in unemployment			0.0210	-0.0056
			(0.0428)	(0.0442)
gross income (in €100)			0.0545	0.0411
			(0.0452)	(0.0450)
reference group: unemployed				
employed part-time			-0.6338	-0.5715
			(0.3728)	(0.3710)
in apprenticeship			0.0514	0.2249
			(0.3128)	(0.3123)
employed full-time			-0.3082	-0.2023
			(0.3329)	(0.3326)
homeowner				-0.6848***
				(0.1395)

women	I	II	III	IV
regional characteristics				
regional income level				-0.0122***
				(0.0034)
unemployment rates				-0.0064
				(0.0130)
distance to the old federal states (10 km)				0.0014
				(0.0008)
urban area				0.2155
				(0.1415)
n person-years	26284	26284	26284	26284
n person	3975	3975	3975	3975
standard deviation of the random effect term	0.8984	0.5370	0.5340	0.5303
variance reduction in percent	-0.4	-1.9	-1.9	-1.9
log likelihood	-1714.6	-1585.8	-1574.8	-1551.9

SOEP data 1992–2006; *** sign. P≤0.001; ** sign. P≤0.01; * sign. P≤0.05.

[1] Grand mean: standard deviation 0.9150; log likelihood -1,763.0.

[2] The variance reduction (also r^2 aggregate) is a measurement of the quality of the model. It indicates how much of the variance can be explained through the introduction of the variable corresponding to the grand mean. Usually, no positive values should be found; however, sometimes it can happen that the variance is greater when additional variables are included. For the estimation of the variance reduction, the variance of the second level of the grand mean model is divided by the variance of the second level of the corresponding model. Then the value is subtracted from one: 1 – (var_2ed level g. m.)/(var_2ed level) (see Snijders and Bosker 1999). The variance reduction for the first model is estimated as follows: $1 - (0.9150^2)/(0.8984^2) = -0.4$. We can see that with every new model, the variance was reduced by some percentage.

[3] A test referring to the quality of the model is the log likelihood test, which measures the improvement between models. The log likelihood test statistic is estimated in the following way: =(2ln(L2) – 2ln(L1); degrees of freedom (m2 – m1).The log likelihood test indicates for all models, except Model 3, an improvement at the 0.001 significance level.

Table 2 contains similar estimations for men. A first impression that arises from a comparison of Tables 1 and 2 is that for men, more variables show significant effects on migration.

For men, the effect of education shows a pattern similar to that found for women. The results indicate that males with upper secondary education are more likely to move to the West than those without secondary education or with lower secondary education, and they are more likely to do so than males with tertiary education. Seniority also reduces the probability of migration for men. The effect of vocational training seems to differ, albeit not significantly, between men and women. For women, vocational training reduces the likelihood of migration, whereas for men, the effect displays a positive but not significant impact. The varying effect may also indicate that the segregation of men and women into different occupations may lead to different chances of finding a job in the West.

Table 2: Determinants of the migration from East to West Germany; males, 1992–2006; application of random effect logit regressions

men	I	II	III	IV
individual characteristics				
reference group: lower secondary education				
intermediate secondary education	0.4343*	0.2892	0.3049	0.3206
	(0.1826)	(0.1896)	(0.1928)	(0.1935)
upper secondary education	0.7166***	0.8180***	0.7581***	0.7374**
	(0.2110)	(0.2188)	(0.2239)	(0.2254)
tertiary education	1.5075***	0.7371*	0.4545	0.4383
	(0.2830)	(0.2863)	(0.3092)	(0.3109)
vocational training	-0.0248	0.1631	0.1369	0.2082
	(0.1331)	(0.1426)	(0.1453)	(0.1481)
age		0.1023*	0.0857	0.0643
		(0.0485)	(0.0545)	(0.0541)
age squared		-0.0021**	-0.0018*	-0.0015*
		(0.0007)	(0.0007)	(0.0007)
partner		-0.4389*	-0.4510*	-0.5324**
		(0.1738)	(0.1760)	(0.1701)
reference group: no children in the household				
children younger than six		-0.3551	-0.3540	-0.3480
		(0.2283)	(0.2280)	(0.2282)
children between six and 19		-0.7896**	-0.7567**	-0.6220*
		(0.2455)	(0.2464)	(0.2472)
duration spent in the last company			-0.0346*	-0.0366*
			(0.0153)	(0.0154)
cumulative duration spent in unemployment			-0.0700	-0.1330
			(0.0682)	(0.0711)
gross income (in €100)			0.1505**	0.1324*
			(0.0534)	(0.0545)
reference group: unemployed				
employed part-time			-0.8178	-0.7807
			(0.6066)	(0.6111)
in apprenticeship			-1.2594**	-1.1290**
			(0.4109)	(0.4164)
employed full-time			-1.0103*	-0.8458*
			(0.3973)	(0.4050)
homeowner				-0.9486***
				(0.1625)
regional characteristics				
regional income level				0.0220
				(0.0145)
unemployment rates				-0.0034
				(0.0031)
distance to the old federal states (10 km)				0.0022*
				(0.0010)
urban area				0.0478
				(0.1554)

men	I	II	III	IV
n person-years	25260	25260	25260	25260
n person	3932	3932	3932	3932
Standard deviation of the random effect term	0.5497	0.5330	0.5344	0.5380
variance reduction[1]	0.0	-0.6	-0.6	-0.5
log likelihood[2]	-1,422.5	-1,353.0	-1,345.6	-1,318.0

SOEP data 1992–2006; *** sign. P≤0.001; ** sign. P≤0.01; * sign. P≤0.05.

[1] Grand mean: standard deviation 0.5506; log likelihood -1,437.2.

[2] The log likelihood test indicates for all models, except Model 3, an improvement at the 0.001 significance level.

Additionally, some of the other variables show gender-specific differences. For men as for women, having a partner reduces the likelihood of migration, which is in line with the household economics of Mincer (1978). This suggests that for individuals in relationships, the monetary and non-monetary costs of the partner have to be considered when deciding on migration.

In contrast to women, for men, the likelihood of migration rises by 14 percent with every €100 increase in income. This may seem puzzling at first, but it is in line with the results of other studies (Brücker and Trübswetter 2007; Hunt 2006; Windzio 2007). Moreover, a positive effect of income may indicate a positive selection of migrants (cf Brücker and Trübswetter 2007).

For men, employment status also shows a strong and significant impact on migration. Men who are employed full-time or in an apprenticeship are less likely to leave East Germany than the unemployed or those employed on an irregular or marginal basis. For women, employment status was less significant.

Regarding regional characteristics, the distance to the old federal states or West Berlin shows a positive effect for men but not for women. It appears that men who live close to the former border can easily commute to work. When the distance increases, the monetary as well as the non-monetary costs of commuting increase (cf Stutzer and Frey 2008), and migration may become the preferable option. In contrast to women, for men the regional income levels show no significant effect on migration. Even if they are mostly insignificant, the signs of the results are in line with those of Hunt (2006), who investigated the impact of regional characteristics on the basis of aggregated data. She found a negative effect of income level in the region of origin (here significant only for females) and a positive effect of unemployment rates, indicating that an increase in regional income levels (unemployment) reduces (increases) migration to the West. She also found a higher impact of source wages than that of source unemployment, which is the case here for females.

To account for gender-specific differences, the data samples for men and women were pooled, and interaction terms for gender and all other covariates were generated and included in the estimations. In all models, the effect on relationship and the effect of being in an apprenticeship (but only in the first model) differed by

gender at the 5 percent significance level. All other variables showed similar impacts for both sexes.

Selection bias

The results of the Heckman selection are displayed in Table 3. The selection models are estimated with probit regressions.[19] For the selection equation, the probability of attending upper secondary education is used. The introduction of the inverse of the Mills ratio may introduce severe multicollinearity into the model; indeed, the multicollinearity is so high that the variables measuring general education have to be excluded.[20] This reduces our interpretation possibilities, as the pure effect of education on migration and the influence of the unobserved characteristics can no longer be distinguished. To control for the longitudinal structure of the data, the error terms are clustered for individuals.[21]

Table 3: Determinants of the migration from East to West Germany; Heckman selection on upper secondary education; 1992–2006; application of probit models with clustered error terms

	women I	women II	men I	men II
individual characteristics				
reference group: lower secondary education				
intermediate secondary education	-0.0366		0.1125	
	(0.0733)		(0.0751)	
upper secondary education	0.1843*		0.2818	
	(0.0797)		(0.0859)	
tertiary education	0.0993		0.1675	
	(0.1025)		(0.1239)	
vocational training	-0.0440		0.0831	
	(0.0537)		(0.0567)	
age	0.0253	0.1949***	0.0172	-0.0493
	(0.0199)	(0.0428)	(0.0205)	(0.0501)
age squared	-0.0006*	-0.0028***	-0.0005	0.0003
	(0.0003)	(0.0006)	(0.0003)	(0.0006)
partner	-0.3878***	-0.3478***	-0.2022***	-0.0934
	(0.0555)	(0.1093)	(0.0651)	(0.1623)

19 I use one-step estimators and STATA 10 to obtain the results. Parental education is used as the single exclusion restriction.

20 This solution was also used by Li et al. (2000). The problems that might arise from such exclusion are discussed by Briggs (2004, p. 415).

21 The estimations of the logit (Table 1 and 2) and probit (Table 3) models can be compared when the coefficients of the probit model are multiplied by 1.7. However, the models used in Tables 1 and 2 are estimated with random effects logit models, whereas the results in Table 3 are based on probit models with clustered error terms; therefore, the results may deviate. Moreover, because the probit estimations are based on normal errors and the logit regression on logistic ones, the significance levels of the variables included in the estimation may also differ (see Long 1997).

	women I	women II	men I	men II
reference group: no children in the household				
children younger than six	-0.0763	-0.3208*	-0.1387	-0.2063
	(0.0749)	(0.1423)	(0.0848)	(0.1786)
children between six and 19	-0.1350	-0.5436***	-0.2217*	-0.2025
	(0.0762)	(0.1575)	(0.0872)	(0.1368)
duration spent in the last company	-0.0171*	-0.0351**	-0.0118	-0.0057
	(0.0075)	(0.0122)	(0.0061)	(0.0108)
cumulative duration spent in unemployment	-0.0022	-0.0098	-0.0452	-0.1472
	(0.0163)	(0.0412)	(0.0270)	(0.1134)
gross income (in €100)	0.0162	-0.0369	0.0568**	0.1547**
	(0.0192)	(0.0406)	(0.0217)	(0.0542)
reference group: unemployed				
employed part-time	-0.2320	-0.0376	-0.3356	-0.8567
	(0.1466)	(0.3138)	(0.2403)	(0.5416)
in apprenticeship	0.0892	0.5066	-0.4732**	-1.0162*
	(0.1327)	(0.2644)	(0.1646)	(0.4151)
employed full-time	-0.1015	0.0640	-0.3743*	-0.8034*
	(0.1387)	(0.2909)	(0.1620)	(0.3719)
homeowner	-0.2768***	-0.2523***	-0.3647 ***	-0.3538***
	(0.0544)	(0.1024)	(0.0597)	(0.1402)
regional characteristics				
regional income level	-0.0047***	-0.0023	-0.0013	0.0031
	(0.0013)	(0.0027)	(0.0012)	(0.0023)
unemployment rates	-0.0038	-0.0002	0.0075	0.0153
	(0.0052)	(0.0102)	(0.0054)	(0.0109)
distance to the old federal states (10 km)	0.0006	-0.0007	0.0009*	0.0002
	(0.0003)	(0.0007)	(0.0004)	(0.0008)
urban area	0.0798	0.1239	0.0277	-0.1675
	(0.0551)	(0.1055)	(0.0598)	(0.1214)
inverse Mills ratio		-0.3329*		-0.1913
		(0.1679)		(0.1751)
reference group: cohort 1970 and 1980				
cohort 1960		-0.1438*		0.0883
		(0.0696)		(0.0754)
cohort 1950		0.1004		0.4692***
		(0.0687)		(0.0746)
cohort 1940		-0.2230**		0.4164***
		(0.0858)		(0.0816)
cohort 1930		-0.5956***		0.2121
		(0.1359)		(0.1218)
parents have upper secondary education		0.7033***		0.8535***
		(0.0694)		(0.0701)
n persons	3975	3975	3932	3932
n person-years	26284	26284	25260	25260
n person-years censored		21566		20609
n person-years uncensored		4718		4651
log likelihood	-1553.1	-12223.8	-1318.3	-11675.4
rho		-0.3211*		-0.1890

SOEP data 1992–2006; *** sign. P≤0.001; ** sign. P≤0.01; * sign. P≤0.05.

The lower part of Table 3 displays the variables used to generate the selection mechanisms. Women born after 1970 and women within the 1950–1959 cohort are the most likely to have completed upper secondary education. The effects are different for men; here, the cohorts born in the 1950s and 1960s are those with the highest likelihood of having completed upper secondary education.[22]

The impact of parents' education shows a positive influence for men as well as for women. Children of parents who completed upper secondary education are more likely to complete upper secondary education themselves.

We can see that rho[23] and the inverse Mills ratio are both significant in Model 2 of Table 3; therefore, the selection model should indeed be used for females. Whereas the Heckman selection clearly reveals a selection process involved in the migration of women, the investigation of the effects for men indicate no such process. Rho and the Mills ratio in Model 4 of Table 3 remain insignificant. The estimation of the Heckman selection controls reveal that for women, unobserved characteristics influence the decision to migrate, as they have already influenced the decision to participate in education. The results also show that for women, both education and migration are driven by similar underlying mechanisms. The results thus support the common human capital theory view that both decisions are investments in human capital or its productivity. Using selection controls changes the significance and the magnitude of some of the variables. For example, the effects of children in the household become significant, which suggests that after controlling for the unobserved characteristics of females, the presence of children shows a negative impact on migration.

5 Conclusion

The purpose of this article was to investigate migration from East to West Germany. The focus was on the influence of education on migration and on the self-selection processes involved in both education and migration decisions. Moreover, gender-specific differences between men and women were analyzed. Human capital, signaling, and segmentation theory were used to derive hypotheses on the influence of education on migration. Random effects hierarchical regressions and Heckman selection models were estimated.

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22 The effect corresponds partly to the statistics released by the federal and state statistical offices (Statistische Ämter des Bundes und der Länder 2006, p. 31), demonstrating that in the new federal states, the percentage of men with upper secondary education rather than lower or intermediate secondary education is higher among individuals aged 55–64 than among those 25–34. The relation differs for women according to the statistic, as young women (25–34) in East as well as in West Germany are more likely to hold a secondary degree than those 55–64 years old.

23 Using the terminology from formula 1 and 2; rho refers to the correlation of ε_i and μ_i.

The following questions may be asked:

Which hypotheses received empirical support? For women, hypotheses had to be tested based on the Heckman selection presented in Table 3; for men, the hierarchical regression models displayed in Table 2 are accurate. Both estimations show similar effects. For both men and women, the first hypothesis (H1) can be confirmed: *longer durations in a company accompanied by higher seniority reduce the likelihood of migration.* H3 also receives empirical support, as *younger individuals are in fact more likely to migrate to the West.*[24]

H2, derived from both the human capital and signaling theory and indicating that *individuals with higher levels of specific knowledge should be more likely to migrate*, cannot be confirmed. Individuals with upper secondary education are indeed more likely to leave East Germany than those with no, lower secondary, or intermediate secondary education. However, it is not individuals with tertiary education but those with upper secondary education who are the most likely to leave their region. Furthermore, the assumptions derived from the segmentation H6, suggesting that *individuals employed in the professional labor market should be the most likely to migrate,* and H4 (*individuals employed in the internal labor market are less likely to relocate than individuals employed in the professional market)* did not withstand the empirical test. For men, the impact of vocational training on migration is indeed positive, although it is weaker than the impact of general education and is also not significant. For women, completing vocational training reduces the likelihood of migration.

Males with the lowest education and those without vocational training as well as *those employed in the unskilled labor market are indeed the least mobile group*. Thus far, the results are consistent with the outline of hypothesis five. Nevertheless, H5 cannot be confirmed for males because the effects on educational degrees are not always significant. For women, the effect differs. Females with intermediate secondary education are less mobile than the reference group with the lowest education, and vocational training shows a negative effect. Gender-specific differences are discussed below.

Was it necessary to control for the selection on education? Yes, because the migration patterns of women are in fact defined by a selection on upper secondary education. For women, the results suggest that the same mechanisms drive participation in upper secondary education and migration and that differences in unobserved characteristics are the "true" reason behind the migration

24 We should, however, be very careful in the interpretation of the age effect in the selection model beyond its sign. Usually, variables included in the selection model as well as the second estimation have to be interpreted by taking the coefficients in the selection model as well as in the estimation of the effect of interest into account (Siegelman and Zang 1999). Here, age is measured in different ways in both models, which makes interpretation difficult.

of females. Therefore, if the selection were not controlled for, the results would be biased.

What differences can be found for men and women? Analyzing the migration process separately for men and women made it possible to obtain additional information on the entire process and to reveal the mechanisms driving the migration of men and women. In accordance with the extended human capital approach, the migration of women is more selective; it seems as though only women with higher secondary education gain from relocation. For men, the huge income gap between East and West Germany allows even persons with moderate education to gain from migration. This does not mean that the selection is negative; even male migrants show favorable characteristics such as higher education or higher incomes compared to the sending population, although the process is stronger for women. Therefore, H7, suggesting that *women who migrate are more likely to be positively selected on education from the remaining population than males who migrate,* can be confirmed.

Regarding the public perception of East-West migration, it can be seen that it is partly correct but that the situation is described more dramatically than it actually is. It is true that the migration of women is more selective; males who leave East Germany are also positively selected on their education, but to a lesser degree. Moreover, the differences between the men and women who migrate cannot explain the lack of young women in the East found at the macro level. Therefore, other mobility flows, such as return migration, have to account for the differences as well. However, the results also show that as long as the income gap between East and West Germany is much higher for men than for women, the self-selection for the education of females will be stronger than for males, and women relocating will show higher qualifications on average. In addition, the increased occupational segregation in the East might have made it more difficult for women to find employment and might have further encouraged migration (for a detailed discussion, see Rosenfeld et al. 2004).

How do the results differ from previous findings? The main difference from previous findings is that migration patterns have been analyzed separately for men and women, enabling the identification of the underlying processes. First, the results are mostly in line with more recent studies and do not reveal any contradictory effects. The factors influencing migration are similar for both sexes, and only a few of the variables included – such as the dummy variable controlling for partnerships – showed a gender-specific impact on the process. Second, the results for women indicate that their migration patterns are defined largely by rational considerations. Therefore, it does not seem appropriate to reduce women only to tied movers, as has been done in earlier research (cf Schwarze and Wagner 1992; Wagner 1992).

The main difference from previous studies was found regarding the unobserved characteristics of migrants. The results of the selection models reveal that the

mechanisms driving migration are indeed gender-specific. The migration of women is driven by an underlying selection on unobserved characteristics, which already select young women into higher education, whereas the migration of men is not. Future research is needed to investigate the gender-specific differences and the selection processes involved using other data and other countries. It would be interesting not only for empirical research but also for policy applications to determine whether the migration patterns found in this study are similar in other regions or even true for international migration.

Acknowledgement

I thank Herbert Brücker and Hans-Peter Blossfeld for their advice and support. I am grateful to Michael Tåhlin and Timo Baas for their comments. This research was partly concluded during a research visit at the Swedish Institute for Social Research (SOFI), whose hospitality is grateful acknowledged. I also thank the TransEurope Research Network for their generous financial support.

Funding

TransEurope Research Network.

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7 Appendix

Table 4: Distribution of the variables for migrants and stayers; females, 1992–2006

women	migrants	stayers	diff	mean	S.E.	min	max	imputed
no answer (%)	5.92	2.87	***	2.91	0.10	0	5	793
no secondary education (%)	1.18	0.56		0.57	0.04	-	-	-
lower sec. education (%)	9.76	20.97		20.84	0.24	-	-	-
intermediate sec. educ. (%)	42.68	55.28	***	55.13	0.30	-	-	-
upper sec. education (%)	35.83	18.65	***	18.85	0.23	-	-	-
tertiary education (%)	18.34	25.77	**	25.68	0.26	-	-	-
vocational training (%)	32.54	51.13		50.91	0.30	0	1	301
age (y)	28.88	40.10	***	39.97	0.07	18	60	0
partner (%)	34.32	73.27	***	72.81	0.26	0	1	0
children younger than six (%)	16.57	14.39		14.41	0.21	0	1	0
children 6 to 19 (%)	14.20	26.55		26.40	0.26	0	1	0
duration in company (y)	2.067	5.15	***	5.11	0.05	0	45.2	71
duration in unemployment (y)	0.71	1.01	**	1.00	0.01	0	17	0
gross income (in €100)	720	929		926	6.36	0	28000	0
unemployed (%)	46.45	40.54	*	40.61	0.29	0	3	0
employed part-time (%)	5.92	13.41	***	13.32	0.20	-	-	-
in apprenticeship (%)	15.09	4.06	***	4.19	0.12	-	-	-
employed full-time (%)	32.54	41.99	***	41.88	0.29	-	-	-
homeowner (%)	25.74	42.72	***	42.52	0.29	0	1	0
regional income level (€)	69.73	72.72	*	72.68	0.12	45	128	163
unemployment rates (%)	18.42	18.72		18.71	0.03	4	36	163
distance (10 km)	141.48	132.57	*	132.68	0.41	20	290	163
urban area (%)	35.21	26.87	***	26.96	0.26	0	1	163
n person	338	28297		28635				

SOEP data 1992–2006; *** sign. P≤0.001; ** sign. P≤0.01; * sign. P≤0.05

Table 5: Distribution of the variables for migrants and stayers; males, 1992–2006

men	migrants	stayers	diff	mean	S.E.	min	max	imputed
no answer (%)	3.79	2.68		2.69	0.10	0	6	829
no secondary education (%)	0.38	1.29		1.28	0.07	-	-	-
lower sec. education (%)	13.26	23.97	***	23.87	0.26	-	-	-
intermediate sec. educ. (%)	51.15	51.75		51.75	0.60	-	-	-
upper sec. education (%)	30.77	20.33	***	20.43	0.24	-	-	-
tertiary education (%)	18.94	21.02		21.00	0.25	-	-	-
vocational training (%)	51.14	54.84		54.80	0.30	0	1	251
age (y)	30.81	40.08	***	39.99	0.08	18	60	0
partner (%)	43.56	70.58	***	70.32	0.28	0	1	0
children younger than six (%)	11.36	10.91		10.91	0.19	0	1	0
children 6 to 19 (%)	8.71	20.01	***	19.90	0.24	0	1	0
duration in company (y)	3.28	5.86	***	5.84	0.05	0	45.4	25
duration in unemployment (y)	0.45	0.63	*	0.63	0.01	0	15.7	0
gross income (in €100)	1388	1342		1343	9.52	0	99999	0
unemployed (%)	32.58	29.37		29.40	0.27	0	3	0
employed part-time (%)	1.52	1.37		1.37	0.07	-	-	-
in apprenticeship (%)	7.58	5.41		5.43	0.14	-	-	-
employed full-time (%)	58.33	63.85		63.80	0.29	-	-	-
homeowner (%)	22.35	44.17	***	43.97	0.30	0	1	0
regional income level (€)	85.57	85.05		85.05	0.15	52	156	150
unemployment rates (%)	16.14	15.52		15.53	0.03	1	33	150
distance (10 km)	146.78	131.73	***	131.87	0.42	20	290	150
urban area (%)	35.23	26.12	***	26.21	0.26	0	1	150
n person	264	27335		27599				

SOEP data 1992–2006; *** sign. P≤0.001; ** sign. P≤0.01; * sign. P≤0.05.

Table 6: Transitions between educational degrees, men and women

	no answer	no degree	lower secondary degree	intermediate secondary degree	upper secondary degree	tertiary degree
no answer	52.38	1.46	7.00	17.23	14.69	7.23
no degree	0.23	77.35	8.92	9.38	3.43	0.69
lower secondary degree	0.00	0.27	97.51	1.83	0.27	0.11
intermediate secondary degree	0.02	0.03	0.52	98.35	0.63	0.45
upper secondary degree	0.00	0.07	0.25	1.36	95.79	2.52
tertiary degree	0.15	0.15	0.58	5.44	17.40	76.29

Table 7: Distribution of within and between variance; intermediate secondary degree, men and women

intermediate secondary degree	mean	S.E.	min	max
overall variance	0.5347	0.4988	0	1
between variance		0.4854		
within variance		0.1406		

Table 8: Distribution of within and between variance; upper secondary degree, men and women

upper secondary degree	mean	S.E.	min	max
overall variance	0.1962	0.3971	0	1
between variance		0.3813		
within variance		0.1248		

Table 9: Distribution of within and between variance; tertiary degree, men and women

tertiary secondary degree	mean	S.E.	min	max
overall variance	0.2338	0.4233	0	1
between variance		0.4003		
within variance		0.0829		

Chapter IV

Does migration make you happy? The influence of migration on subjective well-being[1]

1 I would like to thank my supervisors, Herbert Brücker and Hans-Peter Blossfeld, for their advice and support. I am grateful to Michael Tåhlin, Ruud Muffles, Jennifer Hunt, Thomas Rhein, Dominik Morbitzer, and Journt Mandemakers for their comments. This research was conducted in part during a research visit at the Swedish Institute for Social Research (SOFI) and in part during a research visit at the Department of Sociology at the University of Tilburg, whose hospitality is gratefully acknowledged. I would also like to thank the TransEurope Research Network for their generous financial support during the research visit to the SOFI. This chapter is published in *Journal of Social Research & Policy* 2 (Issue 2 December 2013), p. 73–92.

Abstract

In the field of neoclassical economics, migrants are expected to move to improve their economic situations, but what are the effects of moving on the subjective well-being (SWB) of migrants? Using longitudinal data from the German Socio-Economic Panel Study (SOEP) (1990–2007), I investigate the influence of migration from Eastern to Western Germany on SWB. The hypotheses in this study are derived from neoclassical economics and from the psychology literature. Following the rational choice framework, I expect that migration improves SWB in the long term. Fixed-effects models distinguish between the effects of unobserved heterogeneity, such as varying personality traits, and migration on SWB. The results reveal that migration has a positive, long-term effect on SWB. In addition, the favorable labor market conditions in Western Germany account for the increasing SWB that is reported by male migrants but does not account for that reported by female migrants.

1 Introduction

According to neoclassical economics, migrations are typically financially motivated. Migrants generally improve their economic situations after moving to a new location, but they also experience the non-monetary losses of family and friendship networks (see, e.g., Borjas, 1987; Chiswick, 1999; Sjaastad, 1962).[2] Can such financial gains compensate for the possible loss of friendship and family networks? How does migration affect the SWB of migrants? Are migrants happier after they move? Few studies have addressed these questions (De Jong et al., 2002) because of the unavailability of data pertaining to the influence of migration on SWB. Ideally, longitudinal data containing information on SWB before and after migration are necessary; however, such data rarely exist. In the country of destination migrants may participate in surveys only after they move, while no information from before are available. In the country of origin migrants drop out from the data sets after the relocation and the data contains no information after the in their countries of origin. Therefore, most studies rely on cross-sectional data that are collected after such moves, and these data contain no previous information on SWB. Hence, migrants are compared with natives (Amit, 2010; for studies on older immigrants, see Amit and Litwin, 2009; Bălţăescu, 2007; Bertram, 2010; for studies on second-generation immigrants, see Neto, 1995; Safi, 2010). Other studies ask the respondents directly about their SWB before and after a move (De Jong et al., 2002; Lundholm and

2 There are additional reasons to migrate; for example, some individuals migrate to improve their quality of life (see, e.g., Benson and O'Reilly, 2009).

Malmberg, 2006). Problems arise from both of these designs. In the first type of research, it is not possible to distinguish whether a deviation in the levels of SWB is caused by migration or by general differences in the level of SWB of migrants and natives. In the second type of research design, we cannot be certain that the indicated improvements are indeed objective. These problems emphasize the importance of using longitudinal data to conduct research on SWB, as these issues raise doubts regarding the reliability of cross-sectional samples for this subject. Based on longitudinal data from the German Socio-Economic Panel Study (SOEP), this study investigates the influence of migration on SWB with regard to relocation from Eastern to Western Germany after the fall of the wall.

After the collapse of the Eastern Bloc and the fall of the Berlin Wall on November 9, 1989, the former German Democratic Republic (GDR) found itself in a unique position (Mayer, 2006). After the first free election in March 1990, the reconstruction of the nation was controlled by the government of the Federal Republic of Germany (FRG). Despite sharing a common past and language, East and West Germany developed in different directions after the Second World War, and by 1989, the two former nations had as many differences as similarities. West Germany developed a market economy and a conservative-corporatist welfare regime, whereas East Germany adopted a socialist system with a planned economy. The socialist system was never able to compete with its capitalist counterpart, and per capita income in the East lagged behind that of Western standards. Even today, 20 years after reunification, the Eastern German labor market demonstrates weaker performance than the Western market, and Eastern Germans face large incentives to migrate (Melzer, 2011). The consequence of these conditions was a substantial and permanent migration from Eastern to Western Germany. Compared with the population level in 1988[3], the former GDR had lost 4.3 percent of its population by 1992, 7.9 percent by 1995, 10.7 percent by 2000 and 14.1 percent by 2006. The reunification of Germany, which several economists have called a "natural" experiment, provides a unique opportunity to study the influence of migration on SWB based on longitudinal data containing information for the periods before and after moves.

Although previous research on the effects of migration or regional mobility on SWB provides initial insight into the topic and deepens our understanding of the process, the existing literature is limited in several aspects.

3 For the population levels of the GDR, see *Staatliche Zentralverwaltung für Statistik* (1989, p. 335). For more recent figures, see the Federal Statistical Office (*Statistisches Bundesamt* 2011, p. 53 ff). The figures presented do not include East Berlin, as it is not possible to differentiate between East and West Berlin after 2000. By that year, eastern Germany including Berlin had lost 10.1 percent of its former population.

First, previous studies are based on cross-sectional data. When analyzing cross-sectional data, one cannot distinguish between the effects of unobserved heterogeneity, such as varying personality traits, and the effects of migration on SWB. However, previous research indicates that personality influences SWB (e.g., Diener et al., 1999).[4] Second, when asked to compare two situations directly, most people report that their lives are improved after migration (Hagerty, 2003), and migrants do not differ from the general population in this regard (Scott and Scott, 1989). Therefore, migrants may report higher SWB after their moves to avoid acknowledging any cognitive dissonance (Festinger, 1957). Using cross-sectional data, one cannot clearly determine the causality between the described factors and SWB (Frey and Stutzer, 2005). Although it is for example clear that gender influences satisfaction, other factors, such as marriage or migration, may show a reverse causality. Therefore, cross-sectional studies are unable to determine whether migrants are more satisfied than the general population, whether the characteristics that make these individuals more likely to relocate also make them happier, or whether their greater satisfaction actually results from their relocation.

These problems emphasize the importance of using longitudinal data to conduct research on SWB, as these issues raise doubts regarding the reliability of cross-sectional samples for this subject.

Third, few studies link the effects of migration on SWB within an explanatory theoretical framework. The hypotheses that are tested are primarily derived ad hoc from previous findings (e.g., Lundholm and Malmberg, 2006). The few contributions to the literature that do provide a theoretical background concentrate on specific aspects. In some cases, the theoretical framework aims to describe the integration of migrants and to compare migrants and natives using a variety of assimilation models (Safi, 2010) or to discuss the integration process using concepts such as the social capital framework of Bourdieu (1986) (see: Amit, 2010; Amit and Litwin, 2009). Other authors have used theoretical concepts to explain the situations of migrants before and after migration. For example, Lu (2002) followed the housing career thesis in analyzing residential mobility. Only De Jong et al. (2002) integrated the question regarding the influence of migration on SWB with a theory that is typically used to analyze migration. In accordance with Sjaastad (1962), De Jong et al. (2002) treat migrations as investments in the productivity of individuals.

Fourth, some features of migration have not been addressed at all. Questions regarding the influence of regional characteristics or the length of the stay in a new host region on SWB remain unanswered. However, studies that have been conducted at the macro level show the importance of regional income or unemployment levels

4 For example, neurotic individuals may report lower satisfaction than those who are not neurotic (Diener et al., 1999).

for individual satisfaction (for the USA, see Alesina et al., 2004; for Europe, see Di Tella et al., 2001; for Germany, see Easterlin and Plagnol, 2008).

This study attempts to fill these gaps and to analyze the influence of migration from Eastern to Western Germany on SWB. Hypotheses that describe the relationship between migration and subjective well-being (SWB) are derived from human capital theory and psychology approaches. More precisely, this study aims to answer the following questions: How does migration influence SWB? How do changes in SWB after migration (if such changes exist) develop over time? Are there differences in SWB changes among different migrating groups or between men and women? What is the influence of the conditions of the regional labor markets on SWB?

The reunification of Germany, which several economists have called a "natural" experiment, provides a unique opportunity to study the influence of migration on SWB based on longitudinal data containing information from before and after migration. The empirical investigations that are presented in this paper are based on the German Socio-Economic Panel Study (SOEP), and on waves from 1992 to 2006. Hereby information on all individuals who migrated from Eastern to Western Germany between 1990 and 2007 are included. Fixed-effects models are used to determine the effects of unobserved heterogeneity and migration on SWB, based on the assumption that unobserved characteristics tend to be stable over time. The use of fixed-effects models ensures that the effect of migration on SWB is causal rather than based on selection. This approach verifies that "happy" individuals are not those who typically migrate but that migration does indeed affect SWB. In the analyses, I control for individual and regional labor market characteristics in Eastern and Western Germany. I distinguish between migrants and persons who returned to East Germany after relocation to the West. Variables that indicate the amount of time that individuals have lived in the West account for the influence of time on changes in SWB. The analyses are conducted separately for men and women, as previous studies have found gender-specific differences in the influence of migration (e.g., Frijters et al., 2004).

2 Migration and subjective well-being

Research on the SWB of migrants has different goals in sociology and economic contexts.[5] Sociological research in this field focuses on the integration process of migrants and dates back to 1928 to the research of Park (1928) on 'marginal man' and the uprooted (Handlin, 1951). In contrast, the first economic research

5 For a general overview of the factors that influence SWB, see the work of Dolan et al. (2008). For an overview validating the theoretical importance and the measurement of SWB, see the studies of Blanchflower and Oswald (2004a), Di Talla and MacCulloch (2006), Frey and Stutzer (2002), and Kahneman and Krueger (2006).

to address SWB in the context of migration was motivated by differences in SWB between countries.[6] In fact, the average happiness of individuals differs among countries; individuals from Western Europe and the USA score higher on well-being scales than those from Eastern Europe (Blanchflower and Oswald, 2008).[7] However, as Bartram (2010) indicated, it would be an ecological fallacy to conclude that migration from countries with lower levels of SWB to those with higher levels of SWB would increase happiness.

Analyzing five Nordic countries (Denmark, Finland, Iceland, Norway, and Sweden), Lundholm and Malmberg (2006) revealed a positive relationship between residential mobility and SWB. Among the few people who were less satisfied after a move (8 percent), singles were overrepresented. In turn, individuals who reported greater satisfaction with their social lives after a move showed the highest level of general satisfaction, as social life has the largest effect on overall satisfaction. The authors concluded that migration in Nordic countries is not a trade-off situation in which social and environmental cuts are accepted in return for higher incomes; rather, they found that relocations serve as opportunities to obtain preferred types of housing, as found by Lu (2002) in an analysis of the USA. Other studies, such as a study of repeated, temporary and permanent migration in Thailand, reveal a mixed influence of migration on life satisfaction (De Jong et al., 2002). Mobility was found to increase, decrease and not to influence life satisfaction; approximately one-third of the migrants accounted for each group. However, job satisfaction increased after migration. The study reveals a negative relationship between life satisfaction and education, and this relationship was explained by the unrealistic expectations of highly educated individuals regarding living conditions after their moves. Finally, previous research in this field that concentrated on depression, which could be understood as the opposite of SWB, reveals that residential mobility increases the likelihood of depression, especially for women (Magdol, 2002).

The most recent study that has applied a different methodology focuses on the life satisfaction of immigrants and natives in the USA. The results that were obtained by Bartram (2010) are consistent with those of other studies that have compared the SWB of immigrants and natives and found lower life satisfaction among immigrants than natives (e.g., Amit, 2010; Amit and Litwin, 2009; Bălţăescu, 2007; Neto, 1995; Safi, 2010). In comparisons between countries of origin, immigrants from poorer countries show lower levels of life satisfaction, whereas immigrants from Europe or Canada do not differ significantly from natives. Moreover, the

6 In general, economic research on SWB dates back to Richard Easterlin (1974) who found that individuals do not report increased SWB with increased personal income.

7 Moreover, at the macro level, life satisfaction is an excellent predictor of international migration (Blanchflower and Oswald, 2008).

satisfaction of immigrants from poorer countries is defined to a greater degree by absolute income. These immigrants constitute a group with modest earnings and are therefore more frustrated than natives with regard to their inability to obtain higher incomes (Bartram, 2010).

Thus far, only one study has included a variable measuring life satisfaction before and after migration based on longitudinal data. Frijters et al. (2004) investigated determinants of life satisfaction in Eastern and Western Germany and also included measurements of the influence of migration on life satisfaction. Using ordered logit fixed-effects models, the authors found a positive effect of migration from Eastern to Western Germany and a negative effect of relocation from West to East for men only (Frijters et al., 2004). This study provides a general overview of the influence of major life events on SWB rather than on the effects of migration. Differences in SWB between groups of migrants or over time were not examined. Moreover, this study was based on a rather short period during which levels of life satisfaction in Eastern and Western Germany were still converging.

3 Theoretical considerations

3.1 Subjective well-being of migrants

According to neoclassical economics, migration represents a risky investment through the allocation of human capital to increase productivity. Individuals maximize their utility by choosing the most beneficial location. In this respect, migrants must be willing to tolerate present costs to obtain future benefits Borjas, 1987; Chiswick, 1999; Chiswick, 1978; Sjaastad, 1962). Individuals compare the costs and benefits of migration. In this sense, migration is equivalent to any other investment in human capital, such as schooling or on-the-job training.

The costs of migration are both monetary and non-monetary (Sjaasjad, 1962). The monetary costs of migration are primarily transportation costs, whereas the non-monetary costs are more substantial and include the loss of location-specific human capital, such as the loss of family and friendship networks (DaVanzo, 1983), and opportunity costs (Sjaasjad, 1962). However, the benefits of migration can also be non-monetary. Therefore, individuals may migrate to a better climate, for family-related reasons or to improve life quality and they may accept the financial disadvantages in order to live in a new location (see, e.g., Benson and O'Reilly, 2009). When people make their decisions with sufficient information and without unrealistic expectations by considering both monetary and non-monetary costs and benefits, only those who profit from a migration in a subjective sense will migrate (Ziegler and Britton, 1981). Thus, as De Jong et al. (2002) claimed,

migrants are likely to report higher subjective well-being (SWB) after a move than before a move (hypothesis 1). Moreover, *the increase in SWB after a move should be enduring*[8] (hypothesis 2) because migration (similar to other career investments) is a long-term investment.

An alternative view of the long-term development of SWB is provided by the psychological literature: following an initial increase in SWB in the period immediately after migration, mechanisms that include adaptation, aspiration and comparison reduce SWB in later periods. First, as individuals adapt to repeated stimuli (Scitovsky, 1992), they should adapt quickly to their improved living standards after migration and thus experience a decline in SWB. Second, obtaining higher incomes may trigger even higher aspirations regarding earnings and economic status (Stutzer, 2003; van Praag, 1993). Third, individuals change their reference categories after receiving an increase in income and thereafter compare themselves to even wealthier persons (Venhoven, 1991). Therefore, migrants who relocated from Eastern to Western Germany should change their comparison group from Eastern to wealthier Western Germans. Alternative hypothesis 2a states as follows: *Following an initial increase in SWB after migration, migrants are likely to report decreasing SWB in later periods.*

3.2 Group differences

The costs and benefits of migration depend on the education of a migrant and the income distributions in the locations of origin and destination (Borjas, 1987; Chiswick, 1999; Chiswick, 1978). Highly educated individuals should profit the most from relocations from Eastern to Western Germany because of the higher marginal value of their education in the West (c.f. Melzer, 2011). Moreover, highly educated individuals also have regionally broader networks (Massey et al., 1998). These networks render these individuals as less regionally dependent and reduce their migration costs. Low costs combined with high gains should both motivate more highly educated individuals to migrate and increase their profits and SWB after such a move. In addition, highly educated individuals are more likely to be able to gather the necessary information for migration and to weigh the gains and losses appropriately. Hence, these individuals are more likely to make well-considered decisions and to avoid disappointment. Therefore, *highly educated individuals should report more positive changes in SWB than migrants with lower educational levels after a move* (hypothesis 3).

8 According to neoclassical economics, such decisions are based on the unrealistic assumption that individuals maximize their utility for life. Therefore, "enduring" indicates an improvement in SWB over a lifetime.

According to Mincer (1978), the migration of couples is subject to the same maximization strategy as that of individuals. The only difference is that the decision to migrate is based on the entire household, and the monetary and non-monetary gains and losses of all household members are accumulated. The migration occurs when a household unit benefits irrespective of the individual gains and losses of household members. Both partners are unlikely to simultaneously improve their situations in a new destination (Mincer, 1978; Kalter, 1998). One partner usually initiates a move, and the other partner follows (the "tied mover"). Even if the theoretical setting of Mincer (1978) work is gender-neutral empirical evidence shows that as a result of lower earnings and interrupted labor force participation, women are usually in the position of tied movers (Bielby and Bielby, 1992; Mincer, 1978; Shihadeh, 1991). Thus, women who migrate with their partners could be expected to reveal fewer positive changes in SWB after their moves. However, if one seriously considers the theoretical framework of Mincer (1978), then one finds that compensation payments are exchanged between the household members, who gains or loses as a result of relocation. Therefore, it is hypothesized that *after a migration, women who migrate with their partners should not report negative changes in their SWB* (hypothesis 4).

4 Data and methods

4.1 Data

The empirical analyses are based on the SOEP, which is a representative longitudinal survey (Wagner et al., 2007). The sampling procedure is based on a random selection of households; within each household, every household member over the age of 16 is surveyed.

An unbalanced sample of persons from eastern German states serves as the basis of the research; people who entered the sample after 1990 or who were absent in one or more waves were also included in the estimates. All persons who exited Eastern for Western Germany between 1990 and 2007 are identified as migrants. Individuals who exited Eastern Germany in 1990 and 1991 are investigated, as any other person in the sample, from 1992 and thereafter from their second year in Western Germany. The estimates are limited, as information on regional characteristics is not available before 1992. The data set contains 8,233 persons between 16 and 63 years of age, and 650 of these individuals migrated.

The sample contains 50,532 person-years for stayers and an additional 5,829 person-years for migrants (3015 of these person-years are from the period following the moves). After migration, individuals in Western Germany continued

to be interviewed on a yearly basis. The questionnaires for Eastern and Western Germany are identical.

The data set contains information for 40 percent of male migrants and 38 percent of female migrants for more than 5 years in Western Germany and for 12 percent of male and female migrants for more than 10 years. Those numbers arose because some migrants departed from the panel (people remained in the panel for an average of 8 years), returned to East Germany, or spent fewer than 5 years in West Germany. It is also possible to account for return migration to East Germany after a move to West Germany. Indeed, 68 men and 73 women returned to East Germany after relocating to the West; these individuals are labeled as returnees and are included in the estimates.

The following question from the SOEP was used to operationalize SWB: "How satisfied are you with your life, all things considered?" The respondents were instructed to answer on an integer scale that ranged from 0 to 10, where 0 represents the lowest level of life satisfaction, and 10 represents the highest satisfaction level. A dummy variable, "migrated to Western Germany," takes the value of one if a person from East Germany lives in West Germany and zero otherwise. An additional variable was created to determine the time that the migrants spent in West Germany. This variable indicates whether an individual spent no time, less than two years, two to four years, four to six years, six to nine years or more than ten years in Western Germany (e.g., "migrated less than two years ago"). Finally, the dummy variable "returned to Eastern Germany" identifies all persons who returned to East Germany after relocation to West Germany.

Additional variables were constructed based on their interactions with the "migrated to Western Germany" variable to capture the differences in SWB among various groups of migrants. For example the interaction term "partner* migrated" was generated. It takes the value of one if a person migrated with his or her partner (cohabitation) and zero otherwise. The same values apply to the "married* migrated" and "tertiary education* migrated" variables.

The analyses control for a range of individual and regional characteristics, which are described briefly in the following section. Information regarding the distribution of these variables can be found in the appendix.

Age effects are given as both age and age squared.

A measurement of the subjective classification of *health* status on a scale from 1 (poor health) to 5 (excellent health) is included.

Marital status: A battery of dummy variables accounts for the following life stages: single (1), cohabitating (2), married (3), divorced (4) and widowed (5). When a divorced person finds a new partner, his or her status changes from divorced to cohabitating.

As many people migrate to begin a new job, it is important to control for changes in employment status, household income and hours worked.

Employment status: This variable distinguishes between four categories: full-time employment (1), part-time employment (2), apprenticeship (3) and maternity leave or irregular employment (0).

Household income: The household income variable represents the logarithm of the combined individual monthly net wages of both partners living in a household deflated to 1992 values. For single people, household income equals individual income.

The number of *hours worked* per week is included.

I have also controlled for regional income and unemployment levels, as the economic situation differed between East and West Germany and differed as a result of the changes in the East German economy after reunification. Moreover, individuals relocate not only between East and West Germany but also within East Germany. These changes in labor market conditions might influence both the decisions of individuals to migrate and their SWB.[9]

Regional income levels: All information on average daily incomes (rounded to €1) was obtained from the data of the Federal Employment Agency, which are based on the IAB *Employee History (Beschäftigten-Historik* – BeH) V7.01, Nuremberg 2007. The variable provides gender-specific values.

Regional unemployment rates: The unemployment rates (rounded to 1 percent) from 1998 to 2006 were obtained from the official data of the Federal Employment Agency. Gender-specific unemployment rates at the NUTS 3 level are not available for years prior to 1998. Nevertheless, the IABS data enables an approximation of gender-specific unemployment rates for the period from 1992 to the present. Therefore, the information pertaining to local unemployment rates is derived from two sources.

Population density: The final variable that provides information on regional features is a dummy that measures a region's population density. This variable takes the value of 1 if the region in question is urban and has more than 100,000 inhabitants.

9 For example, average wages for men increased by approximately 20 percent from 1992 to 1995. However, this period of rapid wage growth was followed by a period in which scarcely any wage growth occurred. These calculations are based on the *IAB Employee History (IAB Beschäftigten-Historik* - BeH) V7.01, Nuremberg 2007.

4.2 Methods

Fixed-effects models are used to estimate the relationship between SWB and migration, as these models have several desirable statistical properties.[10] First, the estimations are based on within variation only, and this type of estimation eliminates the influence of time-invariant observable and unobservable heterogeneity among individuals. Consequently, the influence of time-invariant characteristics, such as gender or race, on SWB cannot be estimated, but at the same time it is unnecessary to control for time-invariant characteristics, such as personality traits. Because survey data usually contain only limited information regarding personality traits and because it is virtually impossible to control for all features of personality that might influence SWB, this advantage is significant. Fixed-effects models control also for the potential sample selection of time-invariant characteristics; such a procedure is crucial because migration is a highly selective process (c.f. Hunt, 2006; Melzer, 2011). If one does not control for some observable and unobservable differences between migrants and non-migrants, then SWB differences that result from selection into migration could be wrongly ascribed to the influence of migration on SWB. The use of fixed-effects models ensures that selection according to time-invariant characteristics is no longer a concern.
The following model was fitted:

$$SWB_{it} = \beta_1 living\_West_{it} + \beta_2 living\_East_{it} + \delta_1 found\_partner_{it} + \delta_2 Z_{it} + \delta_3 living\_West_{it}^{*} found\_partner_{it} + \nu_i + \varepsilon_{it} \quad (1)$$

The dependent variable *SWB* is observed for respondent i at time t. β_1 indicates the estimated parameter that indicates the influence of migration from Eastern to Western Germany on SWB, our key variable labeled $living\_West$. β_2 indicates the changes in SWB of returnees, individuals who returned to the East after relocating to the West. δ_1 provides information regarding the effect of one of the control variables, $found\_partner$, on life satisfaction, and δ_3 estimates the influence of the interaction effect between the $found\_partner$ variable and the migration dummy and indicates whether migration has an additional effect on SWB of people living in partnerships. Other observable time-dependent, individual and regional characteristics enter the model via Z_{it}.

10 Even if the trend in the research on SWB, especially in the economics literature, is progressing toward ordered logit models, I refrain from using ordered logit models in this article. Blanchflower and Oswald (2004b) showed that simple OLS regressions achieve results that are similar to those obtained from ordered logit models for three-point scales, and the life satisfaction scale that is used in this study is measured on an eleven-point scale. These results are also supported by Ferrer-i-Carbonell and Frijters (2004) who used SOEP data to show that the results of ordered logit models and OLS regressions do not differ considerably. In contrast, the authors emphasize the importance of fixed-effects regressions, as these regressions do change the results substantially (Ferrer-i-Carbonell and Frijters, 2004).

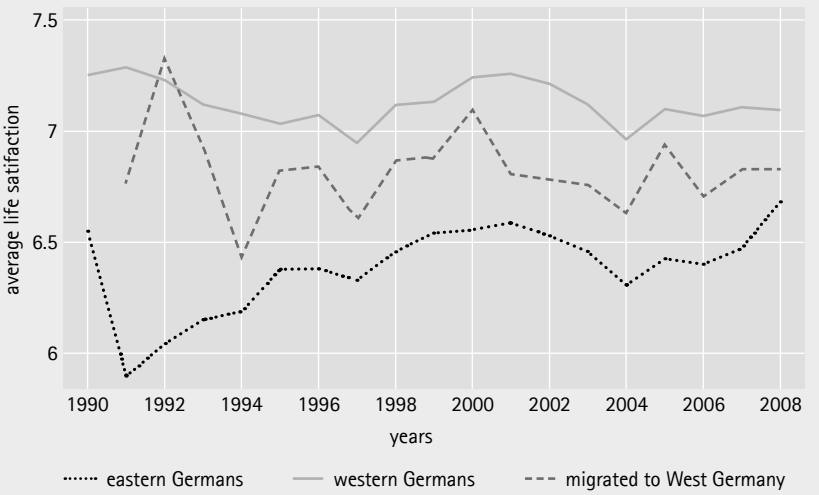
I allow individual variance in intercepts but not in slopes. Therefore, a separate intercept for each individual included in the data is estimated by ν_i; the deviation of the individual values over time from the general mean is captured by the observation-specific error term ε_{it}.

5 Results

5.1 Descriptive results

As shown in Figure 1, the average SWB was lower in Eastern Germany than in Western Germany for the entire period from 1990 to 2008. This result emerged despite the convergence that was observed in the period following reunification. Life satisfaction increased between 1991 and 1999 in the East and declined simultaneously in the West. The increase in the East was associated with an increase in both relative and absolute income, whereas the decline in the West was primarily linked to unemployment (Easterlin and Plagnol, 2008). The course of life satisfaction for East Germany in Figure 1 begins with a sharp decrease between 1990 and 1991. Not until 1999 did Eastern Germans regain the level of satisfaction that was reported in 1990. After 1999, no further convergence occurred; rather, the curves for Eastern and Western Germans followed the same pattern of increases and decreases for the next six years. Only in 2008, the last year under observation, did the satisfaction of Eastern Germans increase slightly higher than that of Western Germans.

Figure 1: SWB of Eastern and Western Germans and that of individuals who migrated from Eastern to Western Germany



In addition to the life satisfaction of Eastern and Western Germans, a third line (a long dash-dotted line) is included in Figure 1, which displays the average life satisfaction of people who migrated from Eastern to Western Germany after their moves. The first observation in this group is from 1991, as the first migrations occurred between 1990 and 1991. Eastern Germans who relocated to the West were more satisfied than the population who remained in Eastern Germany, but the Eastern-West migrants remained less satisfied than the Western population.

5.2 Analytical results

The results of the fixed-effects regressions for men and women are presented in Tables 1 and 2, respectively. I discuss the influence of migration on SWB for men first and for women second and subsequently compare these effects. I begin the analyses with Model 1, which includes the "migrated from Eastern to Western Germany" and "returned to Eastern Germany" variables in addition to demographic information. In Model 2, the individual economic variables are included to indicate their influence on the migration variable. In Model 3 (as in Model 6), the duration of the stays in Western Germany is considered using dummy variables that indicate the number of years spent in the West to account for possible changes in SWB over time. In Model 4, additional interaction effects are included to account for group-specific differences (e.g., differences between highly qualified and less qualified migrants). Finally, in Models 5 and 6, regional labor market characteristics are also controlled. This method enables an analysis of whether the SWB changes that were found after migration are caused by improved labor market characteristics in the West.

Even when individual observed and unobserved characteristics are controlled, migration from Eastern to Western Germany increased the life satisfaction of men by 0.3 scale points (see Model 2), with an average life satisfaction in Eastern Germany of approximately 6.5 points. In contrast, return migration did not increase SWB.[11] The use of fixed-effects models enables the verification that "happy" individuals are not those who migrate but that migration does indeed influence SWB. Migration from Eastern to Western Germany increased SWB; only becoming unemployed or start to work part time had a greater influence on the life satisfaction of men (see Models 2–6). By comparing Models 1 and 2, we can observe that the changes in income, employment and working conditions related to the migration from East to West Germany partially account for the improved SWB of migrants after their moves. After the employment situation is controlled, migration from East to West Germany loses one-fourth of its former magnitude.

11 Fixed-effects models compare SWB changes that are caused by return migration to East Germany as a deviation from an individual's average level of SWB over the entire period in the data.

Table 1: Consequences of migration from Eastern to Western Germany on the SWB of men: fixed-effects regressions based on SOEP data for the 1992–2006 period

men	I	II	III	IV	V	VI
individual characteristics						
migrated from Eastern to Western Germany	0.401***	0.291**		0.294*	0.092	
	(0.100)	(0.097)		(0.124)	(0.175)	
returned to Eastern Germany	0.071	0.052	-0.266	0.059	0.039	-0.081
	(0.242)	(0.230)	(0.228)	(0.230)	(0.233)	(0.259)
migrated less than two years ago			0.315**			0.142
			(0.106)			(0.153)
migrated two to four years ago			0.323**			0.136
			(0.114)			(0.163)
migrated four to six years ago			0.395**			0.199
			(0.139)			(0.200)
migrated six to nine years ago			0.181			-0.029
			(0.168)			(0.221)
migrated more than ten years ago			0.389*			0.155
			(0.174)			(0.232)
age	-0.061***	-0.123***	-0.124***	-0.123***	-0.132***	-0.123***
	(0.013)	(0.014)	(0.014)	(0.014)	(0.017)	(0.017)
age squared	0.001***	0.002***	0.002***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
health	0.423***	0.409***	0.409***	0.408***	0.408***	0.408***
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
found a partner in the past year	0.206**	0.075	0.071	0.088	0.085	0.077
	(0.070)	(0.072)	(0.072)	(0.074)	(0.074)	(0.072)
married in the past year	0.245**	0.113	0.110	0.098	0.095	0.112
	(0.092)	(0.093)	(0.093)	(0.095)	(0.095)	(0.093)
divorced in the past year	-0.176	-0.164	-0.167	-0.169	-0.170	-0.168
	(0.121)	(0.116)	(0.116)	(0.116)	(0.116)	(0.116)
spouse died in the past year	0.038	-0.016	-0.019	-0.025	-0.034	-0.025
	(0.228)	(0.232)	(0.232)	(0.233)	(0.232)	(0.232)
has children	0.136**	0.177***	0.177***	0.177***	0.179***	0.179***
	(0.042)	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)
became unemployed		-0.390***	-0.391***	-0.390***	-0.389***	-0.395***
		(0.077)	(0.077)	(0.077)	(0.077)	(0.077)
began part-time work		-0.382***	-0.382***	-0.380***	-0.375***	-0.376***
		(0.099)	(0.099)	(0.098)	(0.098)	(0.099)
began vocational training		-0.236***	-0.237***	-0.235***	-0.234***	-0.211***
		(0.062)	(0.062)	(0.062)	(0.062)	(0.063)
household income		0.023***	0.023***	0.023***	0.022***	0.022***
		(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
hours worked		0.003	0.003	0.003	0.003	0.003
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)

men	I	II	III	IV	V	VI
interaction terms						
tertiary education* migrated				-0.120	-0.102	
				(0.189)	(0.189)	
partner* migrated				-0.101	-0.101	
				(0.152)	(0.150)	
married* migrated				0.148	0.133	
				(0.157)	(0.161)	
regional characteristics						
income level					0.007	0.006
					(0.005)	(0.005)
unemployment rate					-0.004	-0.004
					(0.005)	(0.005)
city with more than 100,000 residents					-0.039	-0.032
					(0.078)	(0.079)
person-years	27457	27457	27457	27457	27457	27457
persons	4099	4099	4099	4099	4099	4099
r-square overall	0.145	0.171	0.172	0.171	0.188	0.184
r-square within	0.060	0.085	0.085	0.085	0.085	0.086
r-square between	0.175	0.204	0.204	0.204	0.230	0.225
rho	0.525	0.520	0.520	0.520	0.513	0.515

Robust standard errors are used; year dummies are included; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

More importantly, the change in SWB was enduring (Model 3). Male migrants reported higher levels of life satisfaction even six years after migration. However, after labor market characteristics are controlled in Models 5 and 6, the effect of migration is no longer significant for men. Therefore, the increased SWB after migration can be explained by the superior labor market characteristics of Western Germany. Men appear to have benefited, in terms of SWB, from higher income levels and more secure employment situations in Western Germany.

Neither highly educated men nor those who moved to Western Germany with a partner (married or otherwise) differ from other groups of migrants (Model 4).

The SWB patterns that were found in this study are generally similar for men and women. Migration increased SWB for both sexes. The effect endured for at least 6 years, and no group differences can be found, although the positive effect of migration on SWB appears to have been slightly larger and more stable for females. In addition, the effect of return migration was positive but never significant. Few differences between men and women can be found. The most important difference is that the influence of migration on the SWB of women remains stable even when regional features are controlled (see Table 2 and Models 5 and 6). There were differences between men and women with regard to employment status. Both men and women who became unemployed, began apprenticeships or began part-time work were less satisfied. Initially, this pattern showed no gender-specific differences. However, a comparison of the effects of migration and employment

status on SWB reveals differences between men and women. Next to the effect of health, unemployment or part-time work shows the strongest effect on SWB for men, whereas migration shows the strongest effect on SWB for women.

Table 2: Consequences of migration from Eastern to Western Germany on the SWB of women: fixed-effects regressions based on SOEP data for the 1992–2006 period

women	I	II	III	IV	V	VI
individual characteristics						
migrated from Eastern to Western Germany	0.472***	0.416***		0.412**	0.500***	
	(0.095)	(0.093)		(0.135)	(0.142)	
returned to Eastern Germany	0.335	0.348	-0.024	0.339	0.355	-0.094
	(0.206)	(0.199)	(0.202)	(0.197)	(0.199)	(0.206)
migrated less than two years ago			0.472***			0.562***
			(0.094)			(0.106)
migrated two to four years ago			0.351**			0.450***
			(0.123)			(0.135)
migrated four to six years ago			0.475***			0.574***
			(0.139)			(0.146)
migrated six to nine years ago			0.190			0.286
			(0.169)			(0.173)
migrated more than ten years ago			0.386*			0.479**
			(0.178)			(0.183)
age	-0.040**	-0.095***	-0.094***	-0.095***	-0.117***	-0.109***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.018)	(0.018)
age squared	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
health	0.402***	0.403***	0.402***	0.403***	0.403***	0.403***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
found a partner in the past year	0.234***	0.112	0.106	0.118	0.122	0.123
	(0.062)	(0.065)	(0.066)	(0.069)	(0.069)	(0.066)
married in the past year	0.158	0.061	0.058	0.068	0.074	0.073
	(0.084)	(0.087)	(0.086)	(0.088)	(0.088)	(0.086)
divorced in the past year	-0.117	-0.085	-0.087	-0.083	-0.078	-0.079
	(0.121)	(0.119)	(0.119)	(0.119)	(0.119)	(0.119)
spouse died in the past year	-0.001	-0.021	-0.025	-0.015	-0.009	-0.014
	(0.160)	(0.159)	(0.160)	(0.160)	(0.160)	(0.160)
has children	0.113**	0.182***	0.182***	0.182***	0.183***	0.188***
	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)
became unemployed		-0.298***	-0.300***	-0.298***	-0.306***	-0.313***
		(0.071)	(0.071)	(0.071)	(0.071)	(0.071)
began part-time work		-0.135**	-0.134**	-0.135**	-0.135**	-0.140**
		(0.043)	(0.043)	(0.043)	(0.043)	(0.043)
began vocational training		-0.258***	-0.259***	-0.258***	-0.260***	-0.239***
		(0.062)	(0.062)	(0.062)	(0.062)	(0.064)
household income		0.028***	0.028***	0.028***	0.028***	0.028***
		(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
hours worked		0.001	0.001	0.001	0.001	0.001
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)

women	I	II	III	IV	V	VI
interaction terms						
tertiary education* migrated				0.134	0.105	
				(0.214)	(0.213)	
partner* migrated				-0.032	-0.040	
				(0.160)	(0.159)	
married* migrated				-0.050	-0.035	
				(0.175)	(0.176)	
regional characteristics						
income level					0.009	0.008
					(0.006)	(0.006)
unemployment rate					0.013**	0.013**
					(0.005)	(0.005)
city with more than 100,000 residents					-0.179*	-0.173*
					(0.087)	(0.087)
person-years	28908	28908	28908	28908	28908	28908
persons	4134	4134	4134	4134	4134	4134
r-square overall	0.130	0.154	0.154	0.154	0.159	0.157
r-square within	0.051	0.067	0.067	0.067	0.067	0.068
r-square between	0.180	0.199	0.197	0.199	0.201	0.199
rho	0.523	0.518	0.518	0.518	0.511	0.511

Robust standard errors are used; year dummies are included; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

I conducted several tests to account for possible sources of selectivity. First, I tested whether persons who are removed from the data are indeed a random group and not selected among those who are less satisfied (see the additional variable test used by Wooldridge, 2001: 581). Two of the three constructed tests support the view that individuals are removed from the data randomly. Second, I constructed various robustness tests to analyze whether the various methods of accounting for migrants and returnees influence the analyses.[12] In this situation, the main problem is that returnees might be selected according to their satisfaction. East-West migrants who are particularly dissatisfied in the West might return to the East. The effect of migration remains stable regardless of the specification used (the results are not presented here). Finally, I estimated the Heckman selection controls with a reduced set of variables following the method of Heckman and Smith (1996). The results indicate that the unobserved characteristics based on which persons are selected for migration account for approximately one-sixth of the effects of migration on SWB (the results are presented in the appendix). The results indicate the importance of using fixed-effects estimations and controlling for unobserved characteristics.

12 Possible influences were investigated, for example, by including previously excluded returnees in the sample, adding returnees to migrants in West Germany or treating these migrants as a separate group in the final models.

6 Conclusion

The purpose of this study was to investigate the influence of migration on SWB. The hypotheses in this study regarding the effect of migration on SWB were derived from neoclassical economic concepts such as the human capital theory and from concepts developed in the psychology literature. The main prediction derived from the human capital framework is that migrants should be more satisfied after a move. The estimations are based on longitudinal data (SOEP 1990–2007), which include information pertaining to individuals living in, moving from, and returning to Eastern Germany. Fixed-effects hierarchical models were used to distinguish the effects of personality and mobility on SWB.

East-West migration in Germany has had a positive influence on SWB. Therefore, hypothesis 1 (*migrants should report higher SWB after their moves*) is verified. Although the favorable conditions in the Western German labor market, such as higher regional income levels, account for the increase in the reported SWB of men, the same result was not observed for women. Previous studies have shown that men and women experience increased SWB as a result of different factors. For example, Fandrem et al. (2009) showed that young women gain greater satisfaction from housing. For example, the quality of housing may differ between Eastern and Western Germany, and women may have experienced greater SWB in the West because of the superior quality of housing. Other reasons for the high and stable increases in the SWB of women after migration might have been associated with the structure of the labor market in West Germany, which may have been especially beneficial for women. Research addressing mobility in urban municipalities states that women are more likely to relocate to larger cities because the men in these cities have higher education levels and earnings and are thus more attractive to women (Edlund, 2005). Wages in Western Germany tend to be higher than wages in Eastern Germany. Therefore, westward migration may be driven by a mechanism that is similar to that which motivates migration to cities. Single women who migrate to Western Germany or to larger cities may profit from increases in their own wages and those of their potential partners (cf. Edlund, 2005). For female migrants who live in partnerships, a different mechanism could account for the increased SWB following migration. In this context, the research on over-qualification might be insightful. For example, Büchel (2000) showed that married women who live in more highly populated municipalities are less likely to work in jobs for which they are overqualified (Büchel, 2000). If Eastern and Western Germany differ regarding the density of population and the density or quality of jobs that are available (e.g., high-quality jobs in East Germany are more scarce) or if couples migrate from rural areas to urban areas, then women who migrate with partners or spouses may be more satisfied because of the

superior job opportunities that are available. If this explanation holds true, then the regional control variables that were used may not capture the complete effect of the superior job opportunities that are available in West Germany.

The positive effect of migration on SWB was found a maximum of six years after relocation for men and a maximum of ten years after relocation for women. Hypothesis 2 (*the increases in SWB after a move are enduring*) can be confirmed only for women. For men, the situation is more complex. On the one hand the effect can be interpreted as enduring; the SWB of men remained higher after six years, which is longer than individuals usually need to adapt to new situations. For example, the existing research shows that individuals typically need approximately 3 years to adapt to widowhood or marriage, two years to recover from layoffs and one year to adapt to a divorce (e.g., Clark et al., 2008). On the other hand, the effect of migration on SWB for East German male migrants who relocated to West Germany declines in magnitude after six years and does not remain significant. This result may indicate that an adaptation process was occurring and that male migrants were affected by the "hedonic treadmill"; and that even a significant change in living conditions, such as the changes associated with relocation, may not increase SWB indefinitely. Therefore, neither hypothesis 2 nor the alternative hypothesis 2a can be confirmed for men. Further research best one based on international data is necessary to clarify the process that affects the SWB of men after relocation.

Interestingly, the results for women contradict the predictions of psychologists regarding adaptation, aspiration and the comparisons used in alternative hypothesis 2a (*migrants should report decreasing SWB in periods following migration*) and earlier research (cf. Brickman et al., 1978). However, a comparison of the results to more recent research provides a more harmonious view of the situation. According to recent research, individuals do not completely adapt to non-monetary life events, such as marriage, divorce, disability (Di Tella et al., 2007; Easterlin, 2003; Lucas et al., 2003) or migration. Neither *highly educated migrants nor those who move with a partner reveal different levels of SWB* (thus, hypothesis 3 must be rejected, but hypothesis 4 is confirmed).

This study provided new information on migration using longitudinal data. However, new questions also arise. One of the most important questions concerns whether the positive, long-term effect that was found in this study can be confirmed for international migration. For example, does this pattern apply to people who relocate to a society with an entirely different culture or economic situation or to countries in which other languages are spoken? Moreover, it would be interesting to determine whether people who relocate to a society with a different ethnic majority also show such high increases in SWB. However, new data sources will be required to answer such questions. Finally, this study compared the SWB of

East-West migrants before and after their moves with the remaining population of the country of origin; the link between migrants and individuals from a country of destination is still absent and should be analyzed in future research.

Acknowledgements

I thank my supervisors Herbert Brücker and Hans-Peter Blossfeld for their advice and support. I am grateful to Michael Tåhlin, Ruud Muffles, Jennifer Hunt, Thomas Rhein, Dominik Morbitzer, Journt Mandemakers for their comments. This research was partly concluded during a research visit at the Swedish Institute for Social Research (SOFI) and partly during a research visit at the Department of Sociology at the University of Tilburg, whose hospitality is grateful acknowledged. I also thank the TransEurope Research Network for their generous financial support during the research visit at the SOFI.

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8 Appendix

Table A1: Characteristics of male and female migrants and stayers; SOEP data for the 1992–2006 period

	men				women			
	stayers	migrants	min	max	stayers	migrants	min	max
individual characteristics								
life satisfaction	6.4	6.8	0	10	6.4	6.8	0	10
age (in years)	40.1	36.9	17	63	40.1	34.6	17	63
health	3.55	3.69	1	5	3.49	3.69	1	5
single (in %)	24.6	23.7	0	4	18.4	20.1	0	4
in a partnership (in %)	11.9	19.1			12.2	20.5		
married (in %)	58.4	52.1			60.6	50.2		
divorced (in %)	4.5	4.8			6.45	8.4		
widowed (in %)	0.6	0.3			2.4	0.9		
has children (in %)	31.08	31.20	0	1	35.37	38.02	0	1
without sec. degree (in %)	0.9	0.6	0	4	0.6	0.1	0	4
lower secondary (in %)	22.6	10.7			20.9	8.1		
intermediate sec. (in %)	51.4	50.6			54.7	54.0		
upper secondary (in %)	19.9	34.3			18.5	31.4		
tertiary education (in %)	20.8	26.9			25.7	25.7		
employed full-time (in %)	68.4	83.1	0	4	41.7	42.7	0	4
employed part-time (in %)	1.4	1.9			13.3	19.0		
unemployed (in %)	30.0	11.7			41.0	32.8		
vocational training (in %)	5.2	3.3			4.0	5.5		
hours worked (in %)	32.3	39.1	0	80	23.8	25.7	0	80
household income (in €)	1317	2365	0	101021	920	1,163	0	28000
regional characteristics								
income level (in €)	62.9	92.0	38	125	53.9	61.5	32	92
unemployment rate (in %)	15.6	9.7	1	33	18.8	9.1	1	36
city with more than 100,000 res. (in %)	26.3	34.9	0	1	27.0	29.3	0	1
n person-years	26213	1244			27338	1570		

Table A2: Consequences of migration from Eastern to Western Germany on SWB: Heckman selection regressions based on SOEP data for the 1992–2006 period

	men	women
individual characteristics		
migrated from Eastern to Western Germany	0.323***	0.363***
age	-0.228***	-0.226***
age squared	0.003***	0.003***
reference category: single		
cohabitated	0.012	-0.078
married	0.127**	-0.009
divorced	-0.332***	-0.238***
widowed	-0.032	0.088
reference category: no secondary degree		
lower secondary degree	-0.225***	-0.323***
intermediate secondary degree	-0.113*	-0.128**
upper secondary degree	0.209***	0.117*
tertiary degree	0.082*	0.062*
reference category: employed		
not employed	-0.761***	-0.700***
employed part-time	-0.400***	-0.086*
vocational training	-0.684***	-0.733***
household income	0.047***	0.065***
hours worked	-0.003*	-0.011***
inverse Mills ratio	0.045***	0.050***
person-years	27423	28824
r-square	0.1148	0.0998

To compute the inverse Mills ratio, I controlled for age, age squared (if a person was single, cohabiting or married), educational level, employment status, household income, hours worked, the labor market, unemployment and regional characteristics. The estimates were obtained with two-step Heckman selection controls using STATA 10. The criteria for the selection were the duration of unemployment, the time spent in the labor force, and house ownership. Moreover, for the selection equation, only being single or having a partner (married or otherwise) was distinguished, whereas information on divorce and widowhood were also used for the outcome equation.

Chapter V

Reconsidering gender-specific commuting and migration between East and West Germany[1]

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Abstract

Migration is not the only means through which people can work in another region or country; long-distance commuting can serve the same purpose. Commuting can offer an alternative to migration but might also constitute a first step to it. We argue that commuting and migration must be analyzed simultaneously to provide a more comprehensive understanding of the mobility patterns and the connections and interrelations between them. The following questions are asked: which people decide to commute, and which people decide to migrate? Does commuting serve as a stepping stone or as an alternative to migration? Are there gender-specific differences?

The hypotheses in this work are derived from the neoclassical migration theory, which focuses on the different costs involved in migration and commuting. We use the German Socio-Economic Panel Study (1992–2009) to estimate pooled and separate analyses for men and women with logit and multinomial logit models with random effects. The results suggest that long-distance commuting is used as a stepping stone to migration rather than as an alternative to it, especially for highly educated people and women, who are more likely to migrate than to commute.

1 Introduction

Modernization in transportation and communication challenge the migration research focus on the choice between remaining in a country and migrating permanently, facilitating new flexible forms of mobility such as commuting. Changes in the labor market, such as the emergence of temporary working arrangements (Booth et al. 2002; OECD 2013), and changes in the working environment, such as the possibility to work from home (Green et al. 1999), amplify the demand for more flexible forms of mobility. The changes at the labor market go hand in hand with changes in living arrangements and the increase in double-career partnerships (OECD 2011, p. 34, 38), which increases the costs and difficulties connected with migration (see e.g. Mincer 1978; Nivalainen 2004; Smits et al. 2003). This challenges the mobility research and calls for investigations that extend beyond the previously focused decision on remaining in a country vs. permanent migration to include, for example, commuting. Questions regarding who chooses which form of mobility and how these mobility forms are connected arise. The aim of the present study is to answer these questions empirically using data on East-West migration in Germany.

In OECD (2005, p. 92) countries, on average, more than one-tenth of the employed population commutes to work.[2] With 16 percent of the employed population involved in commuting, Germany and the UK show the highest commuting rates.[3] Hereby, the former border between East (the former German Democratic Republic) and West Germany (the former Federal Republic of Germany) plays an outstanding role in determining the mobility patterns within Germany. The East-West German divide represents a unique example of regional wage gaps within Western European countries. Indeed, as of 2009, wages in East and West Germany differed up to 30 percent, a difference that is comparable to income gaps among two countries rather than two regions (Statistisches Bundesamt 2010). These high income gaps create large incentives for East Germans to work in West Germany. Therefore, it is not surprising that since the reunification, 1.1 million more people migrated from East to West Germany than the other way around (Statistisches Bundesamt 2010)[4] and an additional 300 thousand more people commute[5] every year to work in West Germany (Haas 2008).[6] East-West commuting and migration are characterized by high mobility between economically divergent but institutionally identical regions.

Previous research has focused mainly on migration, neglecting other mobility patterns (van Ommeren et al. 1997). Other mobility patterns, such as commuting, are typically investigated separately from migration (Eliasson et al. 2003, p. 828; Nivalainen 2010, p. 146), even though the mobility patterns are interrelated (Zax 1991; Zax and Kain 1991) and despite the fact that migration and commuting can be used as alternatives (Green et al. 1999; Nivalainen 2010) or complements (Lundholm 2010; Sandow and Westin 2010). By ignoring commuting, either the population under risk of migration is incomplete because commuters are excluded from the sample or the analyzed categories are blurry because commuters and stayers, i.e. non-migrants, are combined within one group. In the worst case, this makes the investigation incomplete (Romaní et al. 2003), the interpretation of the effects more difficult, and may lead to biased results.

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2 The OECD defines commuting based on the NUT2 levels and distinguishes between 36 administrative districts. People, who work in one of the administrative districts and live in another, are commuters.

3 In Germany and the UK, 16 percent of the employed population commutes to work between regions, while in countries like France (12 percent) the Netherlands (12 percent) and Italy (10 percent), the commuting rates are slightly lower (OECD 2005).

4 Most of the western federal states experienced population gains first of all Bavaria and Baden-Wurttemberg, which experience a population growth up to 9.4 percent in the period from 1990 to 2008. Meanwhile the population declined in the new federal states. In Sachsen-Anhalt the population losses were as high as 17.1 percent and in Mecklenburg-West Pomerania they still reached 13.5 percent (Statistisches Bundesamt 2010).

5 In this article, we use the term "commuter" for an individual who works in West Germany while residing in East Germany. East Berlin is defined as part of eastern Germany, while West Berlin is defined as part of western Germany.

6 Additional information on the net commuter ratio was provided by Anette Haas at the basis of pallas-data from the Institute of Employment Research.

Second, the focus in existing research combining commuting and migration differs from the question analyzed here. The few existing works combining the analysis of migration with that of commuting focus on the impact of commuting distance between work and the place of residence on the decision to migrate (Clark et al. 2003; Zax and Kain 1991), the impact of recent migration on the commuting distance (e.g. Champion et al. 2009; Green et al. 1999), or varying work-living constellations (e.g. Kalter 1994; van Ommereren et al. 2000). Thus far, the literature is silent about the connection and interrelation between commuting and migration (Lundholm 2010), which is the focus of the present research.

Third, to the best of our knowledge, no study has investigated the connection between commuting and migration while taking gender-specific differences into account. Previous research does not provide insight on the gender-specific usage and interrelations between the mobility forms or on the gender-specific impact of factors such as education on the choice of mobility forms.

Recent research on migration on the micro and the macro level indicates gender-specific migration patterns (Dumount et al. 2007; Faggian et al. 2007; Hunt 2006; Melzer 2013) and higher self-selection on education among women than men (Dumount et al. 2007; Feliciano 2008; Melzer 2013). The assumption that such gender-specific patterns can be found for commuting stands to reason, particularly as theoretical considerations and previous empirical studies imply such differences (cf CORDIS 2008; Crane 2007; MacDonald 1999; Sandow 2008; Sandow and Westin 2010). We expect gender to have a substantial impact on the mobility form chosen and the functions assigned to them for several reasons. First, there is a gender-specific impact of the stress associated with commuting (Roberts et al. 2011). Second, women's incomes are lower; thus, women have lower means available for commuting (MacDonald 1999). Third, the tasks that men and women perform within the household differ, with women engaged more (Johnston-Anumonwo 1992; Turner and Niemeier 1997). Based on these differences, we expect lower commuting attendance among women, especially those in partnerships, and that women commute only temporarily and as a stepping stone to migration rather than as an alternative to it. The investigation of gender-specific differences in commuting and migration behavior should deepen our knowledge on mobility because gender it has been neglected thus far, and gender, like race, class, and nationality, is an important dimension of social inequality (cf Portes 1997, p. 816).

Finally, the few previous studies investigating commuting and migration used multinomial logit regressions, ignoring the nested structure of the data and the fact that persons are questioned on an annual basis. We use multinomial logit regressions with random effects to account for the structure of the data and the

fact that persons are more similar to themselves than to other people and that the likelihood of migration is non-independent from the individual.

This article aims to fill some of the gaps in research on commuting and migration between East and West Germany. It addresses the following questions based on the neoclassical migration theory: Which people decide to commute; which people decide to migrate? Does commuting serve as a stepping stone or as an alternative to migration? Are there gender-specific differences in the choice and usage of the mobility patterns?

Using the German Socioeconomic Panel Study (SOEP) data from 1990 to 2009, we first estimate multinomial logit regressions with random effects to identify differences between non-migrants, commuters and migrants. Second, random effects logit regressions are estimated to determine whether commuting serves as a stepping stone or a substitute for migration. This research should not only provide information on the connections and interrelations between migration and commuting but also show whether it is justifiable to reduce mobility decisions to the choice between migrating permanently and staying.

2 Previous research

The existing research provides mixed evidence on the connection between migration and commuting. Research from Sweden (Eliasson et al. 2003; Lundholm 2010; Sandow and Westin 2010) indicates that commuting is used as a stable long-term solution and thus can be interpreted as an alternative to migration. Using binary probit models in the context of Spain, Romaní et al. (2003) report that commuting increases the likelihood of migrating, indicating that commuting serves as a stepping stone to migration. However, Romaní et al. (2003) find, in line with the findings of Champion et al. (2009) for England, that migration increases the probability of commuting, indicating that relocating (e.g., to a more rural area) might increase the travelling distance to work and thus have a positive influence on commuting.

Regarding individual characteristics, previous research agrees that commuters tend to be slightly younger than stayers and have relatively even age patterns (Lundholm 2010; Nivalainen 2010; Sandow and Westin 2010), whereas migrants are much younger than both commuters and stayers (Nivalainen 2010; Romaní et al. 2003). Most research finds that both migrants and commuters have higher education (Eliasson et al. 2003; Lundholm 2010; Nivalainen 2010; Romaní et al. 2003); however, some studies find that commuters are middle educated (Sandow and Westin 2010).

To the best of our knowledge, only one study has simultaneously investigated commuting and migration between East and West Germany. Estimating a multinomial logit model, Hunt (2006) shows that commuters tend to be younger

than non-migrants but not as young as migrants. In line with international research, the author shows that women are less likely to commute. However, contrary to the mainstream migration research, the author finds that East German women are slightly more likely to migrate than men. This finding was also supported by Melzer (2013) and Windzio (2007).

3 Theoretical framework

People rationally decide whether to remain in their place of origin or to become mobile by comparing the costs and gains related to the different forms of mobility, such as commuting and migration, and staying (van Ommeren et al. 1997; van Ommereren et al. 2000; Zax 1991). Both forms of mobility bear monetary and non-monetary costs (DaVanzo 1981; Massey et al. 1993; Stutzer and Frey 2008; Zax 1991), but they differ in regards to timing of the costs accrual and the risk involved. Therefore, the investigation of mobility decisions requires the consideration of how such factors influence peoples' mobility choices, for example, by distinguishing between short- and long-term costs.

3.1 Mobility costs

People who migrate must make investments mostly before the relocation occurs, placing uncertainty and risk into the decision (Sjaastad 1962). Transportation and a new place of residence must be arranged, and the old accommodation must be canceled or sold. After relocation, there are no additional monetary long-term costs and the total costs should not exceed the costs incurred in the short term. Also the total non-monetary costs should not exceed the short-term costs, as migrants lose their location-specific human capital and are separated from their social networks immediately after relocation.

The costs of commuting differ considerably from those of migration. The short-term costs are much lower, as people stay at their place of residence and profit from their social networks and location-specific human capital. Most importantly, commuting does not require high monetary investments before the event and is much less risky than migration. In contrast to migration costs, which do not rise further once the relocation occurs, the costs of commuting build over time. Every day that an individual commutes, new monetary costs are added. In addition, the non-monetary costs also accumulate, as commuting is one of the least pleasant daily activities (Kahneman et al. 2003) and embodies high mental and physical burden for both the commuter and the family (Roberts et al. 2011; Stutzer and Frey 2008). Commuting, especially over long distances, is very time-

consuming and reduces the time available for leisure and family activities, which might even create partnership problems (Kley 2012; van der Klis and Mulder 2008).

As such, the costs of commuting and migration differ considerably over time. Although the costs of migration exceed commuting costs and are connected to higher risk in the short term, migration costs should be lower than commuting costs in the long term.

Short term: commuting < migration
Long term: migration < commuting

The low costs and risk involved in commuting makes is more attractive as a short-term solution than migration and should result in low selectivity among commuters. However, both commuting and migration costs, and thus the gains obtained, depend on individual characteristics and circumstances (Sjaastad 1962; van Ommeren et al. 1997; van Ommereren et al. 2000; Zax 1991), which also define peoples' mobility choices. Highly educated people should not only be able to rely on better and more effective search strategies (Chiswick 1999), but are also more likely to profit from broader social networks, reducing both the monetary and non-monetary costs of migration (Brücker and Defoort 2009). In addition, mobility might be more important for their careers, as the labor market for highly educated and specialized individuals is less dense (Büchel and van Ham 2003) and mobility might become inevitable for promotion or to avoid overqualification for highly educated. Assuming that their good qualifications and high productivity is reflected in their earnings, highly educated should have few problems in raising the necessary financial means. The migration costs should be relatively lower than their earning potential, resulting in low risk in the decision to migrate. Lower migration costs increase the attractiveness of migration and lowers the incentives to commute or the duration people can spend commuting before the commuting costs exceed the migration costs.

Hypothesis 1: When highly educated people (who have very low migration costs) become mobile, they are more likely to migrate than to commute in comparison to lower educated people.

Hypothesis 2: When highly educated people begin commuting, this is only a temporary solution (which reduces the risk of migration even further) and they are more likely to use commuting as a stepping stone than as an alternative to migration compared with lower educated people.

The mobility decisions should differ for people in partnerships. For this group, the migratory gains must exceed not only their own migration costs but also those

of their partners, which is especially difficult for double-career couples (Mincer 1978). As migration is shown to reduce earnings, working hours or to cause interruptions in the labor market participation of one partner, which is typically the woman (Boyle et al. 2001; Boyle et al. 2008; Rabe 2011; Shauman and Noonan 2007), commuting can serve as a compromise that provides the possibility to pursue a career while the partner can do the same at the place of origin (Green 1997; van der Klis and Mulder 2008).

Hypothesis 3: When people in partnerships become mobile, they are more likely to commute than to migrate compared to singles.

Hypothesis 4: People in partnerships are more likely to use commuting as an alternative rather than as a stepping stone to migration compared to singles.

3.2 Gender-specific differences

In line with theoretical and empirical research on commuting (cf CORDIS 2008; Crane 2007; MacDonald 1999; Sandow 2008; Sandow and Westin 2010) previous research on the East-West mobility in Germany indicates lower commuting rates for women (Hunt 2006). Contrary, despite the general exception that women are less mobile (e.g., Le Grand and Tåhlin 2002; Lehmer and Ludsteck 2009), previous research in Germany indicates higher migration rates from East to West Germany among women (Hunt 2006; Melzer 2013; Windzio 2007). This might indicate a substitution effect, in which the higher migration rate of women indicates different choices regarding the mobility forms among men and women. It is possible that while women choose to migrate to the West, men choose to commute.

Hypothesis 5: When women become mobile, they are more likely to migrate than to commute compared to men.

Hypothesis 6: When women begin commuting, they are more likely to use commuting as a stepping stone rather than as an alternative to migration than are men.

People who migrate profit from regional wage differences. The higher the income gap, the more individuals, independent from their personal characteristics, can realize gains from the relocation (Sjaastad 1962). In 2009, for example the wage gap between East and West Germany was 30.3 percent for men. For women, the average West German wages were only 12.9 percent higher than the East German wages (Statistisches Bundesamt 2010). The lower income gap should enable

only a specific part of the female population with higher education to gain from migration. The additional 17.4 percent of income increase connected to migration should, in turn, enable even some men with higher migration costs, such as those with slightly lower education or those in partnerships, to profit. Previous research confirms that only women with at least upper secondary degrees seem to gain from the relocation from East to West Germany, whereas men are able to gain from the relocation with lower educational degrees (Melzer 2013). As the incentives should be similar for all types of mobility, we expect commuting to be profitable only for women with higher education.

Hypothesis 7: Women's mobility choices are more dependent on higher education than are those of men.

The typical difficulties for men and women in partnerships to compensate their own and their partner's migration costs are enforced further for women because the gains from working in West Germany are, on average, smaller for women than for men. This, in connection with the tendency of couples to place the men's career first (e.g. Bielby and Bielby 1992; Boyle et al. 2001; Nivalainen 2004), makes it difficult for women in partnerships to initiate a relocation (Nisic and Melzer 2013). At the same time, due to the gender-specific division of the household tasks, it should be also more difficult for women in partnerships to commute to work than for men in partnerships (cf CORDIS 2008; Crane 2007; Johnston-Anumonwo 1992; MacDonald 1999; Sandow 2008; Sandow and Westin 2010; Turner and Niemeier 1997). Therefore, it is expected that:

Hypothesis 8: Women's mobility choices are more restricted by their partnership than are the mobility choices of men.

4 Data and methods

4.1 Data

German Socio-Economic Panel Study (SOEP) from 1992 to 2009, a representative longitudinal survey of private households that began in 1984 in West Germany and West Berlin and six years later in East Germany and East Berlin (Wagner et al. 2007), is used. The sampling procedure is based on a random selection of households; every member over 16 years old is interviewed.

Unbalanced samples restricted to members of the working age population between 16 and 63 who spend at least one year in East Germany are used for the

estimations.[7] The dataset is balanced on gender (51.2 percent women). Commuting is more common among men; 61.7 percent of commuters are men, whereas they only comprise 43.7 percent of migrants.

The presented estimations are based on two slightly different samples. The first analyses, which investigate the determinants that lead to the decision to begin commuting or to migrate (presented in Table 2), include only information from the year immediately before people begin to commute or migrate. The periods following the choice of mobility are censored to ensure that the causes and consequences of mobility decisions are not mixed and that commuting and migration are treated analog. We distinguish people who are immobile, who migrate, and who begin commuting. The first dataset (1992–2008)[8] contains 49,533 observations for 4,010 men and 4,067 women, with 663 observations for people who migrated and 1358 observations for those who commuted. In the first set of estimations, the dependent variable, *mobility form,* takes the value of one for people who commuted (1), two for people who migrated (2) and zero for stayers.

In the second set of estimation, which investigates how commuting influences the migration decision, we no longer use the variable that indicates the distance to the West German boarder and include all commuting episodes, which extends the data to 62,329 observations for 8,951 persons. The dependent variable, *migration,* takes the value of one if a person migrates and zero, otherwise.

Independent Variables

To analyze the various forms of mobility, we control for *age* using six age groups, *gender* (female = 1) and if people have a *partner* (married or in partnership = 1). Moreover, we use two dummy variables to indicate whether people have *children* and the children's age (i.e., younger than 6 versus between 6 and 18 years).

To account for individual-level qualifications, we measure *education* (centered at nine years), *duration spent in the current company* and *cumulative duration of unemployment* in years. We account for *employment status* by distinguishing between full-time employment, part-time employment, apprenticeship (employment = 0) and unemployment (= 1). *Income* is deflated to the year 1992. Moreover, we use the logarithm of income to account for the fact that an increase by one unit might have different consequences for

7 We do not control for place of residence prior to the fall of the Berlin Wall, as is sometimes done (see e.g., Hunt 2006). Although this procedure might have been warranted for the first years after reunification, particularly in research specifically focused on the migration patterns of East Germans, the populations have mixed 20 years after reunification and former West Germans who have lived in the eastern part since the reunification would have been excluded from the sample if we continued to follow this procedure. Moreover, people born in 1990, who are now able to make their own migration decisions, are not documented by the question, "where did you live in 1989?" This question is typically used to distinguish between East and West Germans.

8 As migration can only be observed between two waves, the last year in the dataset is excluded from the estimations.

people at the lower and the higher end of the income distribution. To account for monetary migration costs, we control for *homeownership* using a dummy variable that takes the value of one if a person owns real estate and zero, otherwise and *distance* to the nearest West German town or to West Berlin is measured in 10 km steps.

In the second set of estimations, in addition to the previously listed variables, we include the variable *commuting*, which is one (1) when persons who live in East Germany commute to work in western Germany (1) and is otherwise zero (0).

To measure the mediating effect of gender on the influence that education and partnership has on mobility decisions, two interaction terms with the variable *female* were included in the first set of estimations. In the second set of estimations, interaction terms with the variable *commuting* indicate whether various groups of the population, such as women or the highly educated, use commuting differently than the main population.

4.2 Methods

We use multinomial logit and logit regressions with random effects (RE), which take into account the clustered structure of the dataset and the fact that individuals were questioned on several occasions. Moreover, models with RE, in contrast to simple multinomial logit and logit models, are able to account for the non-independence of the likelihood of migration or commuting from individuals and, thus, the fact that individuals are more similar to themselves over time than to others. We estimate RE regressions because education, one of the main variables of interest, does not change much over a person's lifetime once schooling is completed, which is the case for the main part of the sampled population (cf Melzer 2013). Fixed effects (FE) regressions are not able to estimate the influence of education on mobility decision in such a case, as the sample barely shows any within-subject variance. Contrary to FE regressions, which are based entirely on the within-subject variance, RE models estimate the likelihood of migration relying on between-subject and within-subject variance simultaneously and are able to provide information on differences in the mobility patterns of people with varying education. One drawback of RE models in comparison to the FE models is that they require an additional assumption regarding the structure of unobserved heterogeneity involved, assuming that the unobserved factors are not correlated with the explanatory factors and this assumption might be violated (Wooldridge 2009, p. 496). However, if the assumption holds, RE panel regression models are not only consistent, and the Hausman test verifies this, but also more efficient than FE models.

To simultaneously analyze the decision to stay, commute or migrate, we use multinomial logit regressions with random effects that account for the fact that individuals face a set of opportunities simultaneously. Multinomial logit regressions estimate J-1 logit models at the same time, comparing J outcomes simultaneously (Long 1997). The presented models employ non-migrants as the reference group. To use multinomial regressions, the independence of irrelevant alternatives (IIA) assumption must be fulfilled. In other words, the odds of any two forms of mobility must not change when an additional form of mobility is included or removed from the estimation. We tested the independence of irrelevant alternatives (IIA) assumption; all three computed tests (i.e., the Hausman, the Suest-based Hausman and the Small-Hsiao tests) support the IIA and indicate that multinomial logit regressions are suitable to investigate the choices of mobility forms. For the estimation of multinomial logit models with random effects, the IIA is relaxed. In addition, the correlation between the alternatives is allowed by introducing random effects. In both the multinomial and the logit models, we estimate person-specific intercepts, which account for persons' variability in their willingness to become mobile and determine the persons' behavior over time.

Separate analyses for men and women are estimated in addition to pooled estimations with gender-specific interaction terms, as previous research and theoretical considerations suggest gender-specific mobility patterns.

5 Results

5.1 Descriptive results

Table 1 provides a description of the characteristics of male and female stayers, commuters and migrants. People from the mobile groups are younger. Migrants are less likely to be in partnerships and have spent less time either unemployed or in employment in their last company than stayers and commuters. Generally, commuters resemble stayers to a greater degree than migrants. Among commuters, those who migrate after spending a period commuting seem to be younger and better educated. The high incomes that commuters earn indicate the higher income levels of West Germany. Finally, the low rate of unemployment among commuters also points to the nature of commuting, as persons work in West Germany, which automatically excludes unemployed persons. The few percent of commuters who are listed as unemployed spent the majority of the analysis year unemployed (i.e. seven months) before they began to commute.

Table 1: Descriptive results: Characteristics of people who commute, migrate or remain immobile for 1992–2008

	stayers		persons who begin commuting*		commuters		commuters who migrate		persons who migrate*	
	male	female	male	female	male	female	male	female	male	female
individual characteristics										
age	40.6	40.7	34.8	31.9	37.9	35.5	31.2	27.0	30.8	29.2
years in education	11.9	11.8	10.9	10.2	12.3	11.5	12.0	11.4	12.1	11.7
unemployed	32.8	42.6	31.0	47.0	1.5	4.3	16.2	33.8	33.8	47.2
gross income (€)	1311	928	1253	748	1907	1431	1994	1400	1363	753
duration spent in the current company	5.3	4.5	4.2	2.7	6.8	6.1	6.5	2.9	2.8	1.3
cumulative duration unemployed	0.8	1.2	0.4	0.5	0.3	0.4	0.7	0.3	0.5	0.7
single	30.2	26.6	37.0	43.9	36.1	31.2	50.9	67.5	57.2	64.9
partner	69.8	73.4	63.0	56.1	74.4	68.8	49.1	32.5	42.8	35.1
no children	65.4	60.1	56.2	55.9	52.2	56.2	30.8	84.4	72.1	66.1
children younger than 6	11.3	13.5	15.4	16.6	16.1	15.4	31.1	7.8	12.4	13.9
children between 6 and 19	23.3	26.4	28.4	27.5	31.7	28.4	38.1	7.8	15.5	16.9
homeowner	44.4	43.0	43.9	42.1	50.2	51.8	47.9	37.7	23.4	27.6
number of cases	26886	29570	798	560	3231	1979	75	77	290	373

* In the year before they begin commuting or they migrate.

5.2 Determinants of commuting and migration

Model I and II (presented in Table 2) indicate a general accordance in the mobility patterns of men and women. The main factors age, education, income, homeownership, and the presence of partner and children in the household show a similar influence. For example, older age decreases the likelihood of becoming mobile for both man and women. Commuters and migrants are both likely to be younger than stayers, but the influence of age is higher for migration. With every year above nine years spent in education, which corresponds to the lowest secondary school degree accepted in Germany, the likelihood to migrate compared to the likelihood of staying increases by 10.8 percent for men and by 10.3 percent for women. The likelihood of commuting compared to staying increases only by 5.3 percent for men and 3.9 percent for women. Therefore, men with upper secondary education have a 43.2 percent[9] higher likelihood to migrate than men with lower secondary education (41.2 percent for women), whereas they have only a 21.2 percent (15.2 percent for women) higher likelihood to commute. In addition, the comparison between commuters and migrants presented in the second part of the Table highlighted in grey reveals that *as hypothesis 1 states, higher educated people are more likely to migrate than to commute compared to the group with lower education*. Women with upper secondary education are 27 percent more likely to be migrants than commuters compared with women with lower secondary education. Furthermore, the cumulative duration spent in the current company, i.e. seniority, and the duration spent in unemployment reduces the likelihood of becoming mobile either by commuting or by migrating. Whereas seniority reduces the likelihood of a job change, regardless if within East or West Germany, the cumulative duration spent in unemployment likely reflects a person's bad prospects in the labor market. AS the duration in unemployment increases, the chances of finding a job decrease. At the same time, this effect could reflect the fact that people who are regionally restricted and unable to commute or migrate are more likely to experience longer periods of unemployment due to the reduced search radius.

In addition to the qualification and employment situation, the current living situation influences the choice of the mobility form. Men in partnerships are 65 percent and women in partnerships are 75 percent less likely to migrate than singles compared to stayers. At the same time, the likelihood to commute is only 21 percent lower for men and 32 percent lower for women in partnership than for singles compared to the group of stayers. *The direct comparison of the two mobility forms also confirms hypothesis 3; men and women in partnerships are significantly less likely to migrate than to commute compared to singles.*

9 In general, odds ration can be estimated with the following formula exp(x). To account for four additional years spent in education, the formula must be multiplied by 4 exp(4*0,108) = 43.2 percent.

Table 2: Determinants of commuting and migration: Multinomial logit regressions with random effects

	baseline category stayers								baseline category commuters[$]			
	men		women		pooled		pooled		men	women	pooled	pooled
	I		II		III		IV		I	II	III	IV
	com.	mig.	com.	mig.	com.	mig.	com.	mig.	mig.	mig.	mig.	mig.
individual characteristics												
female					-0.419***	0.173+	0.003	0.639***			0.644***	0.579***
					(0.073)	(0.103)	(0.112)	(0.156)			(0.108)	(0.161)
reference group: older than 40												
younger than 19	0.722**	1.108**	1.495***	1.884***	1.108***	1.555***	1.137***	1.605***	0.288	0.132	0.293	0.303
	(0.223)	(0.350)	(0.213)	(0.262)	(0.153)	(0.207)	(0.155)	(0.210)	(0.373)	(0.290)	(0.225)	(0.228)
between 20 and 24	1.029***	1.737***	1.273***	2.075***	1.135***	1.890***	1.188***	1.965***	0.573*	0.581*	0.584**	0.590**
	(0.173)	(0.279)	(0.178)	(0.232)	(0.122)	(0.174)	(0.123)	(0.177)	(0.291)	(0.249)	(0.184)	(0.187)
between 25 and 29	0.959***	1.369***	0.960***	1.639***	0.944***	1.459***	0.995***	1.534***	0.265	0.517+	0.366+	0.374+
	(0.167)	(0.275)	(0.202)	(0.249)	(0.127)	(0.181)	(0.127)	(0.182)	(0.293)	(0.288)	(0.200)	(0.201)
between 30 and 34	0.555***	1.104***	0.649**	0.973**	0.578***	1.017***	0.620***	1.084***	0.454	0.214	0.344	0.354
	(0.160)	(0.284)	(0.202)	(0.309)	(0.125)	(0.202)	(0.125)	(0.204)	(0.295)	(0.340)	(0.217)	(0.217)
between 35 and 39	0.471**	0.584+	0.456*	0.536+	0.453***	0.544*	0.486***	0.598**	0.033	0.052	0.050	0.059
	(0.157)	(0.299)	(0.201)	(0.314)	(0.122)	(0.214)	(0.123)	(0.215)	(0.318)	(0.356)	(0.234)	(0.234)
education in years	0.052**	0.103***	0.038*	0.098***	0.042***	0.099***	0.068***	0.129***	0.034	0.054*	0.047*	0.040
	(0.017)	(0.029)	(0.017)	(0.023)	(0.012)	(0.019)	(0.015)	(0.029)	(0.030)	(0.027)	(0.020)	(0.028)

	baseline category stayers								baseline category commuters[$]			
	men		women		pooled		pooled		men	women	pooled	pooled
	I		II		III		IV		I	II	III	IV
	com.	mig.	com.	mig.	com.	mig.	com.	mig.	mig.	mig.	mig.	mig.
reference group: employed												
unemployed	0.055	1.031**	0.143	0.277	0.155	0.629*	0.112	0.595*	0.860*	0.190	0.464	0.478
	(0.302)	(0.371)	(0.301)	(0.335)	(0.212)	(0.247)	(0.215)	(0.251)	(0.402)	(0.422)	(0.289)	(0.294)
gross income (in €100)	0.007	0.173**	0.039	0.084	0.029	0.129***	0.022	0.122**	0.164**	0.060	0.108*	0.109*
	(0.043)	(0.056)	(0.047)	(0.053)	(0.032)	(0.038)	(0.032)	(0.039)	(0.062)	(0.066)	(0.045)	(0.045)
duration spent in current company	-0.020*	-0.022	-0.053***	-0.050*	-0.031***	-0.033*	-0.031***	-0.033*	-0.007	-0.003	-0.008	-0.008
	(0.009)	(0.017)	(0.013)	(0.021)	(0.008)	(0.013)	(0.008)	(0.013)	(0.019)	(0.025)	(0.015)	(0.015)
cumulative duration unemployed	-0.198***	-0.181*	-0.194***	0.032	-0.197***	-0.040	-0.190***	-0.032	0.051	0.227***	0.167***	0.167***
	(0.046)	(0.077)	(0.047)	(0.046)	(0.033)	(0.041)	(0.032)	(0.040)	(0.082)	(0.061)	(0.048)	(0.047)
reference group: single												
partner	-0.233+	-1.053***	-0.386**	-1.376***	-0.283**	-1.173***	-0.041	-0.759***	-0.796***	-0.934***	-0.852***	-0.713***
	(0.141)	(0.223)	(0.130)	(0.165)	(0.095)	(0.130)	(0.124)	(0.177)	(0.234)	(0.187)	(0.141)	(0.188)
reference group: no children												
children younger than 6	0.268+	0.379	0.116	0.081	0.206*	0.242	0.179+	0.189	0.031	-0.073	-0.023	-0.043
	(0.139)	(0.256)	(0.163)	(0.202)	(0.104)	(0.158)	(0.104)	(0.157)	(0.269)	(0.237)	(0.174)	(0.172)
children between 6 and 19	0.431***	0.192	0.336*	-0.046	0.385***	0.064	0.363***	0.018	-0.208	-0.408	-0.349*	-0.359*
	(0.127)	(0.237)	(0.154)	(0.231)	(0.096)	(0.161)	(0.096)	(0.160)	(0.248)	(0.255)	(0.172)	(0.171)
reference group: no homeowner												
homeowner	-0.057	-0.970***	0.029	-0.711***	-0.025	-0.826***	-0.013	-0.811***	-0.871***	-0.660***	-0.737***	-0.734***
	(0.094)	(0.172)	(0.108)	(0.150)	(0.071)	(0.113)	(0.071)	(0.113)	(0.172)	(0.163)	(0.116)	(0.117)
distance to West	-0.000	0.003*	0.000	0.001	0.000	0.002**	0.000	0.002**	0.003**	0.001	0.002*	0.002*
Germany (10 km)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)

Table 2 continued

	baseline category stayers								baseline category commuters[$]			
	men		women		pooled		pooled		men	women	pooled	pooled
	I		II		III		IV		I	II	III	IV
	com.	mig.	com.	mig.	com.	mig.	com.	mig.	mig.	mig.	mig.	mig.
interaction terms												
female*parter							-0.488**	-0.719***				-0.160
							(0.152)	(0.209)				(0.225)
female*education							-0.050**	-0.049				0.019
							(0.019)	(0.033)				(0.034)
n person-years	23900		25633		49533		49533		23900	25633	49533	49533
n persons	4010		4067		8077		8077		4010	4067	8077	8077
standard deviation of random effect term	0.221		0.287		0.173		0.175		0.194	0.244	0.151	0.153
variance reduction in percent	-0.249		-0.504		-0.459		-0.426		-0.621	-1.081	-0.916	-0.866
log likelihood test	-4540.1		-3944.0		-8519.2		-8501.7		-4591.7	-3992.2	-8619.7	-8601.2

Robust standard errors in parentheses; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; SOEP data 1992–2008; [$]This category was estimated using a separate multinomial model with commuters used for the baseline category. The additional category stayers, which compares stayers and commuters, was removed due to space limitation, as it provides the same estimations as those presented in the first model.

Grand mean men: standard deviation 0.247; log likelihood -4727.0.

Grand mean women: standard deviation 0.352.; log likelihood -4226.9.

Grand mean pooled estimation: standard deviation 0.209; log likelihood -8980.2.

The variance reduction (also r^2 aggregate) is a measurement of the quality of the model. It indicates how much of the variance can be explained through the introduction of the variable corresponding to the grand mean. Usually, no positive values should be found; however, sometimes it can happen that the variance is greater when additional variables are included. For the estimation of the variance reduction, the variance of the second level of the grand mean model is divided by the variance of the second level of the corresponding model. Then the value is subtracted from one: 1 – (var_2ed level g. m.)/(var_2ed level) (see Snijders Bosker 1999). The variance reduction for the first model is estimated as follows: $1 - (0.247^2)/(0.221^2) = -0.249$. We can see that with every new model, the variance was reduced by some percentage.

A test referring to the quality of the model is the log likelihood test, which measures the improvement between models. The log likelihood test statistic is estimated in the following way: =(2ln(L2)-2ln(L1); degrees of freedom (m2 – m1).

Men, but not women, with children in households are more likely to be commuters than to remain in East Germany. Unexpectedly, children seem to have little effect on the mobility decisions. Explanations for this effect may be related to the extensive wage gap between East and West Germany and the substantial gains from migration. Facing such extensive gains, the raise in migration costs related to the presence of children in the household seem to be negligible (Nisic and Melzer 2013).

In addition to the qualification and employment situation, the current living situation influences the choice of the mobility form. Men in partnerships are 65 percent and women in partnerships are 75 percent less likely to migrate than singles compared to stayers. At the same time, the likelihood to commute is only 21 percent lower for men and 32 percent lower for women in partnership than for singles compared to the group of stayers. *The direct comparison of the two mobility forms also confirms hypothesis 3; men and women in partnerships are significantly less likely to migrate than to commute compared to singles.* Men, but not women, with children in households are more likely to be commuters than to remain in East Germany. Unexpectedly, children seem to have little effect on the mobility decisions. Explanations for this effect may be related to the extensive wage gap between East and West Germany and the substantial gains from migration. Facing such extensive gains, the raise in migration costs related to the presence of children in the household seem to be negligible (Nisic and Melzer 2013).

Models III and IV in Table 2 display pooled estimations for men and women. As shown in Model III, the effects found for men seem to predominate the effects for women, and the estimations in the joint Models III and IV are always driven by men's characteristics. This indicates that when the effects found in the joint estimations are interpreted uncritically, the impact of some effect of the migration of women may be overestimated.

According to Model IV, men and women do not differ significantly in their commuting behavior and women are nearly twice as likely to migrate than to remain in East Germany compared to men. This is also confirmed in the direct comparison of migration and commuting. *Women are more likely to migrate rather than to commute compared to men, which confirms hypothesis 5.* The findings in Model IV deviate from the effects displayed in Model III, which indicate not only that women are 44.3 percent less likely to commute but also that they are only 18.9 percent more likely to migrate than men. The differences in effects result from the higher deviance in the mobility patterns of single and partnered persons for women than for men. Controlling for these differences by including interaction terms on gender and partnership in Model IV, the main effect of gender on the choice of migration and commuting vs. staying increases dramatically, indicating a much greater willingness to become mobile among single women than first

assumed. In Model III, the effect of gender is biased downward, as the effect of higher influence of partnerships on the mobility decision suppresses the main effects of gender on mobility, when not controlled. *Women in partnerships are much more restricted in their mobility choices compared to men, as hypothesis 8 states. Education does not seem to influence the migration decision of women to a higher degree than men, which is contrary to the expectations expressed in hypothesis 7.* In fact, the impact of education on the decision to commute rather than to remain in East Germany seems to be even less driven by educational degrees for women than for men in partnerships.

The connection between migration and commuting are investigated with logistic random effects logit regressions, as presented in Table 3. In general, the results are similar to those estimated with the multinomial logit; small differences between Table 2 and 3 may result from differences in the samples used (see discussion of the data sets). Model I and II indicate that both men and women use commuting as a stepping stone rather than as an alternative to migration. Men who commute between East and West Germany are three times more likely and women are three and a half times more likely to migrate. Commuting provides the possibility to gather the necessary information to wait until the probation period is passed and to reduce the risk connected to the investment and costs of migration. With every additional year since the start of the current commuting episode, the likelihood of migration increases by 24 percent for men and 16 percent for women. Although the effect of the duration spent commuting on migration is not linear, the likelihood of migration increases at first, but declines after seven years for men and six years for women.

In Model IV, additional interaction terms with the variable commuting are included to estimate whether women, people with higher education and especially higher educated women differ in their migrating and commuting behavior compared to lower educated people and men. *Women, regardless of their education, are four times more likely to use commuting as a stepping stone to migration than are men, which confirms hypothesis 6.* For women who commute, higher education does not increase the already high likelihood of migrating, as the interaction effects on commuting*education and commuting*education*female cancel each other out. *For men, education increases the likelihood of migrating once commuting has begun; therefore, hypothesis 2 can be confirmed for men only.* Finally, the interaction terms added in Model V capture differences in the mobility behavior of persons in partnership and especially for women who are single and in partnerships. Neither of the interaction effects is significant, which indicates that *men and women in partnership do not use commuting less often as a stepping stone to migration than single commuters; therefore, hypothesis 4 is rejected.*

Table 3: Determinants of migration from East to West Germany: Random effects logit regressions

	men I	women II	pooled III	pooled IV	pooled V
individual characteristics					
female			0.289**	0.265**	0.261**
			(0.088)	(0.098)	(0.099)
reference group: older than 40					
younger than 19	1.131***	1.428***	1.326***	1.318***	1.319***
	(0.320)	(0.245)	(0.190)	(0.191)	(0.192)
between 20 and 24	1.563***	1.518***	1.495***	1.510***	1.513***
	(0.249)	(0.208)	(0.155)	(0.156)	(0.156)
between 25 and 29	1.338***	1.326***	1.279***	1.288***	1.291***
	(0.245)	(0.215)	(0.158)	(0.158)	(0.159)
between 30 and 34	1.096***	0.701**	0.879***	0.880***	0.885***
	(0.248)	(0.256)	(0.172)	(0.172)	(0.173)
between 35 and 39	0.520+	0.536*	0.516**	0.518**	0.521**
	(0.271)	(0.264)	(0.186)	(0.186)	(0.186)
education in years	0.077***	0.064***	0.068***	0.062***	0.061***
	(0.023)	(0.018)	(0.014)	(0.015)	(0.015)
reference group: employed					
unemployed	1.017**	0.146	0.501*	0.468*	0.468*
	(0.356)	(0.284)	(0.217)	(0.218)	(0.219)
gross income (in €100)	0.103+	0.003	0.045	0.042	0.041
	(0.054)	(0.046)	(0.034)	(0.034)	(0.034)
duration spent in current company	-0.018	-0.048**	-0.032**	-0.032**	-0.032**
	(0.015)	(0.017)	(0.011)	(0.011)	(0.011)
cumulative duration unemployed	-0.133*	-0.065	-0.091**	-0.089**	-0.090**
	(0.064)	(0.040)	(0.034)	(0.034)	(0.034)
reference group: single					
partner	-0.805***	-1.021***	-0.889***	-0.894***	-0.845***
	(0.190)	(0.141)	(0.109)	(0.109)	(0.117)
reference group: no children					
children younger than 6	0.014	-0.203	-0.107	-0.101	-0.102
	(0.227)	(0.181)	(0.139)	(0.139)	(0.139)
children between 6 and 19	0.296	0.123	0.170	0.171	0.178
	(0.217)	(0.191)	(0.138)	(0.138)	(0.139)
reference group: no homeowner					
homeowner	-1.092***	-0.741***	-0.879***	-0.881***	-0.886***
	(0.161)	(0.130)	(0.099)	(0.099)	(0.099)
reference group: stayer					
commuter	1.040***	1.270***	1.167***	0.723**	0.784**
	(0.174)	(0.171)	(0.120)	(0.236)	(0.248)
duration since first commuting episode started	0.212**	0.149*	0.178***	0.179***	0.178***
	(0.078)	(0.073)	(0.053)	(0.053)	(0.053)
duration since first commuting episode started squared	-0.018*	-0.013+	-0.016**	-0.016**	-0.016**
	(0.009)	(0.008)	(0.006)	(0.006)	(0.006)

Table 3 continued

	men	women	pooled	pooled	pooled
	I	II	III	IV	V
interaction terms					
commuter*female				0.617*	0.631+
				(0.310)	(0.326)
commuter*education				0.111*	0.121*
				(0.047)	(0.049)
commuter*female*education				-0.142*	-0.143*
				(0.064)	(0.066)
commuter*partner					-0.221
					(0.284)
commuter*female*partner					-0.048
					(0.383)
number of cases	30407	31922	62329	62329	62329
number of individuals	4279	4312	8591	8591	8591
rho	0.257	0.172	0.174	0.176	0.180
standard deviation of random effect term	0.307	0.278	0.214	0.212	0.211
variance reduction in percent	-0.358	-0.477	-0.475	-0.465	-0.460
log likelihood test	-1459.8	-1752.7	-3234.1	-3231.0	-3230.2

Robust standard errors in parentheses; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; SOEP data 1992–2008
Grand mean men: standard deviation 0.246; log likelihood -1624.3.
Grand mean women: standard deviation 0.201.; log likelihood -2005.3.
Grand mean pooled estimation: standard deviation 0.155; log likelihood -3633.3.

6 Conclusion

This article investigates the determinants of commuting and migration from East to West Germany and the interrelation of these mobility forms. We also investigate gender-specific differences in the mobility choices and the purpose that these choices serve. The theoretical framework is based on the neoclassical migration theory, and the focus is the long- and short-term costs to generate hypotheses on varying choices and usage of mobility forms for higher educated individuals, people in partnerships, men and women. Pooled and separate multinomial and logit regressions with random effects for men and women are estimated using SOEP data from 1992 to 2009. Several questions can be asked:

Do mobility costs play a role in the choice of the mobility form? The influence of costs on the decision to become mobile and the mobility form chosen are indicated in the variables measuring the distance, homeownership and the individual's income. Distance has a weak negative influence on commuting. As the distance to the closest West German region increases the journey from home to work becomes more costly and inconvenient, and people are less willing to commute. Migration becomes more likely with greater distance, as the migration costs become relatively

lower compared to the costs of commuting. This can serve as the first indicator of the assumption that costs determine mobility choices, which is supported by the asymmetric influence of homeownership on mobility decisions. Homeownership has a strong negative effect on migration and no effect on commuting. Finally, the asymmetric influence of income on the mobility choice strengthens the impression. Higher income significantly increases the likelihood to migrate because the monetary costs of relocation are negligible and the risk low, which reduces the attractiveness of the alternative commuting. This is also evident in the direct comparison of the mobility forms, as persons with higher income are more likely to migrate than to commute.

What is the connection between commuting and migration? Commuting seems to be a stepping stone rather than an alternative to migration. This is especially true for women, who are four times more likely to migrate once they begin to commute. Nevertheless, people who migrate after beginning to commute are selected, for example on education, among commuters. The low short-term costs of commuting seem to be associated with a low selectivity to commuting. This is also the reason why commuters are more similar to the general population than migrants. However, the step from commuting to migration involves a challenge, and only persons with specific characteristics and low migration costs seem to be able to make the transition. This is also evident in the higher education among migrants than commuters.

Are there differences in the mobility patterns of men and women? Men and women differ in their migration and commuting behavior. However, unexpectedly, gender alone does not define the mobility; rather, gender in connection with partnerships defines the mobility. Single women are quite mobile; their migration rates are higher than those of man and their commuting rates are identical. Thus, high participation in migration cannot be explained by women's preference for migration over commuting.

At the same time, several mechanisms (e.g., socialization (West and Zimmerman 1987) or women's lower income potential) seem to introduce a situation in which women in partnerships are not able to initiate migration for their own sake or to commute.

When women in partnerships commute despite their low likelihood to do so, they are quite likely to migrate soon after. Therefore, if commuting serves as an alternative to migration and thus as a compromise for couples, this compromise has a gender bias. Men in partnerships seem to be able to make the "compromise commuting" and to pursue their careers in another region, whereas their partners work in the region of origin; however, the same is not true for women. Women in partnerships are quite restricted in their mobility behavior. This could indicate that

a traditional gender ideology reduces women's possibilities to participate in the labor market by preventing them from migrating or commuting for their careers. Another explanation could be connected to the division of the household task and the fact that while one of the partners commutes the other partner usually absorbs a higher share of the housework, and often also reduces the participation in the labor market (cf CORDIS 2008). It seems as though the gains involved in women's migration are not high enough for their partners to take over households duties.

The connection found between gender and partnership also indicates that gender is not a detached category; rather, it influences people's lives in interaction with other dimensions of inequality such as the marital status.

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Chapter VI

Why do couples relocate? Considering migration from East to West Germany[1]

1 This chapter is published online in *European Societies* 15 (Issue 3), p. 423–445.

Abstract

This paper examines the determinants of family migration from a post-socialist country, the former German Democratic Republic (today, the eastern part of reunified Germany), to a western country, West Germany. The paper seeks to answer the following questions: (1) How does the migration behavior of married and cohabitating men and women differ from that of individuals who live alone? (2) What factors influence family migration? (3) Are there gender-specific differences in the factors that influence migration?

Hypotheses are derived from theories of gender roles, household economics, and bargaining to investigate the migration of individuals and families. Data from the Socio-Economic Panel Study covering the period 1992 to 2007 are analyzed using logistic hierarchical regression models. The results show that the male partner's education level is the most important determinant of migration, whereas the female partner's education is of secondary importance. The results generally support the predictions of gender role theory. Despite their egalitarian views and socialization in a socialist country, couples from East Germany exhibit a traditional orientation toward gender roles when making migration decisions.

1 Introduction

One large challenge for couples is that of combining their preferences, wishes, and careers and determining whose wishes regarding migration receive priority. Recent research shows that decisions regarding family migration are typically more influenced by the male partner's career and characteristics (Bielby and Bielby 1992; Boyle et al. 2001; Compton and Pollak 2007; Jürges 1998; Jürges 2006; Nivalainen 2004; Shihadeh 1991; Smits et al. 2003; Tenn 2010; for a review, see: Cooke 2008b). However, the female partner's employment and income also have an impact, mainly by reducing the likelihood of relocation (Jürges 1998; Mincer 1978; Nivalainen 2004; Smits et al. 2003). More important than the female partner's actual employment are, however, the family's gender norms (Shihadeh 1991), which determine whether the wife's employment is understood as a secondary income with a limited influence on migration (as in traditional couples) or whether the woman is seen as a co-provider whose career receives equal priority (as in egalitarian couples) (Bielby and Bielby 1992; Boyle et al. 2001; Cooke 2008a; Jürges 2006). Gender norms can explain why egalitarian couples not only are less likely than traditional couples to migrate for the sake of the male partner's career (Bielby and Bielby 1992) but are also more likely to migrate to improve the female partner's employment prospects (Boyle et al. 2001).

Although it is well understood how egalitarian or traditional couples decide whether to migrate, it remains unknown if individuals who spent their childhood and adolescence in a socialist country, such as the German Democratic Republic (GDR), whose social system challenged patriarchal gender roles, tend to be more egalitarian when making migration decisions. This article contributes to the research on family migration from East Germany (the former GDR) by examining the 20 years after German reunification to determine whether the migration patterns of East German couples retained the characteristics expected of individuals who grew up in a post-socialist country with an egalitarian ideology, or whether if these characteristics have largely disappeared.

Notably, the high income differences between East and West Germany, combined with low transportation costs, a lack of legal constraints, and the absence of language barriers, provide substantial incentives for couples to migrate. These incentives are not only unique within Germany but are also unusual for any European country.

The following research questions are answered in this paper: (1) How does the migration behavior of married and cohabitating men and women differ from the migration behavior of individuals who live alone? (2) What factors influence family migration? (3) Are there gender-specific differences in the factors that motivate migration?

Hypotheses are developed based not only on gender role theory but also on theories of household economics and bargaining. Data from 1992 to 2007 provided by the Socio-Economic Panel Study (SOEP), which include extensive information pertaining to individuals, their partners, and entire households, are investigated using hierarchical regressions.

2 East to West migration in Germany

Since reunification, more people have left East for West Germany than vice versa. East Germany had lost 7.9 percent of its pre-reunification population by 1995 and 10.7 percent by 2000.[2] By 2008, the East German population had declined by 11.7 percent, or 1.7 million.[3]

2 For the population of the GDR in 1989, please see the *Statistisches Jahrbuch der DDR* (1998) Berlin: Staatsverlag der Deutschen Demokratischen Republik, p. 335. For more recent figures, see the *Statistical Yearbook for the Federal Republic of Germany*, Statistisches Bundesamt, Wiesbaden (2006). The figures that are presented do not include East Berlin because the statistical office does not differentiate between East and West Berlin after 2000.

3 However, other factors such as fertility decline and migration abroad have also contributed to this decrease in the population (see *Statistisches Bundesamt 20 Jahre deutsche Einheit*, Statistisches Bundesamt, Wiesbaden 2010, p. 10).

Today, more than 20 years after Germany's reunification, people who leave East for West continue to represent 16 percent of the migration flows within Germany[4], whereas only 20 percent of the German population lives in East Germany (West-East migration accounts for 12 percent).[5] The characteristics of the individuals who leave East Germany are well documented. These individuals are younger, are better educated, and earn higher wages prior to migration than the individuals who remain in East Germany (Brücker and Trübswetter 2007; Hunt 2006; Melzer 2013; Windzio 2007). Married and cohabitating individuals are less likely to migrate than singles (Hunt 2006; Melzer 2013). Surprisingly, women are more likely to migrate (Hunt 2006; Melzer 2013; Windzio 2007) and are more positively self-selected with respect to education than men are (Melzer 2013). However, less is known about the migration of families that leave East Germany and about how socialization in the former GDR influences migration. The existing research treats male and female migrants as "autonomous" actors, and the characteristics of an individual's partner are not considered to influence migration. Alternatively, the existing research analyzes the migration of male heads of household, and the influence of women on migration is treated as residual (cf Schwarze and Wagner 1992; Wagner 1992). Because of the economic changes, extensive layoffs, and early retirement associated with reunification, which increased the fraction of women who were the main wage-earners in their households (Diewald et al. 2006), the focus on male heads of household is particularly problematic for East-West migration in Germany (cf also Acker 1973). Such a framework not only ignores migration by single women but also provides biased results when women's labor market position is higher than that of men.

Neither type of research provides information on the influence of women's characteristics, such as education or seniority, on family migration. To provide this information, the present article analyzes first the influence of both partners' characteristics on household migration for couples, who relocate from East to West Germany. Second, the migration patterns of single individuals are compared with those of individuals in partnerships, taking the individuals' partners' characteristics into account.

4 Of all the relocations, 12 percent occur within East Germany and 60 percent within West Germany. In total, 3 percent of all the relocations within East Germany and 3 percent of the relocations to West Germany originate in Berlin. These numbers are based on calculations using information from the *Statistical Yearbook for the Federal Republic of Germany*, Statistisches Bundesamt, Wiesbaden 2010.

5 See the *Statistical Yearbook for the Federal Republic of Germany* (2010), Statistisches Bundesamt, Wiesbaden.

3 Theoretical background

3.1 Household economic theory

According to neoclassical migration theory, the decision to migrate can be understood as a risky investment in the future (Sjaastad 1962). Individuals compare their current incomes to the incomes that they are likely to receive after migrating, discounted of the costs of migration. Individuals relocate when they can obtain positive net returns to utility.

The decision-making process for couples as suggested by the household economic theory is similar to the process for single individuals. The only difference is that, for couples, the benefits are maximized across entire households (Mincer 1978). Thus, the costs and benefits of migration for all of the family members must be considered, and migration occurs independently of gains and losses of the individual members, when benefits at the household level can be obtained. Because couples incur greater migration costs, they are less likely to migrate than singles, and dual-earner couples are less likely to migrate than single-earner couples.

3.2 Bargaining theory

The household economic theory ignores potentially divergent individual interests, conflicts regarding the allocation of resources, and internal power struggles (Lundberg and Pollak 2001). In contrast, bargaining theory addresses these shortcomings and models migration decisions based on individual utility. Partnerships are understood as exchange relationships (Ott 1992). Partners trade goods such as love, tenderness, time, and financial resources and continually negotiate the "rate of exchange." The partners invest in the relationship as long as the utility within the partnership is higher than the "outside" or "exit" options available, i.e., higher than the utility associated with being single or in a different partnership. The partner with better "outside" options, the one who would lose less from a breakup and depends less on the partnership, compromises less and invests less in the partnership. The distribution of power between partners depends on financial resources, including jobs, education, and work experience. Employment is important because participation in the labor market is linked to financial independence, better "outside" options, and increased power. In contrast, engagement in housework and care-giving perpetuates financial dependence. For couples with an unequal power distribution (for example, couples with only one employed partner), migration occurs when the partner who holds more bargaining power is willing to relocate.

Power is distributed more equally in a couple when, for example, both partners are employed. Generally, a simple net gain at the household is insufficient for the migration to take place, as this was the case under the household economic of migration. Migration occurs only when both partners profit individually from relocation: for example, when both partners find better paid jobs at the destination, which is as Mincer (1978) and Kalter (1998) showed statistically very unlikely. Otherwise, the gains at the household level must be high enough for the "tied mover", i.e., the partner who follows, to generate actual utility gains. When the gains at the household level are very high it is actually possible for the tied mover to generate gains from migration despite the relative decline of his or her share associated with a shift of power in favor of the person who initiates migration.

3.3 Gender role theory

The household economic and bargaining theories are gender-neutral. These theories ignore gender-specific differences in the distribution of power and the influence of gender roles on partners' decisions (Bielby and Bielby 1992). Thus, different influence of men's and women's characteristics on family migration, found empirically (Bielby and Bielby 1992; Boyle et al. 2001; Jürges 1998; Jürges 2006; Nivalainen 2004; Rabe 2011; Smits et al. 2003) is explained by women's lower education and employment rates (Markham et al. 1983; Shihadeh 1991). Gender role theory provides a competing explanation and suggests that partners behave according to what they have learned through the socialization process (West and Zimmerman 1987). This theory distinguishes between couples with traditional and egalitarian gender norms. The gender role theory provides similar explanations for the migration decisions of egalitarian couples as already discussed in bargaining and household economic theories. The careers and the employment of both partners are equally valued, and the partners' roles are interchangeable (Potchek 1997). Relocations take place in order to support both partners' careers. In contrast, traditional couples assign men the role of the primary wage earner and women the roles of the primary care-giver and housekeeper. Women's careers are treated as inferior to those of men, and the costs and benefits of migration are calculated in a gender-specific manner (Bielby and Bielby 1992; Halfacree 1995). Traditional couples migrate to support the male partner's career, even if this means that women must accept financial losses or career disadvantages.

4 Family migration in the East German context

The GDR, or the former East Germany, was characterized by low institutional differentiation, low poverty rates, and (as in most socialist countries) a high degree of income equality (Pollack 1990). The GDR was a one-party authoritarian state. Work was considered to be a right and a duty. It provided not only financial means but also access to benefits such as leisure, free childcare, and housing.

Gender equality was promoted in the GDR's political agenda and supported by the legal framework and public services. The substantial political interest in women's employment and the political expectation that women should remain in the labor force even if they had small children (Dorbritz and Schwarz 1996) was linked to the GDR's labor shortage, which made it necessary for the entire available labor force to work (Rosenfeld and Trappe 2002, p. 235). In this climate, women achieved high levels of equality and exhibited exceptionally high rates of labor market participation (Mayer 2006, p. 31 ff).

After German reunification, the circumstances changed for women. Conventions from West Germany, such as joint taxation, were adopted (Trappe and Sørensen 2005), and the support for employed women, including the availability of free childcare, was reduced. Average incomes in East Germany began to increase. However, unemployment also increased. In addition, the labor market became highly volatile.[6] Because of West German recruiting practices (Sandole-Staroste 2002), which treated women as secondary earners and increased competition by employing men in jobs previously held by women (Rosenfeld and Trappe 2002), many women left the workforce and became primary caregivers and homemakers (Rosenfeld et al. 2004, p. 120). Although these radical labor market changes are typically associated with disadvantages for women, certain women experienced career advantages as a result of the reunification, particularly women employed in the higher service sector (Diewald et al. 2006). Despite these economic issues, East German women remain highly work-oriented (Lück and Hofäcker 2003) and exhibit high levels of participation in education and the labor market (Mayer 2006, p. 31 ff).[7] Moreover, East German men and women express highly egalitarian gender views (Kreyenfeld and Geisler 2006; Matysiak and Steinmetz 2008), which implies that migration patterns among East German couples should also be egalitarian.

To test whether the migration patterns among East German couples are indeed egalitarian, two sets of hypotheses are used. The first set (E) describes the

6 By 1996, two thirds of all employed East Germans had changed jobs (Matthes 2004).

7 See Statistische Ämter des Bundes und der Länder (2006). *Internationale Bildungsindikatoren im Ländervergleich.* Wiesbaden, Statistisches Bundesamt, p. 29 ff.

behavior of egalitarian couples based on the bargaining and household economic theories, whereas the second set (T) describes the behavior of traditional couples with reference to gender role theory. It is suggested that egalitarian *couples in which only one partner, either male or female, is employed are more likely to relocate from East to West Germany than are couples in which both partners are (un)employed (Hypothesis 1E).* The high mobility of couples with only one partner employed can be explained by the employed partner's power to initiate migration, relatively low migration costs and the couples' good access to financial means. For couples in which both partners are unemployed, a new job should provide a large increase in the household's means and increase both partners' utility. However, migration implies monetary costs and couples with both partners unemployed have only limited resources to invest, which should limit their migration. Finally, when both partners are employed, exceptional income increases are necessary to cover relocation costs because migration implies that one partner must quit his or her job, at least temporarily. Therefore, *it can be expected that couples in which both partners are unemployed are more likely to migrate than couples in which both partners are employed (Hypothesis 2E).*

Additionally, a couple's migration decisions will be influenced by the partners' education levels. It is suggested that egalitarian *couples in which one partner, either male or female, is more educated than the other partner are more likely to migrate than couples in which the partners have equal levels of education (Hypothesis 3E).* This hypothesis is based on the expectation that partners with similar educations are likely to block one another's migration plans and that therefore couples with unequal education levels should be the most likely to migrate. Nevertheless, because individuals with higher education levels are generally more likely to migrate (cf Sjaastad 1962), *couples in which both partners are highly educated are more likely to migrate than are lower-educated couples (Hypothesis 4E).*

In general, for egalitarian couples, both partners' characteristics are expected to influence migration decisions symmetrically. However, if East German couples behave traditionally, the effects are expected to be asymmetrical: *only the employment of the male partner should influence the likelihood to migrate, whereas women's employment should show no influence on migration (Hypothesis 1T).* Moreover, it is suggested that only the male partner's education level should influence the couples migration decisions. C*ouples with a highly educated male partner are more likely to migrate than are couples with a less-educated male partner (Hypothesis 2T).*

5 Data and variables

5.1 Data

This study uses data from 1992 to 2007 from the Socio-Economic Panel Study (SOEP).[8] The SOEP is a representative longitudinal survey of private households in Germany and has covered East Germany since 1990 (Wagner et al. 2007).

The first estimates are based on data that include singles and individuals in partnerships (27,599 person-years for 4,227 men and 28,635 person-years for 4,247 women). The second set of estimates focuses on couples who live in joint households, whether they are married or cohabitating. Couples who live in separate households, whether because they are divorced or because they are simply not living together, are excluded from the analyses.[9] After singles, couples who live apart and couples in which at least one partner is older than 64 years of age or younger than 18 years of age[10] are excluded, the sample includes 2,898 couples (19,314 person-years). The migration rate for all of the households that met the selection criteria is 3.2 percent. Because the analysis is based on a small number of migration events, the missing values for the independent variables are imputed using single equations.

To ensure the comparability of migrants and non-migrants, I measure all of the features of the couples (or individuals) who moved to West Germany based on the last year that the couple (or individual) lived in East Germany. All of the periods that follow the relocation are omitted to ensure that all of the observed changes occurred prior to the migrations and that the causes and the consequences of migration are not confused.

The data suffer from one shortcoming: despite the high incentives for East-West migration in Germany, household relocation is rare, and the total number of instances of relocation in the sample is small (98). However, these data are the only available data that offer longitudinal information on migration by East German households.

5.2 Variables

Dependent variable

Individuals are classified as migrants when they move from East to West Germany. The interviews are performed at the new residence. The couples were defined as migrants only when the partners in the couple relocated simultaneously.[11]

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8 East Berlin is considered to be a part of East Germany, and West Berlin is considered to be a part of West Germany.

9 Couples with separate households are excluded because for them, living apart may be a direct alternative to migration.

10 Thus, either partner could theoretically receive a job offer.

11 For individuals, only the first move was considered. Couples could end their relationships after moving to West Germany, after which one of the members could return to East Germany and find another partner with whom he or she could migrate again.

Independent variables

The operationalization of the independent variables (Table 1) differs partially for the individual and household levels. At the household level, it was important to include the characteristics of both partners in the analysis. To avoid multicollinearity, the combined characteristics of both partners were used.

Table 1: Independent variables at the individual and household levels

	variables at the individual level	variables at the household level
age	The age of the individuals is measured in years.	The age of couples is measured by calculating the average age of the partners and the age difference in years.
marital status	Two dummy variables indicate whether a person is single, cohabiting, or married. In a second specification, one dummy variable differentiates between singles (0) and individuals in relationships (1).	This variable distinguishes between married couples (1) and those who cohabitate without being married (0).
education	The general education of individuals is measured directly as the number of years spent in educational institutions and apprenticeships (the same operationalization was used for the education of partners).	A set of dummy variables is used to distinguish between four different conditions: (1) both partners completed more than 11 years of education, (2) only the male partner, or (3) only the female partner completed more than 11 years of education, and (4) neither partner completed more than 11 years of education.
years spent with company	Firm-specific human capital is estimated using the number of years of employment experience at an individual's most recent job.	A set of dummy variables is used to distinguish between four different conditions: (1) both partners worked for more than three years, (2) only the male partner worked for more than three years, (3) only the female partner worked for more than three years, and (4) neither partner worked for more than three years.[1]
unemployed	Years spent unemployed.	
employment status	A set of dummy variables is used to distinguish between four different conditions: (1) full-time employment, (2) part-time employment, (3) apprenticeship, and (4) unemployment, maternity leave, or irregular employment.[2]	A set of dummy variables is used to distinguish between four different conditions: (1) both partners were employed, (2) only the male partner was employed, (3) only the female partner was employed, and (4) neither partner was employed.

Table 1 continued

	variables at the individual level	variables at the household level
income	For individuals (and their partners), the log-arithm of the monthly gross wage was used. For zero income, the income was set at 1€.[3]	No information regarding income was used for couples because of high multicollinearity related to employment status.
	variables used at the individual and household levels	
children	Two dummy variables indicated whether a person or household had children younger than six or between six and 18 years old.	
real estate	The variable "home ownership" was assigned a value of one (1) if the household or person owned private real estate and zero (0) if otherwise.	
regional income level[4]	Gender-specific daily income was used (all information on average daily incomes was obtained from the data from the Federal Employment Agency; IAB *Beschäftigten-Historik* (BeH) V 7.01, Nuremberg 2007). First, the average daily income was estimated using information regarding the length of employment (in days) and aggregated income over the entire period. Subsequently, the average daily income in a region was estimated by accounting for all individuals who were employed over the marginal threshold.	
regional unemployment rate	The gender-specific unemployment rates at one percent intervals were approximated using the IABS and the official figures of the Federal Employment Agency. (Gender-specific unemployment rates at the NUTS 3 level[4] were not available from the Federal Employment Agency for the years before 1998. Therefore, it was necessary to also use information from the IABS for the earlier period.)	
distance to West Germany	Information regarding the distance to the closest West German region was included. This value was measured using the distance from the district town in the source region to the nearest West German district town using 10 km intervals.	
urban area	This dummy variable indicated whether more than 100,000 people lived in a region.[5]	

[1] This short amount of time spent at a job was used because major changes occurred in the East German economy after reunification, and the labor market became highly volatile.
[2] These people work marginally (*geringfügig*) or sporadically.
[3] Thus, the income is ln(Z+1), where Z is the total income in 1992 Euros. The values that were reported in the tables were transformed into odds ratios and indicated the increase in the likelihood of migration when the income increased by 100€.
[4] The NUTS 3 level is the country level. Thus, district cities and cities without district government (*Kreise und kreisfreie Städte*) were used to specify the exact region.
[5] The figures were obtained from the Städtebaulicher Bericht (2004) "Nachhaltige Stadtentwicklung – ein Gemeinschaftswerk" vol. BT-Drucksache 15/4610.

6 Methods

In longitudinal surveys, such as the SOEP, individuals are interviewed on multiple occasions, which creates a hierarchical structure of data in which observations from several time points are "nested" within households. Time-variant and time-stable information can be obtained from longitudinal data. Hierarchical logistic regressions,

which are used here, makes it possible to consider both types of information. They control for the fact that households are more similar to themselves over time than they are similar to other households; that is, for the dependence of the likelihood of migration over time.

In addition, hierarchical logistic regressions do not require the same number of observations for all of the households included in the analysis. Thus, using this approach makes it possible to analyze unbalanced data and include households in the analyses that exist for different periods of time. Because the duration of partnerships is highly dependent on the age of the partners and because younger couples are more likely to migrate, a method that employs balanced data would lead to the underestimation of the number of couples at "risk" of migration and thus the of an underestimation of the likelihood of migration.

In particular, I use random effects hierarchical logistic regression because it relies on between-subject and within-subject variance and is more suitable than fixed effects hierarchical regression for analyses of data for small groups or a small number of events (Snijders and Bosker 1999, p. 43 ff). In addition, the Hausman test indicates that the random effects estimates are consistent and can be used. Using random effects regressions, it is possible to analyze the impact of changes within households on migration over time. For example, the influence of one partner's becoming unemployed can be estimated. In addition, the variation in time-stable characteristics across households: for example, whether couples with unequal education degrees are more likely to migrate than couples with equal education degrees.

In this study, households are allowed to vary in terms of their intercepts. A separate intercept is estimated for each household that is included in the data, and these intercepts are allowed to deviate from the overall mean.

7 Results

7.1 Descriptive results

Table 2 provides an overview of the characteristics of migrating and non-migrating individuals, regardless of whether they have a partner and for couples. Compared with non-migrants, migrants are younger, are more likely to be single, and spent less time at their last job. Individuals who migrate with their partners tend to be younger than their non-migrating counterparts. Men who move to West Germany with their partners are better educated and earn more than non-migrant men in partnerships, whereas women who migrate with their partners spent less time at their last job and are more likely to be unemployed than non-migranting women.

Table 2: Descriptive analysis of the individual characteristics of male and female migrants and non-migrants in East Germany. Means are presented

	all individuals				couples			
	women		men		female partner		male partner	
	non-migrants	migrants	non-migrants	migrants	non-migrants	migrants	non-migrants	migrants
age (in years)	**40.10**	**28.88**	**40.08**	**30.81**	**42.66**	**35.54**	**45.11**	**38.28**
single	**26.73**	**65.68**	**29.42**	**56.44**				
cohabitating	12.45	11.53	11.96	14.39	16.52	26.13	16.52	26.13
married	**60.82**	**22.481**	**58.61**	**29.17**	83.48	73.87	83.48	73.87
education (in years)	11.88	11.79	11.93	12.08	12.38	12.75	**12.52**	**13.18**
years spent with a company	**5.15**	**2.07**	**5.86**	**3.28**	**6.09**	**2.74**	7.119	5.35
income (1€)	**928**	**720**	1342	1388	1056	890	**1543**	**2013**
employed full-time	**41.99**	**32.54**	63.85	58.33	47.35	38.77	72.51	79.59
employed part-time	**13.41**	**5.92**	1.37	1.51	16.23	8.16	1.30	2.04
unemployed	34.93	36.39	25.05	26.14	33.10	44.90	24.00	15.31
in apprenticeship	4.06	15.09	5.41	7.57	**1.245**	**6.12**	0.57	2.04
irregularly employed	2.46	4.44	1.43	3.03	2.04	2.04	1.00	1.02
n person-years	28,297	338	27,335	264	2,983	98	2,983	98

SOEP data are from 1992 to 2006; the numbers printed in bold are significantly different at $P \leq 0.001$.

7.2 Analytical results

In Table 3, the migration behavior of individuals who relocate alone and thus have no constraints is compared with the migration behavior of individuals in partnerships, who must consider the regional preferences of their partners.

For both men and women, living with a partner reduces the likelihood of migration regardless of whether a couple is married or cohabitating. Although the effect seems to be slightly stronger for cohabitation, the differences are not statistically significant. Thus, the two groups can be combined in further analyses. The effect of living with a partner is weaker for men than for women. Relationship status is the most influential factor for migration among women. For men, having children or owning a house decreases the likelihood of migration even more.

For women, the effect of a partnership remains stable or increases when the partner's income (Model 3) and education (Model 4) are controlled for. The partner's income has no effect on the migration of women in partnerships, and the partner's education has only a weak positive effect. The differences in the migration patterns of single and partnered women cannot be explained by women´s partners' characteristics. It appears that for women, the mere presence of a partner is decisive, and women's migration patterns change as soon as they start a partnership.

Consistent with gender role theory, women seem not to migrate to benefit their own careers when they have partners.

Table 3: Determinants of migration from East to West Germany. The results of the logistic estimates are presented in log odds

	I	II	III	IV	I	II	III	IV
	women				men			
individual characteristics								
age (years)	0.091°	0.091°	0.090°	0.095°	0.095°	0.095°	0.106*	0.095°
age squared	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**	-0.002**
reference group: single								
cohabitating	-1.118***				-0.607**			
married	-1.055***				-0.447*			
cohabiting/married		-1.058***	-1.102***	-2.022***		-0.534**	0.022	-0.478
reference group: no children								
children < 6	-0.238	-0.243	-0.244	-0.254	-0.424°	-0.392°	-0.626**	-0.391°
children ≥ 6 and >18	-0.440*	-0.438*	-0.439*	-0.445*	-0.668**	-0.632*	-0.583*	-0.631*
education (in years)	0.074***	0.074***	0.074***	0.066***	0.076***	0.076***	0.080***	0.076**
income (€100)	0.054	0.053	0.053	0.049	0.130*	0.129*	0.130*	0.130*
years spent with last company	-0.058**	-0.058**	-0.058**	-0.058**	-0.033*	-0.033*	-0.031*	-0.033*
years spent unemployed	-0.025	-0.026	-0.025	-0.020	-0.133°	-0.138*	-0.156*	-0.138*
reference group: employed								
unemployed	0.388	0.391	0.390	0.368	0.858*	0.856*	0.834*	0.857*
employed part-time	-0.318	-0.315	-0.317	-0.315	-0.006	-0.009	-0.038	-0.009
in apprenticeship	0.508*	0.512*	0.511*	0.517*	-0.395	-0.386	-0.399	-0.386
homeowner	-0.660***	-0.655***	-0.657***	-0.663***	-0.972***	-0.958***	-0.925***	-0.957***
regional characteristics								
unemployment rate	-0.006	-0.006	-0.006	-0.005	0.022	0.021	0.023	0.021
income level	-0.014***	-0.014***	-0.014***	-0.013***	-0.004	-0.004	-0.004	-0.004
urban area	0.243°	0.243°	0.243°	0.217°	0.013	0.012	0.041	0.013
distance to West Germany (10 km)	0.001°	0.001°	0.001°	0.001°	0.002*	0.002*	0.002*	0.002*
partner* partner's income (100€)			0.008				-0.122***	
partner*partner's education (years)				0.076*				-0.005
n persons	28,635	28,635	28,635	28,635	27,599	27,599	27,599	27,599
n persons-years	4,247	4,247	4,247	4,247	4,227	4,227	4,227	4,227
standard deviation	0.528	0.528	0.528	0.525	0.536	0.536	0.539	0.537
log likelihood	-1,611	-1,612	-1,612	-1,610	-1,352	-1,353	-1,343	-1,353

SOEP data are from 1992 to 2006; *** represents P≤0.001; ** represents P≤0.01; * represents P≤0.05; ° represents P≤0.1. Grand mean: ll = -1,828.2 and standard deviation=0.8991.

For men, the partnership dummy variable loses power and significance when partner's characteristics and especially income are considered. The lack of significance of the partnership dummy variable in Model 3 indicates that after the partner's income is controlled for, the migration behavior of single and partnered men no longer differs

significantly. The differences in single and partnered men's migration behavior can thus be traced to their partners' characteristics. Additionally, the strong negative impact of the partner's income indicates that women in partnerships use their power to prevent migration. Every additional €100 earned by a female partner decreases the likelihood of migration by 12 percent. These findings are consistent with those of recent research (cf Jürges 1998; Mincer 1978; Nivalainen 2004; Smits et al. 2003) and with the household economic and bargaining theories. The higher the woman's income, the higher the migration costs and the financial obstacles to relocation, the higher is also woman's power to prevent migration.

Research at the household level (Table 4) shows that couples in which the woman is unemployed are more likely to migrate, as is assumed under bargaining theory and hypothesis 1E (*Couples with one employed and one unemployed partner, regardless of the gender of the unemployed partner, are the most likely to migrate).* However, this conclusion is not true for couples with unemployed men, and thus hypothesis, 1E must be rejected. In circumstances in which the woman should have the power to determine migration, the bargaining mechanisms appeared to be overruled.

Because *couples in which both partners are unemployed are not more willing to migrate than couples in which both partners are employed,* hypothesis 2E must also be rejected. In fact, the investigation of the employment constellations within households reveals no egalitarian patterns. However, the results do not support gender role theory either and contradict hypothesis 1T, which suggested that *only the man's employment circumstances influence the likelihood of migration* because the results show that the employment status of female partners is relevant.

The education of the male partner had the strongest effect on couples' migration. Couples in which the male partner is highly educated (i.e., has completed more than 11 years of school or training) and the female partner has only obtained a modest education are twice as likely to migrate than are couples in which both partners have obtained a limited level of education (Model 4). Couples in which both partners are highly educated are also more likely to migrate than are couples in which both partners are modestly educated. Couples in which the female partner has a higher level of education than the male partner do not differ from couples with both partners modestly educated. These results contradict hypothesis 3E, derived from bargaining theory, which suggested that *both partners' education levels would be similarly influential*. The female partner's education appears to be of secondary importance *because couples in which the male partner is highly educated are the most mobile regardless of the female partner's education level*. This pattern is exactly the pattern suggested for traditional couples in hypothesis 2T, which was derived from gender role theory, and mirrors the results of earlier research (cf Compton and Pollak 2007;

Nivalainen 2004; Tenn 2010). However because *couples in which both partners are highly educated are more likely to migrate than couples in which both partners are less educated*, hypothesis 4E is also supported.

Table 4: Determinants of migration of couples from East to West Germany. The results of the logistic analyses are presented in odd ratios

	I	II	III	IV
household characteristics				
age difference (years)	0.069*	0.066*	0.064*	0.067*
average age of the partners (years)	-0.065***	-0.057***	-0.047***	-0.053***
married	0.098	0.101	0.005	-0.210
reference group: no children				
children < 6	-0.412	-0.375	-0.330	-0.333
children ≥ 6 and > 18	-0.259	-0.231	-0.145	-0.066
reference group: both employed				
female unemployed/male employed	0.910***	0.582*	0.566*	0.582*
male unemployed/female employed	0.292	0.046	0.025	-0.039
both unemployed	-0.333	-0.635	-0.724	-0.767
reference group: both less than 11 years				
female high education/male low education		0.854	0.886	0.857
male high education/female low education		1.570*	1.591*	1.571*
both more than 11 years of education		1.098°	1.178°	1.068°
reference group: both less than 3 years employed in last company				
female more than 3 years/male fewer		-0.265	-0.232	-0.242
male more than 3 years/female fewer		-0.096	-0.030	-0.056
both more than 3 years of employed		-0.889*	-0.792*	-0.852*
homeowner			-1.243***	-1.251***
regional characteristics				
distance to West Germany (per 10 km)				-0.005*
urban area				0.440°
income levels				-0.012*
unemployment rate				0.033
n households	19,314	19,314	19,314	19,314
n households-years	2,983	2,983	2,983	2,983
standard deviation	0.499	0.499	0.497	0.496
log likelihood	-583	-576	-564	-555

SOEP data are from 1992 to 2006; *** represents P≤0.001; ** represents P≤0.01; * represents P≤0.05; ° represents P≤0.1. Grand mean: ll = -615.3 and standard deviation = 0.5033128.

A result which might seem unusual at first is that the presence of children in a household does not affect the migration decision for couples in East Germany. One reason for this phenomenon could be the high selectivity of the sample;

only couples who live together are considered, and this group is most likely to have children. In addition, also the results of other studies on this issue have been mixed. For example, Smits et al. (2003) find negative effects of children on migration regardless of the children's ages. Rabe (2011) and Nivaleinen (2004) find no effects for younger children, and Jürges (1998) finds no effects for household size, which indicates the number of children in a household, in most of his models.

8 Conclusions

The purpose of this study was to investigate the migration decisions of couples who were socialized in a post-socialist country. The study focused on the influence of both partners' education and employment status on migration from East to West Germany, controlling for the characteristics of the household and the sending regions. Hypotheses were derived from the gender role, household economics, and bargaining theories. The investigation started at the individual level, with the identification of gender-specific differences in the migration patterns of men and women. Next, the influence of household constellations on the migration decisions of couples was analyzed. SOEP data from 1992 to 2007 and hierarchic logistic regression models were used.

Consistent with previous findings for East and West Germany, the results show that men and women in partnerships are less likely to migrate (e.g., Hunt 2006; Jürges 1998; Kalter 1998; Melzer 2013). However, the mechanisms that generate this outcome are gender-specific. The differences in single and partnered men's migration patterns can be explained by the characteristics of the men's partners. It appears that for men, rational calculations based on costs and gains determine whether migration occurs; this pattern persists even when men have a partner. Thus, for relocation to occur, the gains must be much higher for partnered men than for single men because the partnered men must compensate for both partners' migration costs; otherwise, their female partners can prevent migration. Women, in turn, appear to abstain from migration for the sake of their own careers when they are in a partnership. Their partners' characteristics are of secondary importance, as the involvement in a partnership is the deciding factor. Thus, the behavior of women is consistent with the assumptions of gender role theory. The findings at the household level support this view. The influence of men´s partners' characteristics (particularly their education level) on couples' migration decisions is larger than the influence of women's characteristics. Of the female partners' characteristics, only unemployment appears to be important for migration decisions; unemployment makes relocation more likely. This phenomenon generates an environment in which men can realize at least some of their migration goals if they have good qualifications

and the migration gains are high enough to compensate for the migration costs of both partners. However, under similar circumstances, women are not likely to initiate their migration.

Although the migration patterns found in this study tend to support the gender role theory, it is impossible to reject the bargaining or household economic theories because elements of these theories also find support. Moreover, it appears that all three theories provide insight and that couples base their decisions on traditional gender views and rational costs-benefits calculations.

Additional factors that appear to make it easier for non-single men to realize their migration goals are occupational segregation, which is strong in East Germany (Rosenfeld and Trappe 2002), and the ubiquity of women's jobs, which make women less geographically restricted (Morrison and Lichter 1988). These factors facilitate the employment search for women at the destination, decrease women's migration costs, and enable men to compensate for their partners' migration-related losses more easily. However, these factors reinforce not only the position of women as tied movers but also their position as secondary earners, weakening their future bargaining position in the household as well as their future positions at the labor market (cf Halfacree 1995). Although socialization within the GDR tended to support gender equality, couples do not behave in an egalitarian manner when making migration decisions; indeed, our results are similar to those for traditional couples in West Germany (cf Jürges 2006).

Although women in East Germany are highly career-oriented (Lück and Hofäcker 2003), their career orientation appears not to influence their migration decisions. The lack of egalitarian behavior when East German couples make migration decisions might indicate that the high labor market participation of East German women is not driven mainly by egalitarian views but instead by the necessity for both partners to work. Thus, East German women in partnerships should reduce their labor market participation once they arrive in West Germany. In addition to exploring changes in employment patterns following migration for women in partnerships with quantitative research methods, for future research it might be promising to explore with qualitative methods why post-migration employment patterns change, and how the immigrants' understanding of gender norms changes after the migration. Finally, it would be interesting to analyze how integration into a new society contributes to those changes.

Migration is based on compromises and women in East Germany compromise and accept a suboptimal position as tied movers despite their high qualifications and labor market attachment (cf also Boyle et al. 2001; Shihadeh 1991 for other countries). It appears that the need to find a compromise reproduces the traditional patterns of gender inequality in households and the labor market, as

suggested by Halfacree (1995) and the socialization in a socialistic system has not enough influence on people's decision finding to counterbalance this mechanisms of gender inequality.

Acknowledgement

I would like to thank Hans-Peter Blossfeld and Herbert Brücker for their advice and support.

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Chapter VII

Explaining the puzzling effects of household migration: Why do East German women lose and West German women gain?[1]

1 This article contains features of two articles. One was published in German in *GENDER: Zeitschrift für Geschlecht, Kultur und Gesellschaft, Sonderheft 2, p. 120–143;* first author Natascha Nisic, University of Hamburg. The German title is: „Unerwartete Verliererinnen? Überraschende Gewinnerinnen? Beruflich bedingte Umzüge ost- und westdeutscher Paare". The second article is accepted for publication in the Journal of Marriage and Family. The first author is Natascha Nisic, University of Hamburg. The title is: "Explaining Gender Inequalities that Follow Couple Migration".

Abstract

The constant attention of the migration of couples in the field of mobility research was on the on hand motivated by the relevance of regional mobility for explaining labor market outcomes and the social mobility of individuals. On the other hand the analysis of couples" migration behavior contributes significantly to understanding household decision-making and partnership processes in general. This study adds to both strands of research by comparing the job-related migration of couples in East and West Germany. The historical and regional differences between East and West Germany offer not only a quasi-experimental setting within a set of institutional similarities, but also contrasting hypothesis on the behavior of couples can be derived from the existing theoretical frameworks. Moreover, the investigation of the decision making on migration within households with varying characteristics and in regions with different economic prosperity might improve our understanding on how economic situations channel family migration and men´s and women´s careers. Departing from a bargaining model of household decisions and considering both the internal determinants of the partnership and the regional socioeconomic conditions, we are able to derive some new hypotheses about the gender-specific determinants and consequences of household migration. The empirical investigation involves longitudinal analysis based on the waves 1992–2008 of the Socio-economic Panel Study. Counter-intuitively but in line with our theoretical predictions results indicate that higher educated West German women gain significantly from a household move, while highly qualified East German Women seem not to be able to initiate moves to their own career advancement.

1 Introduction

In the past decade, the migration of couples has received renewed attention in the field of mobility research. On the one hand, this attention was motivated by changing mobility patterns and the relevance of regional mobility to labor market outcomes and the social mobility of individuals in modern societies. On the other hand, the analysis of couples' migration behavior contributes significantly to our understanding of household decision-making and partnership processes. This study aims to contribute to both bodies of literature by comparing the job-related migration of couples in East and West Germany. From a theoretical perspective, this approach is promising because historical and regional differences between East and West Germany present an 'exogenous' source of variance in structural determinants, offering a quasi-experimental setting in combination with a set of institutional similarities. Although East and West Germany are joint for over

20 years under the political system of the former Federal Republic of Germany (today West Germany), which provides the same conservative institutional framework for both parts of the country, East Germany still bears some features of a post-socialist society. The most distinctive differences to West Germany are the extraordinary high labor market participation and education rates among women and the egalitarian views of East Germans, which are manifested in low marriage, high divorce and high cohabitation rates. In addition, the economic conditions in East Germany lack behind the West German standards, as the income is still around 25 percent lower in East Germany, while the unemployment is much higher (Statistisches Bundesamt 2010, p. 48). These characteristics of the chosen context allow us to construct contrasting hypotheses about decision processes and the moving behavior of couples based on the existing behavioral theoretical framework.

The starting point of our analysis is a series of empirical results that provide puzzling new evidence of the consequences of mobility for German couples. Although the vast majority of the previous research has concluded that for partnered women, residential relocation imposes severe disadvantages in terms of economic achievement and career prospects (Bailey and Cooke 1998; Boyle et al. 2001; Boyle et al. 2008; Clark and Withers 2002; Mincer 1978; Rabe 2011; Shauman and Noonan 2007; Shihadeh 1991), the current results for West German women paint a rather different picture (Nisic 2010). Well-educated West German women in particular are now found to profit significantly from household migrations, whereas the even more highly qualified East German women remain, in line with the presented research, unable to profit from such moves. The question arises, which differences between East and West Germany lead to such different migration outcomes?

In accounting for the negative effects of migration, authors usually refer to either gender role theories or economic models of utility maximization in the household. Whereas gender role approaches focus on the role of gender-specific socialization (Bielby and Bielby 1992; Bird and Bird 1985), microeconomic family theory emphasizes women's prevalence as secondary earners, which leads them to occupy a subordinated position in job-related mobility decisions of the household. The new evidence from East and West Germany challenges both explanations, because East German women are found to be better educated in general, to contribute more to the household income (Dölling 2002; Lemke 2002) and have stronger employment attachment and more egalitarian gender understanding than do West German women (Lück and Hofäcker 2003; Matysiak and Steinmetz 2008). Nevertheless, they seem not to be able, contrary to their West German counterparts, to initiate household moves that advance their own careers. The

current empirical pattern clearly contradicts the theoretical predictions. The issue becomes even more complex when we consider further empirical evidence reported in the literature on German East-West migration. Indeed, the results of these studies emphasize that women are not only more likely than men to migrate from East to West Germany (Dienel and Gerloff 2003; Gerloff 2004; Hunt 2006; Melzer 2013a) but also more positively selected based on their education than are men (Melzer 2013a). In explaining these effects, some authors argue that the West German occupational and wage structure is much more favorable for highly qualified East German women than the corresponding economic structure in the Eastern part of Germany. However, if this explanation holds, how is this pattern related to the results on household migration, which indicate that well-educated East German women in particular do not profit from household moves?

The question that arises is how these different empirical results might relate to each other within a consistent theoretical framework? What mechanism makes highly qualified, employment-oriented, work-attached East German women the losers in instances of migration? Furthermore, why is this no longer the case for West German partnered women? We argue that to understand these patterns, one must consider the household structure and decision process in interaction with regional opportunities. Investigating the migration decisions of households with varying characteristics and in regions with differing economic opportunities can also improve our theoretical understanding of household-decision making in general and how it affects family migration and men's and women's careers.

Working from a bargaining model of household decisions, we investigate both the determinants and the labor market effects of the household moves of East and West German couples using the longitudinal data from the Socio-Economic Panel Study (SOEP), waves 1992 to 2007. We first provide theoretical and empirical evidence of why individuals and households move focusing on explanations household economic and gender role theory provide for women's disadvantages position related to family migration. The last section of the literature review indicates that both explanations fail short in the case of East Germany. Relying on an individually motivated bargaining framework and explicitly considering the economic and structural conditions of the origin and destination regions we investigate family migration of East and West German couples in the household context. By contrasting the determinants and outcomes of migration by couples and singles, we test our hypotheses and gain more insight into the decision-making processes of couples and the relevance of structural determinants to moving behavior.

2 Determinants and consequences of migration – literature review

2.1 Mobility of individuals

A large body of empirical evidence within mobility research indicates that spatial flexibility is generally beneficial to the employment and income prospects of individuals (e.g., Le Grand and Tåhlin 2002; Lehmer and Ludsteck 2009; Topel and Ward 1992; Fielding 2007; Findlay et al. 2009). Mobility helps people to overcome geographical restrictions and realize career opportunities in distant places (Büchel and van Ham 2003; Fuller 2008; Smits et al. 2003, p. 604). One dominant theoretical framework for analyzing the mobility decisions of individuals is based upon human capital theory. In this approach, migration, like education or on-the-job-training, is perceived as a costly investment in one's human capital from which future returns can be expected (Sjaastad 1962). Individuals move if the expected future benefits of the investment exceed the monetary and personal costs associated with the move. Because an individual's career and job opportunities are a major factor in the evaluation of the costs and benefits of a move, employment-related characteristics that yield higher returns in the labor market (e.g., education) are also usually found to be major determinants of migration (Chiswick 1999; Tenn 2010). Consistent with the theory, people who are at the beginning of their careers and highly qualified workers are found to be most migratory (Borjas 1987; Chiswick 1978; Sjaastad 1962; for East-West migration in Germany see Hunt 2006; Melzer 2013a).

2.2 Mobility of households

However, although human capital theory explains the regional mobility of single individuals in a straightforward manner, the moving decisions of households of more than one person appear to be far more complex. Because two partners will find optimal employment and living conditions in the same geographical region only by coincidence, a household move may have a different level of utility for each person (Mincer 1978; Nisic 2010). Thus, the locational decisions of couples inherently generate a structural conflict in which at least one partner will have to make concessions. Empirically, there is overwhelming evidence that it is mostly women who make these concessions and to compromise their careers for the occupational advancement of their male partners. (Bielby and Bielby 1992; Bird and Bird 1985; Boyle et al. 2001; Compton and Pollak 2007; Duncan and Perrucci 1976; Jacobsen and Levin 1997; Jürges 2006; Long 1974; Nivalainen 2004; Tenn

2010; for a review, see Cooke 2008). This tendency is especially reflected in the *outcomes* of mobility, which tends to yield positive income growth and stable employment for men (Cooke 2003; Jacobsen and Levin 1997; Jacobsen and Levin 2000; Smits 2001), but significant earnings losses and reduced labor market participation for their female partners (Boyle et al. 2001; Lichter 1980, 1982; Shauman and Noonan 2007; Smits et al. 2004). That the decisions of couples are mostly undertaken to further the occupational success of male partners is also supported by evidence regarding the *determinants* of migration: Studies show that household moves are mostly influenced by male partners' employment-related characteristics and particularly their education, whereas the qualification level of their female spouses has little or no impact on decisions to move (Compton and Pollak 2007; Nivalainen 2004; Tenn 2010; Melzer 2013b). If the wife's educational level is relevant, it mostly hampers migration, suggesting that women with high education and high income potential are, at best, only able to *avert* detrimental moves; they cannot initiate moves to their own advantage (Bird and Bird 1985; Jürges 1998; Mincer 1978; Nivalainen 2004; Smits et al. 2003; Melzer 2013b).

2.3 Explanation for different mobility patterns of men and women in households

The observed gender asymmetry in the determinants and the outcomes of migration can be explained by the inequality between men and women in the labor market, which is mirrored in the income and employment structure of the household. As secondary earners who contribute less to household income, many women have lower potential earnings losses due to migration that can be outweighed more easily by their male partners' gains than vice versa. As the education and employment participation of women have risen in recent decades, male partners' mobility options should have become increasingly restricted by their female partners' career opportunities and some of the women were able to gain from migration. This provides also an explanation of why more recent studies paint a more heterogeneous picture of the consequences and determinants of gender related mobility in the household context (Cooke and Bailey 1996; Jacobsen and Levin 2000; Nisic 2010; Smits et al. 2003).[2]

Another strand of the literature in the realm of mobility research stresses the importance of gender roles and gender identities in gender inequality with regard to household migration, moving beyond economic and structural determinants.

2 For example, there is scattered evidence in more recent studies of positive effects of household relocation for women and neutral or even negative effects of relocation for men. If wage losses for women occur, they are mostly only temporary (Clark and Huang 2006; Clark and Withers 2002; Rabe 2011).

These studies draw attention to the symbolic dimension of gender and gender production (West and Zimmerman 1987) and its relation to economic and other spheres of life, where masculinity is associated with occupational career and economic success and femininity is related to family-centered activity and work inside the home. Indeed, evidence can be found that even in relationships in which women are highly qualified or are the sole wage earners, they do not initiate moves for their own benefit, thereby fulfilling social expectations and enacting gender identity norms (Boyle et al. 2008; Shauman and Noonan 2007). In line with this argument, Jürges (2006) demonstrates for Germany that, conversely, couples with more egalitarian gender role beliefs also more extensively consider female employment characteristics in migration decisions.

2.4 Gender arrangements in East and West Germany

Nevertheless, there is clear evidence that gender arrangements are much more egalitarian in East Germany than in West Germany with respect to both structural characteristics and normative beliefs (Lück and Hofäcker 2003; Matysiak and Steinmetz 2008) questioning the adequacy of both explanations for the East German case. Also the data employed in our study (see section 3 for a description of these data) clearly indicates that East German women exhibit labor market behavior that is much more similar to that of their male partners than do West German women. Women in East Germany work ten hours more than women in the West, thereby investing almost the same working time as West German men and contributing 37 percent to household income on average, whereas the corresponding figure is only 25 percent for women in the West. In addition, due to the transition period that is occurring in the East German economy and the high unemployment rates, many East German women have become the only wage earners in their households (Diewald et al. 2006).

Table 1: Household structure in East and West Germany

	Women		Men	
	West	East	West	East
High-school diploma (Abitur) (in %)	13	16	16	19
Working hours	27.4	36.6	38.2	39.7
Full-time work (in %)	26	51	93	90
Experience	5.4	6.6	12.4	9.0
Monthly gross income	1483	1424	2892	1789
Proportion of household income (in %)	23	37		

In the context of mobility research, however, these results are puzzling because the more egalitarian structure of East German households is incongruent with the existing results regarding East-West German migration. On the one hand, studies show that it is mostly women who leave East German regions (Hunt 2006) and that most of these women are highly qualified (Melzer 2013b). These data suggest that migration incentives and gains should be high for women. On the other hand, as outlined above, the empirical evidence on couples' migrations shows no positive migration returns for high qualified East German women, whereas their West German counterparts do profit significantly from household moves (Nisic 2010; Zaiceva 2010).

Solving the puzzle and combining these unrelated findings into a consistent framework requires a better theoretical understanding of decision-making processes in the household and the application of these processes to migration decisions. We draw upon a bargaining model for mobility decisions that has already been used to analyze migration conflicts (Abraham et al. 2010; Auspurg and Abraham 2007) and the consequences of mobility for couples (Nisic 2010). We extend this model by explicitly including regional determinants that we deem potentially crucial to existing mobility patterns. In the following sections, we briefly sketch the model and then empirically test its implications for the determinants and consequences of migration among East and West German couples.

3 An alternative approach: the bargaining model of migration

3.1 Migration decisions from a bargaining perspective

In Mincer's model, family migration will occur if the gains realized by one partner outweigh the losses of the other partner, who then becomes a "tied mover". Despite the apparent asymmetry of mobility consequences for partners, Mincer assumes that migration decisions are made collectively and consensually by the household, ignoring the possibility of conflict and the role of individual interests in the decision process (Abraham and Nisic 2012). After the move the disadvantaged member will be compensated for her or his losses via the redistribution of the enlarged welfare gain. Mincer's assumption has been increasingly criticized for its restrictiveness (for a critique on this subject, see Ott 1989). In an attempt to overcome the shortcomings of the Mincerian approach, game-theoretic bargaining models of family decisions and household migration have been proposed (Lundberg and Pollak 2003; Kalter 1998; Auspurg and Abraham 2007; Nisic 2010). In these models, partnerships are conceived of as exchange relationships in which partners realize individual welfare gains and advantages by cooperating, trading goods and resources (e.g., time, care,

love) with each other. A relationship will then be maintained as long as the individual gain from the partnership exceeds the welfare associated with alternatives such as living alone or a new relationship. The more attractive alternatives one partner has available, the more independent he or she will be from the current relationship and the more s/he will be able to influence the decision outcome and extract the larger share of resources due to the credibility of his or her implicit threat to leave the relationship. Although many factors may influence available alternative options, economic success and independence will be crucial determinants of bargaining power because in modern societies, subsistence is mostly achieved through market work. From this perspective, mobility decisions become problematic if the gains and losses from relocation are unequally distributed among the partners, e.g., when the move leads to a wage gain and upward occupational mobility for one partner while deteriorating the job situation for the other partner. This pattern is especially relevant in a dynamic perspective: even if the partner who can gain from the move promises to compensate the other partner for his or her losses after the move, relocation remains risky for the disadvantaged partner in the long term (Bernasco and Giesen 2000; Blau et al. 1992, p. 43 ff). In essence, if the migration leads to the deterioration of the person's job situation or to unemployment, s/he will experience a negative shift in his or her bargaining position that will negatively affect all future bargaining outcomes. The tied mover will become more dependent on the relationship and will have to make more concessions in future decisions. The conflict then resembles a social dilemma: although a couple could improve collectively, the move that would generate this collective improvement will not take place because the disadvantaged partner, as a "rational" actor, will refuse to come along, fearing individual disadvantages in a later point in time. Thus, moves that may generate a significant asymmetrical shift in bargaining power are unlikely to occur. A move will only take place if either both partners a priori profit individually from the move or if the gains from migration at the household level are large enough to compensate for the negative shift in the bargaining power of the tied mover. The latter might be the case if a move leads to such an increase in household earnings and living conditions that even a worsened relative bargaining position (i.e., a smaller share of a greater total gain) generates an improvement in absolute terms for the tied mover (Ott 1992, chapter 7). Based on this point of view, the threshold required for a move to take place is much higher than in the Mincer model.

To understand mobility processes in the household, it will thus be crucial to identify conditions under which a move will lead to the described mobility dilemma and those under which this situation will not arise because the gains from moving will be sufficiently large. In households with asymmetrical *internal household structure* is in terms of wages and earnings, the compensation of one partner by

the other can be easily achieved. The more symmetrical the *internal household structure* is, the more difficult it will be to sufficiently compensate for potential migration-related economic losses and the related negative shift in the bargaining power of one partner. Empirically, this will be mostly determined by the employment and earnings of women. Although the argument is gender-neutral in principle, the structural differences in the labor market position of men and women allow for gender-specific hypotheses. Because the majority of men still work more hours and earn higher income (see also table 1), the disadvantages of women can still be outweighed more easily by the gains of their male partners than vice versa. However, as women's income capacity increases, the relevance of women's employment-related characteristics will increase as well, improving the chances that a mobility dilemma will arise. In scenarios, in which the incomes and employment of partners are similar, a very selective mechanism can be expected: either a move should not take place at all, or both partners will have to profit individually from the move.

3.2 Regional determinants and couples' migration decisions in East and West Germany

The size of the potential gains, however, is determined by the wage and employment disparities between the origin and destination regions and by the internal structure of the household in question (Nisic 2010). The greater the economic disparity between the origin and destination regions, the greater the potential benefits from moving. Given substantial economic differences between the origin and destination regions, migration decisions by couples will be easier because the probability that gains from migration will be sufficiently large to compensate for both direct losses in earnings and negative shifts in bargaining power will be much higher.

Combining these arguments and applying them to the context of East and West Germany yields several testable hypotheses. At first glance, one might expect that household moves of West German couples might be less problematic because the more asymmetrical household structure might make it possible to sufficiently compensate for potential losses by female partners, thereby reducing the likelihood of the described mobility dilemma. However, because of the way in which regional circumstances frame moving decisions, one must consider that the regional variation in employment and wage rates is quite low in the Western part of Germany. Thus, even if West German women exhibit comparatively lower employment attachment, and even if the employment-related differences between men and women in the West are large, it will be difficult for couples to achieve profitable moves – and the problem will be even greater for women with high income potential. Thus,

the migration of West German couples should mostly be observed if both partners benefit individually from the move (Nisic 2010). There should be positive individual labor market gains for both partners after a move, especially if the female partner is highly qualified and has a high income, as the small regional disparities within the West will make it nearly impossible to offset potential losses. Moreover, one would also expect that the employment-related characteristics of both partners will play an important role for determining migration.

For East German couples, the situation is quite different: whereas the economically stronger West provides relatively stable jobs and better employment opportunities, the labor market conditions in East Germany are much poorer. The East German regions are characterized by much higher levels of unemployment and lower income levels. A closer look at the regional wage gap reveals that spatial disparities in wages vary by gender and are greater for men (30 percent) than for women (13 percent) (Statistisches Bundesamt 2010). Thus, for East German couples, regional conditions will impact the decision logic of households in two different ways. First, both partners should experience improvement due to their relocation. Unlike for West German couples, this pattern is a function not of the high selectivity of household moves but simply of the greater regional disparities, which should increase the likelihood that both partners will be able to improve at the same destination location. The enormous potential gains that men can achieve, however, will make moves that are initiated to improve male job opportunities especially beneficial – so much so in fact, that even the disadvantages experienced by women with high earning potential can be offset. Thus, the relevance of female career options will decrease relative to those of males. In consequence, the substantial gains at the household level will generate a dynamic in which women profit individually from the move relative to their status ex ante, although their bargaining power will be negatively affected and although inequality between them and their partners will increase. In our analysis, we should therefore find for East German couples that male characteristics have more of an influence on migration. Furthermore, we expect highly qualified East German women – unlike West German women – not to be able to translate their high income potential into higher earnings after a move.

4 Methods and data

4.1 Data

To empirically address the questions outlined in the previous chapter, pooled panel data from waves 1992–2007 of the German Socioeconomic Panel Study (SOEP) were used (Wagner et al. 2007). The SOEP is a representative longitudinal survey

that was started in 1984 for West Germany and was extended to East Germany (the former German Democratic Republic) in 1990 (Wagner et al. 2007). The extension of the dataset and the fact that the East German sample is oversampled allows for separate analyses, making it possible to compare the relocation processes within Western Germany and those from East to West Germany.

For the purpose of this study, the sample was restricted to couples living together.[3] However, we do not differentiate between cohabitating and married couples or between couples with or without children. Single individuals, divorcés and people living in separation were excluded from the empirical analysis; they will, however, serve as a contrast group in some models, enabling us to compare the migration patterns of men and women in relationships with those of 'unconstrained' singles. Because this study is centered on job-related mobility processes, the dependent variable 'migration' only includes residential relocation initiated for occupational purposes.[4] Relying on regional information, the migration variable includes job-related moves within West Germany for the West German sample and job-related moves from the East to the West for the East German sample. Moreover, to ensure that both partners might at least theoretically receive job offers in another region, couples were only included in the analysis if both partners were older than 17 or younger than 63 years old. Thus, we obtained a total sample of 8,129 couples living in West Germany (45,372 year-person observations) and 557 couples that moved to new locations within the Western region. For East Germany, our sample contains 2,656 couples (14,232 person-year observations), of which 102 relocated from East to West Germany.

In our empirical analysis, we investigate both the determinants and the income-related consequences of these moves. Thus, in the estimations, migration (dummy-coded: yes (= 1)) is either the dependent variable or the independent variable. In the analysis of the couples' *migration decisions*, variables at the household level and information on both partners' characteristics are included. At the household level, these are variables that are found to be important predictors of the probability of moving, including the presence of children (dummy-coded: yes (=1)), homeownership (dummy-coded: yes (= 1)) and the average age of both partners in years. The variables included at the individual level mostly capture employment-related characteristics, such as the partners' educational levels measured in years of schooling. To facilitate interpretation, this variable

3 We thus exclude couples "living apart together" because living in separate households might represent an alternative to joint migration – or the migration itself, even if it coincides with a job change, might primary serve to help these couples form a joint household.

4 We coded the relocations as job-related moves, when either of the partners or both declared that the purpose of the relocation was job-related.

was centered at nine years of education; thus the reference category reflects the lowest level of education that can be obtained in Germany. Furthermore, the models contain variables that reflect firm-specific experience (seniority) measured as the number of years spent with the same employer and a dummy variable that indicates the employment status of each respondent at the time of the interview (1 = not employed).

The second set of models estimates the income effects of migration on income using deflated monthly gross income (base year 2001) as the dependent variable. Departing from the Mincerian wage equation, we include education and general labor market experience (in years) and extend the model to contain migration as an independent variable of crucial interest. We use monthly income here instead of wages in order not to exclude respondents without earnings. For respondents who are not employed, zero earnings was assigned. Restricting the sample to only the employed would bias the results because the respondents who experience greatest income gains and losses from migration – those who stop working or take up a new job – would be excluded. Especially in the present analysis, this would not be straightforward because regional labor markets are assumed to have a strong impact on employment opportunities. Therefore, log earnings also are not used here because the substantial number of zero earnings would make the estimation of a log-income panel model problematic (see also Nisic 2010).[5]

4.2 Methods

For the multivariate analysis of the determinants of migration, we employ non-linear probit regression. However, due to the panel structure of the survey (the same respondents are interviewed every year), the data set contains multiple observations per person, thereby violating the independence assumption that underlies conventional regression analysis. If the other assumptions are met, this aspect of the data will mostly affect the standard errors, which might be biased. To address this problem, multilevel regression models (e.g., random effects models) are usually used, as these models explicitly account for the error structure of such data (Snijders and Bosker 1999). However, the results of our conventional pooled probit regressions are nearly identical to the results of the random effects models; thus, we will report the results of the pooled probit regression with cluster-robust standard errors. The reason for the similarity between the pooled and the multi-level results might stem from the fact that

5 To use logarithm income might also belie over non log-linear income distribution and breaks in the income distribution.

the estimations mostly exploit the between-variation. This is also the reason why other more robust methods for analyzing panel data, such as fixed effects models, cannot be used here.

However, in estimating the effect of migration on income, we use fixed effects regression. Fixed effects regression exploits the panel structure of the data in a way that ensures consistent estimates that are robust to unobserved individual-specific heterogeneity (Wooldridge 2001). The data are transformed via "demeaning" to control all of the time-invariant observed effects (e.g., education) and unobserved effects (e.g., motivation). Although it is no longer necessary to control for time-invariant characteristics, the effects of these variables can no longer be estimated using this model, either. The FE model will only estimate the effects of the time-varying covariates. However, the effects of time-constant characteristics can be included through their interaction effects with time-varying variables (as we will discuss later).

5 Results

5.1 Determinants of couples' migration in East and West Germany

Table 2 yields the results of the pooled probit regressions for the determinants of migration among the couples. We estimate four models each for West and East German couples. The first model, which can be understood as the baseline model, only contains household-related characteristics and displays the effects of different household configurations on migration. In the following Models (2–4), further sets of variables are included successively. In Model 2, we first test the influence of the male partner's characteristics on the couples' migration probability. Then, in Model 3, female characteristics are included. Model 4 estimates both partners' characteristics jointly. The stepwise design makes it possible to identify the relative importance of men's and women's characteristics in migration decisions. The first part of Table 2 presents the estimated effects for West German couples; in the second part, estimations for East German couples are presented.

In accordance with previous research, Model 1 shows that for West German couples, homeownership and the presence of children have a negative effect on the probability of a joint move. Both factors increase the costs and coordination efforts associated with a move and thus generate a negative cost-benefit balance. In addition, because the time period during which migration investments can pay off decreases for older couples, such couples are unsurprisingly less likely to migrate.

Table 2: Determinants of migration probability of West- and East-German couples, SOEP 1992–2007, Pooled Probit

	West-German couples West-West Migration				East-German couples East-West Migration			
	(1) household	(2) men	(3) women	(4) both	(1) household	(2) men	(3) women	(4) both
Household								
Homeownerhip	-0.465***	-0.484***	-0.500***	-0.483***	-0.669***	-0.695***	-0.649***	-0.669***
Child(ren) in household	-0.145***	-0.123**	-0.122*	-0.133**	0.223*	0.210+	0.164	0.143
Age (mean)	-0.023***	-0.017***	-0.019***	-0.015***	-0.015*	-0.011+	-0.013*	-0.009
Characteristics female partner								
Years of education			0.065***	0.038***			0.045*	0.009
Personal monthly income			0.000	0.000			-0.000	-0.000
Seniority			-0.019**	-0.016**			-0.001	0.002
Not employed			-0.009	-0.006			0.360+	0.424**
Characteristics male partner								
Years of education		0.052***		0.031**		0.037*		0.040+
Personal monthly income		0.000		0.000		0.000*		0.000*
Seniority		-0.017***		-0.015***		-0.024**		-0.023**
Not employed		-0.087		-0.102		-0.296		-0.540*
cons	-1.595***	-1.842***	-1.834***	-1.911***	-1.991***	-2.100***	-2.290***	-2.333***
n person-years	45372	45372	45372	45372	14232	14232	14232	14232
n persons	(8129)	(8129)	(8129)	(8129)	(2656)	(2656)	(2656)	(2656)
R^2	0.080	0.104	0.101	0.110	0.091	0.117	0.111	0.139
Decomposition of variance (F/M)				**0.942**				**0.675**

+ p < 0.1. * p < 0.05. ** p < 0.01. *** p < 0.001; robust standard errors; period effects included, controlling for experience and experience².

Model 2 (Table 2) presents the regression results obtained when the employment characteristics of the male partners in the West German couples are considered. Career options and job opportunities among men exert an important influence on the couples' migration decisions. In line with the theory, migration is found to be highly selective based on education: a household move is more likely to occur among couples with highly qualified men. The variable 'seniority,' which indicates investment in firm-related specific (and thus, local) human capital, proves to hamper relocation, as commonly found in the migration literature. Income is shown to have no significant effect on migration decisions.

Model 3 then indicates the coefficients of the employment-related variables for the female partner only. Contrary to earlier findings, the labor market characteristics of West German women and men seem to impact migration similarly. At least when the effects of the variables for men and women are considered separately, moving decisions seems to be influenced by the same employment-related determinants of men and women. The similar increase in the fit of Models 3 and 2 compared to Model 1, as indicated by

the associated r^2 values, further supports this notion, suggesting that male and female characteristics contribute equally to the migration of couples. To better identify the relative importance of the partners' characteristics a full model that contains both sets of variables (Model 4) is estimated. As seen from Model 4, all of the effects that were found to be relevant in Models 2 and 3 remain significant in the full model, too. This finding may be interpreted as indicating the potential plausibility of our argument: household relocation among West German couples will mostly only be beneficial if both partners can profit from the move. However, to more directly determine the relative influence of male and female characteristics on moving decisions, we employ variance decomposition based on Model 4 (cf Tenn 2010). The decomposition computes the ratio of the variance explained by female characteristics to that explained by male characteristics. Values smaller than one suggest the dominance of the male partners' characteristics, whereas values larger than one suggest the dominance of the female partners' characteristics. For West German couples, the decomposition procedure yields a value close to 1 (0.942), indicating the nearly equal relevance of both genders' labor market options. Thus, our results suggest that joint migration among West German couples is influenced by the same characteristics of men and women and that both partners influence the decision to relocate to a similar degree.

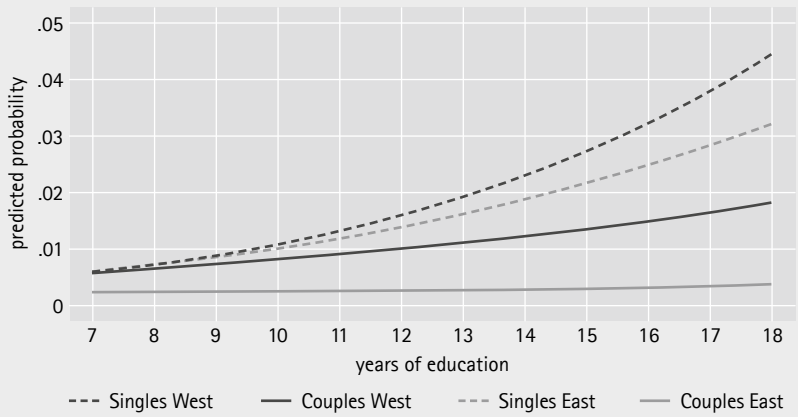
A different picture emerges when we consider the determinants of migration among East German couples (Table 2 part 2). First, the coefficients of the household characteristics are somewhat different from those reported for West German couples. Although homeownership and the average age of both partners still impact joint migration negatively, the presence of children increases the probability of household relocation. The higher costs of relocation with children do not to discourage East German couples from moving to the West. Obviously, relocation seems sufficiently attractive to East German couples that higher costs of a household move with children are negligible. Model 2, as presented in Table 3, again considers the characteristics of the male partners only. A pattern emerges here that is similar to the one that we found for West German men's education is positively and seniority is negatively related to the decision to move. Additionally, for East German men, personal income increases the probability of a household move. This finding is consistent with most of the research on individual migration from East to West Germany (cf Brücker and Trübswetter 2007; Hunt 2006; Melzer 2013a). There are two possible explanations for this effect. First, because the costs of migration decline relative to a person's income level, a person will need to reach a certain income threshold for a move to be profitable at all. Second, as Brücker and Trübswetter (2007) show, these results might also

indicate a positive selection of migrants based on unobservable characteristics such as career orientation. For instance, higher career orientation, however, not only entails higher willingness to relocate to the economically stronger West Germany, but also leads to higher earnings already achieved before migration. In Model 3, we find that seniority seems to be less important for East German couples relocations, while women's employment status grows on importance; women's' lack of employment seems to increase the household's migration probability (though these results are significant only at the 10 percent level). Finally, education has a positive effect on migration. These findings suggest that female labor market characteristics, such as seniority or income, are irrelevant in East German couples' migration decisions. However, to more accurately identify the relative importance of male and female characteristics, we must consider the results from model 4. Indeed, Model 4 yields a rather different picture of East German couples compared to West German ones. Although all of the male-oriented variables remain statistically significant as determinants of migration, of the female-oriented variables, only unemployment facilitates migration to some degree. The variance decomposition supports these results. The value of 0.675 indicates that the characteristics of women contribute less to explaining joint migration than do those of men. Thus, whereas male partners dominate the migration decisions in East Germany, female labor market attachment only plays a subordinate role in this context. Mobility processes in East Germany are much more asymmetrical and less selective. Whether women possess low or high qualifications and whether they have invested a great deal or very little in their specific human capital (seniority) does not impact migration in any substantial way; only the male characteristics prove to be influential. Overall, these results seem to lend support to the argument developed in section 3: whereas the migration decisions of West German couples are influenced by the possibility of improvement for both partners, East German couples' migration decisions are mainly oriented toward the employment and career opportunities that men will encounter at the new destination.

Figure 1 graphically presents the results obtained from the regressions, showing the probability of couples' migration dependent on women's education. Additionally, we included results indicating single women's likelihood of migration (not reported in the tables), which can be treated as a "benchmark" that indicates the probability of migration when the person is unrestricted by the presence of a partner. From Figure 1, we can see that single East German women not only exhibit the highest inclination to migrate (compared to both East German women in partnerships and West German single women) but are also more likely to relocate if they have achieved a higher level of education. The figure also reveals

that for all groups except East German women in partnerships, the probability of migration increases with education. Thus, even if West German women in partnerships display a lower probability of migrating than their single counterparts, their migration behavior is still influenced by their degree of education. Thus, East German women in relationships deviate the most from the behavior that they would exhibit were they single.

Figure 1: Migration Probability of Women in East and West Germany, Single Women and Women in Partnerships



Source: Own calculation, SOEP 1992–2007.

5.2 Effects of couples' migration on income

To more profoundly prove the viability of our theory, we also consider the consequences of migration and relate them to the empirical evidence presented above. The following Tables (3 and 4) present the results of fixed effects regressions on income for single individuals and couples from East and West Germany. Table 3 displays the effects of migration on monthly gross labor income for West German men and women; the results for East Germans are presented in Table 4. Model 1 presents the overall effect that migration exerts on income, whereas Model 2 provides more insight into how migration effects differ across educational groups, as this component of our argument is essential. First, Model 1 shows that as expected, all groups (men and women, single people and couples) gain from migration. East German women in partnerships are no exception. However, if our theory is, correct the mechanisms governing these results differ for the different groups: for West German couples, this effect should be a result of more selective migration, with only those migrating where both partners can improve

individually, mainly profiting from their higher education. For East German couples, the positive income gains should reflect the improvements related to the wage income gap between East and West Germany, with gains related to the relocation and not necessary the higher education of the migrants. Nevertheless, when we consider how these effects are distributed across educational levels, as indicated by the interaction between migration and education in Model 2, clear differences become evident between the groups.

Table 3: Income effects of migration for singles and individuals in relationships, West-Germany, FE regressions, SOEP 1992–2007

	Women West				Men West			
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
	Singles		In relationship		Singles		In relationship	
Migration	283.7***	-152.4	125.132*	-155.4*	353.181*	-451.064*	306.480***	-453.261***
Education		107.1***		105.0***		125.872***		149.050***
Migration*education		87.3***		66.0***		166.270***		181.325***
cons	109.9	204.9	266.4***	233.7***	414.120	652.729*	113.858	596.617***
n person-years	12323	12016	63807	61847	12323	12016	63807	61847
n persons	(2877)	(2763)	(10428)	(9911)	(2877)	(2763)	(10428)	(9911)
Rho	0.828	0.810	0.766	0.743	0.828	0.810	0.766	0.743
R^2 (within)	0.181	0.205	0.091	0.110	0.181	0.205	0.091	0.110

+ p < 0.1. * p < 0.05. ** p < 0.01. *** p < 0.001; robust standard errors; period effects included, controlling for experience and experience².

Table 4: Income effects of migration for singles and individuals in relationship, East-Germany, FE-Regression, SOEP 1992–2007

	Women East				Men East			
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
	Singles		In relationship		Singles		In relationship	
Migration	436.240**	-2.367	307.131**	151.633	438.398*	342.156	416.587**	-250.906
Education		131.019***		104.856***		159.950***		168.554***
Migration*education		99.100*		23.438		25.778		173.072*
cons	-22.102	1.546	-9.400	-42.382	91.895	247.177	-139.935	305.425*
n person-years	16271	15837	85480	82958	13777	13346	78811	76588
n persons	(3773)	(3608)	(13586)	(12945)	(3262)	(3126)	(12979)	(12393)
Rho	0.849	0.832	0.802	0.785	0.856	0.843	0.875	0.866
R^2 (within)	0.175	0.197	0.122	0.137	0.157	0.177	0.220	0.238

+ p < 0.1. * p < 0.05. ** p < 0.01. *** p < 0.001; robust standard errors; period effects included, controlling for experience and experience².

For West German women in partnerships, we now see that the overall positive effect of migration found in Model 1 originates from the gains of highly educated women. However, this result does not hold for East German women with partners. These women are clearly unable to direct moves to their own advantage and transform their high income potential into migration-related income gains. In

contrast, East German men in relationships are among those who profit most from relocation. This finding supports the notion that the West German labor market structure is especially profitable for East German men, generating a situation in which the disadvantages of their female partners can easily be offset. The degree of disadvantage experienced by East German women in relationships that involve cohabitation is best measured by comparing them with single women, who can move 'unrestricted' and thus can seek the maximum potential returns to migration possible for women in these environments. These results, together with the empirical evidence regarding the determinants of migration from the regressions above, make it possible to disentangle the contradictory findings presented in studies of migration among East German women. The high migration rates among highly qualified East German women seem to stem from two different mechanisms. Whereas for single East German women, migration is incentivized by the high returns that they can obtain by moving to the West, East German women in relationships – and especially those with high education levels – are unable to exploit these large regional disparities to achieve individual gains. Instead they seem to play the role of "trailing wives" to highly qualified men. In contrast, East German men are certainly able to profit from migration and gain substantial surpluses that enable them to dominate the migration process.

5.3 Occupational structure before and after the move

The conclusions drawn from the analyses conducted so far are also very well supported by the distribution of occupations of the movers before and after their moves. This distribution sheds additional light on the migration process in East and West Germany and provides a more plastic impression of the mechanisms at work. Tables 5 and 6 display a comparison of the occupations held by single and committed East and West German women before and after migration. Occupations were determined according to the International Classification of Occupations 1988 (ISCO-88) at the 1-digit level, which categorizes occupations vertically according to the educational level required for each occupation and horizontally according to the content of the work. From Table 5 we can see that for single East German women, the occupational distribution before and after migration differs mostly for professionals [2] and service workers [5]. After migration, a greater proportion of single women are employed in higher-ranking occupations. This finding suggests that for single East German women, the Western labor market presents a good opportunity for upward occupational and social mobility. The results are also consistent to those obtained from the income regressions. However, for East German women in relationships, the situation is quite different.

Table 5: Occupational structure of movers before and after the move, Women East Germany

	EAST GERMANY					
	Single Women			Women in Partnership		
	Non-Migrants	Migrants		Non-Migrants	Migrants	
		before	after		before	after
[1] Legislators, Senior Officials, Manager	4,7	3,3	2,5	4,6	3,6	1,4
[2] Professionals	12,9	**19,3**	**25,0**	16,0	**21,3**	13,6
[3] Technicians, Associate Professional	30,8	**30,7**	**46,2**	33,6	**29,2**	**37,1**
[4] Clerks	16,5	13,0	12,3	17,4	21,2	18,9
[5] Service Workers, Shop, Market Sales	17,6	**24,6**	**9,3**	15,5	**15,5**	**22,1**
[6] Skilled Agricultural, Fishery Workers	1,5	0,8		1,3	0,4	
[7] Craft, Related Trades Workers	6,1	3,3	0,4	3,9	3,0	0,5
[8] Plant, Machine Operators, Assembler	3,2	0,6	0,4	2,5	1,6	2,3
[9] Elementary Occupations	6,6	4,4	3,8	5,1	4,2	4,2

Although there is not much of a difference between the distribution of occupations of single and partnered women before migration, there is an unambiguous difference in this regard after migration. East German women with partners are overrepresented in lower-ranking occupations as for instance service occupations [5]. Interestingly, these are also mostly positions that one can obtain easily and that are found in every region. Thus, it is evident that migration among East German couples is not oriented toward the career options of the female partner.

Table 6: Occupational structure of movers before and after the move, Women West Germany

	WEST GERMANY					
	Single Women			Women in Partnership		
	Non-Migrants	Migrants		Non-Migrants	Migrants	
		before	after		before	after
[1] Legislators, Senior Officials, Manager	3,5	4,5	5,8	3,2	4,5	4,6
[2] Professionals	11,5	20,8	23,0	11,0	18,5	22,2
[3] Technicians, Associate Professional	29,1	33,9	32,9	25,9	28,0	29,9
[4] Clerks	22,0	13,0	11,7	19,8	16,3	16,9
[5] Service Workers, Shop, Market Sales	17,3	16,0	14,6	19,1	16,7	13,1
[6] Skilled Agricultural, Fishery Workers	1,0	0,7	1,7	0,9	0,8	1,1
[7] Craft, Related Trades Workers	4,5	4,2	4,5	4,0	3,5	1,7
[8] Plant, Machine Operators, Assembler	3,2	2,1	1,3	4,6	3,3	3,2
[9] Elementary Occupations	7,8	4,7	4,6	11,5	8,4	7,3

Rather, migration seems to be oriented toward destinations that provide good job opportunities for men, whereas female partners "take what they can get" after migration.

However, in comparing West German women with each other (Table 6), we find no substantial difference between single women and women with partners. Both groups tend to employed in higher-ranking occupations after migration. These results validate our hypothesis that migration among West German couples is partly influenced female career options because if it were not, a move would not be profitable. Thus, the migration patterns of West German women in relationships resemble those of single individuals.

6 Summary

The starting point for our analysis was puzzling evidence regarding the determinants and outcomes of migration in Germany as reported by different strands of the migration literature, which had existed independently of each other rather than in dialogue prior to this study. The aim of this study was to reanalyze the migration patterns in Germany and to generate a coherent theoretical framework that would explain these seemingly contradictory results. By theoretically and empirically analyzing both the determinants and the consequences of household migration, we can explain the mobility patterns and the outcomes of migration for Germany. Our analysis reveals that despite the higher labor market attachment of East German women and the more egalitarian gender orientations of East German couples, the employment-related characteristics of East German women play a subordinate role in the mobility decisions of households. Migration is mostly determined by the employment-related characteristics of males. In particular, highly educated East German women seem not to be able to direct migration to their own advantage. This discrepancy becomes apparent when these women are compared with single East German women, whose migration decisions is not restricted by the presence of partner and who enjoy the greatest gains from moving. These results can only be understood if one considers the significant income gains that East German man can achieve from migration. The substantial disparities between the East and West, which are even more favorable for men, enable them to dominate the mobility process. Men can even compensate for the migration losses of their highly qualified female partners by obtaining excellent jobs themselves, thus assigning women to the role of "tied movers." The initially superior bargaining position of East German women (compared to women in West Germany) is thus eliminated by the gender-specific inequality in the West German labor market. Paradoxically, the smaller regional disparities and the smaller potential absolute

gains from migration in the West generate migration scenarios that are more favorable for West German women. Although the gender dynamics among West German couples are far more traditional than those in the East, it is only profitable for couples to move if both partners benefit individually.

Our results draw attention to the role of structural determinants in the analysis of gender inequality in the labor market. Despite the more egalitarian overall gender roles and employment attachment of East German men and women, these individuals make their decisions based on economic rationality, which forces them to deviate from their normative beliefs and convictions. The empirical evidence and theoretical analysis presented here may thus also shed light on the traditionalization of gender roles in East Germany.

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Chapter VIII

Conclusion

1 Summary of research

The empirical articles presented in this work highlight various aspects of East-West migration in Germany. The following chapter combines those aspects to create a more general picture of gender-specific migration from East to West Germany.

The results of this work, the analyses at the aggregate level (Grünheid 2009) and the results of Chapter III indicate that women are more likely than men to migrate from East to West Germany. This refutes the theoretical considerations of the human capital theory and contrasts the predictions derived from a comparison of the wage gaps between East and West Germany. Therefore, I ask why do East German women relocate to West Germany more often than East German men?

The findings of this study and previous research present two entirely different pictures of women's migratory behavior. On the one hand, the findings regarding individual women's migration indicate that East German women are more likely to relocate to West Germany than East German men. Conversely, research on family migration suggests that East German women in partnerships have only limited influence on household migration decisions; thus, these women are typically not able to initiate household migration for the sake of their own careers and, therefore, migrate less often. Moreover, when East German women in partnerships migrate, they often follow their partners, frequently suffering occupational disadvantages and accepting lower-level employment positions compared with their former positions in East Germany. Therefore, the second question that this chapter investigated is as follows: Why do the migration patterns of East German women who are single substantially differ from the migration patterns of women in partnerships?

2 Contribution to East-West migration in Germany

2.1 Why do East German women relocate more often to West Germany than East German men?

Theoretical considerations of the human capital theory by Sjaastad (1962) and comparisons of the wage gaps between East and West Germany suggest that women should be less likely to migrate than men. In 2006, for example, the average gross income of men in East Germany remained 31 percent lower than that in West Germany and had been 43 percent lower in 1992. For women, the wage gap declined from 32 to 19 percent. The smaller income gap between East and West Germany should reduce the number of women who are able to profit

from migration, whereas the extensive income gap for men should render profiting from migration more likely for a much broader group of the male population (Sjaastad 1962). Theoretical considerations derived from Borjas's (1987) extended human capital theory are consistent with this prediction. The income distribution in West Germany is broader than that in East Germany, generating particularly high profits for highly skilled migrants (cf Borjas 1987). The broader income distribution in West Germany leads to higher financial returns on education in West Germany than in East Germany. Thus, the difference in earned income between a worker with an upper secondary degree and a worker with a lower secondary degree is greater in West Germany than in East Germany. Both men and women are most able to profit from migration when they are highly skilled. Because the income gap is smaller for women and allows for smaller income gains related to relocation, the income surpluses generated by the return on education caused by the variations in the East and West German income distributions should influence women's migration behavior more than men's migration behavior. To realize similar income gains from migration as men, women who migrate from East to West Germany must have more education and, therefore, will be more positively selected by education than men.

Despite the prediction at the macro level, Chapter III shows that women are more likely to migrate than men. Indeed, the different participation of men and women in education in addition to relative gains, unemployment rates and women's different occupational choices help to explain the deviation from the predictions at the macro level. The results presented in Chapter III indicate that migrating women are positively selected by education, whereas this is not the case for men. As indicated by Borjas's (1987) extended human capital theory, for women, having an upper secondary degree constitutes a threshold; women are able realize benefits from migration only after they pass this threshold. Fewer women than men are expected to migrate from East Germany to West Germany because the higher education level necessary for women to realize migration benefits should reduce – not raise – the migration rates among women.

However, women in East Germany are more likely to have more education than men. In general, participation in education is exceptionally high in East Germany. In East Germany, 90 percent of the population between 25 and 64 has finished at least intermediate secondary school or completed vocational training. This percentage is higher than the OECD average (67 percent) and is even higher than the percentage in West Germany (84 percent) (Statistische Ämter des Bundes und der Länder 2006, p. 29 ff). Additionally, the percentage of the population of East German women with secondary and tertiary education is higher than that of the population of East German men (Statistische Ämter des Bundes und der Länder 2006, p. 29 ff).

Nearly all theoretical considerations indicate that those who are better educated are more likely to profit from migration. Moreover, the income distributions in East and West Germany create a situation in which we expect those who are highly educated to profit the most. Because of the greater proportion of better-educated women, a larger share of the female population is able to generate significant income gains from migration, as was shown in Chapter VIII. Although women require higher education to profit from migration, their high level of participation in education appears to predominate over the selection effect because the requirements for education do not reduce the number of women who migrate. Education does not serve as a restriction. Rather, due to the large proportion of educated women, a large number of women are able to profit from migration despite the high educational requirements. However, the benefits of migration are not driven only by macro level characteristics; rather, they are primarily dependent on the individual's characteristics and can deviate from the predictions based on macro-level conditions. The results show that both women and men base their migration decisions on rational considerations, and the key factors that drive relocation for both genders include age, education, and labor market experience. Increased age and more on-the-job-experience reduce the likelihood of migration, which is consistent with the assumptions of neoclassical migration theory. Women and men with upper secondary degrees are most likely to relocate. Women's greater willingness to migrate is also driven by the relatively high financial improvements that they realize when they migrate from East to West Germany. Measured in absolute terms, women's income improvements are as high as those of men (see Chapter VII). Because women earn a lower income, the fact that they are able to achieve similar income gains to men creates greater relative gains for women and incentivizes women to relocate.

More specifically, women who migrate with their partners from East to West Germany achieve income benefits that are comparable to the benefits of men who relocate within West Germany. Women who migrate alone achieve higher gains that are comparable to the gains of men in partnerships who migrate from East to West Germany (see Chapter VII). It is important to understand that women are able to realize large income benefits despite lower income gaps between East and West Germany for women. This result indicates that the higher positive selection with regard to education that is common among single women who migrate balances the effects of the smaller income gap between East and West Germany. In addition, other factors such as occupational segregation may influence women's and men's migration decisions differently. First, the fact that men and women often choose different occupations (Rosenfeld and Trappe 2002) limits the competition for available jobs in East Germany. Occupational choices

may influence migration decisions by offering different and renewed chances to find a job at one's destination.

If the employment positions that women typically occupy are easier to find in West Germany than in East Germany, which may be suggested by the fact that women's jobs are more commonly available (Morrison and Lichter 1988), occupational choices may have a different influence on men's and women's decisions to migrate. An analysis of the careers of single women suggests that the availability of jobs for women in West Germany may indeed serve as a driving force behind women's decision to relocate. Chapter VII examined the development of women's occupations based on ISCO-88 1-digit codes and indicated that women who relocate from East to West Germany alone typically improve their employment positions. A greater proportion of women who relocated individually secured employment in professional, technical, and quasi-professional occupations than that which secured such employment before the relocation. Moreover, the percentage of women working in the service sector – as service workers or in retail and market sales – declined by nearly two-thirds after relocation to the West. Single men also experienced occupational improvements but not to the same degree as women who migrated alone. Their migration was sometimes accompanied by occupational decline. Furthermore, in some cases, men must work in lower-level positions following relocation.

Therefore, the different occupational choices and the fact that women's jobs are more common can simplify relocation for women and reduce their migration costs (Morrison and Lichter 1988), which may increase both the number of women who are able to profit from migration and their motivation to migrate.

Finally, the reasons for migration may also be related to non-monetary factors such as the desire to live in a different environment. As Chapter IV indicates, migration from East to West Germany increases SWB. Because women experience greater increases in SWB than men following relocation, the wish to improve one's SWB could also motivate more women to migrate to West Germany.

In summary, this study presented several selection mechanisms (primarily connected to education but also related to relative income benefits, occupational choices, and SWB) that may result in higher migration rates among women.

2.2 Why do the migration patterns of East German single women and those in partnerships differ so substantially?

The dramatic differences between the migration patterns of women who migrate alone and those who migrate in partnerships demonstrate the importance of considering partnerships when investigating women's migration behavior. East

German women in partnerships are less mobile than single women, which may be explained by the higher migration costs for couples; however, such women are also much more restricted in their mobility decisions than men in partnerships. Finally, the comparison with West Germany shows that women in West Germany participate less in the labor market (Klenner 2009), contribute less to household income (Dölling 2002; Lemke 2002) and should, therefore, be less able to influence household migration decisions. However, these women have greater influence on their household migration decisions than do East German women (Chapter VII). The next section of the conclusion examines why East German women have such little influence on the household migration decision and why the migration behavior of East German women who migrate with a partner differs from the migration behavior of East German women who relocate without a partner.

In investigating the migration patterns of women in partnerships, it is important to remember that women who relocate with their partners must consider their partners' regional preferences, whereas women who migrate alone make individual migration decisions. Therefore, as opposed to investigating women's individual migration, examining partnered women's migration requires the consideration of household processes and both partners' characteristics and preferences.

This study shows that East German men in partnerships calculate the decision to migrate based on costs and benefits; in so doing, their partners' migration costs are merely one consideration. As the incomes of the women's partners increases, their partners' ability to prevent migration increases as well. However – and this is the decisive difference between men and women – when men's income benefits from employment in West Germany are sufficient to cover both partners' migration costs and generate positive benefits, migration occurs. The decision to migrate of women in partnerships appears to have been reached on the basis of different considerations. It appears that for women, the additional costs that may arise from the male partner's loss of income in migrating are not decisive; rather, the mere presence of the partner determines the decision not to migrate.

A possible explanation for these findings on household migration can be found in the theoretical framework of gender roles (see Chapter VI). The findings indicate that women's employment is understood as secondary and that relocation in favor of women's careers is considered unnecessary. Within this theoretical framework, it may be argued that women have been socialized to make sacrifices for the sake of their families and to abstain from relocation to benefit their own careers (Bielby and Bielby 1992) or that women simply place the family first. Indeed, the migration behavior of East German women in partnerships appears to indicate the persistence of traditional gender views, which is not consistent with the

egalitarian understanding of family that the former socialist regime promoted or the gender views that most East German men and women express (Kreyenfeld and Geisler 2006; Lück and Hofäcker 2003; Matysiak and Steinmetz 2008). Within this theoretical framework, it appears that the differences between single and partnered women's migration patterns can be accounted for by women's traditional gender roles in partnerships, which result in the rejection of migration for the women's benefit and are at odds with the egalitarian behavior that women exhibit when relocating alone.

The findings on partnered women's migration patterns and the decisions that households make regarding migration may also be interpreted from another angle, which also considers the costs and benefits of migration. The advantage of such an explanation is that it is consistent with the behavior of East German women who migrate alone. There are several factors that are connected to the economic situations in East and West Germany – and to women's labor market participation and occupational choices – that enable men to initiate a lucrative relocation and hinder women from doing so. This results in a sharp decline in women's migration when women have a partner.

The first and most important parameter that influences the increased relocation from East to West Germany is the wage gap between the two sections of the country. The varying income gaps have consequences for individual migration, as outlined above. In the same manner in which the smaller income gap reduces the number of women migrating individually who would benefit from relocation, the narrower income margin for women reduces the potential income benefits for women in partnerships. However, when the possible income benefits related to migration are smaller and the financial benefits that are available for reimbursement are smaller, the financial losses of the following partner and the possibility for women to render the migration a reality are lower. It is also important to realize that relative income increases create large incentives for single women to relocate but have no influence on the migration decisions of couples. Because couples must compensate for one another's costs in the case of migration, the higher relative gains that one partner may achieve are of no relevance if those benefits do not transfer to higher absolute gains. Therefore, the difficulty that partnered women face in initiating successful migration results in a difference between the migration behaviors of single women and women in partnerships.

In addition to the income gains associated with migration, the income difference between men and women, i.e., the gender wage gap, must be considered. As calculated based on the general gender wage gap common between West German men and West German women according to the German Federal Statistical Office

(Statistisches Bundesamt 2010, p. 46), the potential income that East German women may achieve in West Germany is 24.7 percent lower than the potential income of East German men. In addition, for women who migrate alone, a great portion of the income benefits and the fact that their income benefits are as high as those of men may be attributed to the higher returns on education that women realize because of their higher educational levels. Women's average monetary income benefits related to migration are as high as those of men because, on average, women who migrate have more education than men. Because of the educational homogeneity of couples and the fact that women typically choose partners who have at least as much education as they have (and typically more) (Blossfeld 2009; Blossfeld and Timm 2003; Matthijs 1998; Schulz 2010; Skopek et al. 2011), it is unrealistic to expect that women would be able to compensate for the migration costs of their partners because their higher education allows for it. Because their partners should have at least as much education as the women, their partners' returns on education in West Germany should be as high or even higher than that of the women. The gender-wage gap, which reduces the possible income benefits of women compared with the income benefits of men, in combination with the higher education of the male partner should render it all but impossible for women to compensate for their partners' migration costs. This should hinder women in partnerships from migrating and can further explain the differences in the migration patterns of women who relocate with and without a partner.

With regard to migration decisions in a household, neither labor market participation nor gender roles should be considered sole explanations; rather, one should assume that both phenomena influence the migration behavior of couples and contribute to our understanding of East-West migration in Germany. The consequences are identical. Family migration always implies a compromise, although this compromise may appear small for East-West migration in Germany.[1] Because the male partners typically initiate migration, women make the compromise. Women follow their partners and suffer occupational disadvantages for the sake of their partners. This scenario has implications for the position of women in the labor market and influences women's position in the household by reinforcing their position as secondary earners. Because the shadow of the past accompanies future decisions, women's compromises for the sake of their male partners' careers may trap them in the role of secondary earner, which will degrade their bargaining position in the household and may force them into further compromises in the labor market when a similar situation occurs (cf Halfacree 1995).

1 As indicated in Chapter VIII, even women who relocate with their partners are able to realize some income gains.

To conclude, when we attempt to find a link that may provide a connection between the migration patterns of women who relocate individually and women who relocate with their partners from East to West Germany, the varying conditions of the East and West German labor markets for men and women offer the best explanation. The lower wage gap between East and West Germany for women favors their positive selection for education when relocating individually. However, for women in partnerships, the varying wage disparities between East and West Germany imply that they are not able to compensate for the migration costs of their partners and are therefore not able to migrate to improve their own careers. This may explain why women who relocate alone have higher migration rates, why the migration patterns of women are more restricted by the presence of a partner, and why women are unable to accomplish migration when they have a partner.

Therefore, the explanation of women's migration patterns based on rational choice and on neoclassical migration theory in connection with bargaining theory appears to provide a theoretical framework for the different outcomes of women's migration patterns from East to West Germany.

3 Contribution to the field

Focusing on women's migration, this study shows that women and men display both similarities and differences in their migratory behavior. Whereas both behave rationally, the costs and benefits that are involved in migration, the varying economic conditions, and, in particular, the differences in the wage gaps that men and women face in East and West Germany lead to gender-specific behavior.

Whereas the international migration research investigating women's migration focuses on qualitative research, I used quantitative data and research methods to analyze women's migration. Examining women's mobility from the perspective of quantitative research allows the determination of individual- and regional-level characteristics that influence women's and men's migration decisions similarly or differently. Quantitative research also demonstrates the importance of the family in different migration decisions and the differences in outcomes when men or women initiate migration. Moreover, the comparison of men and women who migrate alone or with their partners and persons who relocate from East to West or within West Germany allows for the generalization of migration patterns. These generalizations can be transferred to other countries and to international migration research or can serve as indications of relationships that are appropriate for future research.

International research focuses on the migration of the poor (Calavita 2006) and relocation from developing to industrialized countries. In addition to the

research in developing countries that rarely describes women's migration as a success story (cf Ehrenreich and Russell Hochschild 2002; Lutz 2009; Lutz 2010; Pedraza 1991; Raijman et al. 2003), the findings on the migration of women in East and West Germany show that women improve their occupational positions considerably when migrating and that they integrate successfully into the labor market. Women who migrate individually can generate migration benefits that are as high as those of men, and women improve their financial positions even more than men do in relative terms. Thus, women must now be considered economically motivated participants in migration in international research.

The impression of successful women pursing their careers is strengthened even further when, as in the case of East-West migration in Germany, women who migrate are more educated than men who migrate. Thus, the two most current trends in migration, the feminization of migration and the migration of highly skilled workers, can be attributed, at least in Germany, to one group's participation in migration: highly skilled women. This indicates that gender must be brought "back into" international research (Boyd 2006) and that the investigation of gender differences should be particularly informative when analyzing the migration of highly skilled populations.

This study also shows that women migrate both individually and with their partners. It is a novel discovery that both forms of migration are driven by economic motives. The highly qualified and economically successful women who migrate individually and the women who follow their partners display two sides of the same coin. The factor that drives both phenomena is the narrower wage gap for women than for men between East and West Germany. This indicates that the perceptions of women following their partners are antiquated and that women should be treated as economic actors with their own economic considerations. This study shows that, at least in Germany, women follow their partners because they are able to improve their own economic situations by doing so.

4 Limitations and future research

Migration is a rare phenomenon; most people remain in the region in which they were born over the course of their lives. Therefore, it is not surprising that even when handling relatively large datasets such as the SOEP, quantitative research arrives at a point at which research questions that may foster a better understanding of the process at hand are limited by the data that are available. This also occurs in East-West migration in Germany. For example, in statistical estimations, it is not always possible to differentiate between men and women who migrated alone and those who migrated with their partners. The analyses of the effect of education on

migration and the selection processes investigated for migration and education in Chapter III were thus based on men and women who migrated with and without a partner. For the estimations, the simplifying premise was used that men and women migrate alone. Therefore, even if the analysis controlled for partnership, it is possible that the sample selection led to an underestimation of the effect that education has on the migration of women. This is related to the fact that only a portion of the women in the sample relocated because of their own careers and because of their own education; other women followed their partners to West Germany, which should weaken the effect. Because men typically initiate migration and seldom have less education than their partners, this problem should not change the effect of education on men's migration. Because I observed no selection effect of education on men's migration, the fact that different selection mechanisms drive the migration of men and women can be confirmed, although the effect of women's education may be underestimated.

Research on East-West migration in Germany shows that there were phases during which the chances and risks connected to job mobility differed (Diewald et al. 2006). For example, at the beginning of the reunification – during the so-called "window of opportunity" – the chances to benefit from East-West migration should have been different from those in the ensuing phases. It would be informative and of substantial value to investigate the factors that have driven men's and women's migration during different periods. However, the available data do not allow for such analyses, at least not when focusing on gender-specific differences.

Future research should answer not only the remaining questions on East-West migration in Germany, such as why migrants return to the East, but also those of international migration research. In particular, comparisons between the patterns that are observed in East Germany and those in other countries or at least between East and West Germany should be fruitful because they show whether the migration patterns that are observed in East Germany are an exception or if they can be generalized and transferred to other countries.

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Abstract

This work analyses academically the intra-German East-West migration after reunification and focuses on the relocations of women. Starting from a theoretical overview this work presents economical and sociological theories of migration for individual migration, but also for household migration. The empirical part of the work comprehends five articles, which investigate different facets of East-West migration in Germany. Three of the articles focus on the determinants of migration, while the remaining two articles investigate the monetary and non-monetary consequences. To understand the East-West migration of men and women more completely I rely on various group comparisons. I compare relocations from East to West Germany with relocations within West Germany, or the migration from East to West with commuting between both those regions. Finally, couples' migration is contrast with individual migration.

The work is based on the Socioeconomic Panel data and in addition employs gender-specific information on regional incomes and unemployment rates derived from the data of the Institute of Employment Research. The empirical estimations apply mainly multilevel logit and probit models, with binary or ordinary dependent variables, but also adopt Heckmans' selections.

The analyses indicate that education is the most important determinant of men's and women's migration. However, I also find gender-specific differences in the impact of education on migration, which can be explained best with the interplay of individual and structural characteristics, e.g. gender-specific income differences between East and West Germany. For women, A-level education is a necessary condition to profit from migration and therefore relocation. The small differences in the regional income levels between East and West Germany for women reduce the group of East German women, who profit from migration, to those who are highly educated. For men, in turn, higher education does not present a necessary condition of migration. In turn, the regional income differences between East and West Germany for men are so huge that even men with lower educational degrees are able to profit from relocation.

Higher education is also important for the migration decision of couples. However, the education of the male partner is more of a deciding factor for joint migration from East to West Germany of couples than the education of the female partner. This result is also supported by the comparative analyses of the migration pattern of East and West German women in partnerships. Even through East German women in partnerships are more highly qualified and better integrated in the labor market than their West German counterparts, the employment relevant characteristics, such as education, are less decisive for the migration decision of the household than those of West German women.

The investigation of income trajectories after relocations from East to West and within West Germany support the impression formed on the basis of the investigation of the migration determinants. East German women in partnerships experience lower income gains from relocation than East German men, East German single women and West Germans in general. Moreover, they are the only group not able to gain additional surplus from higher education when migrating. Because of the extremely high income disparities between East and West Germany for men, East German women who migrate with their partner are pushed into the role of 'tied movers'. They do not obtain income gains from higher education and do not improve their occupational position when migrating. Paradoxically, the low regional income disparities with West Germany make relocations for couples only profitable when both partners gain financially and professionally from relocation. This is especially the case when both partners are highly qualified and generate additional migration gains, from the higher rewards to education in their new job. Thus West German women in partnerships are able to profit financially from migration but are also able to improve their occupational status.

This work provides not only insights into the East-West migration in Germany, but also on gender-specific selection. Moreover, this work combines for the first time findings on the causes and consequences of the East-West migration in Germany.

Kurzfassung

Diese Arbeit ist die wissenschaftliche Analyse der innerdeutschen Wanderungen von Ost- nach Westdeutschland nach der Wiedervereinigung. Ein besonderes Augenmerk liegt dabei auf der Wanderung von Frauen. Beginnend mit einem theoretischen Überblick stellt die Arbeit sowohl ökonomische wie auch soziologische Theorien zur Wanderung von Individuen und Paaren vor. Der empirische Teil der Arbeit setzt sich aus fünf Artikeln zusammen, die jeweils einen anderen Aspekt der innerdeutschen Ost-West-Wanderung beleuchten. Drei der Artikel fokussieren die Gründe der Migration, während zwei Artikel die finanziellen, aber auch nicht-finanziellen (Lebenszufriedenheit), Konsequenzen der Migration beleuchten. Um die Ost-West-Wanderungen von Männern und Frauen besser einordnen zu können, werden verschiedene Gruppenvergleiche vorgenommen. So wird einerseits die Wanderung zwischen Ost- und Westdeutschland mit den Umzügen innerhalb von Westdeutschland verglichen, andererseits wird die Migration von Ost- nach Westdeutschland dem Pendeln zwischen den beiden Regionen gegenübergestellt. Schließlich ziehen mehrere Artikel einen Vergleich zwischen Paaren und Alleinstehenden.

Die Arbeit basiert auf den Daten des Sozioökonomischen Panels und verwendet außerdem geschlechtsspezifische regionale Informationen zu Löhnen, Arbeitslosigkeit sowie Daten des Instituts für Arbeits- und Berufsforschung. Die Berechnungen stützen sich hauptsächlich auf hierarchische Logit- oder Probitanalysen mit binären oder ordinären abhängigen Variablen, aber es kommen auch Heckman'sche Selektionszerlegungen zum Einsatz.

Die Untersuchungen zeigen, dass Bildung für Männer wie auch für Frauen eine der wichtigsten Determinanten für den Umzug darstellt. Allerdings zeigen sich geschlechtsspezifische Unterschiede beim Einfluss von Bildung auf Migration, die insbesondere durch das Zusammenspiel mit strukturellen Merkmalen wie geschlechtsspezifischen Einkommensdifferenzen zwischen Ost- und Westdeutschland zu erklären sind. Für Frauen stellt das Abitur eine notwendige Voraussetzung für Migrationsprofite und somit für eine Wanderung dar. Der geringe Einkommensabstand zwischen Ost- und Westdeutschland reduziert die Gruppe der ostdeutschen Frauen, die von einer Wanderung profitieren, auf hochgebildete. Für Männer hingegen stellt das Abitur keine Migrationsvoraussetzung dar. Die regionalen Einkommensunterschiede zwischen Ost- und Westdeutschland sind für Männer deutlich ausgeprägter, sodass Männer bereits mit geringeren Bildungsabschlüssen von einem Umzug profitieren.

Hohe Bildung ist auch für die Wanderungsentscheidung von Paaren von Bedeutung. Allerdings hat die Bildung des Mannes einen größeren Einfluss auf die gemeinsame Wanderung von Ost- nach Westdeutschland als die Bildung der

Frauen. Dies wird auch bei einem Vergleich der Migrationsmuster von ost- und westdeutschen Frauen in Partnerschaften deutlich. Obwohl ostdeutsche Frauen in Partnerschaften stärker zum Haushaltseinkommen beitragen als westdeutsche Frauen und besser auf dem Arbeitsmarkt integriert sind, haben ihre erwerbsrelevanten Eigenschaften, wie die Bildung, weniger Einfluss auf die Haushaltsmigration als die der westdeutschen Frauen.

Die Analyse der Einkommensverläufe nach Ost-West-Wanderungen und Umzügen innerhalb von Westdeutschland bestätigt das durch die Analyse der Umzugsdeterminanten gewonnene Bild. Ostdeutsche Frauen in Partnerschaften erzielen nicht nur geringere Einkommensgewinne aus Umzügen als ostdeutsche Männer, ostdeutsche Singlefrauen oder Westdeutsche im Allgemeinen; sie sind außerdem die einzigen, die keine zusätzlichen Einkommensgewinne aus höherer Bildung bei einer Wanderung generieren können. Die extrem hohen regionalen Einkommensdisparitäten zwischen Ost- und Westdeutschland für Männer drängen die ostdeutschen Frauen in Partnerschaften in die Rolle des mitziehenden Partners. Sie erzielen keine Migrationsgewinne aus ihrer Bildung und können sich beruflich nicht verbessern. Paradoxerweise sorgen die geringeren regionalen Einkommensdisparitäten in Westdeutschland dafür, dass ein Umzug nur dann stattfindet, wenn er sich für beide Partner finanziell und beruflich lohnt. Dies ist insbesondere der Fall, wenn beide Partner hochqualifiziert sind und zusätzliche Migrationsgewinne durch höhere Vergütung für ihre Bildung im neuen Job generieren können. So können westdeutsche Frauen in Partnerschaften nicht nur finanzielle Migrationsgewinne erzielen, sondern sie können sich außerdem durch die Migration auch beruflich verbessern.

Neben den Erkenntnissen zur Migration von Ost- nach Westdeutschland liefert die Dissertation auch neue Erkenntnisse zur Migration von Frauen und beschreibt geschlechtsspezifische Selektionsmechanismen. Außerdem führt die Arbeit erstmals die Determinanten und die Konsequenzen der Ost-West-Migration in Deutschland zusammen.

Beschäftigung in der Gesundheitswirtschaft

Analyse für die Bereiche Gesundheitswesen, Handel und Produktion

- Untersuchung zur Beschäftigung im Gesundheitswesen
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Die Analyse für alle Bundesländer (für das Jahr 2013) umfasst sowohl den Bereich Gesundheitswesen als auch die Erweiterungsbereiche Handel und Produktion medizinisch-pharmazeutischer Produkte.

Weitere Kapitel berichten über die Gesundheitswirtschaft in acht ausgewählten Bundesländern. Abschließend thematisiert der Band die Arbeitsbedingungen in der Kranken- und Altenpflege.

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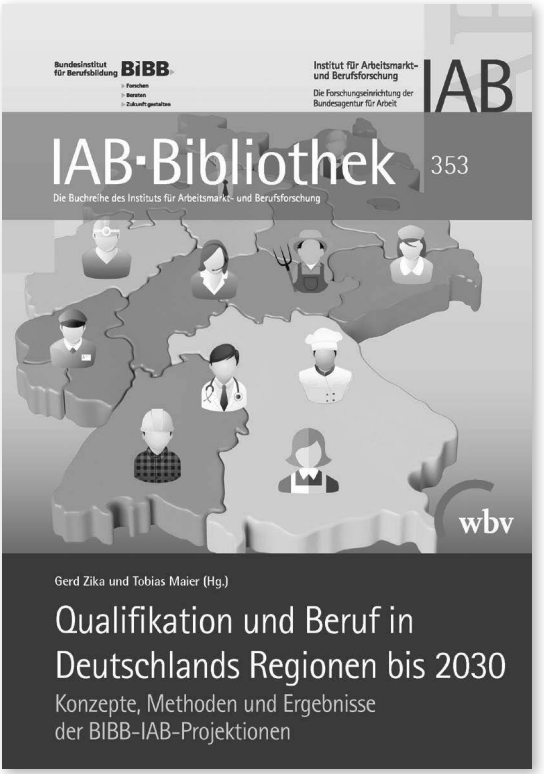

■ Ergebnisse der 3. Welle des QuBe-Projekts

Der Band präsentiert die Modellierung sowie die Ergebnisse der ersten regionalspezifischen BIBB-IAB-Qualifikations- und Berufsfeldprojektionen (QuBe). Unter Berücksichtigung regionaler Unterschiede wird nach sechs Regionen differenziert.

Gerd Zika, Tobias Maier (Hg.)
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IAB-Bibliothek, 353

2015, 206 S., 32,90 € (D)
ISBN 978-3-7639-4093-6
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Although German reunification took place 25 years ago, differences between East and West Germany still remain. After German reunification, people migrated from the east to the west because of differences in living standards and the new opportunities available. Silvia Maja Melzer analyses the causes and consequences of intra-German migration, both theoretically and empirically, from a gender-specific point of view and finds answers to the following questions:

Which factors are decisive for the relocation of men and women? How does education influence the gender-specific decision to migrate? Who is relocating or commuting more often, men or women? In order to present a more comprehensive picture of gender-specific migration, contrasts are drawn respectively between men and women or singles and people in partnerships. How does the migration behaviour of East and West German couples and singles differ? What financial consequences result from migration? And: Are east-west migrants happier?

W. Bertelsmann Verlag

ISBN 978-3-7639-4103-2

Institut für Arbeitsmarkt- und Berufsforschung der Bundesagentur für Arbeit
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