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Regional mobility of unemployed workers

Experimental evidence on decision-making and
behaviour in flexible labour markets

Sebastian Bähr

Dissertationen



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Acronyms and Abbreviations

AME	average marginal effect
CAPI	computer-assisted personal interviewing
CATI	computer-assisted telephone interviewing
DFG	German research foundation
DID	difference-in-differences
FAU	Friedrich-Alexander-Universität Erlangen-Nürnberg
FSM	factorial survey module
FEA	Federal Employment Agency
FE	Fixed effects
GSOEP	German Socio-Economic Panel
IAB	Institute for Employment Research
IEB	Integrated Employment Biographies
IIA	independence of irrelevant alternatives
LMR	Labour market regions
OLS	ordinary least squares
PASS	Panel Study "Labour Market and Social Security"
pp	percentage points
SER	standard employment relation
UB	Unemployment benefits
UB I	Unemployment Benefits I
UB II	Unemployment Benefits II
WZB	Berlin Social Science Centre
FSO	Federal Statistical Office

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1 AB111/8-1 and AB111/8-2

1 Introduction

21st century labour markets demand high levels of flexibility from workers. Technological innovations disrupt existing business models, industries, and occupational structures. New start-ups, conceived in silicon valley, spread their business models quickly around the globe and impact on consumers and workers in multiple societies. Uber, the ride-hailing app, is characteristic for this new "on-demand-economy" (The Economist 2015b). Instead of owning taxis or employing drivers and contributing to their social security payments, Uber is only acting as a broker between customers and self-employed drivers who rent out their own cars. Uber is just one example of a whole range of companies that offer new services without providing standard employment relation (SER) to their workforce². Through technical innovation, these companies claim to offer better services to costumers, while at the same time society as a whole profits from the utilisation of otherwise idle assets, in this case the cars and drivers. While this may be true, these business models definitely shift uncertainty and risks to the individuals who supply the work. Pension contributions and health protection fall into the sole responsibility of the individual, but also the necessity to keep one's skills and market value up-to-date (The Economist 2015a). All this has consequences for workers but also for society as a whole.

Silicon valley start ups certainly are at the forefront of this development. While these companies try to abandon the notion of employment in favour of flexible freelance workers, industries and employers in larger parts of the labour market show a similar tendency to break up SERs by using atypical forms of employment (e.g., Kalleberg 2003). Under the term "*flexicurity*" (Wilhagen and Tros 2004) this flexibilisation momentum also reached policy makers, who restructured welfare states to cope with labour market rigidities and respond to demographic challenges. The German *Hartz* reforms of the early 2000s are a prime example of this. These reforms cut unemployment benefits, tightened search requirements, and promoted marginal employment, self-employment, or temporary agency work as a way to make labour markets more flexible (Eichhorst and Marx 2011).

This destandardisation of employment relationships creates new opportunities as well as insecurities for the vast majority of workers (Bernhardt and Krause 2014). Individuals who value flexibility over security can exploit new opportunities to prosper, while people who value security higher now have to mitigate old and new social risks on their own. Job seekers, and unemployed individuals in particular, are more and more expected to be highly flexible in their search behaviour. This means

2 The emerging industries of *crowdsourcing* or *crowdworking* function similarly.

making concessions for the chance of finding employment, especially regarding regional mobility.

This thesis analyses the way unemployed individuals regard mobility in their job search behaviour. We provide answers to the question, whether tightened mobility requirements for unemployment benefits (UB) recipients in the course of the German *Hartz* reforms lead to more regional mobility. We look at the decision process of unemployed persons when evaluating job offers, in order to gain information on their willingness to make concessions for re-employment. Finally, we provide evidence for the role the social networks of unemployed persons play in fostering or impeding their relocation for a new job. Because observed labour market behaviour is often the result of multiple selection processes, causal estimates need elaborate research designs. Therefore, we are using innovative quasi-experimental and experimental methods for answering our research questions.

1.1 The increased demand for labour flexibility

Technological innovations shift demand away from manual labour towards knowledge based jobs which increases demands for high skilled workers (Acemoglu 2002). For low skilled workers this economic restructuring decreases employment chances. At the same time, traditional SERs give way to atypical forms of employment like temporary work, marginal part-time work, or fixed-term work. These new forms of employment offer low skilled European workers a perspective to avoid unemployment (DiPrete et al. 2006) at the expense of being exposed to new insecurities and a deterioration of bargaining power (Barbieri 2009; Gebel and Giesecke 2011; Giesecke and Heisig 2011). Jobs created in new industries are often also in new places and thereby transform the regional distribution of jobs and job seekers (e.g. for America Moretti 2012). Thus, modern labour markets increasingly demand flexibility from the workforce. This encompasses multiple dimensions, like occupational mobility (Mayer et al. 2010; Dütsch et al. 2013), regional mobility or job characteristics like fixed-term employment (e.g. Gundert 2007) or unpaid overtime (Zapf 2015).

On the level of the individual, these macro trends increase uncertainty about career paths and earnings security. Lifelong uninterrupted careers in one job, one firm, and in one place are becoming rarer. For employees this shift away from old certainties is a mixed blessing. On the one hand, greater flexibility allows willing and able individuals to gain the most from their talents. Frequently changing jobs, firms and regions, as well as life-long learning allow them to profit from opportunity differentials (Lehmer and Ludsteck 2011; Schmelzer 2012; Reichelt

and Abraham 2015). This transfers into better career trajectories and higher earnings profiles (for a review of the literature see: Lehmer 2009: 16ff.; Sørensen and Sorenson 2007; Dorsett et al. 2016). On the other hand, for low skilled or tied-down workers the demand for more flexibility threatens their livelihoods (Giesecke and Heisig 2011). Avoiding such insecurities requires considerably more flexibility than in the decades before.

Against the background of demographic change, European welfare states, whose institutions stem from the 1880s, are struggling to mitigate new and old life risks. Restructuring has taken place in almost all European countries (Kenworthy 2010). The spirit of the reforms is an unanimous emphasis on individual responsibility and stepwise privatisation of welfare state functions (e.g., Prinz 2004: 321). These changes were deemed necessary to retain sustainable social security systems in times of heightened uncertainties. Labour market policies in particular were at the centre of many reform efforts. Instead of administering unemployment, the idea of activation has prevailed. The role of the unemployed shifted from recipients of insurance benefits, paid for by their own previous contributions, to job seekers living on the public's expense with an obligation for quick re-employment (Kemmerling and Bruttel 2006: 97; Jacobi and Kluve 2007: 53; Alber and Heisig 2011). This change entails greater flexibility when evaluation vacancies, chief among them regional mobility. Particularly, in post-reunification Germany great regional disparities between Eastern and Western, but also Northern and Southern Germany exist, which make mobility necessary (e.g., Neugart 2005: 11; Blien et al. 2009; or Melzer 2010).

The German *Hartz* reforms follow this philosophy of activation, expressed by their motto "*assist and demand*". In the course of this reform, on the one hand, job search requirements were tightened, and the replacement rate and receipt duration of benefits limited. On the other hand, the creation of a low income sector, the promotion of temporary employment, and an increase in assistance measures for training or starting self-employment, aimed at increasing re-employment chances (Jacobi and Kluve 2007). Flexibility and the willingness to take up any reasonable job as the basis to be eligible for unemployment insurance or basic income support found its way into the wording of the German social code³, which governs the social security system. Thus, the notion that flexibility is a chief prerequisite to succeed in the modern labour market has transformed into a norm which is placed on unemployed job seekers. Mobility is explicitly recognised as a way to speed up the transition out of unemployment and thus demanded from welfare receiving job seekers in particular.

3 §138(1)3 SGB III.

1.2 Regional mobility in the job search process

Macro level research recognizes regional mobility as a central adjustment mechanism of supply and demand on the labour market (e.g., Wagner 1989: 30f.; Johnson and Salt 1990). Workers are attracted by wage-differentials and consequently flow from regions with high unemployment and low wage levels to regions with low unemployment and high wage levels. Through this mechanism regional disparities are reduced until migration is no longer attractive. Flexible workers should thus profit from these wage-differentials, while inflexible workers have to bare the consequences of regional contexts of low wages and high unemployment. If workers would react flexibly to labour demand factors, the unemployment insurance system would not need tighter mobility requirements. This is of course an oversimplified theoretical approach, because it ignores the institutional and household context, or the social, psychological costs of mobility. Analysis on a macro level cannot explain why the flows between regions with high and low unemployment are on a low level and why some persons move and other persons stay.

Micro-level research views mobility as the result of an individual cost-benefit analysis (e.g., Sjaastad 1962). Regional wage differentials are incorporated as the income of the potential job, that is evaluated against the individual status quo. The costs of taking-up a job in another region are multidimensional and can be material and immaterial, payable upfront or later. Material costs involve the costs of relocating or commuting. Immaterial costs cover the psychological and social costs of leaving friends and well known places and venturing into an unknown environment (Lee 1966; Schwartz 1973). The cost-benefit structure is unique to each individual and depends on factors like her earnings potential or household structure. The decision about mobility often involves the assessment of risk, because not all information is available beforehand (Kan 2003). Thus, individual psychological factors like risk affinity or access to information, via networks and other channels, are also important. This entails, that costs and benefits do not objectively determine mobility, but are evaluated subjectively by each individual. Mobility will occur if the perceived benefits from moving for a specific job exceed the costs of not moving for that job.

This theoretical framework can explain why certain groups move and others stay, despite considerable regional incentives for all. For flexible workers, e.g. young persons without children or property ownership, the costs of mobility are smaller (e.g., Mincer 1978). If this coincides with higher earnings potential in other regions then mobility becomes an attractive option. This is especially true for highly educated workers, that have a skill-set that is in demand in high-wage regions (Bauernschuster et al. 2014; Amior 2015). At the same time,

individuals with low potential to attract high wages or better quality job offers compared to the current place of residence, in conjunction with down tying factors like school age children or a working partner, will be less inclined to move. Both groups of persons have in common that they weigh relocating against other options. Particularly, their chances of finding comparable employment in the local labour market pose an attractive alternative because this does not entail the high costs of mobility. These differences of chances in the local and interregional labour markets define the individual attractiveness of job offers and vary highly between persons. This fact can explain, why we can simultaneously observe in- and out-migration in the same region, despite fixed labour market disparities.

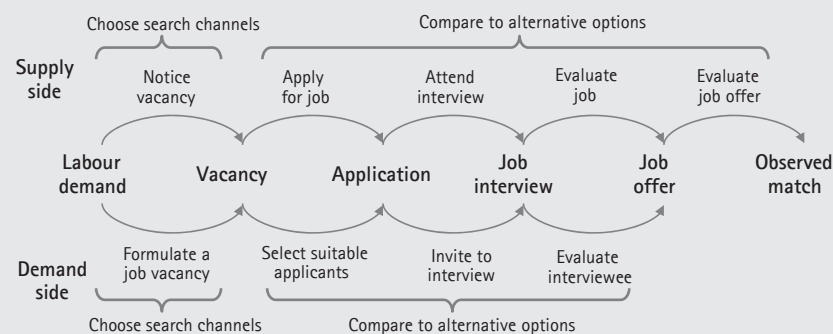
Particularly for unemployed job seekers, mobility should be an attractive option. From the previously mentioned cost barrier, it is clear that mobility for most persons is not the preferred choice. However, with prolonged and unsuccessful job search in the local labour market, mobility should become more attractive (Kitching 1990: 181). This finding is the reasoning behind flexibility norms imposed on unemployed job seekers, that manifest themselves in the design of the *Hartz* reforms. Shortening benefit receipt durations, decreasing replacement rates and requiring a concrete openness for relocations all work to activate unemployed individuals and combat perpetuated structural unemployment (Jacobi and Kluve 2007).

Despite these efforts, the role of mobility in the job search of unemployed remains ambivalent. There is mixed evidence for higher mobility rates of unemployed individuals. Some studies clearly stress the importance of interregional job search for unemployed (Herzog and Schlottmann 1984; Kitching 1990; Arntz 2005). Only some studies, however, allow a direct comparison of mobility rates between unemployed and non-unemployed individuals. A number of studies report higher mobility rates (Harkman 1989; Hughes and McCormick 1989; Pissarides and Wadsworth 1989; van Dijk et al. 1989; Birg 1992; Jackman and Savouri 1992; Westerlund 1998), while others find no effects (Friedrichs 1995; Antolin and Bover 1997; Tervo 2000; Stolle 2000; Stolle 2005) or indeed lower mobility rates for unemployed in unfavourable local labour market contexts (Windzio 2004a, b). These mixed findings suggest complex processes with heterogeneous subgroups of unemployed that follow different logics of action.

Two basic explanations present themselves: first, subgroups of unemployed persons could exist who are especially unwilling to consider interregional job search. This could either stem from weak norms of flexibility or personal responsibility for finding a job (van den Broeck et al. 2010). Alternatively, this could be the result of particular cost structures, that make mobility unattractive. An example of this could be deep cultural and social roots at the current place of residence or a multi-

person household configuration with employed partners or school age children. Lacking access to transportation or the means to relocate fall also into this category (discussed as *motility*, see e.g., Kaufmann et al. 2004: 750). Increasing this lacking willingness or ability is a central aim of the *Hartz* reforms. By imposing sanctions for refusing reasonable job offers, flexibility norms are enforced. Through mobility assistance measures the cost of mobility is mitigated and a greater number of jobs is made more attractive even to low skilled unemployed. Second, another explanation could be demand-side driven. Large groups of unemployed persons could lack the skills to receive reasonably attractive job offers in other regions. In the segments for low skilled work in the labour market, there is excess supply in every region (Buch 2007). This keeps wages low, which in combination with high mobility costs makes relocations unattractive. This could also be explained if employers were to disregard applications of unemployed individuals in general or particularly unemployed from other regions (Atkinson et al. 1996; Bonoli 2014; Oberholzer-Gee 2008).

Figure 1.1 The steps of an ideal-typical matching process



Source: authors' own graphical representation

Disentangling both effects is one important aim of this thesis. Previous research struggled because results were either based on observational data or on oversimplified hypothetical data. Basing ones' conclusions on the observation of realised mobility has two major shortcomings. First, observed mobility is highly selective. Mobility is mostly displayed by the highly skilled, or concentrated in certain industries and occupations. This limits causal claims of the general role of mobility and tells us nothing about the latent willingness for job-related mobility of individuals. In the context of flexibility demands on the unemployed this is problematic. If the observations stem from survey data, assertions with regard to mobility are questionable. Mobile populations are notoriously hard to survey,

especially in longitudinal studies, where relocations make follow-up interviews difficult. This results in a successive loss of cases especially of mobile individuals. Second, realised mobility is the result of a multi-stage-matching process between the job seeker and the searching employer. Figure 1.1 displays the ideal-typical procedure from the beginning of the recruitment process to the observed match. What becomes clear from this depiction is that the match observed in data sets is at the end of a long chain of interlinked decisions. Both, employer and employee compare the opportunity at hand with alternative options. Only if and when all these hurdles are taken, a match can be observed. In case of an interregional job offer, the costs of taking up the job can be expected to be high, increasing the attractiveness of alternative options. This underlines the selectiveness of job-related mobility. Research based on observed mobility consequently ignores the alternatives an individual might or might not have had. Knowledge about the alternatives changes the connotation of job-related mobility. A move could be the only option to end unemployment for some, while for others relocation is an optimal strategy for career advancement.

Observational studies that analyse mobility as the only option are restricted to the result of this complex process. They can make no claim about the underlying decisions made by individuals and are of only limited use to our analysis. We therefore concentrate on experiments in order to learn more about the role of regional mobility in the job search of unemployed individuals.

1.3 The role of experiments

Real processes in the labour market are complex and secured results of causal relationships require diligent research designs. Researchers in the social sciences are increasingly called upon to focus on experimental studies (e.g. most recently, Diekmann 2016). Ideal-typically an experiment allows causal statements about the effects of a treatment, by controlling the allocation of persons into treatment and control groups (e.g., Shadish et al. 2002; Morgan et al. 2009; Gangl 2010; or Jackson and Cox 2013). Real behaviour in social systems differs from these laboratory conditions, making it hard to control the allocation of treatments (*internal validity*). On the other hand, generalisation of results from laboratory experiments to the population is not straight forward (*external validity*).

We follow two strategies to address these challenges: the use of a difference-in-differences (DID) approach – a so called quasi-experiment – and a factorial survey experiment. Both rely on real labour market data, to increase external validity and both try to maximise control over the treatment allocation for a good internal validity.

In quasi-experiments, not all experimental conditions are met. If we want to infer causal relationships from non-experimental data, we have to address the allocation of treatment (*sample selection*) and the role of confounding influences besides the treatment (*omitted variable bias*). Simple comparisons of treated and untreated persons or of one group before and after the treatment are insufficient. The DID approach (e.g. Cameron and Trivedi 2005: 768ff. or Angrist and Pischke 2015: 227ff.) relies on the combined differences between groups and across time to produce causal estimates of the treatment. This method rests on the assumption, that in absence of the treatment the treated group would have behaved similar to the untreated group. These assumptions are hard to definitely confirm, so their plausibility must be argued and demonstrated. We employ this design to ascertain the effects of the German *Hartz* reform on the role of regional mobility in the job search of unemployed individuals. For the allocation of treatment and control groups we exploit a natural experiment created by the policy reform. In the course of the *Hartz* reform only a subgroup of unemployed without family ties were subjected to higher mobility requirements. This is a suitable approach analysing the direct effect of flexibility demands placed on unemployed actors. Still, it does not tell us about the role of flexibility and regional mobility in the job search of the unemployed. This analysis is restricted to the end result of the matching process and cannot disentangle supply and demand effects.

To learn more about the job search process of unemployed persons, we have to analyse their decision making process. The process itself is not observable, and usually only its outcomes are recorded. Laboratory experiments of mobility behaviour are not feasible so that researchers have to rely on hypothetical decision making. This is not the same as actually relocating but should be informative in regards to the actual behaviour. The main advantage of using the willingness to move is that we receive information from movers as well as stayers. For rare behaviour like job-related relocations this is especially advantageous (Nisic and Auspurg 2009). Simple survey instruments that collect the willingness to move, lack the experimental control of the decision's parameters. Factorial survey experiments on the other hand combine the use of survey data with the controlled design of an experiment (Rossi and Anderson 1982; Auspurg and Hinz 2015). By using survey data, the experiment can be distributed to representative samples of the population and in far larger numbers than in laboratory settings (Jackson and Cox 2013: 42). Multiple versions of the experiment (so called *vignettes*) can be presented to the same respondent, thus increasing sample sizes further.⁴ All of this results in enhanced statistical power that allows to detect even small effects.

⁴ This also opens up the possibility of intra-individual analyses of decision making.

The factorial survey satisfies experimental standards because the researcher has complete control over treatment allocation. Being a factorial experiment, multiple parameters of the experiment can be manipulated in order to form a realistic background for decision making.

In this thesis we use the factorial survey design to present short descriptions of hypothetical job offers to respondents of the Panel Study "Labour Market and Social Security" (PASS) (Trappmann et al. 2010) and ask them to evaluate the attractiveness of the offer and their willingness to accept this offer and to relocate to take-up the job (for an overview see Frodermann et al. 2013). Each respondent received five vignettes each with different experimentally varied characteristics like wages, working hour, distance to the current place of residences. With this innovative design, causal effects of job offer characteristics on the willingness to accept a job or relocate for a offer are identifiable. Because this experiment was distributed to a representative sample, we can ascertain whether flexibility norms are affecting unemployed more than employed job-seekers. The experiment eliminates the selectivity of real labour market constellations and provides data for stayers and movers. Additionally, we can model rare combinations of characteristics, like attractive inter-regional offers for low skilled respondents. We basically standardize demand side effects for all respondents, thereby disentangling both intertwined mechanisms. This makes supply side behaviour observable⁵: provided that unemployed individuals have attractive options, are they willing to seize this opportunity?

One drawback of factorial survey experiments is that they only measure stated rather than real behaviour. While this is true, research on the external validity of factorial survey experiments produced promising results of general correspondence between vignette answers and subsequent behaviour (Eifler 2007; Groß and Börensen 2009). For our analysis of regional mobility, there is an ample literature that views mobility as a multi-stage decision process (Huinink et al. 2014; Kalter 1997; Kley 2011; Rossi and Alves 1980; Sell and de Jong 1983). Stages start with initial ideas about migration over successively concrete planning to the actual process of relocating. The willingness to move is a preceding stage and has proven to be very informative of subsequent behaviour in other studies (Brett and Reilly 1988; Kalter 1998; Kley 2013). For the purpose of ascertaining the effect of flexibility norms on job seekers, the willingness to accept an offer or to relocate for the offered job are very well suited. We argue that the lacking selectivity and the detailed unique data on job related mobility make this a worthwhile endeavour.

⁵ In gure 1.1 this would be the last decision the job applicant has to make.

1.4 Contribution of this thesis

Before the background of increased flexibility demands in modern labour markets we analyse the role of regional mobility for unemployed individuals. When analysing social phenomena, Coleman's macro-micro-macro-model (1990) provides clarity on the relationships across the levels of analysis.

Figure 1.2 Macro-micro-macro model

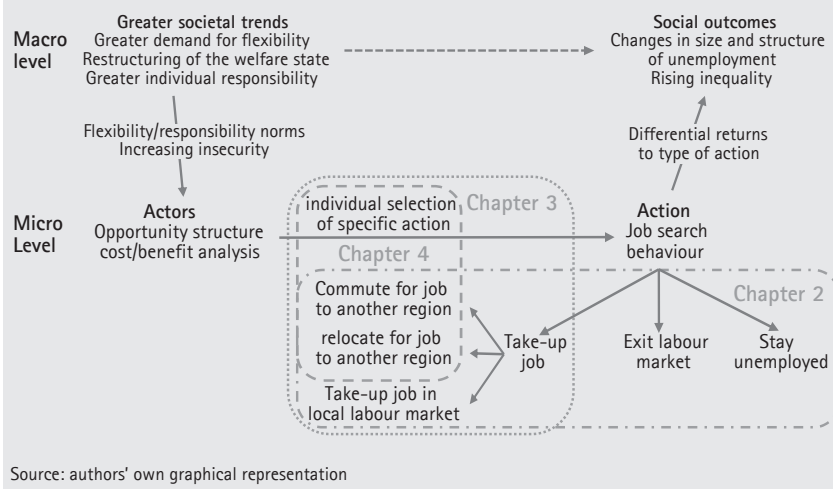


Figure 1.2 represents the model for our analysis. We argue that macro trends like flexibility or the transformation of the welfare state generate norms that demand flexibility to a new extent from market participants (e.g., Gebel and Giesecke 2011). On the level of the individual, this changes the context of decision making as it generates normative expectations which influence the cost-benefit structure of an individual actor. We analyse actions and decisions in order to find out about the significance of regional mobility in the job search process. Changes in individual behaviour can aggregate to produce important social outcomes. Although they are not at the focus of our analysis, it is important to be aware of the importance of aggregate changes for society as a whole. Increased flexibility and mobility mean better adaptation to technological change and could thus help to stabilise employment or generate career opportunities for flexible workers. On the other hand, this produces externalities for those workers who cannot or will not be flexible. For these people, these circumstances create heightened uncertainty about employment chances or long-term success on the labour market (Kalleberg 2009). Depending on compositional effects, uncertainty alters size and

structure of unemployment and can influence social inequality (Vansteenkiste et al. 2016). While macro outcomes on the level of society are important, it is the combined actions of individuals that shape these developments. Consequently, the main focus of this dissertation rests on the behaviour and decision making of unemployed actors. The three following chapters each answer one aspect of this.

In chapter 2, "Regional mobility of unemployed workers in the wake of the German Hartz reforms", we ascertain the effect the German *Hartz* reform has had on the regional mobility of unemployed. Flexibility and individual responsibility were stressed as the guiding spirit of the reform, expressed by the reforms' motto "*assist and demand*". unemployment benefits (UB) recipients were targeted for activation through tightened mobility requirements in the job referral process. Unemployed individuals with family ties were exempt from this regime change, thereby creating a natural experiment. We use large administrative data from the Federal Employment Agency (FEA) and employ a difference-in-differences (DID) design. These data enable us to find out whether or not more pressure on the unemployed without family ties lead to more relocations. We consider alternative reactions to relocations in order to provide a clear picture of the reforms' impact. We also provide results for a number of social and regional subgroups to highlight the varying effectiveness of flexibility norms.

In chapter 3, "Unemployment and willingness to accept job offers", we analyse the willingness to accept hypothetical job offers and compare unemployed to employed individuals. Combining a factorial survey module (FSM) with data from the Panel Study "Labour Market and Social Security" (PASS) – a large German data set of unemployed individuals and the general population (for an introduction see, Trappmann et al. 2010) – we provide detailed results for the effects of specific characteristics of the jobs on offer. From the standpoint of job search theory, unemployed actors could increase their chances of finding employment by making concessions regarding pay and job quality. We answer the question as to whether unemployed individuals are in fact more willing to make concessions for re-employment.

In chapter 4, "The role of social capital in the job-related regional mobility decisions of unemployed individuals", we examine the unemployed's willingness to relocate for a job offer, using the same experimental data as in the previous chapter. In particular, we focus on the role of the respondents' social support networks in the decision making process. Previous research stresses the role of networks in receiving a job offer. Our data controls for this function of the social network, which enables us to analyse the role of social capital (Flap and Völker 2013) and social group norms (Coleman 1990) in the mobility process. We would expect that unemployed actors are especially dependent on their social support

networks. Mobility involves the risk of losing contact to existing social ties and thereby access to their resources. Thus, we argue that this effect makes mobility a less attractive option for unemployed individuals despite its beneficial impact on re-employment chances.

Finally, chapter 5 concludes our analysis. There, we summarise the results of the previous chapters and place them in the wider context of the macro trend of rising flexibility demands placed upon unemployed workers.

2 Regional mobility of unemployed workers in the wake of the German Hartz reforms

JEL classification: D04; J16; J22; J61; J64; J65

Keywords: Unemployment insurance, Geographical mobility, Job search requirements, *Hartz* reform, Policy change, Difference in differences, Gender effects

Abstract:

Interregional job search can greatly enhance the re-employment chances of unemployed. In the early 2000s German unemployed are perceived to display an unwillingness to engage in job-related mobility (Brixy and Christensen 2002). This leads to the introduction of tougher mobility requirements for unemployment benefits (UB) recipients in Germany in the course of the *Hartz* reforms of 2003. Unemployed without family ties have to accept job offers, that require regional mobility if local perspectives are poor. In this paper we analyse the impact this particular aspect of the wider labour market reform has on the regional mobility of unemployed. We employ a difference-in-differences (DID) approach using large German administrative data and a detailed set of potential treatment groups and relevant reform outcomes.

Our results indicate that the reform indeed activates UB recipients, although not by enhancing mobility. Instead, exiting the labour market or re-evaluating local job opportunities are prevalent patterns. These results vary considerably by treatment subgroup, region, and gender. Thus we shed light on the complex interactions between intended activation aims, the logic of action of subgroups, and the regional opportunity structure.

2.1 Introduction

Macro level research shows that regional mismatch is one of the driving factors behind the persistence of unemployment (for Germany see: e.g., Wagner 1989: 30f. or Blien 2001). On a micro level, studies emphasize the beneficial role of regional mobility in increasing re-employment chances for unemployed persons (e.g. Arntz 2005). Despite this, the German labour market of the early 2000s was characterised by relative immobility of exactly this group (Brixy and Christensen 2002; The Economist 2002; Institut der deutschen Wirtschaft Köln 2005). To counter these rigidities the "Laws for a modern provision of services on the labour market" (*Gesetze für moderne Dienstleistungen am Arbeitsmarkt*), the so-called

"Hartz Laws" aimed at increasing the willingness to concede on the side of job seekers and welfare benefit recipients. This is also reflected by their guiding principle "*assist and demand*" ("*Fördern und Fordern*") (e.g. Sala et al. 2013 or Fahr and Sunde 2009: 285), which was widely communicated. Unemployed job seekers were encouraged to take up jobs nationwide, by threatening to cut benefit payments in case of non-compliance. This should have had the effect of reducing local reservation wages, by lowering unemployment benefits, thus encouraging job-search efforts and reducing the stock of long-term unemployment.

In the course of the tenth anniversary of the *Hartz IV* law, which came into effect in January 2005, considerable research effort was devoted to evaluate reform effects with regard to matching and employment. Regarding job related regional mobility the first set of laws of 2003 (*Hartz I*) is more decisive, because it defines the spatial radius of job search requirements for unemployed persons. To the author's knowledge, no other study focussed explicitly on the mobility effects, despite the fact that this was a explicit aim of the reform (Hartz et al. 2002: 75; Mosley 2006). Did the *Hartz I* reform increase regional re-employment rates of unemployed persons? Are there certain subgroups that are affected more than others? What are indirect reform effects on local job finding or exit strategies for these groups? These research questions are at the centre of this study. Answering them will shed more light on the measurable effects of a reform that was otherwise neglected in the shadow of the more prominent *Hartz IV* laws. We analyse the effects the *Hartz I* reform exerted on the job related regional mobility of unemployed persons. Using German administrative data from the FEA, we employ a difference-in-difference approach to measure reform effects by exploiting the fact that only unemployed persons without family ties are affected by this specific regime change.

Our results indicate that mobility is not the primary outcome of this policy change. Instead, the reform increases incentives for taking-up a job local or for stopping to claim benefits altogether. We find significant activation of unemployed job seekers, primarily for the treatment group without any family ties. Regarding the extent to which family characteristics protect from the tightened mobility requirements, men and women differ considerably. Having children does not stop men from takingup employment women with the same characteristics more often stay in unemployment benefit receipt or transit into non-employment. Marriage on the other hand seems to protect both genders from having to engage in more mobility. We also report strong regional effects, which indicates that the mobility requirement is taken seriously primarily in regions with unfavourable local job perspectives. Taken together these results provide evidence for the complex interactions between the job centres activation strategy, the self-interest of unemployed job seekers, and the regional opportunity structure.

The remainder of the paper is structured as follows. We shortly describe the German *Hartz* reforms, the historical development of job search requirements in the unemployment insurance system and provide theoretical arguments for the reforms' effects. We review the current literature on the effects these reforms had on unemployment, describe the data-set used in the analysis, our difference-in-difference estimation approach, and finally present and discuss the results.

2.2 The German Hartz reforms

The Hartz reforms were a set of labour market reforms, that were introduced in four stages from 2003 to 2005 to counter perceived rigidities in the German labour market. The first Act for Modern Services on the Labour Market, better known as *Hartz I* reform came into effect on January 1st 2003. §121 Abs. 4 SGB III (after 2012: §140 Abs. 4 SGB III) states that unemployed persons can be expected to move beyond the acceptable commuting distance in order to take up a new job, if re-employment inside the acceptable commuting distance is not to be expected within the first three months of unemployment. From the fourth month onward, relocation is acceptable, if there are no objecting circumstances. Family ties are explicitly mentioned to constitute such an objection. From the wording of the law it is not clear how the job referral officer is interpreting this. Possible interpretations could range from exempting everyone with a partner to exempting only single mothers. The FEA internal rules of procedure (GA §140 SGB III 04/2012) unfortunately also do not clarify this point. We will use this family based exception to generate our treatment and control groups. Since a precise operationalisation cannot be established⁶, we will test a range of plausible treatment groups. The *Hartz I* reform also expanded the role of temporary employment agencies and liberalised temporary work.

Parallel to *Hartz I*, *Hartz II* came into effect, and introduced new types of employment, the so called mini-jobs and midi-jobs. These jobs are characterised by lower tax and social security contributions and are limited to a low absolute level of earnings or a short employment duration. Additionally, the reform introduced an entrepreneurial grant for unemployed, the so called "Ich-AGs" (*Me-Inc*).

For our analysis it is important to investigate whether these contemporaneous reform elements could interfere with the proposed effect of the changes in the demand for regional mobility, made by the *Hartz I* reform. In general, this could

6 There are authors who assume that being married is in fact the only criterion for family ties used in implementing the reform (e.g. Knuth 2002: 120). Whether care for children (Toparkus 1999), non-marital partnerships (Oschmiansky 2004: 34) or same-sex partnerships (Urmersbach 2004) also constitute protection from this mobility requirement is not clear and may depend on the presence of other factors. The existence of cumulative protective effects of simultaneous non-protecting reasons is also unclear (Toparkus 1999: 46).

very well be the case. Setting up a small business with the help of the new grants could be an exit strategy for unemployed. However, we are exploiting the difference between the group of unemployed with family ties and without such ties. These two groups should not be affected differently by the changes made to temporary work, mini-jobs or midi-jobs or entrepreneurial grants. In 2004 the *Hartz III* reform came into effect, but was mainly concerned with the internal restructuring of job centres and the FEA.

The more extensive *Hartz IV* reform came into effect on January 1st 2005. It included new criteria for what could constitute a reasonable job offer for persons with unemployment spells of more than a year, the so called long-term unemployed persons (§10 SGB II). In the course of this reform, the previously separated social assistance scheme and the assistance for the long term unemployed were combined to form a new means-tested basic income support, called *Unemployment Benefits II (UB II)*. This new type of benefit is significantly lower than the previous unemployment benefits and the social assistance and detached from the individual level of previous earnings. Instead it is designed to guarantee a minimum level of economic subsistence and social participation according to the means and needs of the recipients household.

This last reform stage has redefined unemployment fundamentally in Germany. First, it generated a whole new group of benefit recipients, some of them long-term unemployed or unemployed without (sufficient) claims to unemployment benefits, thereafter called *Unemployment Benefits I (UB I)*. Since the UB II are designed as a basic income support, also employed persons can receive them, if they are earning below a defined subsistence-threshold. Second, the reform shortened the maximum length that unemployment assistance can be claimed by UB I recipients.

For our analysis this makes evaluating of the effects of the *Hartz IV* reform difficult, because it encompassed all unemployed persons and thus leaves us without a good comparison group (Michaelis and Spermann 2004). It is also not only limited to the unemployed but can also affect employed persons, either directly if they receive *UB II* to top up their low incomes, or indirectly by creating a new disincentive to become unemployed. Therefore the logic of UB II is not limited to the effects of job loss alone. Since the group of UB I recipients is also directly affected by shortened maximum receipt durations and indirectly by impending economic and social relegation under the new UB II regime, we will limit our analysis of the *Hartz I*-effects to the time before the introduction of *Hartz IV*.

2.3 Mobility requirements in the run-up to the *Hartz* reforms

Before the *Hartz* reforms, regional mobility did not play a prominent role in the job referral process. On a macro level, high levels of unemployment were paired with great regional disparities on the German labour market (e.g. Ragnitz 2015: 4). The following overview of the development of mobility requirements is based on presentations from Sell (1998: 535ff.), Oschmiansky (2003), and Müller and Oschmiansky (2005). Initially in 1969, unemployed individuals were required to accept job offers that were in line with common labour market conditions. In case of non-compliance sanctions of up to four weeks without benefit-receipt could be imposed. Already in the run-up to the *Hartz* reforms successive changes were made to the job search requirements in the unemployment insurance system.

The oil crisis of 1973 led to persistent mass unemployment in Germany. In this economic climate a debate on benefit abuse in 1975 led to tightened rules of the definition of a reasonable job offer. Now occupational and regional flexibility together with wage flexibility were explicitly expected of unemployed job seekers. As a result, sanction rates increased but without an effect on unemployment durations.

In 1975, rules were tightened again with sanctions being deductible from the total benefit receipt duration and intensified scrutiny when evaluation reasonable search efforts on the side of the job centres. Regional mobility requirements were increased and flexibility with regard to qualification appropriateness spelled out explicitly. Low levels of labour demand in the 1980s reduced the number of jobs on offer thus lowering sanction rates.

This changed for a short period of time after German reunification in 1991 with a record number of vacancies, that could be offered to unemployed job seekers. After that the economic development slowed down again, lowering the number of vacancies and thus the number of sanctions. Despite this, there was an increasingly hostile climate towards the unemployed (known as the "*Leisure park Germany*" debate Oschmiansky 2003: 7), so sanction limits were expanded to 12 weeks in 1993.

In 1997, any job offer was declared reasonable if no general or personal reasons would prohibit taking it. Protection of qualification levels was dropped and replaced by cutbacks of reasonable wages in relation to search duration. In the wake of these changes sanction rates increased again. Taken together, the main aim of the reforms was to "discipline" benefit recipients (Sell 1998: 539), by stressing their responsibility to undertake serious search efforts, by increasing the duration of sanctions that could be issued in case of lacking co-operation, and by broadening what constitutes a reasonable job offer.

These institutional changes are in line with the greater societal trends like the retrenchment of the welfare state and the strengthened individual self-responsibility that were at the heart of the "Agenda 2010" reform series ("*assist and demand*") of which the *Hartz* reforms were a part of. From this short historical summary it becomes clear, that changes brought about in 2003 by *Hartz I* reform follow in this tradition and are not fundamentally new. Further increasing the unemployed's willingness to concede to job offers was seen as vital for reducing unemployment, particularly by increasing job seekers' willingness to accept job offers in other regions. This was emphasised by the wording of the law, where being available for nationwide referral to reasonable jobs is identified as a key prerequisite of receiving UB⁷. Family ties are explicitly mentioned as an exemption from the mobility requirement⁸. Another major change was the reversal of the burden of proof that a job offer was unacceptable, which now lay with the unemployed. Thus, declining interregional job offers without an important reason should have been made considerably harder by the *Hartz I* reform.

2.4 Regional job search theory and the *Hartz* reform

From a theoretical standpoint, this reform mechanism increases mobility of the unemployed, not primarily by making moving more attractive, but by making staying unemployed at the place of residence more costly. This mechanism rests on the assumption of rational actors, who compare costs and benefits of different options for action. In case of the *Hartz-I* reform, the unemployed are faced with the principal decision of declining a job offer that involves mobility, thereby risking their benefit receipt. Job search theory (Mortensen 1986; Devine and Kiefer 1991; Mortensen and Pissarides 1999) proposes a range of arguments that can be usefully applied here. In a sequential job search model, unemployed individuals compare the offer at hand with their expectations about the distribution of quality job offers in the labour market and weigh this with their expectations of an arrival rate of job offers. *Quality* here is not limited to high salaries, but can also include nonmonetary job offer characteristics and a job offer is valued subjectively as the combination of all its characteristics. From this, we can deduce basic mechanisms, e.g., an unattractive offer at hand is valued higher if offers are scarce. And if offers are expected to arrive quicker, then the unemployed individual can be more selective and take more time before settling on a particular offer at hand.

7 §138(1)3 SGB III.

8 §121 Abs. 4 SGB III (after 2012: §140 Abs. 4 SGB III).

In case of a local and an interregional labour market, there are two sources from which offers can arrive. These sources may have different characteristics regarding job quality and arrival rates. Thus, each offer at hand can be compared in the context of the local labour market and the interregional labour market. Drawing from two sources of job offer distributions (local and interregional) should increase offer arrival rates and thus lead to faster re-employment and/or jobs with higher quality. Interregional offers involve some form of mobility, be it commuting or relocation and are thus costlier options to realise than taking up a job locally. Interregional job offers must therefore have a higher quality (be it monetary and/or non-monetary) in order to be favoured over local offers.

Unemployed individuals have their benefit income, which they can receive for a limited duration of time. Depending on their needs and their replacement rate, this can increase the pressure to take up even jobs of low quality to avoid deprivation when benefits run out. On the other hand, it is often argued that high replacement rates and prolonged benefit receipt periods decrease the unemployed willingness to concede to take up available job offers (e.g. Mortensen 1976). From a human capital perspective, this is risky, because with prolonged joblessness human-capital specific to the job, firm, industry, or working life in general is lost, thus successively decreasing the job offer arrival rate. While this may be true, the argument could be made, that stable matches need time in order for a high quality offer to arrive. Evidence for the existence and economic feasibility of this effect seems to be mixed tough (e.g. Gangl 2004b; Tatsiramos 2009; Tatsiramos and van Ours 2014; or Caliendo et al. 2013).

The *Hartz I reform* was intended to change the decision making of unemployed job seekers in favour of quicker re-employment. Primarily, the requirement to accept interregional job offers after four months of UB-receipt was intended to increase the mobility of unemployed individuals. The limitation to unemployed without family ties, can be seen as recognition of results from mobility research, where children or (employed) partners constitute high costs for mobility (e.g. Mincer 1978 or Rossi and Alves 1980). Thus interregional job offers would have to be of disproportionally better quality than local offers to make moving a reasonable course of action. The unemployed who are unbound by family ties have lower mobility costs and can thus be expected more to take-up jobs in other regions. For them the potential loss of benefits should increase the opportunity costs of declining interregional job offers and therefore making these offers comparatively more attractive. The option of staying unemployed and continue searching for a better offer has become even more risky. Besides human capital depreciation, the unemployed job seeker has to prove that she cannot move for the given job or risk loosing her benefit claim, if she wants to continue the job search.

A secondary result of this regime change could be, that the requirement for mobility is making unemployed individuals more willing to concede in the local labour market to avoid costly relocations. If an unemployed job seeker has received two offers, one local and one interregional, in the pre *Hartz I* era she could have evaluated both and accept one of them or kept on searching. Now she has to justify why she cannot move if she wants to decline the interregional job offer, which should make accepting the local job offer more attractive. Therefore, we would not necessarily expect to see more mobility of unemployed after the *Hartz I* reform. It could very well be that the majority of affected individuals take up local jobs or some other form of evasive action. In the run-up of the *Hartz-I* reform there was often the conjecture that there was a unknown number of benefitrecipients that was in fact not available for job referral (Möller 2010: 324). These persons could opt for ending their benefit-receipt rather than being forced to take up jobs in another region. In any case this regime change should have diminished the value of the option staying unemployed and continuous search for the affected unemployed.

To summarize, search theoretical arguments expect higher transition rates from unemployed caused by increased costs of staying unemployed or being uncooperative in the job search process. These outflows from unemployment can be into employment or some other state (e.g. joblessness without benefit receipt, retirement, or inactive). Outflows into employment can also be into local or regional labour markets. Whether the *Hartz I* reform, which targets specifically unemployed persons without family ties, entails increased mobility rates will therefore be dependent on the structure of the unemployed population and the relative attractiveness of the particular options.

2.5 Literature review

The three main aims of the *Hartz* reform agenda were increasing labour supply, labour demand, and enhancing the matching process (e.g. Bräuninger et al. 2013: 554 or Akyol et al. 2013). In our context, particularly the first direction of impact seems most relevant and will be the focus of our literature review. We present evidence from studies on the willingness to make concessions and on the effects of previous changes to reasonableness rules before the *Hartz* reforms. A number of studies analyse the macro-effects of the reform packages, of which we provide a brief overview. Scientific evaluation was an integral part of the reform agenda. We discuss results from these in-depth studies in more detail.

Brixy and Christensen (2002) analyse the willingness to concede of unemployed individuals in Germany in 2000. The authors report that relocating for a job was the disadvantage least accepted by unemployed individuals. 62 % of

Western German unemployed reject this as unacceptable. In Eastern Germany this amounts to 66 % rejection, reflecting years of outmigration to Western Germany in the wake of German reunification, which left largely immobile persons in Eastern German states. Longer commuting distances are less controversial, they are outright acceptable to 42 % of unemployed individuals. The study confirms results that mobility poses less of an obstacle to younger, unemployed individuals without partners or children. According to the authors, the reported concession patterns are stable over time, because a 1977 IAB survey arrived at very similar results. Pollmann-Schult (2005) analyses the effects of changes in the rules of reasonable job offers that were introduced in 1997. Here, the reform lowered the qualification protection to speed up take-up rates of unemployed job seekers. Using GSOEP-data from 1994 to 2000, the author reports no significant effects on unemployment duration and on educational mismatch. Pollmann-Schult mentions lax implementation of the reform, general low level of referral efficiency of the FEA, and an unfavourable economic environment as potential explanations.

In the last years, the tenth anniversary of the *Hartz IV* law has triggered a string of research on the effects of the whole *Hartz* reform package (for an overview see e.g. Akyol et al. 2013). Most of the contributions focus on the more prominent *Hartz IV* law. While the *Hartz IV* law is out of scope of our analysis, the reported reform effects might include hints on effects of the earlier *Hartz I* laws, thus we include this string of research in our review of the literature. Part of the reforms was a scientific evaluation programme to assert the effectiveness of the introduced measures from which insights for the *Hartz I* reform in particular can be found. While there is a growing body of research on the reforms' labour market impact, there are only a few studies which explicitly consider mobility. Arntz (2007) find only weak distributional effects and small and heterogeneous influences on labour supply. Households at the lower end of the income distribution are better off after the reform and thus less inclined to take-up work. Higher income households might suffer from the changes brought on by *Hartz IV* and thus be more inclined to work. Launov and Wälde 2010 compare the state right before the introduction of *Hartz IV* in 2004 with the year 2005, where they find only small short term effects on welfare. Krause and Uhlig (2012) and Krebs and Scheffel (2013) report a decrease in the equilibrium unemployment rate as a consequence of the reforms, particularly for the long-term unemployment (ibid.: 27). Hertweck and Sigrist (2013), who use data from the German Socioeconomic Panel (GSOEP), report efficiency gains in the matching of jobs and job seekers of about 20 %. Fahr and Sunde (2009) analyse the macro-economic effects of the first three reform packages. They report an increase in matching efficiency of about 5 to 10 percentage points (pp). Klinger and Rothe (2012: 105) confirm these results and report an increase in long-term

unemployed re-entry chances after the first two reforms (ibid.: 108). They ascribe this to increased pressure on unemployed job seekers (ibid.: 111).

From the very beginning, scientific evaluation was a core part of the reform package. The monitoring tasks were broken down and tendered to different research teams⁹. Evaluating the implementation of the changes with regard to the reasonableness of interregional job offers fell to a consortium of the Berlin Social Science Centre (WZB) and the infas Institute for Applied Social Sciences (Mosley 2006). Originally, a difference-in-difference estimation, similar to our approach, was devised by one of two research groups tasked with the design of the whole reform evaluation process (Fertig et al. 2004: 140f.) but was never applied in the course of the official evaluation. Instead, Mosley (2006) conduct interviews with management personnel of job centres to assess the implementation of the new rules on reasonableness with regard to regional job offers. The authors report that initially this is seen by the job centres as a rather marginal change. In later surveys, particularly the management personnel of job centres with unfavourable local labour markets recognize the potential of interregional job-referral (ibid.: 75ff.). They acknowledge that this particular part of the reform only targets the group of unemployed persons without family ties. Nonetheless, this influenced the general job referral procedure, because now checks of the willingness to relocate for a job offer are part of each interview. For 2005 they report that interregional job offers made up 35 percent of all offers made by the job centres. Job centre personnel rate the mobility willingness of unemployed in general already as high. Educated and young job seekers are especially prone to migrate, although there seem to exist considerable regional differences. Eastern German job centres report that they have already reached a limit to mobility, due to a persistent outmigration to Western German regions. For Western German job centres with favourable local labour markets, mobility poses no promising strategy for a quick referral. Reported reluctance of employers to consider applicants from other regions may also dampen the effectiveness of the reform measures. Taken together Mosley (ibid.) expect negligible effects from this part of the reform.

Sondermann et al. (2007) conducted qualitative interviews with 67 job referral officers and 58 unemployed persons in the summer of 2005 in order to analyse their perspectives on the job referral process. Although regional mobility was not explicitly the aim of the study, it proofed central to the narrations of both groups. This indicates that the changes introduced by the *Hartz I* laws in 2003 were still prevalent in 2005. The authors report that referral officers infer information on an unemployed persons' general level of motivation from their

9 For an overview see Baethge-Kinsky et al. (2010).

willingness or ability to relocate for a job offer, classifying them either as “good” or “bad” clients. These officers act according to the law, stressing the demand for mobility if local labour market outlooks are bleak and consider family ties an excuse to refrain from engaging in mobility. However, some referral officers interpret protective states more liberal than legally required. First, they take financial mobility costs into consideration, accepting immobility more if offered jobs pay considerably less in comparison to the needs structure of the job seeker (e.g. family with children). Second, they use ascriptions based on old age, regional origin, or socialisation to accept immobility of some groups and to push other groups harder (e.g. immobile young job seekers). Despite this, the authors report a reluctance to sanction immobile job seekers. Instead, they describe a pedagogical approach on the side of the job referral officers, that reasons with the unemployed and intensifies the pressure to move only gradually over time. On the side of the unemployed, the authors note that most of the interviewed unemployed seem to accept the legitimacy of mobility demands placed on them as the lesser of two evils. For some unemployed, their deep regional roots or previous negative mobility experiences are hardly reconcilable with the mobility demands of the job referral process. Especially male unemployed with families are reported to display higher willingness to seek jobs in other regions on their own, reflecting their roles as “bread winners” for their households.

From the results of Sondermann et al. (2007) we can infer three implications for our analysis. First, we expect to find mobility according to the *Hartz I* law, because the unemployed seem to have embraced the mobility requirement, and job referral officers implement the law. Second, deviation from the text of the law in the strictness of the implementation in combination with a reluctance to sanction should lead to lower mobility rates, especially of older persons with pronounced regional identity, and higher rates of young job seekers. Third, male unemployed job seekers with family ties are protected by the law but can display higher mobility rates because of internal normative pressure. This counters our estimation strategy because it narrows the differences between protected and unprotected unemployed males. Thus, we would expect to find clearer results for unemployed females, where the protective effect of children is not as often entangled with the role of bread-winner (e.g. as a single parent) as it is for unemployed males.

Similar to our approach, Hofmann (2015) analyses the effect of the *Hartz I* reform on the unemployed's exit rates to work. While we are interested in the differential mobility effects of the reform, Hofmann focuses more on the ex-ante effects of the immobility sanctions on re-employment. She uses a 2 % sample of the IAB Integrated Employment Biographies (IEB) data and restricts her analysis on Western Germany from May 2001 to December 2003. Using survival analysis,

she reports a year to year change in employment of 4.6 % for women without children as a result of the reform. Re-employment is not a result of higher regional mobility of this group, but of local job take up. For men she finds no effects. For us this underlines the necessity to distinguish gender effects and to model a range of possible outcomes besides mobility.

2.6 Data set

We use a 20 percentage stratified sample, with German federal states as stratum drawn from the IEB administrative data set of the FEA¹⁰ (Seysen 2015). This source includes data from different official sources about each non-self-employed person in Germany, that is either working in a socialsecurity contributing job or is registered unemployed. The sources include reports from employers, job centres, or social security institutions. The data set consists of spells, each of which constitute a different time episode in the biography of a person. Each spell has a begin and an end date, a set of variables characterising the current labour market status or the reason the report was filed, as well as individual specific characteristics like gender, age, or family status. The data set is characterised by multiple spells per person, often overlapping or parallel and simultaneous information from a mixture of sources.

This data has three main advantages. First, it is an administrative data set, that does not rely on active participation or consent of the person under study. The data are collected by institutions that have an official mandate to do so. For our analysis this means there is no bias from selective participation, since every person has had the same probability of ending up in the data set. Therefore, we can infer results easily from our sample data on to the German labour market as a whole. Second, the data is easily scalable by drawing larger samples from the population or by oversampling individuals groups. This is particularly useful for analysing rare behaviour like job-related mobility and analyse specific sub-populations like the unemployed. Third, the time period covered by the IEB data is sufficiently large to cover ample information on labour market behaviour before and after the *Hartz I* reform. This leaves us with the years 2000 to 2002 and 2003 to 2004 as our respective pre and post reform periods of analysis. The spell data is daily data, so aggregation can be done on a very fine grained level up to months, quarters, or years. This can help to distinguish short-term from long-term reform effects. Two disadvantages come with using IEB data for our analysis. First, the administrative nature of the data limits the number of available covariates for each person to the information necessary for the individual

10 IAB Integrated employment biographies (IEB) V11.01.00, Nuremberg 2014.

administrative processes, due to principals of data protection and data sparsity. This implies that the central variables for establishing family ties are only surveyed from episodes of unemployment of respondents. Second, since the data were not surveyed by researchers or a field institute this is often noisy data. This data were not collected with research in mind and inputs often stem from referral officers at the job centres. Nonetheless, the data are ex post cleaned, prepared and checked by special data departments at the FEA and the IAB¹¹. Despite these efforts, data quality on soft items like the family information is evaluated to be substandard (Kainer 2015: p.51). This is mainly due to missing information about if and how often these items are updated in the job referral process. When applying for unemployment benefits, a job seeker is required to answer questions about her family situation including marital status and number of children. The number of children influences the level of benefits¹², so there should be no incentive to under-report children. Over-reporting is prevented by the fact that for each child its child benefit identification number has to be provided. Marriage does not provide a benefit premium per se, but lower taxation levels only available to married couples can lower the deductions when determining the income for the benefit calculation. Because information on marital status and children is used in the administrative process, initial data quality should be high. How well managed this information is once it has entered the file of an benefit recipient is unclear so far.

For the purpose of our analysis this should not pose a significant problem. We will focus on the reemployment chances of unemployment benefit recipients. Technically, this is the end of a UB spell and the timely begin of a employment spell. Employers do not collect family information of their employees, so this information is missing in employment spells. Because of the close succession of the two spells, we are confident that the information recorded during the unemployment episode is also informative for the following employment phase. There is no reason to believe in systematic effects. In the worst case, we will slightly underestimate the effects of the *Hartz I* reform, because treatment and control groups each contain a few cases from the other group.

Changes over time are however possible and especially long phases of unemployment are reported to entail changes in family structure, e.g. increased risk for divorce or motherhood (see Ström 2003 for a review of the literature). Average durations of UB receipt at the time of the first reform packages were less than 22 weeks (Bundesanstalt für Arbeit 2003: 83) and should thus not constitute long-term unemployment. We will therefore control for unemployment spell duration.

11 The author wants to thank Wolfgang Mössinger and Sven Uthman for their help in procuring the sample.

12 67 % replacement rate for recipients with children compared to 60 % replacement rate for couples without children (§151, §154 SGB III until March 31st 2012: §131 and §134 SGB III respectively).

Studies applying similar designs (Fertig et al. 2004; Hofmann 2015) compare inflow-samples of unemployed persons drawn before and after the reform. This is done in order to avoid biased inference from compositional effects of pre and post reform unemployed groups. We will use stocks of unemployed at each time unit instead because in our view this better reflects the population at risk because it also includes unemployed with longer benefit receipt. We control for compositional effects in our descriptive and multivariate analysis using the available socio-demographic covariates. Considering the advantages and disadvantages, we strongly believe that the IEB data provides a reliable and meaningful source to test the reform effects under study here.

The 20 percentage stratified sample, with German federal states as stratum, was drawn to account for the relative sparsity of mobility events, especially for unemployed persons. The sampling criterion was that each person had to have had at least one spell of UB receipt in the time period from January, 1st 2000 to December, 31th 2004. This excludes many persons that have never been unemployed in their employment biography, because these persons will not be affected by the *Hartz I* reform under study and thus will not aid our estimations.

The daily spell data were aggregated to quarterly panel data in order to provide a data set that balances temporal variation with a low level of aggregation that allows a clear-cut presentation. First, from the variety of labour market states associated with each spell, we generated three distinct main labour market states. We defined the status *employed* as being employed in any job regardless of it being subject to social security contributions. The status *unemployed* contains registered unemployed, who are receiving unemployment benefits. The residual category *other* contains all other labour market states a spell can indicate. Here the most frequent states are job seekers, who are not registered unemployed and recipients of unemployment assistance, a scheme for long-term unemployed individuals, that was not subject to the changes made in the *Hartz I* reform. This restrictive division was chosen to analyse groups of employed and unemployed that can be interpreted clearly.

We deal with parallel or overlapping spells by ranking spells according to this simplified labour market status. We rank employment spells over spells of unemployment over spells with another state¹³ to ensure we do not miss transitions to employment. Thus, for the overlapping period only the dominant spell is kept. In order to generate a simpler spell structure, we merge consecutive spells with the same labour market status. To avoid losing mobility events that are part of a consecutive or parallel spell of equal order, we use the different places of residence or work in

13 We use Hannes Kröger's *newspell* command (Kröger 2015).

deciding which spell to keep. If there are two parallel spells of employment, then only spells with the same place of residence and work are merged. We close gaps between spells taking information from neighbouring spells and using our ranking rule. To avoid micro-spells interrupting longer spells, we drop *employment* spells and *others* spells with a duration of two months or shorter, because it seems improbable that such short employment phases can be counted as a reform effects. On the other hand, we keep short *unemployment* spells, because these seem to be realistic for certain groups of unemployed and we want to avoid overlooking transitions to employment. This results in a complete time sequence of spells with clear main labour market states.

Not all spell sources provide information on all variables, therefore the resulting spell data set contains missing values in a number of central variables¹⁴. These missings are the result of the different data sources the spells stem from. The administrative nature of the data means that each administrative unit only collects the information necessary for fulfilling their entrusted tasks. Thus, the vast majority of missings are functions of the spell source and not related to individual characteristics or data quality. We deal with these gaps by imputing under plausible assumptions. If the values of a variable are identical in spells immediately before and after the missing value, than the gaps are also filled with these values. The affected variables are all relatively stable and do not change frequently, which should make this as a viable approach.

Central to our analysis is the identification of relevant mobility events and job take up. We define mobility as a change of place of residence between consecutive spells. Since our data source is the by-product of administrative processes in firms and job centres, there is no ex-post feedback mechanism involved to ensure higher data quality. This fact is eminent when analysing mobility. Place of residence is usually reported at the beginning of a work contract or job referral process and chances are that this information is simply continued in future reports without being checked anew. This could have two consequences: First, continuation of records could lead to an under-reporting of actual relocations. Second, different data sources could differ in their place of residence information. Depending on the time order of the differing spells, this could mean that relocations appear later in the data than they actually happened or that pseudo-relocations occur, where a person moves from region A to region B and back to region A in consecutive spells. For our analyses, the second issue could be particularly detrimental, because it would overestimate mobility. To counter this, we delete all relocations where time

14 The treated variables included: gender, labour market status, age, marital status, children, country of origin, place of residence, place of work.

spent at location B was shorter than half a year (183 days). This threshold was chosen arbitrarily to keep information on short-term (or unfortunate) relocations while dropping unrealistically short spells at location B. This procedure led to 407,797 moves being dropped (30 % of all community level moves) and should ensure that the remaining relocations are true mobility events.

We define job take-up as a change from unemployment to employment between consecutive spells. This data should be of high quality since this information is central to the underlying administrative processes.

We combine information both on relocation and job-take-up to generate our dependent variable. Its first category signifies that a person is *unemployed in the preceding spell and is unemployed in the current spell*. Post-reform outflows from this category indicate activation by the reform, which makes it an ideal base outcome to which all other outcomes are compared. *Job-related relocation* constitutes a second outcome, meaning a change from unemployment to employment has occurred in combination with a change in place of residence. This represents the primary mobility effect of the *Hartz I* reform. Relocation entails high costs, that not every job seeker is willing to endure. *Commuting* could constitute an alternative form of mobility that aids in exiting unemployment. We define this as taking up a job from unemployment without a change in place of residence and with a place of work that differs from the place of residence. The literal intention of the described reform is to foster willingness to engage in mobile job search. However, affected job seekers could try to avoid mobility altogether by re-evaluation their position in the local labour market and taking up a job there. We generate this outcome from *job take-up at the place of residence*. Finally, a further evasive strategy could be to *change to a non-employment labour market state*, e.g. taking up further education or a training measure, retiring, applying for unemployment assistance, or remaining unemployed without claiming UB. This change from unemployment to a third state is covered by an additional category. Together this allows us to simultaneously analyse five potential responses unemployed job seekers have had to the *Hartz I* regime change.

Regarding the level of regional aggregation, we have to strike a balance that allows us to observe as much mobility events as possible while at the same time excluding local mobility that should not be affected by the reform. Our data allow analyses as low as on the level of communities. This would give us all mobility events but among these only a minority could be classified as regional mobility through which regional labour market disparities could be exploited. Higher levels of analysis, e.g. on the level of German federal states are clearly interregional, but drop the majority of mobility events as internal moves. We choose a middle

course and provide analysis on the *county* level¹⁵. Germany consists of 402 counties, which makes this an intermediate level of analysis, which disregards intra-county relocations, but between county moves can be seen as regional moves¹⁶. One drawback of county-level regional units is that their boundaries are chosen on administrative grounds and might not be good representations of the regional labour market structures. *Labour market regions (LMR)* could pose an alternative concept, because they are defined by actual commuting behaviour and should thus better represent core labour market centres and their spheres of influence (Kropp and Schwengler 2016). Relocations across LMR are certainly interregional¹⁷ but represent only long-distance relocations and commutes. For that reason, we decide against using LMR because this would mean losing the majority of job-related mobility events which occur inside LMR.

Regarding the time dimension, we aggregate the daily spell data to quarterly panel data. Quarterly data allows for the analysis of fine changes in the labour market behaviour, especially short term effects in and around the regime change. We reshape the data set using quarters as time intervals and applying our already described ranking rules to deal with multiple spells per quarter. To ensure that we do not lose relevant mobility outcomes by this aggregation, we favour *job related relocations* over *taking up commuting* over *taking up a local job* over *staying unemployed* over *changing to another state* and *employment spells* over *unemployment spells* over *other spells*. The information on family ties stems from the spell that precedes the transition from UB receipt, so that we capture the situation at the time of the decision. After the transformation to quarterly data we close gaps in the variables using the same imputation rationale as described above.

2.7 Difference-in-differences approach

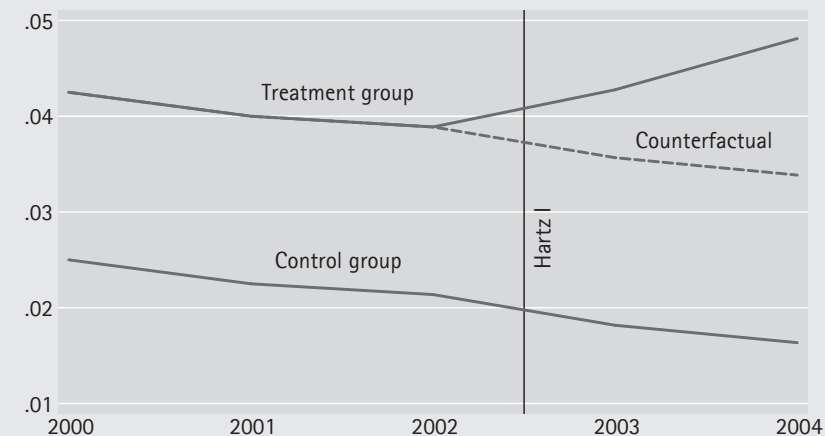
To arrive at an idea about the existence and magnitude of possible reform effects we do need to rely on the concept of counter-factual outcomes. How might the mobility of unemployed persons without family ties have differed if there had been no *Hartz I reform* in 2003? Obviously, there is no way of observing this counter-factual state. Our analysis relies therefore on a difference-in-differences (DID) approach (e.g. Cameron and Trivedi 2005: 768ff. or Angrist and Pischke 2015: 227ff.) using pooled cross sections of quarterly data.

¹⁵ All regional units were harmonized to December 31st 2011.

¹⁶ Our data-set contains 236,241 commutes between counties (distance: median 28 km, mean 80 km) and 41,964 relocations (distance: median 42 km, mean 130 km). Distances are based on community centroids.

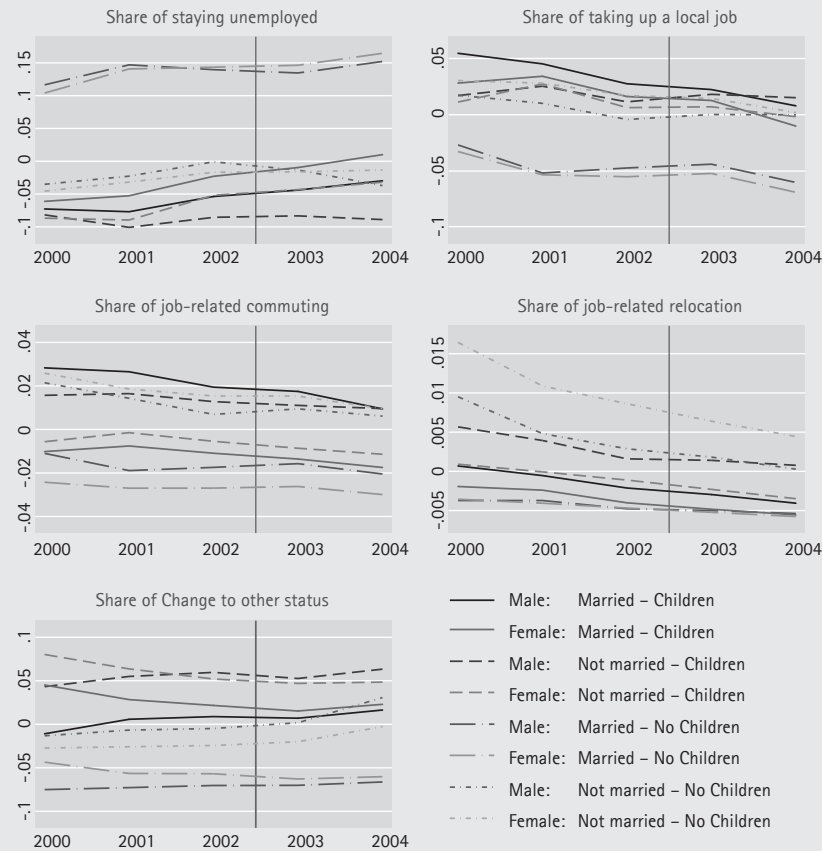
¹⁷ Our data set contains 64,019 commutes between LMR (distance: median 108 km, mean 164 km) and 27,034 relocations (distance: median 174 km, mean 210 km).

Figure 2.1 The difference-in-differences model



Similar to an experiment, this design is based on a ex-ante and ex-post measurement in treatment and control group. The groups are however not assigned randomly to the treatment, which could introduce bias. In a DID design causal effects are estimated by exploiting variation in time and between subgroups. The mean differences between the post reform changes of treatment and control group are compared thereby eliminating group effects as well as general time trends. Figure 2.1 displays the model. The causal estimator is the post-reform change in the treatment groups behavioural outcome net of the post-reform change in the control group's outcome (counterfactual). For this design to produce causal estimates, two assumptions must be fulfilled. First, the reform treatment has to be considered to be the only influence that leads to different outcomes between the groups. Other contemporaneous changes, time effects, or trends that affect only one group must be ruled out. Treatment and control group still can have divergent levels of the outcome, which are attributable to group differences. The change in outcome in the pre-treatment periods should however be parallel, i.e. influenced by the same forces in the same way. Second, the composition of treatment and control groups has to remain unchanged over time, so that ex-post differences for each group are comparable. We address both assumptions after we introduced our specific design.

Figure 2.2 Common trends assumption



Source: own calculations IEB dataset

In our analysis, we are interested in the effects of the introduction of the *Hartz I reform* in 2003 on the behaviour of UB recipients without family ties (treatment group). Since the exact operationalisation of what constitutes family ties is unclear, we use the joint presence of marriage and parenthood as the most conservative control group. From the three remaining possible combinations of these two characteristics we build our treatment groups. Thereby we gain the most insights into the effects of the regime change without making assumptions about the operationalisation. Additionally, we will split the analysis by gender since gender roles could play an important role in how the new rules were applied. We are primarily interested in assessing the mobility effects of the *Hartz I reform*. Since mobility is only one reaction an unemployed persons has to the reform, we simultaneously consider the whole range of possible behaviours as outcomes. For

each outcome we measure pre-reform rates from 2000 to 2002, and post-reform rates from 2003 to 2004. We have individual data that are aggregated for each quarter and group¹⁸.

Before we discuss results, we check whether the assumption of parallel pre-reform trends is a feasible one. To this end we plot the annual transition probabilities of each outcome for control and treatment groups for both genders in figure 2.2.

Given that we have more than two time periods, more than two comparison groups, and multiple reform outcomes, visual inspection is difficult. For each of the five outcomes one needs for each gender to separately compare each treatment group (broken lines) to the control group of unemployed who are married with children (solid lines). By and large, we would argue that the assumption is fulfilled. Besides prevalent level differences, we find that no treatment group displays stark pre-reform deviations from the profile of the control group.

2.8 Results

Before we delve into the analysis of the IEB data, we take a look at evidence from official statistical data from Federal Employment Agency (FEA) and the Federal Statistical Office (FSO) to establish the contemporary meso-level and macro-level environments. Then we present descriptive DID estimates to gain initial insights. We briefly discuss descriptions of the used control variables in the multivariate analysis and describe our multinomial regression before we finally examine results from these multivariate models.

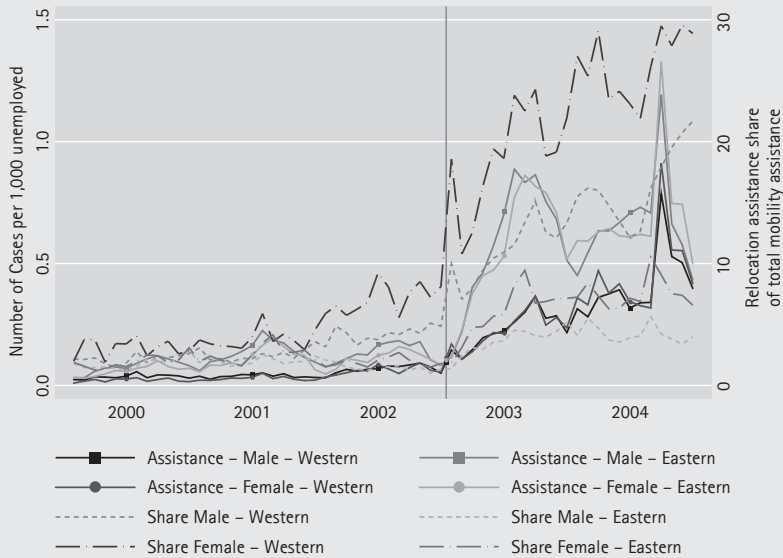
2.8.1 Meso-level and macro-level findings

Before we present the results from the IEB data set, it might be interesting to analyse some data on the take-up of mobility assistance, the related budgets, and mobility related sanctions from the statistics of the FEA. This meso-level should be informative regarding reform implementation and the scope of the sanctioning regime. Additionally we provide data on the internal mobility rates and unemployment rates from the FSO to determine the macro-level environment of the reform implementation and take a first look at possible reform effects. Finally,

18 Fixed effects (FE) panel data analysis is not a good option for this case. First, this method would only provide information for the individuals who were unemployed before the reform and display an outcome after the introduction of *Hartz I*. Behaviour that happens exclusively before or after the reforms' implementation is ignored. Especially continuous UB receipt is ignored, the reduction of which is a central indicator of reform effectiveness. Second, there exist no FE specification of multinomial decision processes. Third, we would have to assume marital and parental status to be time-invariant in a FE specification, which is clearly not the case. Limiting our analysis to persons which no change could be selective and FE estimators thus not representative for the population.

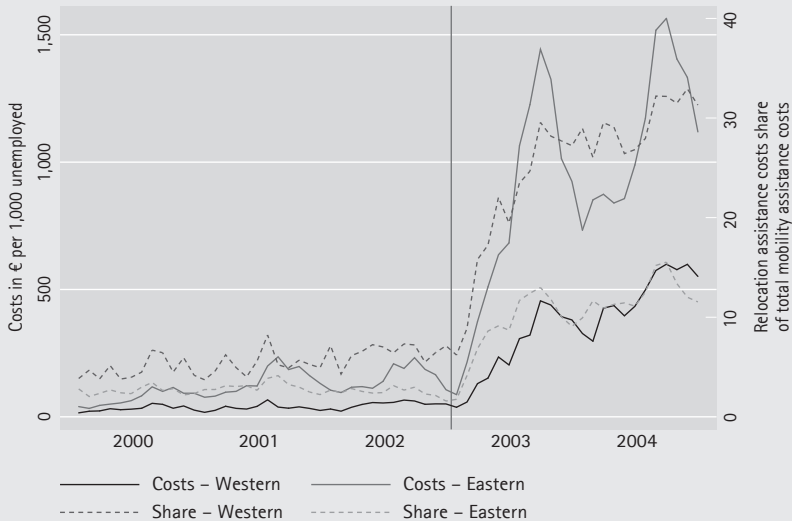
to discuss the possibility of anticipation effects, we present time series data on the media coverage of the *Hartz* reforms.

Figure 2.3 Take up of relocation assistance: by region and gender



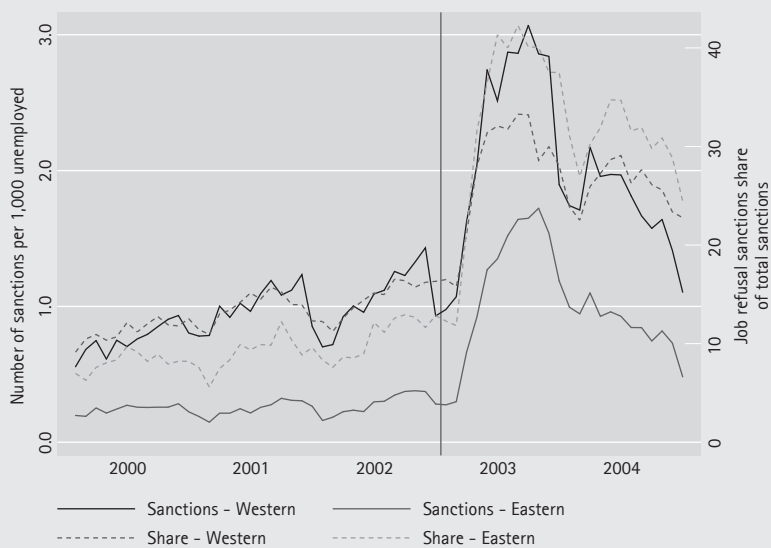
Source: own calculations using FEA statistics

Figure 2.4 Relocation assistance costs: by region



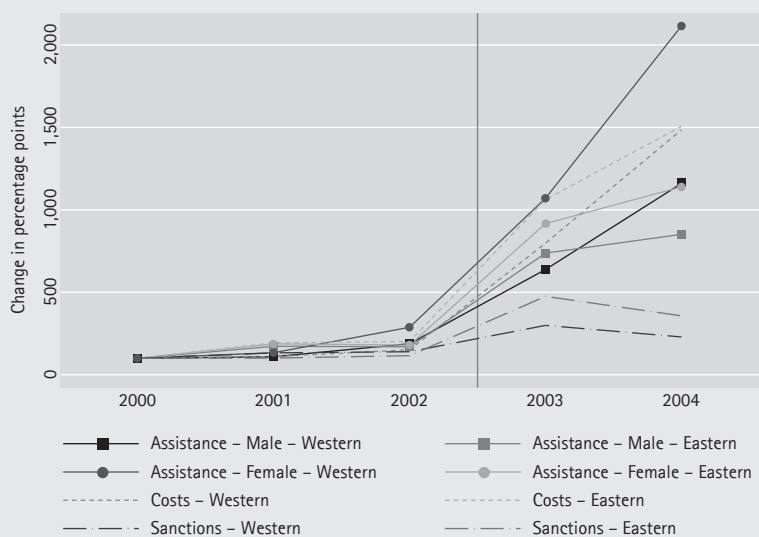
Source: own calculations using FEA statistics

Figure 2.5 Sanctions imposed because of job refusal: by region



Source: own calculations using FEA statistics

Figure 2.6 Relative changes (Base year 2000): by region and gender



Source: own calculations using FEA statistics

Data on the take up of mobility assistance stems from the statistics of the FEA and is disaggregated by gender and Western and Eastern Germany. In figure 2.3 we present the take-up of relocation assistance (the solid lines) and compare this to the overall take-up of all forms of mobility assistance (dashed lines). These measures are part of active labour market policies and aim to mitigate the costs of mobility and interregional job search. For all groups we can see, that prior to the *Hartz I* regime change take-up of relocation assistance is negligible, compared to the post reform periods. After 2002 we find a strong increase in take-up rates, with a peak in September 2004 in both Western and Eastern Germany. Eastern Germany increases the assistance much more in 2003 than Western Germany, but the lead is shrinking considerably in 2004. Gender differences are in comparison more nuanced. For Western Germany, we find little differences in the allocation of mobility assistance. Only in 2004 we see a slight over-representation of women. Gender differences are also small in Eastern Germany. In 2004 we also find some variation, with women receiving more assistance in the beginning and end of the year, while men are over-represented in the summer months. The dotted lines represent the importance of relocation assistance in the whole tool kit of mobility assistance. This time series also underlines the growing importance of these measures after the *Hartz I* reform. Relocation assistance seems to have grown in importance far more in Western Germany than in Eastern Germany, and there especially for women. Eastern Germany only shows a modest increase in the share of relocation assistance, while here also it has grown stronger for women than for men.

This rise can be also seen in figure 2.6, where the annual time series is indexed on the base year 2000. The solid line with circular markers represents the change for Western German women, who had seen the strongest increase. This is somewhat surprising, given the probable higher ascription of "protecting" family ties to women in the job referral process (e.g. Mosley 2006 or Sondermann et al. 2007). An explanation could be, that this group started from the lowest level, so the catch-up movement we see could indicate that the reform was implemented indeed.

While relocation assistance is allocated more often to unemployed in Eastern Germany, it represents a smaller part of the portfolio of mobility assistance measures. In Western Germany, absolute allocation of relocation assistance is rarer but it takes up a much more prominent role in the mobility assistance scheme. The shares indicate different sizes in the total budget available for mobility assistance, which in turn reflect the different labour market structures in Eastern and Western Germany and the subsequent need for interregional job search.

All in all allocation levels are rather small with one relocation assistance case for every 2,000 unemployed persons in 2004. This reflects the low priority of mobility in the overall job referral process of the FEA (see: Schütz and Oschmiansky

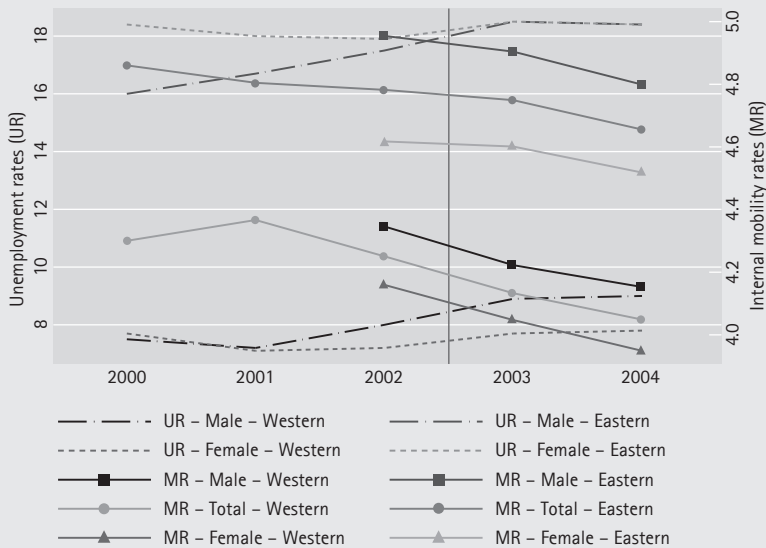
2006: 19). Although, the importance has increased considerably in the wake of the *Hartz I reform* (Sondermann et al. 2007: 175) (in 2000 there was one assistance case for every 22,500 unemployed), we should expect the low number of cases to produce only small effects in our analysis.

Figure 2.4 displays the development of expenditures for relocation assistance and can help to qualify the take-up of assistance that we have seen. Expenditure statistics are available for Eastern and Western Germany, but not disaggregateable by gender. As for the take-up we do see a strong increase coinciding with the *Hartz I reform* in both parts of Germany in 2003, which is exceeded again in 2004. Unemployed job seekers in Eastern Germany receive more relocation assistance (1,637 € on average in 2004) than their Western German counterparts (1,117 € on average in 2004). The share of costs for supporting relocations of the total mobility assistance budget show a more pronounced increase for Western Germany than for Eastern Germany. This is the result of the difference in importance of mobility support measures in Eastern and Western Germany. Because the Eastern German labour market has persisting higher levels of unemployment, outmigration to Western regions has a stronger tradition in Eastern German job referral (Brixy and Christensen 2002). This is reflected by the fact that Eastern German mobility budgets are four times the Western German budgets. This explains why the higher absolute volume of relocation assistance in Eastern Germany signifies only about 10 percent of the whole budget for mobility assistance. It seems that the *Hartz I reform* was a new and relocation-specific impulse in Western Germany, while for Eastern Germany it continued the tradition of mobility assistance. Again, figure 2.6 displays the trend relative to 2000. We see a substantial increase of relocation assistance budgets in 2003, that is rising further in Western Germany in 2004 while they are dropping slightly again in Eastern Germany.

Figure 2.5 provides information on imposed sanctions to unemployment benefit recipients for refusing a job offer. As with the budget data, disaggregation by gender is not available. We also cannot distinguish the reasons for sanctioning further, to establish a lacking willingness for regional mobility as the cause of the sanctions. The change in the regional mobility requirements and the shift the burden of proof to the benefit recipient should effect this series nonetheless. Indeed, we find a significant increase of sanctions after the reform came into effect in 2003. This is a direct result of an internal FEA decree in the third quarter of 2003, calling for stricter sanctioning (Schütz and Oschmiansky 2006: 19f.). In 2004 the sanction rates drop in both parts of the country, which could indicate a policy change away from tougher rules. Western Germany starts from a higher level, while in Eastern Germany almost no sanctions were imposed because a job was refused. Consequently, the standardised trend in figure 2.6 shows a much higher increase

in Eastern Germany than in Western Germany. The importance of sanctions due to job refusal as a share of all reasons for sanctioning for the most part displays a similar trend in both parts of the country. In 2003 roughly one in three sanctions was imposed because of job refusal in Eastern Germany compared to one in four in Western Germany. Before the reform, the Eastern German share was always below the Western German. This growing importance in Eastern Germany could hint at new impulses set by the *Hartz I* reform. The declining tendency to sanction because of a refusal to consider a job could mean two things. Either, the reform or the previous high levels of sanctioning are having more effect in 2004. Or the refusal is punished less often in 2004, despite a persisting lack of mobility willingness, probably out of a reluctance to engage in costly legal disputes following objections by sanctioned benefit recipients.

Figure 2.7 Unemployment rate and internal mobility rate: by region and gender

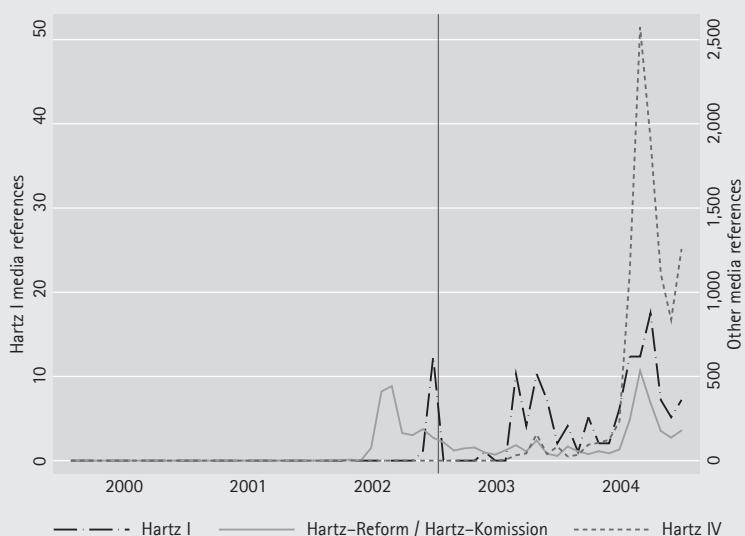


Source: own calculations using statistics of FEA and FSO

Figure 2.7 provides a first answer to possible reform effects, in the form of annual unemployment rates (dashed lines) and internal migration rates (solid lines). The most general outcome would be a reduction in unemployment, be it due to increased regional mobility a higher local concession willingness, or the drop out of non-searching benefit recipients. For the unemployment rate the strong regional differences between Eastern and Western Germany, which stem from German reunification, are still evident. There are some gender differences, with

Eastern German women (light dashed line) displaying higher unemployment rates than Eastern German men (light dash-dotted line), before the reform, and both rates converge after the reform. In Western Germany roles and trends are switched. While rates are equal up until 2001 they diverge from 2002 onwards, with Western German men (dark dash-dotted line) being more prone to unemployment. In both parts of the country unemployment rises after 2001 and continues to do so after the *Hartz I* reform was implemented in 2003. We can see that the increase levels off for all groups in 2004, which could be attributable to reform effects.

Figure 2.8 German media coverage of the *Hartz* reforms



Source: own calculations using Lexis-Nexis database, search conducted August 11th 2014

A more direct outcome from the regime change would be an increase in regional mobility. Depicted is the share of persons migrating into another German community as a total of the population at the beginning of the year. Separate time series for men and women are available only from 2002 onwards. Because of the low regional level, this indicator measures all mobility events, which includes short-distance moves and relocation because of non-labour-market-related reasons. Possible reform induced mobility is included in this rate and the broad definition of mobility ensures that we do not miss mobility events (e.g. by household members relocating with the unemployed person). As we would expect mobility rates are higher in Eastern Germany, reflecting the adverse local labour market conditions. In both parts of the country men (lines with rectangular markers) display higher mobility than women (lines with circular markers), which could reflect

gender differences in labour market positions and the division of household roles. For the period under study there is a general trend of falling internal mobility rates¹⁹. Possible reform effects are therefore hard to make out at this level of aggregation. The only indication for that could be a decline in the decrease of mobility rates. For Eastern Germany rates seem to level off until 2003 (-.03 pp). In 2004 we see a stronger decrease again (-.09 pp). In Western Germany the fall in mobility accelerates until 2003 (-.11 pp). In 2004 we find a slight recovery (-.08 pp). These changes, albeit being rather small, could reflect the levelling off in relocation assistance in Eastern Germany in 2004, while it kept rising in Western Germany. Given the scope of regional mobility in the FEAs job referral process, these small effects seem plausible.

When analysing reform effects the possibility of anticipating regime changes and adapting behaviour before the reform takes effect could bias our estimates. Therefore, it seems sensible to capture the actors awareness of the imminent reform. Figure 2.8 summarizes the coverage of the *Hartz* reform in the German media. Based on a journalistic data base, we plotted the number of monthly search results for the terms "*Hartz-Reform*", "*Hartz I*", and "*Hartz IV*" for comparison²⁰. The search results for the *Hartz I* reform (dark dash-dotted line) are scaled on the left-hand side axis, because, this specific reform was discussed substantially less often than the other two terms. Before the reform came into effect discussion of this specific topic started in December of 2002, when the law was passed and flared up again in the fall of 2003 and again in the summer of 2004. The results for most months are in the single digits, which makes widespread information about the reform and its potential effects unlikely. Since *Hartz I* was the first law of the reform package which came into effect, the term for the work of the *Hartz*-commission or the general reform name might be additionally informative (solid light line). Discussion of the reform commission intensified in the summer of 2002, before the reforms were implemented into law. After this, media coverage on the topic dropped fast, only flaring up again in the summer of 2004 in the preparation of the larger *Hartz IV* reform. By the time *Hartz IV* was about to be implemented, it was clear that this was a major intervention into the labour market and the media were covering the reform accordingly (dotted line). In August of 2004 coverage peaked at about 2,600 monthly articles, which would be evidence for anticipation effects of the *Hartz IV* reform. Compared to this magnitude, anticipation through widespread media coverage of the *Hartz I* reform is unlikely.

19 This macro trend of falling internal mobility rates can be partly explained by the rise in commuting (Pfaff 2012).

20 The search was conducted using only German language news sources and excluding duplicates. We made sure that all different spellings were included and results came from the reform context. The exact search terms were: "*Hartz PRE/1 (Reform OR Kommission) AND NOT (VW oder Volkswagen)*", "*Hartz PRE/1 (I OR 1) AND NOT (VW OR Volkswagen)*", and "*Hartz PRE/1 (IV OR 4) AND NOT (VW OR Volkswagen)*"

Table 2.1 Descriptive difference-in-differences

Differences to married with children	outcome	overall	gender		unemployment		unemployment and gender		
			male	female	below median	above median	below male	median male	median female
Difference – Only children	No change of status	-1.6	-2.9	-0.8	-0.1	-2.1	-2.1	1.1	-3.4
	local job take-up	1.8	2.6	1.1	0.9	1.9	2.2	-0.1	2.6
	job-related commuting	0.3	0.6	0.0	-0.3	0.4	0.3	-0.6	0.8
	job-related relocation	0.0	0.1	0.0	-0.1	0.0	0.0	0.0	0.1
	Change to other status	-0.5	-0.4	-0.3	-0.4	-0.2	-0.3	-0.3	0.0
Difference – Only married	No change of status	-4.1	-4.4	-4.0	-4.5	-3.7	-5.4	-3.8	-3.8
	local job take-up	2.5	2.9	2.2	3.6	2.0	4.4	2.8	2.2
	job-related commuting	0.8	1.1	0.6	1.0	0.7	1.3	0.7	1.1
	job-related relocation	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2
	Change to other status	0.5	0.2	1.1	-0.3	0.8	-0.6	0.1	0.4
Difference – Not married no children	No change of status	-4.0	-4.2	-3.5	-2.7	-4.3	-3.0	-2.3	-4.5
	local job take-up	1.8	2.3	1.0	1.7	1.7	2.0	1.4	2.2
	job-related commuting	0.3	0.6	0.0	0.2	0.2	0.4	0.0	0.6
	job-related relocation	-0.1	-0.1	-0.3	-0.2	-0.1	-0.1	-0.3	-0.1
	Change to other status	2.0	1.4	2.7	1.0	2.5	0.8	1.2	1.8
The coefficients are the after reform changes in the outcome probability of the respective treatment group against the control group of married unemployed persons with children (in percentage points).									
									3.3

2.8.2 Descriptive findings

Now that we provided the macroeconomic context of the time the reform took place, we can analyse our micro-data in a more informed way. Table 2.1 displays descriptive DID results for all persons and for a number of subgroups. The control group is composed of married, unemployed persons with children, since we expect the highest level of protection from mobility requirements for them. As treatment groups we consider all three deviations in family ties from the control state, namely having children without being married, being married without having children and being unmarried without having children. We provide estimates for all five relevant outcomes. Table 2.1 focuses on the DID changes in the respective outcome (see table 2.A.1 for a more detailed overview of pre and post reform frequencies including extrapolated population numbers split by gender). All coefficients are descriptive DID results of the pre and post reform values of the respective group of unemployed persons compared to the pre and post difference of the control group (married with children). For improved readability we group the DID results by treatment group instead of outcome. Thus, we can determine each group's response strategy to the reform with ease. We design the outcome variable in a manner that it captures all the relevant options an unemployment benefit recipient has each quarter, thereby ensuring that one of the outcome is chosen. The values on display are the differences in the time differences between groups and provide us with information on the relative over- or under-representation of the treatment group. A post-reform increase in local job take-up of singles for example has to entail a decrease in the frequency of some other option for that group, e.g. staying in benefit receipt. Therefore, the DID values within each group add up to zero.

Key outcome of the *Hartz I* reform would be a decrease in the number of unemployment benefit recipients, primarily by an increase in mobility of the treatment group. The results in table 2.1 provide interesting insights: First, the outcome *no change of status* has decreased in all groups relative to the control group, especially pronounced for unemployed without children (-4.1 pp and -4.0 pp), so the reform seems to have had an effect. Second, the flow out of UB receipt has not primarily lead to great increases in mobility rates. Relocation due to job-related reasons has increased only for married childless persons (+0.2 pp), while the clearest treatment group – childless unmarried individuals – display even lower relocation mobility than the control group (-0.1 pp). This result is consistent with the drop in mobility rates that we have seen on the macro-level in figure 2.7.

Commuting as a less costly form of mobility is more popular with the treatment groups (+0.3 pp to +0.8 pp)²¹. Third, a larger portion of treatment group unemployed persons opt for taking up a job in the local labour market. This can be the result of intensified search efforts or the willingness to make more concessions to remain at the current place of residence. All treated groups display a heightened probability for this option, first and foremost childless married UB recipients (+2.5 pp), probably due to the increased mobility costs of couples. Fourth, another more evasive strategy, ending UB receipt to take up a non-employment status, e.g. homemaker, retirement, or education, is also an option. For unmarried parents, this seems not to be a valid option (-0.5 pp), probably because of earner roles. Married childless persons show a higher inclination (+0.5 pp), but especially unmarried childless persons opted this way (+2.0 pp). This could be evidence for the expected adjustment effect of unemployment stocks (Koch and Walwei 2003).

If we analyse men and women separately, details become clearer. For women, their children seem to protect them from the mobility requirements. They only show a slight reduction in the frequency of staying unemployed (-0.8 pp) compared to the control group and in contrast to men (-2.9 pp). Being married does not seem to have protective functions alone, because both genders display lower staying rates. With regard to relocation mobility, no gender effects seem to exist. Only childless unmarried women are less prone to relocate than their male counterparts. In all treatment groups, men are more likely to take up commuting to another county than women. Women with children and interestingly also unmarried childless women display no higher commuting behaviour than the control group. Local job take-up also seems to be a more attractive option for men, while women change disproportionally more often to a non-employment state. This is especially true for the clearest reform target group of unmarried childless UB recipients, where women (+2.7 pp) almost double the male rate (+1.4 pp). While men seem to react more in line with the intended reform effects, through increased labour market participation, women are less often activated and more often choose to exit the labour market.

Mobility requirements can only help to reduce unemployment if chances of finding a job in another region are higher than in the local labour market. Thus, we would expect reform effects to differ between regions with favourable and unfavourable local contexts. We split counties at the median unemployment rates, to arrive at two similar sized groups for comparison (see figure 2.A.1 for a median

21 The small pp increases may be misleading, because mobility is a rare event. Even small absolute pp increases translate into high relative increases. A 0.1 pp increase in job-related relocation out of unemployment in our 20 percentage sample is equal to an 11 % increase or an additional 1,175 moves each post-reform quarter in the population.

map of German counties). The resulting distribution of counties roughly follows an East–West and North–South divide and is thus similar to the traditional approach of distinguishing Eastern from Western Germany. We argue that a median-split is more informative though, because it captures the contemporary empirical realities of the local labour market. The close similarity should nonetheless enable comparisons to our macro-results. Staying unemployed is a riskier option if local unemployment is high, because offer rates are lower. This could lead to job referral officers insisting more on interregional job search by UB recipients in such regions. The results in table 2.1 support this logic, with outflow rates from benefit receipt higher in counties above the median unemployment rate. Only the childless married unemployed leave benefit receipt less often in high unemployment areas. Out-mobility is higher in counties with high local unemployment, while local job finding differs for each group. Parents of children have higher mobility costs, which makes finding a job locally more attractive, even in unfavourable local labour markets. Married childless persons in low unemployment counties opt more often for local concessions to find re-employment, while childless unmarried do not seem to differ. They choose a non-employment exit option more frequently in high unemployment counties.

Differentiating gender effects in the local labour market analysis sheds light on the logic of action of the individual groups. In low unemployment counties unmarried fathers are activated to primarily take-up local jobs, while unmarried mothers (among them single mothers) are mostly protected. In high unemployment counties this protection vanishes and they also display higher local take-up rates. Regardless of the local labour market and gender unmarried parents do not show more relocation, indicating that parenthood acts as a strong protection from mobility requirements of the *Hartz I* reform. This holds not true for commuting which is male dominated and increases more in regions with unfavourable local labour markets. Childless married men in low unemployment counties display the highest level of activation and a clear preference to work locally, although they are also willing to commute. Women behave in similar ways, indicating no gender effect in the way marriage itself protects from the reforms mobility requirements. This is in contrast to the constitutional protection of marriage, which was speculated to translate into a protective effect primarily of this family tie (see Knuth 2002: 120). In high unemployment contexts the picture is similar, with less pronounced gender differences. Only exit to non-employment is higher for childless unmarried women than men, indicating the existence of a second earner. Childless unmarried men are activated to a higher degree than women and more in counties with high unemployment. Despite the lack of protecting family ties, the activation does not transfer into higher relocation mobility rates for this

group, regardless of the local labour market context. Women display an even lower inclination to move to another county for a new job. Commuting also plays a role more for men than for women and grows in importance in high-unemployment counties. Instead, local job take-up is the preferred strategy for both genders in this group regardless of context, although to a higher extent for men than for women. Second in importance comes exit to non-employment as a strategy, more so in high-unemployment counties and for women.

To summarize our descriptive findings, we see reform effects in a higher reduction of UB receipt among the treatment groups. Pressure for nationwide job search seems to force the affected unemployed to act. As rational actors the different subgroups act according to their individual cost structure. Unemployed with children avoid costly mobility, fathers are more willing to make concessions in the local labour market, while mothers are mostly protected. Childless married couples are more flexible than the control group by displaying the highest UB receipt outflows, the largest local job take-up, and the highest mobility rates – regardless of gender. Unmarried without children are at the central group to be activated by the *Hartz I reform*. Indeed this is the group with the highest levels of outflows from UB receipt. The unemployed with the least family ties seem to be able to avoid mobility to a large extent. Instead childless unmarried persons more frequently choose local job take-up or a non-employment status, which could be seen as evidence for a adjustment effect of unemployment stocks (Koch and Walwei 2003). Regardless of their family ties women stay more often in UB receipt than men and less often take up local jobs, which could hint at the presence of gender-specific reservation wages (Brown et al. 2011) or different gender role norms regarding employment both on the side of the job-centre as well as on the side of the actors.

2.8.3 Multivariate results

The previous results are descriptive and could thus be biased by differing compositions of the compared groups with regard to e.g. age or unemployment durations. Table 2.A.2 provides measures of central tendencies for the relevant control variables. From this we can learn that there are only small deviations between pre and post reform unemployed persons regarding gender and foreign nationality. The post reform group is composed of slightly older persons (especially the parents) and the unemployment durations are on average one month longer than for the pre reform group. This latter result in particular highlights the importance of multivariate analysis. Additionally, the descriptive DID results tell us nothing about their statistical significance. Therefore, multivariate regression results are appropriate.

We model the options an UB recipient has in response to the reforms as discrete choice. Each quarter we identify persons in UB receipt and observe their behaviour. Either they stay in receipt, or they transit into another state²². These actions form the five categories of our outcome variable. Because no hierarchy of outcomes can be established, a multinomial logit specification (e.g. Cameron and Trivedi 2005: 490ff. or Long and Freese 2014: 386ff.) is appropriate.

Table 2.2 Small-Hsiao test of independence of irrelevant alternatives (IIA)

equation	χ^2	df	$p > \chi^2$
No change of status	-7,350,000	132	1.000
local job take-up	-1,640,000	132	1.000
job-related commuting	-712,000	132	1.000
job-related relocation	-170,000	132	1.000
Change to other status	-2,070,000	132	1.000
Source: own calculations IEB dataset			

This model assumes the independence of irrelevant alternatives (IIA), which means that adding or deleting alternatives for action does not affect the odds of the remaining alternatives (Long and Freese 2014: 407ff.). We generated the outcome variable exactly to cover all relevant alternatives to the unemployed persons. Therefore, we would expect that the included alternatives “can plausibly be assumed to be distinct and weighted independently in the eyes of each decision maker” (McFadden 1974: 113). While relocating and commuting are both forms of mobility and could thus be seen as close substitutes, the cost structures of both options are fundamentally different. Table 2.2 displays the results of a Small-Hsiao test of the IIA assumption. During the test procedure the sample is randomly subdivided and iteratively used to fit multinomial models to the unrestricted model and a restricted model with one outcome eliminated. The test shows that our results are unaffected by including or excluding a category, thus confirming that the IIA assumption holds.

In our regression framework the DID approach is represented by interactions between the treatment group identifiers with a *hartz I* time dummy.

We estimate series of multinomial specifications that successively include more variable groups. Table 2.A.3 in the appendix provides an example of our approach. We choose the category *>no change of status<* as a natural base category, because we would expect reform effects to shift behaviour towards the remaining four

22 Although staying unemployed is not a transition as such, we will include it when we speak of *>transitions<*.

outcomes. The most basic specification (*model 0*) only includes the interaction terms and the conditional main effects. This should most closely resemble our descriptive results. In *model 1* we control for a range of socio-demographic variables to capture compositional changes in the unemployment groups over time. We include age in its linear and quadratic form because costs and benefits of the respective outcomes may vary (non-linearly) for different age groups. We distinguish natives and foreign citizens, because their mobility behaviour differs (see e.g. Schündeln 2014) and this could also influence mobility expectations in the job referral process. The duration of the unemployment spell that precedes the transition is also included in its linear and quadratic form to control for exposure to the reforms requirements. Fixed effects for each quarter are included as well, to capture seasonal variations on the labour market. This set of control variables is extended by the regional unemployment rate at the county level (linear and quadratic) in *model 2* and federal state fixed effects in (*model 3*). Both capture the regional context effects. In (*model 4*) we also control for the frequency of media coverage of the *Hartz I* reform around the implementation to capture potential anticipation effects (see figure 2.8).

Reform effects are tested as interactions of the treatment group identifier with the *Hartz I* time dummy. Because multinomial models are non-linear, we must be cautious when interpreting these interactions. Ai and Norton (2003) highlight the fact that the coefficient of the interaction term in non-linear models does not represent the interaction effect. Thus, inferences from this coefficient can be misleading because the sign and size may differ from the actual quantity of interest. We address this issue by estimating contrasts of adjusted predictions for each outcome of interest and each treatment group and then testing for significant group differences.

As we did for the descriptive analysis, we estimate these five specifications for the sample as a whole and a range of relevant subgroups, namely men and women and counties below and above the median of the national unemployment rate. In total we estimate 45 models of which we will present a insightful selection.

Table 2.3 Multivariate difference-in-differences

Gender group	Total	Male	Female	Total	Total	Male	Male	Female	Female	
County group	Total	Total	Total	Below	Above	Below	Above	Below	Above	
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	
Married with children	No change of status									
Difference	Only children	-0.005* (0.002)	-0.017*** (0.003)	-0.001 (0.003)	0.005 (0.004)	-0.012*** (0.003)	-0.011 (0.006)	-0.022*** (0.004)	0.013* (0.005)	-0.008 (0.004)
	Only married	0.004 (0.001)	0.001 (0.002)	0.003 (0.002)	0.008** (0.002)	0.001 (0.002)	0.002 (0.004)	+0.0001 (0.003)	0.010** (0.003)	-0.002 (0.003)
	Not married no children	-0.027*** (0.001)	-0.032*** (0.002)	-0.019*** (0.002)	-0.015*** (0.002)	-0.031*** (0.002)	-0.024*** (0.003)	-0.035*** (0.002)	-0.008*** (0.003)	-0.022*** (0.003)
	Married with children	local job take-up								
Difference	Only children	0.007*** (0.001)	0.009*** (0.002)	0.006*** (0.002)	0.002 (0.002)	0.008*** (0.001)	0.006 (0.003)	0.010*** (0.002)	-0.001 (0.003)	0.007*** (0.002)
	Only married	0.004*** (0.001)	0.005** (0.001)	0.005** (0.001)	0.008*** (0.002)	0.003 (0.001)	0.011*** (0.002)	0.002 (0.002)	0.005 (0.002)	0.005* (0.002)
	Not married no children	0.004*** (0.001)	0.007*** (0.001)	0.001*** (0.001)	0.004*** (0.001)	0.003*** (0.001)	0.005*** (0.002)	0.007*** (0.001)	0.005 (0.002)	-0.002*** (0.002)
	Married with children	job-related commuting								
Difference	Only children	+0.0001 (0.001)	0.002 (0.001)	0.001 (0.001)	-0.003 (0.001)	+0.0001 (0.001)	0.001 (0.002)	0.002 (0.001)	-0.003 (0.002)	0.001 (0.001)
	Only married	0.001 (0.001)	0.002 (0.001)	0.001 (0.001)	+0.0001 (0.001)	0.002 (0.001)	0.003 (0.002)	0.002 (0.001)	-0.0001 (0.001)	0.002 (0.001)
	Not married no children	0.001 (0.001)	0.001 (0.001)	0.002* (0.001)	0.001 (0.001)	-0.0001 (0.001)	0.002 (0.001)	+0.0001 (0.001)	0.003 (0.001)	0.001 (0.001)
	Married with children	job-related relocation								
Difference	Only children	0.001*** (0.000)	0.001** (0.000)	0.001* (0.000)	0.001 (0.001)	0.001 (0.000)	0.001 (0.001)	0.001* (0.001)	0.001 (0.001)	+0.0001 (0.000)
	Only married	-0.001*** (0.000)	-0.002*** (0.000)	-0.0001 (0.000)	-0.001 (0.000)	-0.001*** (0.000)	-0.001 (0.001)	-0.003*** (0.001)	-0.001 (0.001)	-0.0001 (0.000)
	Not married no children	-0.0001*** (0.000)	+0.0001*** (0.000)	-0.0001** (0.000)	-0.0001 (0.000)	+0.0001*** (0.000)	-0.0001 (0.000)	+0.0001*** (0.000)	-0.001 (0.000)	-0.0001 (0.000)
	Married with children	Change to other status								
Difference	Only children	-0.003 (0.002)	0.004 (0.003)	-0.007* (0.003)	-0.005 (0.003)	0.003 (0.002)	0.003 (0.005)	0.009* (0.003)	-0.011 (0.005)	-0.0001 (0.003)
	Only married	-0.007*** (0.001)	-0.006** (0.002)	-0.008*** (0.002)	-0.015*** (0.002)	-0.004 (0.002)	-0.015*** (0.003)	-0.002 (0.002)	-0.015*** (0.003)	-0.005 (0.003)
	Not married no children	0.022*** (0.001)	0.024*** (0.002)	0.016*** (0.002)	0.010*** (0.002)	0.028*** (0.002)	0.018*** (0.003)	0.028*** (0.002)	0.001*** (0.003)	0.023*** (0.003)

Control variables: quarter fixed effects, age, age², duration in days of unemployment spell preceding the transition, duration², foreign citizenship. Coefficients are group contrasts with regard to the base category >married with children< of adjusted predictions of the outcome probability.

Significance symbols stem from chi² tests of group difference. Cluster robust standard errors in parentheses (* p<0.05, ** p<0.01, *** p<0.001).

We report these results in table 2.3, grouped by outcome for the whole sample and for all subgroups. Coefficients stem from the specification that contains socio-demographic variables (*model 1*), because this offers a comprehensive control function, while not controlling away too much regional variation. Model results from specifications 1 to 4 are very similar though, which indicates the robustness of our findings.

First, we briefly summarize the results for the control variables in table 2.A.3. Older unemployed have higher probabilities of exiting UB receipt in all directions. This effect decreases over time. Similarly, with each additional day of benefit-receipt the likelihood of exit increases for all outcomes. This effect decreases only slightly with time. The maximal benefit duration acts as a clear limit here. Foreign citizens are less likely than Germans to transit from unemployment to employment. Changes to non-employment are far more likely for them. Although we find a clear non-linear effect, regional unemployment limits the outflows into employment, be it local or regional, and fosters transitions into non-employment. Finally, an increase in the media-coverage of the reform coincides with slight increases in the outflow into local employment, commuting and non-employment and a reduction in relocation mobility. This could indicate reaction to the reform but more likely reflects simultaneous media interest during the reform implementation (see figure 2.8 for a time series of media coverage). More importantly the control for the coverage does not seem to alter the effects of the reform for the treatment groups.

Second, we analyse the reform effects for the treatment groups in detail as shown in in table 2.3. Focussing on activation, we see for the whole population, that unmarried unemployed persons are clearly *leaving UB receipt* more often than the control group. We find stronger effects for childless unmarried persons (-2.7 pp) than for unmarried persons with children (-0.5 pp). Given the descriptive results, this is surprising, because it clearly shows the protective function of marriage, as prescribed by constitutional law. Disaggregating these results by gender reveals that unmarried childless persons of both genders leave UB receipt, although men (-3.2 pp) more often than women (1.9 pp). For unmarried individuals with children, only men are affected (-1.7 pp), which reiterates the special protective state of motherhood we found in the descriptive results. Naturally activation is higher in counties with higher unemployment. Interestingly, we even find that married childless unemployed (+0.8 pp) are more likely to stay in UB receipt in counties with favourable local labour markets. For low-unemployment counties, only the unmarried childless are activated, with women being protected even if they are only married (+1.3 pp) or only have children (+1.0 pp). In high-unemployment contexts, the primary target group

of unmarried childless is activated in both genders and additionally unmarried fathers (-2.2 pp). Mothers or wives seem to be protected even in regions with high market pressures.

Did the reported activation then lead to more *relocations*? We find that this is true almost exclusively for the group of unmarried parents. Childless unemployed are even less likely to relocate after the reform. The effect for unmarried parents is of equal size for men and for women (+0.1 pp). In favourable local labour markets the treatment groups do not differ significantly from the control group of married unemployed with children. This indicates that mobility norms laid down by the reform are applied selectively by the job referral officers. In counties with unfavourable local perspectives the treatment groups display reactions. This effect is driven mainly by unemployed men. Among them only married men react with more mobility (+0.1 pp). Childless men react with even lower job-relocations than the control group (-0.3 pp). This runs counter to the intuition of the reform, but could hint at evasive behaviour in another outcome category. Women regardless of family ties do not react to local market pressures with more relocations.

Relocations are only one mobility option, whereas *commuting* could pose a less costly alternative. In contrast to the high commuting rates of men we found in the descriptive analysis we cannot report any significant differences in our regression results. This could hint at strong compositional effects for this behaviour, which are controlled in the multivariate analysis. Commuting does not seem to act as an alternative reaction to mobility requirements.

Instead, willingness to intensify *local job search* or an increased willingness to make concessions for a local job could act as an outlet. For all treatment groups we find an increase in local job take-up, strongest for unmarried parents (+0.7 pp). Men are more likely than women to take-up work locally after the reform, unmarried childless men in particular (+0.7 pp compared with +0.1 pp for women). Interestingly, this behaviour seems independent of the local labour market. In low-unemployment counties childless married (+1.1 pp) and unmarried men (+0.5 pp) tend more to take up local jobs, while women do not choose this option more frequently. In high unemployment counties unmarried parents, men (+1.0 pp) and women (+0.7 pp) both react with more take-up. This could reflect comparatively high mobility costs and financial needs of multi-person households with children. While unmarried childless men show increased local job take-up (+0.7 pp) in counties with weak local labour markets, their female counterparts react with less local take-up (-0.2 pp). This outcome again emphasizes differences between men and women, that could be attributable to household specialisation and gender roles.

Finally, a *change into non-employment* could act as an evasive strategy in response to the mobility requirements of the *Hartz I* reform. Childless married

unemployed change less often into non-employment (-0.7 pp). This option seems to have particularly appealed to the primary treatment group of childless unmarried persons (+2.2 pp). These results are comparable across genders. In regions with low unemployment childless married persons are more often leaving the labour force (+1.5 pp), while in high unemployment regions they do not differ from the control group. Unmarried childless persons choose the exit option more often than the control group in both regional contexts, but more in counties with unfavourable labour market (+ 2.8 pp). Childless married men and women behave almost identically. For both childless unmarried men and women high-unemployment contexts increase their likelihood to choose a non-employment state. Women of this group seem to be less inclined than men to exit into non-employment.

2.8.4 Discussion of the results

Summarizing our results, we have established, that at the meso-level, the mobility requirements of the *Hartz I* reform are clearly visible. Take-up of relocation assistance, the costs associated with mobility measures, and the sanctions associated with refusal to take an offered job have all soared in the years following the reform. While Eastern German job centres are experienced in motivating their clients to search for jobs (also) in other regions, the Western German job centres catch up quickly in the years following the reform. Also, in Western Germany for the first time women are taking up mobility assistance at a larger scale, which is interesting, given that family ties should be especially protective for mothers and wives. Despite these clear developments in favour of reform effects, with about one in 1,000 UB recipients, the absolute level of mobility measures take-up is comparatively low. This supports the low priority of mobility in the German job referral process (Mosley 2006). On the other hand the simultaneous increases in "carrots and sticks", assistance and sanctions, reflects the described new systematic integration of mobility in the referral process (ibid.: 75ff.). From our summary of the historical changes made to the rules about reasonable job offers, it is clear, that the reform under study is not introducing a complete makeover, but an incremental tightening of rules. Additionally, the changes made by the reform only target unemployed without family ties who in turn have a range of options to avoid relocating. Given all this, it is not surprising why on the macro-level we find increasing unemployment rates and decreasing mobility rates in the years following the reform. In principle, this opposing macro development could be the result of great decreases in mobility and great stability in UB receipt by the control group of married unemployed with children. Also the control group would have to be larger than the treatment groups for their behaviour to dominate

the overall results. If this were true, this would mean that the reform in fact deactivates the control group by offering explicit protection from tightened job search requirements. Given the before mentioned needs structure of households with dependent members, the lack of such developments in figure 2.2, and the case numbers given in table 2.A.2, we rule out this explanation.

The changes brought about by the *Hartz I* reform clearly target individual decision making by increasing the costs of staying in benefit receipt for unemployed without family ties. These changes of rare mobility behaviour are only detectable with large administrative data and careful analysis. It is on this micro-level that reform effects should be primarily evaluated.

From our multivariate analysis we can report, that activation primarily affects unemployed without protection by being married. Differences among the genders are very distinct. Marriage seems to protect both genders from having to engage in more mobility. This is in line with the special constitutional status the institution marriage enjoys in Germany. However, having children does not stop men from taking-up employment, while mothers more often stay in unemployment benefit receipt or transit into non-employment. This indicates that activation norms interact with gender roles and the needs structure of households. For men, being protected from the reform mixes with the need to provide for the family and lead to higher activation compared to the group of married men with children. This is an interesting case, because fathers of both groups should adhere to earner roles and the needs of their households. Still, the group that is not additionally protected from the reform by marriage is activated more often. In contrast, protection is much broader for women, covering both mothers and wives. These group-specific cost and benefit structures determine which reactions to the reforms mobility requirements are taken.

Higher job-related relocations, the communicated aim of the reform, we observe only for the group of unmarried parents. All other treatment groups substitute relocations with other reactions to the reform. Commuting does not seem to pose an adequate alternative here. One of the reasons could be that commuting produces monthly mobility costs and requires means of transport. So only high paying jobs, which are not available to all unemployed job seekers, are economically sustainable. Activation of unemployed can only take effect if individuals have agency (e.g. Buch 2007; or Knuth 2014: 441), i.e. receive reasonable attractive job offers from other regions. This demand side is out of scope of our analysis but could explain, why mobility rates are low.

More often, intensifying local job search and the willingness to make concessions for a local job seem to be the reforms' main result. The distribution of this behaviour among the subgroups reflects the different group logics. While

parents of both genders intensify their local efforts more in tougher labour markets, untied childless married men concentrate on the local market in counties with favourable local contexts. Wives without children differ, in that they focus on local job finding efforts if local labour markets are tight. This paradox behaviour could indicate "*tight stayer*" situations (Mincer 1978: 751), where the costs of negotiating mobility with the (employed) spouse are prohibitively high. Paradoxically, the most flexible treatment group of childless unmarried UB recipients most often chooses to exit the labour market altogether, particularly when local labour market perspectives are bleak. So it seems the expected adjustment process has indeed occurred.

The varying behaviour of men and women with the same family ties, and the disparities across high- and low unemployment regions could also be evidence for the adaptive way the strict mobility requirements are implemented by job centre personnel. Our results support qualitative evidence from Mosley (2006) and Sondermann et al. (2007). This indicates first, the relevance of ascriptions of role norms by the job referral officers and the low priority interregional mobility has in the referral process. Second, the activation rates and the extent of local job take-up are consistent with the widespread use of nationwide job search as a threat.

2.9 Conclusion

This paper examines the effects of the German *Hartz* reforms on the regional mobility of unemployed job seekers. While the well-known fourth stage of the reform package has indubitably changed the German labour market to a greater extent, the first stage of the reform is most relevant for influencing job related regional mobility. Unemployed persons without family ties are required to accept any interregional job offer. We exploit this caveat with a difference-in-differences (DID) approach using a large German administrative data set from the Federal Employment Agency (FEA). We provide detailed results for a number of potential treatment groups with family ties and a range of plausible outcomes that capture reactions to the regime change.

Our main results show that the unemployed are indeed activated by the reform. The most targeted group of childless unmarried persons indeed transits more often from unemployment benefits (UB) receipt, but most often into non-employment. This adjustment effect is a secondary target of the reform. Primarily, the rhetoric in the course of implementing the reform focused on the need for nationwide job search. Despite this, our results suggest, that relocation mobility is only increased for certain subgroups. We find no evidence of higher post-reform commuting in the treated groups. Most of the affected unemployed choose to re-evaluate job

opportunities in the local labour market. We find strong gender differences that see women with any form of family ties more protected from activation than men. The special constitutional protection of marriage in Germany is evident in our data. Having children is sufficient for women to stay unemployed, while for men this corresponds with earner roles and leads to an increase in job search behaviour. Reform effects correspond to differences in the local labour market, where unfavourable context effects increase the pressure to find re-employment or exit the labour market altogether.

In sum, we could show the complex interactions between the intended activation targets, the logic of action of subgroups with varying levels of protection and different needs structures, and the regional context. Thereby, we shed light on the impact of activation policies on regional mobility behaviour of unemployed job seekers.

Appendices

2.A Appendix

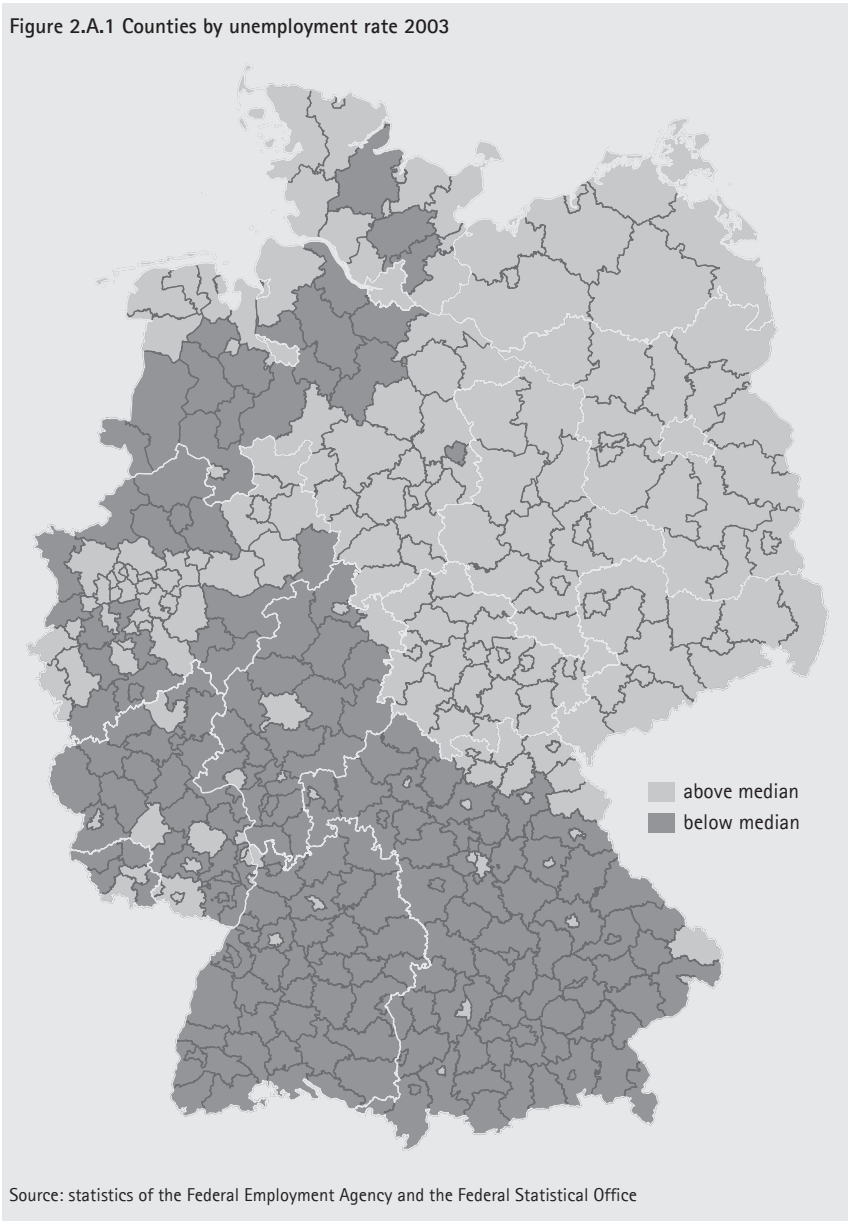


Table 2.A.1 Descriptive difference-in-differences by gender

outcome	Differences to married with children	male			female			DID		DIDID			
		pre reform	post reform	DID	pre reform	post reform	DID	n*	pp	n*	pp		
No change of status	Only children	-841,925	-1.9	-745,700	-4.8	96,225	-2.9	-569,510	-3.0	-406,570	-3.7	66,715	2.2
	Only married	804,415	22.9	385,970	18.5	-418,445	-4.4	745,280	19.7	502,510	15.7	175,675	0.4
	Not married no children	1,404,770	5.9	1,011,185	1.7	-393,585	-4.2	339,500	2.1	395,110	-1.4	449,195	0.8
Local job take-up	Only children	-412,095	-2.6	-249,370	0.0	162,725	2.6	-231,995	-1.1	-111,125	0.0	120,870	1.1
	Only married	-204,965	-10.1	-130,315	-7.2	74,650	2.9	-94,010	-8.5	-37,745	-6.3	56,265	2.2
	Not married no children	334,490	-4.2	263,115	-1.9	-71,375	2.3	106,780	-0.5	134,730	0.6	27,950	1.0
Job-related commuting	Only children	-147,480	-1.0	-92,150	-0.3	55,330	0.6	-46,170	0.5	-21,550	0.5	24,620	0.0
	Only married	-95,655	-4.4	-60,450	-3.3	35,205	1.1	-19,855	-1.9	-6,225	-1.3	13,630	0.6
	Not married no children	131,475	-1.2	97,300	-0.6	-34,175	0.6	95,340	2.8	84,190	2.8	-11,150	0.0
Job-related relocation	Only children	-11,255	0.4	-3,770	0.5	7,485	0.1	-4,850	0.3	-535	0.2	4,315	0.0
	Only married	-7,770	-0.4	-3,395	-0.2	4,375	0.2	-970	-0.2	715	0.0	1,685	0.2
	Not married no children	46,500	0.6	25,810	0.5	-20,690	-0.1	36,290	1.3	24,035	1.1	-12,255	-0.3
Change to other status	Only children	-271,320	5.0	-213,150	4.6	58,170	-0.4	-196,160	3.3	-105,405	2.9	90,755	-0.3
	Only married	-162,000	-8.0	-143,605	-7.9	18,395	0.2	-107,365	-9.1	-57,950	-8.0	49,415	1.1
	Not married no children	367,610	-1.1	328,710	0.3	-38,900	1.4	-21,430	-5.7	75,935	-3.1	97,365	2.7
* Case numbers extrapolated from our 20 % sample to population values. The pp coefficients are the changes in the outcome probability in percentage points.													

Table 2.A.2: Descriptive statistics

group	time period	Gender: female			Age in years			Foreign nationality			UB-receipt (in months)		
		n	m	sd	n	m	sd	n	m	sd	n	m	sd
Married – Children	Pre reform	868,924	0.43	0.50	868,924	41.22	8.87	868,738	0.12	0.33	659,040	8.99	6.76
	Post reform	636,263	0.41	0.49	636,263	42.69	9.02	636,092	0.13	0.34	540,285	10.26	9.21
	Difference	-232,661	-0.03	-0.01	-232,661	1.46	0.15	-232,646	0.01	0.01	-118,755	1.27	2.45
Not married – Children	Pre reform	322,368	0.52	0.50	322,368	37.68	8.61	322,266	0.05	0.23	242,331	8.68	6.52
	Post reform	246,379	0.52	0.50	246,379	38.57	9.04	246,191	0.07	0.25	205,978	10.00	9.10
	Difference	-75,989	0.00	0.00	-75,989	0.89	0.43	-76,075	0.01	0.02	-36,353	1.32	2.58
Married – No Children	Pre reform	1,040,351	0.46	0.50	1,040,351	52.73	10.05	1,040,173	0.08	0.27	918,996	11.15	7.73
	Post reform	726,158	0.47	0.50	726,158	52.68	10.21	725,921	0.09	0.29	668,732	12.46	9.40
	Difference	-314,193	0.00	0.00	-314,193	-0.05	0.16	-314,252	0.01	0.02	-250,264	1.31	1.67
Not married – No Children	Pre reform	1,437,179	0.34	0.47	1,437,179	33.20	12.93	1,435,907	0.06	0.23	1,099,124	9.60	7.23
	Post reform	1,124,277	0.36	0.48	1,124,277	33.34	12.85	1,123,593	0.06	0.24	937,989	10.89	9.66
	Difference	-312,902	0.02	0.01	-312,902	0.14	-0.08	-312,314	0.01	0.01	-161,135	1.29	2.43
Total	Pre reform	3,669,024	0.41	0.49	3,669,024	41.03	13.53	3,667,286	0.08	0.27	2,919,693	9.87	7.29
	Post reform	2,733,372	0.41	0.49	2,733,372	41.13	13.55	2,732,092	0.09	0.28	2,353,279	11.11	9.48

Case numbers extrapolated from our 20 % sample to population values. The pp coefficients are the changes in the outcome probability in percentage points.

Table 2.A.3 Multinomial logit regression results

Both genders – all counties Base-Outcome: No change of status	Model 0				Model 1				Model 2			
	local job take up b/se	job related commuting b/se	job related relocation b/se	Change to other status b/se	local job take up b/se	job related commuting b/se	job related relocation b/se	Change to other status b/se	local job take up b/se	job related commuting b/se	job related relocation b/se	Change to other status b/se
Group: Ref. Married – Children			ref.				ref.				ref.	
Not married – Children	-0.049*** (0.007)	-0.029** (0.010)	0.387*** (0.021)	0.243*** (0.006)	-0.162*** (0.008)	-0.168*** (0.014)	0.145*** (0.029)	0.203*** (0.007)	-0.178*** (0.009)	-0.168*** (0.014)	0.148*** (0.030)	0.171*** (0.007)
Married – No children	-0.903*** (0.005)	-1.031*** (0.008)	-0.835*** (0.019)	-0.914*** (0.005)	0.000 (0.007)	0.048*** (0.011)	0.405*** (0.027)	-0.100*** (0.006)	0.006 (0.007)	0.048*** (0.011)	0.403*** (0.027)	-0.090*** (0.006)
Not married – No children	-0.212*** (0.005)	-0.017** (0.006)	0.654*** (0.014)	-0.246*** (0.004)	-0.166*** (0.006)	0.018* (0.009)	0.462*** (0.021)	0.016** (0.005)	-0.156*** (0.006)	0.024* (0.009)	0.465*** (0.021)	0.033*** (0.005)
Post-Hartz I period	-0.317*** (0.005)	-0.298*** (0.007)	-0.709*** (0.023)	-0.167*** (0.005)	0.037*** (0.006)	0.071*** (0.010)	-0.463*** (0.030)	0.016** (0.005)	0.048*** (0.006)	0.074*** (0.010)	-0.462*** (0.030)	0.038*** (0.005)
Interaction Terms with Hartz I:			ref.				ref.				ref.	
Ref. Married – Children												
x Not married – Children	0.106*** (0.010)	0.057*** (0.014)	0.253*** (0.037)	0.010 (0.009)	0.081*** (0.012)	0.023 (0.019)	0.263*** (0.048)	0.000 (0.010)	0.081*** (0.012)	0.021 (0.019)	0.261*** (0.048)	0.002 (0.010)
x Married – No children	0.163*** (0.007)	0.172*** (0.012)	0.218*** (0.034)	0.102*** (0.007)	0.024** (0.009)	0.010 (0.016)	-0.010 (0.044)	-0.038*** (0.008)	0.019* (0.009)	0.009 (0.016)	-0.010 (0.044)	-0.043*** (0.008)
x Not married – No children	0.155*** (0.006)	0.135*** (0.009)	0.305*** (0.025)	0.188*** (0.006)	0.090*** (0.008)	0.063*** (0.012)	0.238*** (0.033)	0.127*** (0.007)	0.089*** (0.008)	0.061*** (0.012)	0.236*** (0.033)	0.125*** (0.007)

Table 2.A.3 (continued)

Both genders – all counties Base-Outcome: No change of status	Model 0				Model 1				Model 2			
	local job take up b/se	job related commuting b/se	job related relocation b/se	Change to other status b/se	local job take up b/se	job related commuting b/se	job related relocation b/se	Change to other status b/se	local job take up b/se	job related commuting b/se	job related relocation b/se	Change to other status b/se
Age	0.161*** (0.001)			0.275*** (0.001)	0.165*** (0.001)	0.217*** (0.002)	0.226*** (0.004)	0.275*** (0.001)	0.165*** (0.001)	0.218*** (0.002)	0.226*** (0.004)	0.282*** (0.001)
quadratic age	-0.002*** (0.000)			-0.004*** (0.000)	-0.002*** (0.000)	-0.003*** (0.000)	-0.004*** (0.000)	-0.004*** (0.000)	-0.002*** (0.000)	-0.003*** (0.000)	-0.004*** (0.000)	-0.004*** (0.000)
Duration of unemployment spell	0.001*** (0.000)			0.005*** (0.000)	0.001*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.005*** (0.000)	0.001*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.005*** (0.000)
quadratic duration	-0.000*** (0.000)			-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Foreign	-0.214*** (0.006)			0.246*** (0.005)	-0.157*** (0.006)	-0.271*** (0.010)	-0.215*** (0.023)	0.246*** (0.005)	-0.157*** (0.006)	-0.257*** (0.010)	-0.210*** (0.023)	0.355*** (0.005)
Unemployment rate												
quadratic unemployment rate												
Media coverage Hartz I												
Intercept	-0.810*** (0.004)	-2.002*** (0.005)	-4.173*** (0.012)	-0.941*** (0.003)	-4.280*** (0.022)	-6.315*** (0.035)	-7.907*** (0.081)	-7.078*** (0.021)	-4.456*** (0.024)	-6.110*** (0.038)	-7.708*** (0.087)	-7.835*** (0.023)
Quarter effects/State effects	No/No		Yes/No		Yes/No		Yes/No		Yes/No		Yes/No	
Observations/Persons	6,401,899		2,185,085		5,269,550		1,601,786		5,268,269		1,601,667	
Pseudo R ² /BIC	0.016		14,088.852		0.063		8,871,769		0.066		8,845,239	

Coefficients are logits and relative to the base category > No change of status<.
Cluster robust standard errors in parentheses (* p < 0.05, ** p < 0.01, *** p < 0.001).

Table 2.A.3 Continued

Both genders – all counties Base-Outcome: No change of status	Model 3				Model 4			
	local job take up b/se	job related commuting b/se	job related relocation b/se	Change to other status b/se	local job take up b/se	job related commuting b/se	job related relocation b/se	Change to other status b/se
Group: Ref. Married – Children								
Not married – Children	-0.180*** (0.009)	-0.154*** (0.014)	0.185*** (0.030)	0.176*** (0.007)	ref.	-0.154*** (0.014)	0.185*** (0.030)	0.175*** (0.007)
Married – No children	0.009 (0.007)	0.060*** (0.011)	0.357*** (0.027)	-0.091*** (0.006)	0.009 (0.007)	0.061*** (0.011)	0.356*** (0.027)	-0.090*** (0.006)
Not married – No children	-0.151*** (0.006)	0.059*** (0.009)	0.425*** (0.021)	0.033*** (0.005)	-0.152*** (0.006)	0.059*** (0.009)	0.426*** (0.021)	0.033*** (0.005)
Post-Hartz I period	0.048*** (0.006)	0.070*** (0.010)	-0.604*** (0.030)	0.030*** (0.005)	0.042*** (0.006)	0.043*** (0.011)	-0.492*** (0.031)	-0.023*** (0.006)
Interaction Terms with Hartz I:								
Ref. Married – Children								
x Not married – Children	0.083*** (0.012)	0.024 (0.019)	0.244*** (0.048)	0.001 (0.010)	0.083*** (0.012)	0.024 (0.019)	0.245*** (0.048)	0.000 (0.010)
x Married – No children	0.018* (0.009)	0.008 (0.016)	0.010 (0.044)	-0.042*** (0.008)	0.018* (0.009)	0.007 (0.016)	0.012 (0.044)	-0.044*** (0.008)
x Not married – No children	0.088*** (0.008)	0.059*** (0.012)	0.256*** (0.033)	0.126*** (0.007)	0.088*** (0.008)	0.059*** (0.012)	0.255*** (0.033)	0.127*** (0.007)

Table 2.A.3 (continued)

Both genders – all counties Base-Outcome: No change of status	Model 3				Model 4			
	local job take up b/se	job related commuting b/se	job related relocation b/se	Change to other status b/se	local job take up b/se	job related commuting b/se	job related relocation b/se	Change to other status b/se
Age	0.167*** (0.001)	0.225*** (0.002)	0.219*** (0.004)	0.282*** (0.001)	0.167*** (0.001)	0.225*** (0.002)	0.219*** (0.004)	0.282*** (0.001)
quadratic age	-0.002*** (0.000)	-0.003*** (0.000)	-0.004*** (0.000)	-0.004*** (0.000)	-0.002*** (0.000)	-0.003*** (0.000)	-0.004*** (0.000)	-0.004*** (0.000)
Duration of unemployment spell	0.001*** (0.000)	0.002*** (0.000)	0.003*** (0.000)	0.005*** (0.000)	0.001*** (0.000)	0.002*** (0.000)	0.003*** (0.000)	0.005*** (0.000)
quadratic duration	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Foreign	-0.137*** (0.006)	-0.219*** (0.010)	-0.347*** (0.024)	0.347*** (0.005)	-0.137*** (0.006)	-0.219*** (0.010)	-0.346*** (0.024)	0.347*** (0.005)
Unemployment rate	0.024*** (0.002)	0.028*** (0.003)	0.192*** (0.008)	0.074*** (0.002)	0.024*** (0.002)	0.027*** (0.003)	0.192*** (0.008)	0.073*** (0.002)
quadratic unemployment rate	0.000 (0.000)	-0.001*** (0.000)	-0.000 (0.000)	-0.001*** (0.000)	0.000 (0.000)	-0.001*** (0.000)	0.000 (0.000)	-0.001*** (0.000)
Media coverage Hartz I								
Intercept	-4.647*** (0.028)	-6.745*** (0.043)	-9.375*** (0.099)	-7.906*** (0.026)	-4.645*** (0.028)	-6.734*** (0.044)	-9.409*** (0.099)	-7.885*** (0.026)
Quarter effects/State effects	Yes/Yes		Yes/Yes		Yes/Yes		Yes/Yes	
Observations/Persons	5,268,109		1,601,615		5,268,109		1,601,615	
Pseudo R ² /BIC	0.069		8,816,849		0.069		8,816,216	

Coefficients are logits and relative to the base category > No change of status<.
Cluster robust standard errors in parentheses (* p < 0.05, ** p < 0.01, *** p < 0.001).

3 Unemployment and willingness to accept job offers: initial results of a factorial survey approach²³

JEL classification: J22, J61, J62, J64

Keywords: Social capital, Interregional mobility, Unemployment, Factorial Survey

Abstract:

Matching individuals to jobs is a fundamental problem in any labour market. This paper focuses on job characteristics, such as wages, job quality, and distance from the current place of residence, and the impact of these characteristics on the willingness of individuals to accept new job offers. Using a factorial survey module (FSM) implemented in the fifth wave of the Panel Study "Labour Market and Social Security" (PASS), a large population survey, the willingness of employed and unemployed labour market participants to accept new job offers was compared while considering important job characteristics. In this study, unemployed and employed individuals received the same set of hypothetical job offers.

Consistent with theoretical arguments, unemployed participants generally exhibited a greater willingness to accept new job offers than employed participants. Moreover, unemployed individuals were likely to make more concessions than employed individuals with respect to job quality, such as accepting fixed-term job offers. Interestingly, little evidence for different decision-making processes or weightings of mobility costs was found, which enables us to conclude that interregional unemployment disparities can scarcely be explained by unemployed individuals lacking the willingness to work or relocate.

3.1 Introduction

In Germany, as in most other Western countries, we simultaneously observe a substantial number of both vacant jobs and unemployed individuals. The problem of matching individuals to jobs is a classical topic of labour market research. There are three explanations for this problem. First, unemployed persons may not possess the skills that employers require to fill the vacant positions. Second, the wages offered by the employers may be too low, particularly compared with social welfare benefits for the unemployed. Third, transactions costs may pre-vent a successful match of

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unemployed individuals and vacancies. These costs result from any adaptation an unemployed person must make to assume a new job, such as acquiring new human capital or moving to a new location. In particular, the costs of relocation are often assumed to influence the efficiency of the job-matching process. Whereas the first explanation assumes that the unemployed cannot capitalise on an employment opportunity because of a skill mismatch, the other two arguments imply that the incentives to accept a job are not sufficiently high.

Although there is little doubt that these factors will affect an individual's willingness to accept a job offer, it is not completely clear whether and how employed and unemployed persons differ in their assessments of these incentives. Theoretical arguments based on search theory imply that unemployed individuals should make considerable concessions to obtain new jobs. However, there is little information regarding the way unemployed persons weigh various factors during this decision process. On the macro level, the considerable regional differences (for Germany, see, e.g., Blien 2001) between open jobs and unemployment rates may indicate that the willingness of unemployed individuals to relocate for new jobs is not sufficiently high. However, on the micro level, the empirical evidence is mixed. For Germany, certain studies report no clear connection between employment status and migration (Kley 2013), whereas others provide evidence of higher migration rates for unemployed persons (Birg 1992; Boenisch and Schneider 2010a). Nevertheless, it is an empirical fact that not all unemployed individuals simply relocate to other regions with better job options. To understand why at least certain unemployed persons do not move, it is important to disentangle two types of explanation. On the one hand, unemployed individuals might be denied attractive job offers (the demand-side explanation) and therefore display comparatively low levels of mobility despite their general willingness to accept interregional job offers. On the other hand, job offers might be declined because of high mobility costs or a low willingness to work on the part of the unemployed (supply-side factors). Although there is a substantial body of literature on job-related interregional mobility, empirical studies on this topic have struggled to provide satisfactory explanations. This struggle is primarily the result of difficulties in disentangling these two causal mechanisms and a lack of a sufficient number of data to permit a detailed analysis of the decision-making process that underlies observed (im)mobility.

In this study, we take a step forward in investigating these questions by analysing the willingness to accept job offers in circumstance in which all individuals have access to the same job offers. Our approach is based on an experimental factorial survey module (FSM) that was incorporated into the Panel Study "Labour Market and Social Security" (PASS), a large-scale population survey with an over-representation of unemployed persons that is annually conducted by

the German *Institute for Employment Research (IAB)* (see Trappmann et al. 2010 for an overview). Approximately 4,200 employed and unemployed respondents available to the labour market evaluated their willingness to accept hypothetical job offers (*vignettes*) that differed in experimentally varied characteristics, such as expected income, working hours, and regional distance from the respondent's home. An evaluation of these offers makes it possible to identify the dimensions that affect the willingness to accept job offers or to relocate²⁴. Moreover, as a result of the experimental design, all of the respondents received job offers of the same quality, on average. Important demand-side characteristics are thereby standardised—in contrast to the real labour market. Thus, it is possible to focus solely on labour supply-side effects in the analysis. The PASS survey provides a sufficient number of cases for a comparison of unemployed and employed persons. These data facilitate an investigation of the dynamics of the decision-making process regarding job offers and testing of the assumptions derived from labour market and migration theories.

This paper is the first to examine the FSM in the PASS data. Registered unemployed individuals are compared with individuals in non-marginal employment who make social security contributions. Do unemployed persons differ from employed persons in their willingness to accept job offers when confronted with similar job offers? What role does the distance between the new job and the current residence play for both groups? Are supply- or demand-side effects prevalent in explaining the low mobility rates of unemployed individuals? What are the effects of job characteristics and relocation costs?

3.2 Theory and hypotheses

Central to our research question is the explanation of job offer acceptance in general and the mobility decision associated with interregional offers in particular. Consequently, theories from the fields of labour market research and migration research provide an analytical frame-work. Among labour market theories, the most important is *job search theory* (Mortensen 1986; 1976), which views job searching as a rational strategy, particularly for individuals trying to exit unemployment. By extending their search radius and making concessions to unfavourable job conditions, job seekers can increase the pool of potential job offers and improve their chances of receiving a suitable offer.

²⁴ There is a growing body of literature on the question of whether and to what extent hypothetical decisions in the context of experimental surveys correspond to actual decisions and behaviour in "real life" (Groß and Börsen 2009; Nisic 2009). The evidence suggests that both hypothetical and observed behaviour are influenced by similar factors (see the discussion for more details).

However, this view only holds if offers are available to unemployed individuals, a group that is often characterised by low qualifications and a lack of access to beneficial networks.

Employed and unemployed individuals might differ not only in access to job offers but also in their consideration of income and other job characteristics when determining whether to accept available offers. Additionally, they might differ in their choices because their decision making is framed by different economic conditions, such as the monetary resources required to commute or relocate. Those differences in decision making are more easily detected if demand-side factors are standardised, i.e., if all individuals have access to the same job offers.

Another important idea from job search theory is that the acceptance of a given job offer is driven by (rational) expectations concerning future job offers. If a person expects to receive a better offer with a sufficient probability, he or she will decline the offer at hand and continue the search for a better one. Thus, prospective employees accept a (new) job only if it yields a higher utility than their current status (regardless of whether that status is employment or unemployment) (Logan 1996; Devine and Kiefer 1991). In this context, utility is determined by monetary and non-monetary characteristics. Differences in the observed behaviour of unemployed and employed individuals with respect to similar job offers would have to be attributable to differences in these underlying utility evaluations.

This approach provides arguments in favour of higher job offer acceptance by unemployed persons. An important concept associated with this theory is the reservation wage, which represents the minimum wage for which a person is willing to work and is defined as the relative ratio of utility from labour and leisure time (e.g., Borjas 2010: 41f.). Unemployed individuals compare the new job offer to their situation without a wage from paid labour. Thus, a standard prediction from search theory is that the reservation wage of unemployed persons is increased by the amount of social security benefits they receive from state agencies (e.g., Gangl 2004a; Mortensen 1986). What is more important for the research at hand is that those social security benefits are, on average, lower than the income from paid work. Therefore, unemployed individuals have comparatively low income²⁵

25 In Germany, this is particularly true for the unemployment benefit II rate that is paid in the case of long-term unemployment or the lack of entitlement to unemployment insurance, which amounts to 382 Euros for a single person (in addition to the payment of rent, German Federal Employment Agency 2013). Since the *Hartz reforms* of Social Code II in 2005, unemployment assistance in Germany has consisted of unemployment benefits I (unemployment insurance based on the duration of paid contributions, paid for up to 18 months) and unemployment benefits II (means-tested basic income support to individuals capable of work). Basically, every person who is able to work (denied as being able to work at least three hours a day), is between 15 and 64 years of age, generally lives in Germany, and is not fully able to cover his or her basic needs and those of her *needs unit* (*Bedarfsgemeinschaft*) by other social benefits is entitled to unemployment benefit II.

but large amounts of leisure time. For a first argument, we follow the law of diminishing marginal returns and assume that unemployed persons are more willing to "trade" leisure for labour. For the same reasons, we expect that a given absolute increase in income is more relevant for individuals with a lower base level of income.²⁶

In terms of search theory, this reasoning means that the same job offer is more likely to represent an above-average, high-quality offer for unemployed than for employed individuals. Technically speaking, the offer is more likely to correspond to the right tail of the distribution of wages related to the job offers that the job seekers expect to receive. Thus, the same offer is more likely to exceed the reservation wage of and be accepted by unemployed job searchers.

From these arguments, we derive the first general hypothesis:

H1: For given job offers, unemployed persons should display, on average, higher willingness to accept the job offers than employed persons.

More fine-grained arguments for this difference between employed and unemployed individuals can be derived from the theory of *compensating wage differentials*. Within the classical job search model, as described above, no distinction is made between monetary and non-monetary returns on labour. However, it is well known that employees also value the non-monetary characteristics of jobs and may trade higher wages for better job conditions. Thus, the theory of compensating wage differentials (Brown 1980; for an overview, see Rosen 1986) implies a fundamental trade-off between monetary and non-monetary job aspects. In a perfect labour market with homogenous workers, employers offering worse labour conditions than other employers will have to compensate their employees with higher wages. Unfavourable characteristics, such as a temporary contract or a high level of over-qualification for the position, should be offset by higher wages and vice versa. As a consequence, when controlling for wages, job acceptance should depend on non-monetary job characteristics.

However, a basic requirement for compensating wages is that workers can avoid unfavourable working conditions simply by choosing another employer. If workers differ in their opportunities to find other employers, those with fewer opportunities are forced to accept less favourable conditions *without monetary compensation*. In particular, unemployed individuals whom we assume to receive

²⁶ Therefore, the gain in income should affect job offer acceptance at a diminishing rate. Statistically, job offer acceptance is expected to be primarily influenced by the *relative* (percentage increase) and not the absolute gain in income (Euros).

generally fewer and worse offers than employed individuals can be expected to be more willing to accept unfavourable job characteristics. Moreover, only employed persons stand to lose firm-specific parts of their human capital (DaVanzo 1978: 505) and risk trading the advantages of their current job, such as tenured contracts, for disadvantages, such as temporary contracts or jobs with trial periods. Therefore, employed persons will be willing to accept other employment options only if their loss in human capital (or long-term contracts) is compensated by highly valued job characteristics (Melzer 2010: 306).

H2: Controlling for the increase in income, unemployed persons are more willing to accept job offers with unfavourable non-monetary characteristics (long working hours, short contract durations, few career prospects, and high levels of over-qualification) than employed persons.

So far, our theoretical argumentation implies that in general unemployed individuals are more likely to accept job offers with unfavourable working and career conditions than employed individuals. However, one focus of this study is on job offers requiring regional mobility. Accepting an interregional offer beyond daily commuting distances involves mobility costs that are likely to exceed the costs of accepting a job within commuting distances because in addition to the costs of finding appropriate accommodation and moving house, interregional mobility implies the psychological cost of leaving a familiar location. Therefore, generally, inter-regional job offers can be expected to be less attractive than offers within commuting distance.

Although the first two hypotheses assume a general high willingness among unemployed persons to accept job offers, one can expect a lower willingness with regard to interregional jobs. Anticipated moving costs are more likely to prevent unemployed individuals from accepting job offers. Although migration might be associated with higher relative income gains, it poses a higher risk for unemployed persons because periods of unemployment increase the risk of becoming unemployed again in the future (Arulampalam et al. 2001; Ludwig-Mayerhofer 2008a: 214). This could be the case because employers have less information to evaluate the productivity of unemployed applicants, with detrimental effects on the quality of the match (Grassinger 1993). Awareness of this fact increases the risk of failure in the new job for unemployed persons and influences their assessment of the stability of the job on offer. This lower perceived job stability can be assumed to result in a comparatively lower propensity to accept interregional job offers. That is, it is likely that the actual costs of interregional migrations are assessed differentially by employed and unemployed individuals. The latter are

more concerned with risk factors, such as the general employment options at the new location and the difficulty of finding new accommodations.

From this, we derive the following assumption:

H3a: For job offers that require relocation, unemployed persons display lower job offer acceptance than employed persons.

In particular, we assume the following:

H3b: Compared with employed persons, among unemployed persons, the decision to accept interregional job offers is affected to a stronger degree by risk factors, such as general low employment options at new locations and the difficulty of finding new accommodations.

Finally, all of the arguments on different decision making of employed and unemployed individuals — whether in favour of higher or lower acceptance — are assumed to intensify with the prolongation of unemployment. The human capital stock of unemployed individuals suffers from depreciation over time, which results in lower reservation wages. Similarly, the fear of stigmatisation by employers because of the negative signalling effects of unemployment is likely to increase in importance with increasing unemployment duration (Vishwanath 1989). Therefore, we can expect the long-term unemployed to be even more willing to compromise with regard to non-monetary job characteristics.²⁷

H4a: With increasing unemployment duration, individuals are more willing to accept job offers with unfavourable non-monetary characteristics.

In addition, the deterring effect of mobility costs associated with relocation can be assumed — analogous to hypotheses (3a) and (3b) — to be intensified with length of unemployment. In particular, long-term unemployed persons are likely to anticipate potentially lower job stability and thus are likely to be discouraged by mobility risks. One reason for this is the increasing stigmatisation and depreciation of human capital. Moreover, the risk of losing social networks through interregional household relocation might be particularly intimidating for the long-term

²⁷ For monetary job characteristics, a similar argument could be made. However, most long-term unemployed individuals will already occupy the low-wage segment of the labour market, where there is only limited room for further wage concessions. Consistent with this argument, the study by Bender et al. (2008: 75) reported no decrease in reservation wages with increasing unemployment duration in Germany.

unemployed. Given their long-term dependency on means-tested benefits, such individuals are more likely to rely heavily on informal local support networks.²⁸ All of these mechanisms should result in an increasingly negative perception of the costs and risks associated with interregional mobility by the long-term unemployed.

H4b: With increasing unemployment duration, individuals are less willing to accept job offers requiring relocation, particularly to locations with unfavourable local labour and housing market conditions.

3.3 Literature review

To analyse the determinants of job offer acceptance, one can draw on literature from three strands of research. First, the *literature on job offer acceptance* is often based on the concept of a reservation wage, which permits empirical predictions concerning the duration of unemployment in relation to the number of available jobs and the wage level. These proposed relationships have been tested and confirmed extensively on an empirical level (Addison et al. 2010; Bloemen and Stanca 2001; for an overview, see Ludwig-Mayerhofer 2008a: 218ff.). One drawback of this approach has been that the separation of supply- and demand-side factors was barely feasible or only possible indirectly with the help of strong assumptions (e.g., Blackaby et al. 2007). Therefore, it was not possible to determine whether below-average reservation wages were the result of less attractive job offers or of a lower willingness to accept offers that required other concessions on the part of the job seekers.

Second, in the field of *regional mobility research*, studies that depict the migration process as the result of a cost-benefit analysis in the tradition of rational choice approaches (e.g., Sjaastad 1962) are the most prevalent. It is beyond the scope of this paper to provide a comprehensive review of all of the relevant determinants of the mobility decision (for an overview of the economic literature, see Greenwood and Hunt 1984; Greenwood 1997; 1975; for an overview of the sociological literature, see Bayer and Juessen 2012). With few exceptions (e.g., Kley 2013; 2011; Drinkwater and Ingram 2009; Kalter 1997; 1998) most studies only presume the underlying motives of decision making indirectly on the basis of observed actions. This approach risks tautological argumentation if one assumes positive incentives to move from a realised relocation and vice versa (Nisic 2009). Issues of selectivity

28 From the literature on social networks, it is known that with time spent in unemployment, the networks of the unemployed contract and become more family-centred (Ludwig-Mayerhofer 2008b: 226; Diewald 2007; Paugam and Russell 2004). Therefore, dependence on informal support for coping with unemployment should increase as unemployment persists.

might also apply in cases in which it cannot be determined whether better chances for employment and earnings are in fact the consequence of mobility or whether the mobile population is only a particularly career-oriented group that would have been successful anyway. Similarly, it is difficult to conclude whether immobile individuals consciously choose to remain in a region or whether regional mobility was never an option for them. There have been attempts to correct for this selectivity (e.g., Antel 1980; DaVanzo 1981; Nisic 2010). However, such analyses are complex because they must control for all of the determinants of employment and income potential or use longitudinal data, in which a low number of observed relocations is often highly problematic (see, e.g., Jürges 2005). Here, the advantages of the experimental design of a factorial survey become clear. Some studies have used a factorial survey approach in the context of mobility decision making (Abraham et al. 2010; Abraham et al. 2009; Auspurg and Abraham 2007). However, these studies have focused on intra-household and partnership dynamics or the trade-offs between different forms of mobility. The differences between employment status groups could not be addressed by these studies as they excluded the unemployed population.

Third, certain studies have focused on the *differences between unemployed and employed persons with regard to interregional mobility*. Several studies that use micro-data have found a positive relationship between individual unemployment and the willingness to relocate (for an overview, see Greenwood 1997: 683ff. or Herzog et al. 1993). Most of these studies used US data (e.g., Goss and Schoening 1984; DaVanzo 1978). The literature reports mixed findings for the European context. For Great Britain (Jackman and Savouri 1992; Pissarides and Wadsworth 1989; Hughes and McCormick 1989), Sweden (Westerlund 1998; Harkman 1989), and the Netherlands (van Dijk et al. 1989), there is nearly invariable empirical evidence in favour of higher migration rates among the unemployed. However, for Spain (Antolin and Bover 1997) and Finland (Tervo 2000), there are no reports of more frequent migration among the unemployed. These inconsistent results reflect methodological issues (Sandefur and Tuma 1987; Greenwood 1997: 651ff.) and hint at significant disparities among countries that could be attributable to differences in labour market institutions (van Dijk et al. 1989).

In the case of Germany, there have only been a few studies that have focused explicitly on the effects of personal unemployment on regional migration. Birg and Flöthmann analysed periods of unemployment in the context of biographical factors and their effect on regional migration. For women, they reported positive effects of unemployment on mobility. For men, the results are not as clear. Whereas men who had more periods of short unemployment exhibited increased levels of migration, men who had fewer but longer-lasting periods of unemployment exhibited decreased migration levels (Birg 1992: 44).

Friedrichs and Stolle studied 1,451 unemployed persons in Eastern and Western Germany in 1990 and 1991 (Friedrichs 1995; Stolle 2000; Stolle 2005) and reported no significant influence of the duration of unemployment on job-related migration willingness.²⁹ According to their data, the migration of unemployed individuals is hindered by the stressful search for new accommodations, the effort of settling into a new location, doubts regarding the permanence of a new job, and the challenges of reconciling a relocation with the career plans of a spouse (Friedrichs 1995: 256). The authors concluded that for unemployed individuals, these restrictions outweigh the uncertain benefits of relocation. However, they were unable to compare the behaviour of unemployed with employed individuals.

Windzio (2004a) analysed regional migration based on a 1 % sample of German employees between 1984 and 1997 and found a positive effect of individual unemployment on migration. However, for unemployed persons who lived in regions with high unemployment rates, the likelihood of migration was decreased somewhat. Windzio refers to this phenomenon as an "unemployment trap" based on the interpretation that high unemployment in one's social environment could result in discouragement effects (ibid.: 247).

Arntz (2005) analysed the same dataset but restricted it to individuals who became unemployed between 1982 and 1995. Arntz's focus was on the influence of local employment opportunities on the interregional migration of the unemployed. She reported that individual characteristics were more important than labour market conditions in predicting migration for this group and that mobility increased with increasing duration of unemployment. However, her study did not permit comparisons with regard to personal employment status.

A common disadvantage of these studies is their reliance on observed mobility only, which limits the causal interpretation of the results. In contrast, the work of Bönisch and Schneider focused on mobility intentions using data from the German Socio-Economic Panel (GSOEP). They reported a positive effect of unemployment on mobility intentions, which was, however, only of minor importance in explaining actual mobility (Boenisch and Schneider 2010a: 492). In a recent study by Kley (2013), the mobility of 1,165 respondents was analysed over three years. Kley modelled mobility as a three-part process beginning with mobility considerations, followed by concrete planning and the actual relocation. For the first two stages, she reported no statistically significant differences between employed and unemployed individuals. For the risk of leaving the current place of residence, she did not provide a direct comparison between unemployed and employed persons.

29 Similarly, Bender et al. (2008: 75) did not observe decreasing reservation wages with increasing unemployment duration.

As with other studies, the number of unemployed persons ($n = 45$) and the number of observed moves ($n = 139$) were low.

As the above discussion indicates, the topics of job offer acceptance by unemployed persons and interregional job-related mobility concern various fields of research and make high demands on the research strategy and the data used. All of the previous studies on these topics have struggled with problems of selectivity, the disentanglement of supply- and demand-side factors, and low observation numbers for unemployed individuals or migrations. These issues can be addressed using a FSM, the implementation of which is described in the following section.

3.4 Data and methods

3.4.1 Survey and experimental design

Our research is based on a unique combination of survey data from the *Panel Study "Labour Market and Social Security" (PASS)*, which is conducted annually by the German *Institute for Employment Research (IAB)*, with an FSM (for an introduction, see Rossi 1979; Rossi and Anderson 1982).³⁰ The PASS dataset makes it possible to research various questions concerning the labour market, the welfare state, and poverty in Germany. The dataset consists of two sub-samples. The first is a random sample of households that receive unemployment benefit II, and the second is a random sample of households of the German residential population (Trappmann et al. 2010). The survey includes a *household questionnaire* answered by the head of the household and a *person questionnaire* answered by each individual older than 14 years. The dataset contains information on households' and persons' location, employment status, household income, education, age, family size and structure. Because of the two – in each case, representative – samples of unemployed individuals and the general population and the thorough information on labour market and household characteristics, the PASS data are ideally suited for the research questions at hand. Within the FSM that was part of the fifth wave of PASS, the respondents were presented with five hypothetical job offers (*vignettes*).³¹ The vignettes differed in experimentally varied characteristics (*dimensions*), such as the expected income, the number of working hours, and

30 A FSM combines survey research with an experiment. The key idea is that the respondents react to hypothetical descriptions of situations or objects (*vignettes*) instead of answering single-item questions. By independently varying the dimensions of the vignettes, the exact impact of each dimension on the respondents' judgements or decisions can be estimated.

31 The FSM was implemented as part of the research project *Precarious Employment and Regional Mobility* (Auspurg et al. 2011), which was funded by the German research foundation (DFG). For more information, see <http://www.sozioologie.uni-konstanz.de/professuren/prof-dr-thomas-hinz/forschung/aktuelleforschungsprojekte/fs10/>.

employment security (see table 3.1 for all levels and dimensions; for a more detailed explanation of the vignette dimensions, see Subsection 3.4.2). In addition to job characteristics, the distance between the current place of residence and the location of the prospective new job was varied with three levels (one-way commuting times of one hour, four hours and six hours).

Table 3.1 Vignette dimensions and levels^a

Dimensions	Levels		
	1	2	3
1 Increase in net income of household ^b	5 levels, from plus 0 % to plus 80 %		
2 Weekly working hours	20 hours	30 hours	40 hours
3 Over-qualification for offered job	None	Slight	Considerable
4 Prospects of internal promotion	None	Few	Many
5 Contract duration	Permanent	Limited to 1 year	Limited to 3 years
6 Distance from home (one-way commuting time)	1 hour	4 hours	6 hours
7 Local employment opportunities compared with actual residence	Worse	Similar	Better
8 Difficulty of finding adequate housing	Very easy	Some effort	Considerable effort

^a Not displayed here is an additional dimension concerned with employment opportunities for the partner of the respondent at the new place of residence. This dimension was presented to 50 % of the respondents in partnerships. Because the internal partnership dynamics involved with mobility decisions are not the focus of this paper, we determined to forgo the consideration of this dimension in the analyses described here.

^b The increase in income was presented to the respondents as the resulting absolute Euro amount of household income after acceptance of the job offer. The amount represented the (experimentally varied) percentage increase in the actual household income, which respondents had indicated earlier in the interview. Absolute amounts rather than percentages were used to present more tangible job offers. In the experiment design, gains in income were weighted using the working hours to create realistic offers. High percentage increases were overrepresented to present attractive offers.

That is, approximately two thirds of the vignettes described job offers beyond a daily commuting distance (> 1 hour). As vignette sample a fractionalized, *D*-efficient design of 500 different vignettes was used (for details, see Frodermann et al. 2013). This design minimises correlations among the vignette dimensions, which enables estimation of their independent influences.³² The respondents were confronted with random selections of five vignettes each.

³² All possible combinations of all vignette dimensions result in more than 30,000 different vignettes. *D*-efficient designs are constructed using a computer algorithm that searches for a sample characterised by minimal inter-correlation among dimensions and interaction terms and maximal variance and balance of the frequency of levels. This algorithm ensures that the influence of interesting vignette dimensions and interaction terms are mutually uncorrelated. In addition, the design features result in minimal standard errors in regression estimations and therefore a maximum of statistical power to reveal the influence of individual dimensions (for more details: Kuhfeld et al. 1994; Frodermann et al. 2013). The sample yielded a *D*-efficiency of 94.5.

The experimental design (standardisation and random allocation of job offers to respondents to prevent correlations between dimensions and respondent characteristics) makes it possible to observe whether decision making differs between respondent groups if all of the respondents receive similar job offers. For each offer, the respondents were asked to separately evaluate the attractiveness of the job offer, their willingness to accept the job, and their willingness to move to the new location using an 11-point rating scale for each evaluation. The scale values ranged from 0 (*very unattractive/unlikely*) to 10 (*very attractive/likely*) (see figure 3.1 for an example). In this paper, we discuss only the willingness to accept the job offer.

Figure 3.1 Vignette example (translated, varying dimensions highlighted)

If you accepted the offered job, your net household income will rise to 3,510 euros. The working hours are approximately 20 hours per week, and the job requirements are significantly below your professional skills. The job offers many opportunities for internal promotion and is limited to 3 years. The one-way trip from your current place of residence to the location of the job is approximately 6 hours. The labour market at the new location is worse than at your current residence. Finding appropriate housing there will require considerable effort.

How attractive is the job offer to you?

Very unattractive ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ Very attractive

How likely would you be to accept the offer?

Very unlikely ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ Very likely

How likely would you be to completely move to the new location?

Very unlikely ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ Very likely

Similarly to (Arntz 2005: 10), we define one-way distances requiring one hour of commuting as changes of job location that lie within normal commuting distances. Distances that require commuting of four or six hours we interpret as job locations that would necessitate a house-hold relocation. With approximately two thirds of offers being beyond a daily commuting distance, the experimental setting facilitates a detailed study of the willingness to relocate based on a sufficient number of cases of unemployed individuals. The random allocation of vignettes to respondents ensures that all of the respondents are presented with comparable job offers. These methodological advantages of the experimental design help us examine the dynamics of the decision-making process with respect to the acceptance of interregional job offers. By focussing on stated behaviour, we avoid the selectivity bias associated with the observation of actual relocations while using a good predictor of individual behaviour (Boenisch and Schneider 2010a: 489). If we find no (or a positive) correlation between the (un)employment status and the acceptance of interregional job offers or at least

find such a correlation after controlling for typical mobility costs, we conclude that unemployed persons are more likely than employed persons to relocate for comparable job opportunities. Regional disparities in unemployment rates and low migration rates of unemployment are then more likely to be the result of demand-side effects, i.e., employers being less likely to offer jobs to unemployed individuals from other regions or those offers not being noticed by the unemployed.

3.4.2 Data and variables

The FSM was applied to the computer-assisted personal interviewing (CAPI)-sample of PASS surveyed in 2011 for all individuals who were available to the labour market (for a detailed description of the module, see Frodermann et al. 2013).³³ An indicator variable that distinguishes these two groups – individuals registered as unemployed (for reasons of brevity, hereinafter referred to as *unemployed*) and individuals in non-marginal employment making social security contributions (hereinafter referred to as *employed*) – will be the central variable for testing our hypotheses.³⁴ Thorough analyses revealed the experimental stimuli (vignette dimensions) to be balanced in terms of employment status and other characteristics of the respondents, including age, gender, education, and household income. Thus, the random allocation of experimental splits to treatment groups was successfully implemented. The restrictions placed on filtering respondents into the FSM and the focus on the two main subgroups of unemployed and employed individuals resulted in 20,858 vignettes evaluated by 4,199 respondents who provided valid data for the central variables used in our analyses.³⁵ Nearly half of the respondents ($n = 1,757$) were registered as unemployed at the time of the survey.³⁶

Our dataset consists of the dimensions of the vignettes that describe the monetary and non-monetary characteristics of the job offer and provide additional information on the new place of residence. A binary variable indicates the group

33 The selection criteria were the following: age between 15 and 58 years, either in employment or unemployment or housewife/househusband, not in education, not in military or civil service, not on any form of parental leave, and not in any form of retirement.

34 Because these are the principal groups of interest in this paper, we determined to focus on them and excluded all other status groups for which we could not assume that the members were following the logic of either group. This approach resulted in the elimination of a total of 441 individuals (inactive or sick persons and the group of housewives and househusbands) from the analysis.

35 Because of missing data for certain dependent or independent variables, we could not use 997 evaluations 36.1 % of which were provided by unemployed respondents.

36 The special sampling strategy of the PASS survey results in an over-representation of recipients of unemployment benefit II, who are predominantly long-term unemployment persons compared with unemployment benefit I recipients. Our unemployment sample includes 103 benefit I recipients and 1,581 benefit II recipients. (Note that unemployment benefit II is granted on the level of *needs units*, not individuals. Therefore, individual unemployment status and benefit receipt may differ). Additionally, there is a third category of registered unemployed persons who do not qualify for either unemployment benefit scheme. In our sample, there were 90 such individuals.

of employed or unemployed persons, which is, as already stated, the central variable for testing our hypotheses. Furthermore, we include an extensive set of variables known to be relevant to job offer acceptance and mobility decisions to make individuals with different mobility costs comparable. The following section briefly discusses the rationale for using the set of vignette dimensions and control variables.

Job search theory states that an employee who expects to receive a better offer with a sufficient probability will decline an offer at hand and continue the search for a better one. Therefore, we would expect that the higher the (*monetary*) *gains of an offer*, the less likely an individual will be to find a better one and the more likely the job offer is to be accepted – provided that the analysis controls for the required *working hours*.

If a job requires considerably less qualification than the employee holds, he or she is likely to expect to find a better job match in the future. Additionally, there is a risk of human capital depreciation if the worker does not use his or her trained capabilities for a longer time period. Therefore, *overqualification* is expected to reduce job acceptance when controlling for income gain. Employment security in the new job is an important non-monetary factor in the evaluation of the pay-out period and the probability of follow-up employment (e.g. Booth et al. 2002). Therefore, job offer acceptance is expected to increase with increasing *duration of the offered employment contract*. Similarly, career prospects in the new position can be viewed not only as a promise of higher future earnings but also as an indicator of job security. Therefore, it is reasonable to expect increasing acceptance of job offers with better *prospects of internal promotion*. However, following the theory of compensating wage differentials, we expect differences between employed and unemployed individuals. Unemployed and in particular long-term unemployed persons are likely to be more willing to make more concessions with respect to all of these non-monetary job characteristics than employed persons (H2, H4a).

Because we are concerned with job offers that require a degree of regional mobility on the part of the employee, the costs of migration are assumed to influence the likelihood of accepting a job offer. There is ample evidence that individuals generally prefer to avoid household relocation because of monetary, social and psychological costs (Lee 1966; Fairchild 1925). The most prevalent strand of migration research literature is related to the human capital framework. In this tradition, mobility decisions are cost-benefit evaluations, in which the benefits and the costs can assume various monetary and non-monetary forms (Sjaastad 1962; Shields and Shields 1989). The distance between the current place of residence and the location of the prospective new job is a good indicator of the financial and psychological mobility costs (Drinkwater and Ingram 2009).

With increasing distance, commuting becomes less feasible. Therefore, household relocation is increasingly required. Household migration between regions implies high financial costs and leaving the old environment and settling into a new one, which creates information costs and psychological costs (Greenwood 1997: 666). Therefore, we expect that the greater *the distance is between one's home and the job's location* (measured here in terms of hours of commuting time), the greater the pressure is for a household relocation and the less attractive the job offer. The relocation costs are particularly problematic for (long-term) unemployed individuals who have fewer monetary resources, face higher risks of becoming unemployed again, and rely more heavily on local support networks. Thus, we expect the distance dimension to interact with the unemployment status (H3a) and the length of unemployment (H4a).

Similar arguments should apply to the two dimensions that pertain to details of the costs and risks associated with migration. If a household relocation is necessary, the cost of the search for *adequate housing opportunities* becomes part of the relocation cost (Oswald 1996; Oswald 1999). Empirically, this is important because regions with good employment opportunities are often those where housing is expensive. If the gains in job mobility are thwarted by the cost of renting a dwelling, the job offer becomes less preferable. Thus, the greater the expected difficulty of finding adequate housing is, the less likely it is that the job will be accepted. Finally, individuals are typically uncertain whether new job options will result in good, stable matches. Once hired by a new employer, an employee may find that the job characteristics do not suit him or her, or the employer may not be satisfied with the employee's performance. Therefore, a possibility remains that the employment contract will be terminated. In this case, all of the mobility expenses would be lost, at least in the case of the employee having difficulty finding another job in the new location. Consequently, a job offer becomes more attractive if there are better *local employment opportunities* at the new employer's location (DaVanzo 1978). We expect employed individuals to be more concerned with these risk factors, meaning that both dimensions should interact with the employment status (H3b) and the length of unemployment (H4b).

In addition to studies on job-related mobility factors, there is an extensive body of literature on the individual, household, and social influences on the general willingness to relocate that is relevant to the specification of the control variables. On an individual level, mobility is known to be related to *age*, with younger persons displaying higher rates of mobility. This phenomenon can be attributed to longer potential pay-out periods for younger persons (Clark 1986; Becker 1962), the absence of mobility impediments in earlier lifecycle stages (Rossi and

Alves 1980), lower levels of firm-specific human capital, or better possibilities of improvement re-garding person-job matching (Topel and Ward 1992). Additionally, interregional mobility varies with the *level of education*. Although human capital argumentation based on observed mobility stresses higher mobility incentives for the more qualified, in our experimental design, the job offers are independent of the level of education. Thus, for individuals with lower levels of education who have generally less access to job offers than more highly qualified individuals, these offers should be comparatively more attractive. On the household level, the *presence of a (married) partner* who has a say in the mobility decision (Abraham et al. 2010; 2009; Speare et al. 1975) or the presence of *school-age children or elderly or sick relatives* who require care is known to increase the costs of mobility and therefore reduce the willingness to relocate (Schaeffer 1987; DaVanzo 1981; Mincer 1978; Speare et al. 1975; Kalter 1997). In addition to personality traits and household structure, the embeddedness at the place of residence is recognised as a mobility-impeding factor. This factor can be represented by *property ownership* (Rossi and Alves 1980) or *local family and friendship ties* (DaVanzo 1981).

3.4.3 Data analysis: the double hurdle approach

Because we are addressing job offer acceptance in an interregional mobility context, it is not surprising to discover a substantial number of individuals who display no inclination to accept certain job offers. In our study, we found that 40.5 % of responses to the 11-point scale of job offer acceptance were zero, which indicated an absolute unwillingness to accept the respective job offer. Job offer acceptance is the result of a principal decision to participate in the labour market and a (separate) decision regarding how many hours to work (see, e.g., Borjas 2010 or Franz 2009: 22). In our study, the participation choice is often linked to the necessity of relocation. Migration research literature has long recognised migration as a multistage process (see Kalter 1997: 66; Rossi and Alves 1980: 149ff.), from the formulation of a mobility desire to concrete mobility intentions to the actual relocation. This multistage nature implies that there may be factors situated on the level of the respondent such as property ownership or school-age children that cause individuals to refuse any migration, independently of the traits of the jobs on offer. Our sample includes not only unemployed persons and individuals who are currently searching for jobs but also employed persons who are content with their current jobs. Therefore, we examine the mobility decision of respondents with different frames of reference. Additionally, there are individuals who are characterised by high mobility costs that impede them from mobility regardless of the potential gains linked to job offers.

On an empirical level, this question requires addressing two issues, the theoretically proposed multi-stage process, and the simultaneous consideration of covariates situated on the level of the respondent and the job offer traits on the level of the individual vignette. First, the two-stage nature of the decision behind accepting an interregional job offer implies that simple ordinary least squares (OLS) regression models or Tobit models would be misspecified (Noltze et al. 2012; Wodajo 2007; Wooldridge 2003). As an alternative, Cragg 1971 double hurdle model uses two different latent variables that enable the formulation of two separate processes in determining the outcome of a limited dependent variable, such as our 11-point response scale. The first stage (Tier 1) assumes the form of a probit model that estimates whether an individual is potentially being willing to accept a job offer (i.e., whether the dependent variable exceeds zero). If the first hurdle is passed, a truncated linear model is estimated for the second stage (Tier 2). Therefore, two hurdles must be overcome before job offer acceptance can be observed. First, a (new) job and the related mobility must be desired. Second, the job characteristics in combination with the personal mobility cost structure must be sufficiently favourable.³⁷ The double hurdle specification allows for the possibility of different factors affecting the two decisions as well as the same explanatory variables having different impacts on each of the two hurdles. This class of models has been applied extensively to analysis of the consumption of goods (for an overview, see Wodajo 2007: 16) and is well accepted in labour supply estimation (Carlin and Flood 1997; Blundell et al. 1987).

Second, because each respondent evaluated five vignettes this implies a hierarchical data structure in which the answers are nested by respondent. To address this violation of the classical regression assumption of uncorrelated error terms, the double hurdle model provides the option of estimating cluster-robust standard errors (clustered sandwich estimator; Burke 2009: 587). This allows us to correctly estimate models on the vignette level that include covariates on the level of the respondent.

An important decision must be made concerning the use of explanatory variables for each hurdle. The aforementioned arguments lead us to assume that the decision to be willing to participate in (interregional) labour markets (Tier 1) is more dependent on personal traits, such as age, family circumstances, and property ownership, which help to control some of the costs of mobility, than on the specific characteristics of the job offer. Despite this rationale, the vignette

37 Observations with the value zero can result from either of the two processes (Smith 2002), i.e., at the first hurdle, as a reflection of immobility or unwillingness to accept (new) jobs in principle, or at the second hurdle, as a deliberate decision in response to the details of the job offered. Because hurdling both processes depends on latent variables, it is impossible to allocate observed zeros precisely to one process.

dimension *commuting distance* could function as a signal that the relocation of the household is necessary and therefore has a principal effect on the decision to evaluate the offers in more detail. Additionally, the vignette dimension *fixed-term contracts* could act as a fundamental deterrent for employed individuals already in tenured contracts because such a limitation increases the level of job insecurity. Therefore, a contract limitation should be perceived as a stronger career setback than other dimensions within the vignettes and should provoke respondents to rule out certain offers. The model of the second hurdle (Tier 2) includes all of the vignette dimensions to capture the varying opportunity structure that is created by the job characteristics. Both models include the same list of additional control variables (cf. section 4.2 and the bottom of table 3.2).

3.5 Results

Table 3.2 shows a series of models that test our hypotheses in a stepwise fashion. In this section, we briefly discuss the results for the vignette dimensions, address our proposed hypotheses and examine important control variables. For a meaningful interpretation of double hurdle regression coefficients, it is important to understand the tier separation. In the column labelled *Tier 1* in table 3.2, the probit part of the model is specified. Here, the general willingness to accept the job offer is analysed with only the level of significance and signs of the coefficients being used for interpretation. Once the first hurdle is overcome and individuals are found to be potentially willing to accept job offers, the second hurdle determines whether the individuals accept the jobs offered. The results from the second estimation are displayed in the column labelled *Tier 2*. Because this model is truncated and linear, the coefficients reflect partial effects and can be interpreted by their significance, sign, and size. However, they are conditional on overcoming the first hurdle and must be interpreted in this way (Burke 2009: 588).

3.5.1 Results for vignette dimensions

Overall, all of the coefficients of the vignette dimensions exhibit the theoretically expected signs (cf. Section 4.2) and are statistically significant. Model 1 displays the coefficients of the vignette dimensions and the unemployment indicator. The *monetary gains* from accepting the job exert a highly significant and positive influence on the job acceptance of those individuals who are generally willing to accept job offers. The effect of *weekly working hours* on job offer acceptance is negative. This result is intuitive if we bear in mind that this coefficient is controlled by the other job characteristics, including the income gain. When presented with job offers

Table 3.2 Double hurdle models of willingness to accept job offers

	Model 1		Model 2		Model 3	
	Tier 1 b/se	Tier 2 b/se	Tier 1 b/se	Tier 2 b/se	Tier 1 b/se	Tier 2 b/se
<i>Increase in net household income [percent]</i>		0.033*** (0.002)		0.033*** (0.002)		0.033*** (0.002)
<i>Weekly working hours</i>						
Ref.: 20 hours						
30 hours		-0.349** (0.116)		-0.496** (0.154)		-0.346** (0.116)
40 hours		-0.727*** (0.112)		-0.850*** (0.141)		-0.725*** (0.112)
<i>Over-qualification for offered job</i>						
Ref.: None						
Slight		-0.137 (0.090)		-0.203 (0.122)		-0.138 (0.090)
Considerable		-0.284** (0.093)		-0.265* (0.128)		-0.286** (0.093)
<i>Prospects of internal promotion</i>						
Ref.: None						
Few		-0.022 (0.095)		-0.013 (0.132)		-0.022 (0.095)
Many		0.459*** (0.093)		0.544*** (0.128)		0.456*** (0.093)
<i>Contract duration</i>						
Ref.: Permanent						
Limited to 1 year	-0.264*** (0.024)	-1.226*** (0.099)	-0.327*** (0.032)	-1.526*** (0.138)	-0.264*** (0.024)	-1.227*** (0.099)
Limited to 3 years	-0.138*** (0.023)	-0.796*** (0.091)	-0.163*** (0.031)	-0.926*** (0.123)	-0.138*** (0.023)	-0.796*** (0.091)
<i>Distance from home (one-way commuting time)</i>						
Ref.: 1 hour						
4 hours	-0.591*** (0.025)	-2.573*** (0.105)	-0.591*** (0.025)	-2.574*** (0.105)	-0.592*** (0.032)	-2.515*** (0.141)
6 hours	-0.801*** (0.026)	-2.583*** (0.109)	-0.801*** (0.026)	-2.587*** (0.109)	-0.798*** (0.034)	-2.549*** (0.149)
<i>Local employment opportunities</i>						
Ref.: Worse compared with place of residence						
Similar		0.636*** (0.095)		0.635*** (0.095)		0.742*** (0.129)
Better		0.467*** (0.096)		0.466*** (0.096)		0.542*** (0.132)
<i>Difficulty of finding adequate housing</i>						
Ref.: Very easy						
Some effort		-0.299*** (0.090)		-0.297*** (0.090)		-0.209 (0.122)
Considerable effort		-0.638*** (0.094)		-0.636*** (0.094)		-0.658*** (0.127)

Table 3.2 (continued)

	Model 1		Model 2		Model 3	
	Tier 1 b/se	Tier 2 b/se	Tier 1 b/se	Tier 2 b/se	Tier 1 b/se	Tier 2 b/se
<i>Currently unemployed</i>	0.080*	0.381*	0.009	-0.091	0.083	0.629**
	(0.040)	(0.150)	(0.048)	(0.272)	(0.050)	(0.220)
<i>Interactions with unemployment status</i>						
Weekly working hours – 30 hours				0.328		
				(0.224)		
Weekly working hours – 40 hours				0.283		
				(0.195)		
Level of over-qualification – Slight				0.145		
				(0.180)		
Level of over-qualification – Considerable				-0.043		
				(0.186)		
Prospects of internal promotion – Few				-0.030		
				(0.188)		
Prospects of internal promotion – Many				-0.190		
				(0.186)		
Contract duration – 1-year contract			0.152**	0.654***		
			(0.047)	(0.196)		
Contract duration – 3-year contract			0.060	0.307		
			(0.046)	(0.183)		
Commuting distance (one-way) – 4 hours					0.002	-0.131
					(0.051)	(0.212)
Commuting distance (one-way) – 6 hours					-0.009	-0.079
					(0.052)	(0.221)
Local employment opportunities – Similar						-0.238
						(0.192)
Local employment opportunities – Better						-0.170
						(0.193)
Adequate housing – Some effort						-0.200
						(0.180)
Adequate housing – Considerable effort						0.049
						(0.189)
<i>Intercept</i>	1.326***	6.731***	1.353***	6.938***	1.324***	6.637***
	(0.164)	(0.653)	(0.164)	(0.661)	(0.164)	(0.656)
<i>Observations</i>	20,858		20,858		20,858	
<i>Persons</i>	4,199		4,199		4,199	
<i>Log-Likelihood</i>	-42,677		-42,663		-42,675	
<i>AIC</i>	85,523		85,515		85,535	
<i>BIC</i>	86,191		86,262		86,266	

Cluster-robust standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Control variables not shown here: age, gender, partner, marital status, number of children, household size, education, net household income, attachment to place of residence, property ownership, community size, and regional state dummies.

that promise comparable income gains, respondents prefer those offers in which they can minimise their working hours. The signs for *level of over-qualification* and *prospects of internal promotion* are as expected. Although respondents seem to tolerate modest levels of over-qualification, over-qualification becomes a significant deterrent at higher levels, where the depreciation of human capital becomes an issue. Similarly, career prospects only become important for jobs that provide many opportunities for advancement. The duration of the employment contract is an important indicator of job security and was therefore included in both tiers. This dimension exerts a negative influence on the principal participation decision and the extent of job offer acceptance. As one would expect, contracts limited to one year are more likely to be rejected than contracts limited to three years. Central to our scenario of interregional mobility is the *(one-way) distance* between the place of residence and the new job. In particular, long distances that involve commuting times of four or six hours in one direction, which necessitate relocating the household, strongly reduce the likelihood of the acceptance of the offer, both in terms of the principal decision and the indication of the extent of acceptance. That there are only marginal differences between the four- and six-hour conditions supports the argument that it is the need to relocate rather than the actual distances that influences the willingness to accept job offers. Finally, the two dimensions that describe the labour and housing markets at the new place of residence are also important to the acceptance decision in intuitively expected ways. Better *local employment opportunities*, which act as a proxy for the risk in case of failure in the new job, foster acceptance, whereas harsher conditions in the *local housing market*, which represent a part of the relocation cost, deter acceptance.

3.5.2 Results for hypotheses

Model 1 in table 3.2 reports the results from the first regression model to test our hypotheses. The model consists of a specification including the vignette dimensions, an indicator for the employment status, and control variables for relevant socio-demographic factors and for conditions at the current place of residence of the respondents. This model is sufficient for testing H1, according to which we expected to observe greater willingness to accept job offers for unemployed than for employed individuals. In fact, the *unemployment indicator* displays a positive sign, which indicates a greater willingness of unemployed persons to accept employment. This outcome holds true for the principal acceptance decision (Tier 1) and for the extent of the willingness to accept a job offer (Tier 2). This result is consistent with our theoretical argumentation and highly similar to the results reported by Windzio (2004a: 268).

We further derived arguments from the theory of competing wage differentials that led us to expect, according to H2, interactions between the unemployment status and the influences of non-monetary job characteristics. As we have observed, longer working hours, temporary con-tracts, and high levels of over-qualification are deterrents to job offer acceptance. As a result of the limited number of alternative offers, we assumed that unemployed individuals would be more willing to compromise with respect to these dimensions. Model 2 displays the coefficients of a modified form of Model 1 that includes the vignette dimensions, socio-demographic and place-of-residence controls, the unemployment indicator, and the interaction effects between the proposed vignette dimensions and the unemployment indicator.³⁸ The only dimension for which significant differences are found is the *limited contract duration* dimension. One-year contracts seem to deter the unemployed less than the employed at both levels of the decision process.

This effect is intuitive because for unemployed persons even a short-term contract is an opportunity to advance toward (re-)employment, whereas for most employed persons, a short-term contract increases employment uncertainty. In terms of competing wage differential argumentation, the effect also reflects the differences in available alternatives between the two status groups. However, for *working hours*, *over-qualification* and *career prospects*, no significant interactions are found, providing us with only partial support for H2.³⁹

In H3a, we assumed unemployed persons to be less interested in job offers that require relocation. Again, we define *necessity to relocate households* as corresponding to job offers with one-way distances of more than one hour commuting time. A specification with interaction effects of the unemployment status with the *commuting distance* and the *housing* and *labour market conditions* at the location of the prospective job offer is displayed in Model 3. As we can observe, unemployed persons do not react significantly differently from employed persons with regard to distance. Both subgroups are similarly discouraged by the requirement to relocate. However, the signs of the interaction effects are negative and hint at least in the direction of a stronger deterrent effect for unemployed individuals.

H3b suggested that the costs of mobility are weighted differently by unemployed and employed persons. Again, there is no empirical support for the assumption of a stronger sensitivity of unemployed persons with regard to mobility costs and risks (general employment options at new location; difficulty of finding adequate housing).⁴⁰

38 Due to space limitations, only the results for variables relevant to the testing of the hypotheses presented in this paper are displayed. Extensive tables of additional results are available from the authors on request.

39 Likelihood Ratio Test of Model 1 vs. Model 2: LR $\chi^2(10) = 29.06$, $p = 0.001$.

40 Likelihood Ratio Test of Model 1 vs. Model 3: LR $\chi^2(8) = 4.58$, $p = 0.8011$.

Finally, we expected the assumed effects to be moderated by unemployment duration. In H4a, we stated that with increasing duration of unemployment, individuals should become more willing to accept unfavourable job characteristics. Table 3.3 shows a replication of the series of models from table 3.2 with a focus on the unemployment sample and on interactions between unemployment duration and the vignette dimensions. Model 4 is a specification without interaction effects that is used as a reference model in likelihood ratio tests of the joint significance of the interaction terms. However, there is no direct effect of *unemployment duration* on job offer acceptance. Rather, longer phases of unemployment seem to alter the weighting of other factors relevant to the acceptance decision. If the estimation of Model 2 is repeated while limiting the sample to unemployed respondents and including interaction effects between duration of unemployment and the vignette dimensions (working hours, over-qualification, contract duration, and career prospects) in Model 5, only three of eight interaction terms are found to be statistically significant (*prospects of internal promotion—many*: $\beta = -0.005$; $p = .028$; *contract duration of one year*: $\beta = -0.007$; $p = 0.009$; and *contract duration of three years* for the principal decision: $\beta = -0.001$; $p = 0.034$).⁴¹ These results do not indicate a higher willingness among the unemployed to make concessions concerning job characteristics. On the contrary, longer unemployment induces individuals to be more reluctant to accept temporary jobs. Moreover, jobs with good career prospects, which can be perceived as more demanding, tend to particularly discourage individuals with long unemployment durations. H4b emphasises the reinforcing effects of prolonged unemployment on the negative perception of costs and risks associated with interregional migration. As mentioned above, regional mobility that requires household relocation is reflected by *distances* that involve more than one hour of commuting in each direction. As Model 6 indicates, we find the expected negative relationship, which, however, fails to be statistically significant and is only of marginal size. Contrary to our expectations, with increasing unemployment duration, favourable *local employment opportunities* tend to have a discouraging effect, although not a significant one. The only significant interaction is between the duration of unemployment and the *difficulty of finding adequate accommodation* ($\beta = -0.005$; $p = 0.033$), which provides support for the expectation of the increasing negative evaluation of risk factors associated with mobility by long-term unemployed persons.⁴²

41 Likelihood Ratio Test of Model 4 vs. Model 5: $LR \chi^2(10) = 22.24$, $p = 0.014$.

42 Likelihood Ratio Test of Model 4 vs. Model 6: $LR \chi^2(8) = 5.67$, $p = 0.684$.

Table 3.3 Double hurdle models of willingness to accept job offers

	Model 4		Model 5		Model 6	
	Tier 1 b/se	Tier 2 b/se	Tier 1 b/se	Tier 2 b/se	Tier 1 b/se	Tier 2 b/se
<i>Increase in net household income [percent]</i>		0.0270*** (0.003)		0.0270*** (0.003)		0.0270*** (0.003)
<i>Weekly working hours</i>						
Ref.: 20 hours						
30 hours		-0.0660 (0.167)		-0.0970 (0.231)		-0.0600 (0.167)
40 hours		-0.4090* (0.163)		-0.4920* (0.218)		-0.4110* (0.163)
<i>Over-qualification for offered job</i>						
Ref.: None						
Slight		-0.0770 (0.130)		-0.2740 (0.188)		-0.0820 (0.129)
Considerable		-0.2960* (0.133)		-0.3610 (0.191)		-0.2900* (0.133)
<i>Prospects of internal promotion</i>						
Ref.: None						
Few		-0.0280 (0.130)		-0.1470 (0.189)		-0.0290 (0.130)
Many		0.3130* (0.133)		0.5870** (0.186)		0.3180* (0.133)
<i>Contract duration</i>						
Ref.: Permanent						
Limited to 1 year	-0.1660*** (0.036)	-0.8410*** (0.136)	-0.1340** (0.050)	-0.4880*** (0.190)	-0.1660*** (0.036)	-0.8380*** (0.136)
Limited to 3 years	-0.1000** (0.035)	-0.5810*** (0.133)	-0.0240 (0.049)	-0.6380*** (0.184)	-0.1010** (0.035)	-0.5810*** (0.133)
<i>Distance from home (one-way commuting time)</i>						
Ref.: 1 hour						
4 hours	-0.5960*** (0.041)	-2.5380*** (0.153)	-0.5950*** (0.041)	-2.5290*** (0.152)	-0.6160*** (0.057)	-2.5140*** (0.226)
6 hours	-0.8200*** (0.041)	-2.5550*** (0.158)	-0.8200*** (0.041)	-2.5610*** (0.158)	-0.8410*** (0.057)	-2.5260*** (0.233)
<i>Local employment opportunities</i>						
Ref.: Worse compared with place of residence						
Similar		0.5030*** (0.138)		0.5150*** (0.138)		0.5300*** (0.194)
Better		0.3800** (0.136)		0.3920** (0.136)		0.5060** (0.192)
<i>Difficulty of finding adequate housing</i>						
Ref.: Very easy						
Some effort		-0.3880** (0.130)		-0.3790** (0.130)		-0.1290 (0.181)
Considerable effort		-0.5900*** (0.136)		-0.5760*** (0.136)		-0.4300* (0.191)

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Table 3.3 (continued)

	Model 4		Model 5		Model 6	
	Tier 1 b/se	Tier 2 b/se	Tier 1 b/se	Tier 2 b/se	Tier 1 b/se	Tier 2 b/se
<i>Duration of unemployment in months</i>	0.0001 (0.0004)	0.0001 (0.002)	0.0010 (0.001)	-0.0020 (0.003)	-0.0001 (0.001)	0.0040 (0.003)
<i>Interactions with unemployment status</i>						
Weekly working hours – 30 hours				0.0004 (0.003)		
Weekly working hours – 40 hours				0.0020 (0.003)		
Level of over-qualification – Slight				0.0040 (0.002)		
Level of over-qualification – Considerable				-0.0010 (0.003)		
Prospects of internal promotion – Few				-0.0030 (0.002)		
Prospects of internal promotion – Many				-0.0050* (0.002)		
Contract duration – 1-year contract			-0.0010 (0.001)	0.0070** (0.003)		
Contract duration – 3-year contract			0.0010*		(0.001)	(0.002)
Commuting distance (one-way) – 4 hours					0.0004 (0.001)	-0.0010 (0.003)
Commuting distance (one-way) – 6 hours					0.0004 (0.001)	-0.0010 (0.003)
Local employment opportunities – Similar						-0.0010 (0.003)
Local employment opportunities – Better						-0.0020 (0.002)
Adequate housing – Some effort						-0.0050* (0.002)
Adequate housing – Considerable effort						-0.0030 (0.003)
<i>Intercept</i>	0.8180*** (0.226)	6.1050*** (0.845)	0.7790*** (0.226)	5.9710*** (0.862)	0.8320*** (0.228)	5.8800*** (0.858)
<i>Observations</i>	8,570		8,570		8,570	
<i>Persons</i>	1,725		1,725		1,725	
<i>Log-Likelihood</i>	-17,841		-17,830		-17,838	
<i>AIC</i>	35,851		35,848		35,861	
<i>BIC</i>	36,443		36,512		36,510	

Cluster-robust standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Control variables not shown here: age, gender, partner, marital status, number of children, household size, education, net household income, attachment to place of residence, property ownership, community size, and regional state dummies.

In sum, the results of testing hypotheses (4a) and (4b) indicate no higher willingness to accept unfavourable job characteristics with increasing unemployment duration. On the contrary, there is evidence for discouragement effects of long-term unemployment in the context of interregional mobility and for a more negative evaluation of relocation costs.

3.5.3 Results for control variables

Because of space limitations, we refrain from displaying the results concerning the effects of our controls in table 3.2 and table 3.3 and provide instead a verbal description. The control variables overwhelmingly display the signs we would expect based on the literature. We find a lowering of job acceptance with age, for women, and for the *presence of a partner or children* living in the same household.

With respect to *level of education*, we expected a negative relationship because of fewer alternative job offers to lower-qualified persons. Better-educated persons may estimate their chances in local labour markets as higher and therefore are less willing to relocate (Bailey 1991).⁴³ For both tiers, we find significant effects for all levels of education. For the principal decision (Tier 1), the more educated respondents are more likely to exhibit higher job offer acceptance, whereas for the decision on the specific extent of acceptance (Tier 2), we find the expected negative relationship with the highest-educated persons displaying the lowest acceptance. This outcome seems to indicate a deliberate evaluation of the specific job offers by better-educated individuals, who are more open to acceptance and mobility in principle but more reluctant with regard to actually considering (interregional) offers. Job offer acceptance increases with the *log of household income*. This outcome is intuitive because the same percentage increase presented within the vignettes means higher absolute gains for those with higher actual incomes. The place of residence controls indicate that the known effects of *property ownership* and greater *attachment to the place of residence* result in lower willingness to accept interregional job offers. The coefficients of the *community size* variables seem to indicate a higher tendency for job-related mobility in more urban environments (Tier 1). However, for those generally willing to relocate, a lower willingness to leave larger (urban) communities is found (Tier 2).

43 It is important to remember that by the nature of our experimental design, the characteristics of the job offer were randomly allocated to insure independence from the personal characteristics of the respondents. Therefore, in contrast to other studies, we do not measure differences in mobility that are caused by selective access to attractive offers (with better-educated individuals generally having more access to those offers) but only those differences that remain when all individuals have access to the same job offers.

3.6 Discussion and outlook

In this paper, we examined whether unemployed persons differ from employed ones with respect to their willingness to accept job offers. The answer to this question is important to our understanding of interregional disparities in unemployment. Theoretically, an unemployed individual might simply relocate if there were a suitable job in another region. As differences in regional unemployment rates and available jobs indicate, this mechanism for labour market equilibrium does not function well. There are two possible reasons for this dysfunction. On the one hand, unemployed persons may refuse to accept job offers that require regional relocation. This argument is consistent with findings that individuals generally do not like to relocate because of the associated monetary and non-monetary costs (Lee 1966; Fairchild 1925). These costs may be distributed unequally between unemployed and employed individuals. On the other hand, unemployed persons may not differ in their acceptance of interregional job offers but simply obtain fewer such offers from employers or may not search actively in other regions.

To disentangle these effects, we employed an experimental design that provided unemployed and employed labour market participants with the same set of hypothetical job offers. Our approach is based on a factorial survey design that was incorporated into the Panel Study "Labour Market and Social Security" (PASS), conducted annually by the Institute for Employment Research (IAB). In that survey, the respondents reacted to hypothetical job offers (*vignettes*) that differed in experimentally varied characteristics, such as the expected in-come, job quality, and the distance from the respondents' current place of residence. For each offer, respondents were asked to evaluate their willingness to accept the job. Through the random allocation of vignettes to respondents, the comparability of jobs offered to employed and unemployed persons is ensured, which enables us to focus only on the observation of labour supply-side effects.

Our results indicate that unemployed persons are more willing to accept such hypothetical job offers than employed persons. Moreover, we did not find substantial differences in the way unemployed individuals evaluate the characteristics of interregional job offers compared with their employed counterparts. The only difference found was that unemployed persons were more likely to accept short-term contracts than employed persons. Otherwise, neither job characteristics, such as length of employment, nor moving conditions, such as the distance from the current residence, were evaluated differently by the two groups. With respect to the effect of increasing unemployment duration on job offer acceptance, we

found no evidence for increasing willingness to accept jobs with unfavourable characteristics over time. On the contrary, long-term unemployed individuals seemed discouraged by demanding jobs and more reluctant to relocate to take non-permanent jobs than individuals who had been unemployed for shorter periods of time. In addition, the factors that indicated the costs and risks related to household relocation seemed to pose greater impediments for the long-term unemployed. However, evidence for this observation is weak and may suffer from the explicit oversampling of unemployment benefit II recipients in the PASS survey, which have predominantly long unemployment durations of one year or more.

Unemployment benefit II recipients are legally obliged to accept any "reasonable" job regard-less of whether job acceptance implies regional relocation. In fact, this higher demand for concessions is at the essence of the administrative Hartz reforms and has shaped the process of referral by German job centres in recent years. Therefore, higher job offer acceptance by unemployment benefit II recipients may be driven at least in part by the perceived pressure to be open to interregional relocation.⁴⁴

The results of this study lead us to the conclusion that supply-side effects are not the most important factor in the explanation of interregional unemployment disparities except for certain individuals with exceptionally long unemployment durations. Of course, one could object that our hypothetical approach overestimates the willingness of unemployed individuals to relocate. Within our experimental framework, the respondents did not have to bear the relocation costs. Moreover, there may be a social desirability bias because unemployed respondents who receive welfare benefits may feel pressured to accept even hypothetical jobs. However, even if we overestimate the willingness of unemployed individuals to relocate, there is evidence of a significant correlation between hypothetical behaviour exhibited in factorial surveys and observed behaviour, at least with respect to the factors that influence decisions in both cases (Eifler 2007; Groß and Börensen 2009). Similar results have been reported for closely related methods of choice experiments (Blamey and Bennett 2001; Carlsson and Martinsson 2001; Louviere et al. 2000; Louviere and Timmermans 1992; Telser and Zweifel 2007). Moreover, there is evidence in the literature on regional mobility that the willingness to relocate is a predictor of actual relocation behaviour (Brett and Reilly 1988; Kalter 1998; Kley 2013). In addition, the factorial survey results for job-related migration behaviour have indicated similar influences of variables such as real estate property and

44 To test this assumption, a model specification that included an indicator of whether an unemployment benefit II recipient was obliged to search for a job by his or her case worker was incorporated. The variable was found to be insignificant.

occupational characteristics on the real migration propensity revealed in German panel data (Nisic and Auspurg 2009).⁴⁵

For future research, we believe it is fruitful to consider demand-side effects in the explanation of interregional disparities in unemployment rates. Unemployed individuals might not relocate because of a lack of interregional job offers. Taking into consideration that unemployed individuals are, on average, lower-skilled and thus less productive, employers may have less incentive to bear higher recruiting costs (e.g., advertising the position in a national newspaper). If this conclusion is true, labour market policy should focus on measures to decrease costs and uncertainty on the employer's side.

However, this finding should be interpreted with caution because we arrived at it indirectly. Future research should focus on the question of how to characterise demand-side effects more directly. Moreover, there may be special subgroups among unemployed individuals who exhibit a lower tendency to accept interregional job offers because of special restrictions. We found evidence that longterm-unemployed persons are more hindered by difficulties in finding accommodation, less willing to accept short-term employment and less responsive to good career prospects. Future research should try to explain whether these effects are caused by the discouragement effects of long-term unemployment. Similarly, members of other sub-groups, such as single mothers and certain ethnic groups, might be less willing to accept interregional jobs because of their particularly high embeddedness in local support networks. Examining these groups more closely will be a subject of future research.

45 One drawback of existing evaluations is their reliance on different populations for observations of hypothetical and actual behaviour. The PASS survey will provide the opportunity to directly assess the external validity of hypothetical job acceptance and the willingness to relocate by comparing hypothetical behaviour with the actual behaviour of the same respondents in future panel waves.

4 The role of social capital in the job-related regional mobility decisions of unemployed individuals⁴⁶

JEL classification: J22, J61, J62, J64

Keywords: Labour Supply, Job Offer Acceptance, Factorial Survey, Interregional Mobility, Unemployment, Social Inequality

Abstract:

Social capital is an important factor in interregional mobility. Although most prior research has focused on its role in the job-finding process, this study investigates the function of social networks and the social capital embedded therein after an interregional job offer has been received. This subject is particularly important for the unemployed, who should be able to exploit a mobility strategy to re-enter the labour market. Unemployed persons rely on their social networks to cope with joblessness, but there is evidence that social contexts can also act as mobility traps for this group (Windzio 2004a). We examine whether the unemployed weight social capital in a unique manner when making decisions regarding mobility.

To investigate these issues, we combine a factorial survey module (FSM) with data from the German Panel Study "Labour Market and Social Security" (PASS) to generate representative samples of both unemployed and employed persons with a randomised mobility stimulus in the form of hypothetical interregional job offers. Our results reveal the mobilising effects of exposure to conflict-laden relationships with the social network and the household. These are particularly pronounced for unemployed persons, highlighting the importance of factors that influence decision making about mobility beyond simple economic considerations.

4.1 Introduction

The importance of social capital in the context of regional mobility is well established in the literature. The majority of prior studies have focused, in particular, on the role of social capital in the job-search and hiring processes (e.g., Granovetter 1995; Lin et al. 1981), and these studies assume that networks are a source of information for discovering and securing interregional job offers. However, another strand of research high-lights the role that social capital plays

⁴⁶ This chapter is joint work and a reprint of: Bähr, Sebastian and Martin Abraham (2016). 'The role of social capital in the job-related regional mobility decisions of unemployed individuals'. In: *Social Networks* 46, pp. 44–59. With permission of Elsevier (© 2015 Elsevier B.V. All rights reserved.)

as a locally bound resource that can act to inhibit mobility (e.g., Kalter 2011; Spilimbergo and Ubeda 2004; Uhlenberg 1973). Separating these two effects is hardly possible when observational data on interregional job-related mobility are employed. Our experimental approach allows us to overcome this hindrance to answer the following question: What are the effects of social networks and the social capital embedded therein on decision making regarding mobility after an interregional job offer has been received? In examining this question, we can eliminate the information effect of networks by studying hypothetical job offers, which allows us to focus on the inhibiting effects of social capital on regional mobility.

Addressing this question is of particular importance to the unemployed because this group, in particular, should be able to benefit from spatial flexibility. Nonetheless, social capital is a valuable source of social support – both material and emotional – that helps coping with unemployment. With respect to interregional mobility, these resources are in danger of becoming lost and leaving unemployed individuals to fend for themselves in a new and unfamiliar environment. Social capital is not limited to positive influences (Portes and Landolt 1996). In particular, the unemployed are prone to "lock in" effects created by unfavourable social circumstances that can hinder their mobility despite the apparent incentives of mobility (Windzio 2004a). Thus, it is important to know whether unemployed persons weight social capital differently in their mobility decision making. To analyse this question, we combine an experimental factorial survey module (FSM) and data from the German Panel Study "Labour Market and Social Security" (PASS) to generate representative samples of unemployed and employed persons with a randomised mobility stimulus in the form of hypothetical interregional job offers.

The remainder of our paper is structured as follows. First, we discuss the relevant international literature on regional mobility related to unemployment and social capital. Second, we provide our theoretical arguments, which are developed from the resource approach to social capital, and we formulate our research hypotheses. Third, we describe our data-set – including the experimental FSM and information on the social network – and the double hurdle specification used to estimate our results. Fourth, we present our results and discuss the implications of our study for employment services and future research.

4.2 Review of the literature

The relevant literature for our research consists of three main strands: first, the literature on the mobility of unemployed individuals; second, studies on the role of social capital in mobility processes; and third, re-search on how social capital develops in unemployed individuals. There is ample research on the determinants of regional mobility, but this research fails to provide unanimous evidence regarding whether unemployed individuals are more mobile than other status groups. Studies using American data have repeatedly found a positive relationship between personal unemployment status and willingness to relocate (e.g., DaVanzo 1978; Goss and Schoening 1984; for an overview, see Greenwood 1997: 683ff. or Herzog et al. 1993). The results are substantially more mixed for European data. Higher relocation rates are reported in studies from the United Kingdom (Hughes and McCormick 1989; Jackman and Savouri 1992; Pissarides and Wadsworth 1989), Sweden (Harkman 1989; Westerlund 1998), and the Netherlands (van Dijk et al. 1989). Contrasting results are reported for Spain (Ahn et al. 1999; Antolin and Bover 1997) and Finland (Tervo 2000), where unemployed individuals were not observed to have higher mobility rates. Inconsistent methodologies (Greenwood 1997: 651ff. Sandefur and Tuma 1987), actual differences between European countries in their labour market institutions (van Dijk et al. 1989), and different weighting methods of the economic vs. non-economic factors involved in mobility decisions in studies of European and US samples (Biagi et al. 2011: 113) are assumed to have led to these disparate results. In Germany, there is also only mixed evidence: some studies have failed to report clear results (Birg 1992: 44; Kley 2013), other studies have found lower job-related mobility among the unemployed (Fendel 2014) and still other studies report higher mobility rates for jobless individuals (Arntz 2005; Boenisch and Schneider 2010a; Windzio 2004a). Utilising the same data-set that we use, Abraham et al. (2013) compared unemployed and employed individuals on their stated job offer acceptance in response to hypothetical interregional job offers and found that the unemployed indeed show higher rates of acceptance.⁴⁷ However, the existing literature provides a less-clear picture than expected, particularly when considering the higher incentives of unemployed individuals in job searches. Mobility is highly specific to the individual labour market context but also depends on the mode of analysis. With few exceptions (e.g., Abraham et al. 2013; Boenisch and Schneider 2010a; Kalter 1997; Kley 2013; Vidal and Kley 2010), research on mobility has thus far focused only on observing realised

⁴⁷ In mobility research, this is frequently considered a good proxy of actual behaviour (Boenisch and Schneider 2010a: p. 489).

mobility. This focus runs the risk of drawing false inferences when attempting to determine influential factors because unrealised mobility remains unobserved. Another drawback of many of the aforementioned studies is their use of general population survey data, which provide a limited number of cases of unemployed individuals and even fewer cases of spatial mobility in this group. This factor severely limits the depth of analysis and masks existing heterogeneity between different subgroups of unemployment.

The role of social capital in the context of regional mobility has also been the subject of ample research. The diminishing effect of mobility on existing social capital stocks has repeatedly been reported (Glaeser et al. 2002; Haug 2008; Schiff 1992: 165) and particularly on relations within the wider family (Boisjoly et al. 1995). Thus, substantial numbers of local friends and family are found to deter mobility (e.g., for the US: DaVanzo 1981; Kan 2007; for the UK: Belot and Ermisch 2009; for Denmark: Dahl and Sorenson 2010; for Germany: Boenisch and Schneider 2010b; Bührer 1997; Nisic and Petermann 2013; Rainer and Siedler 2009; Vidal and Kley 2010; for a data-set of 15 European countries: David et al. 2010). Bührer (1997) emphasises the distinction between the effects of networks of friends and the effects of networks of relatives and stresses the importance of social resources – particularly for the early stages of decision making regarding mobility. In the context of conflicts within the social network or the household, regional mobility was found to be an alleviating factor because it can liberate individuals from constricting familial and kin ties and allows new voluntary social relationships to be made at the new location (Amato 1993; Höllinger and Haller 1990; Hugo 1981: 196; Lai and Siu 2006).

Regarding the unemployed in particular, previous studies have reported that losing a job can result in a gradual loss of job-related social capital (David et al. 2010: 193; Diewald 2007; Gallie et al. 1994; 2001) that is generally attributable to the loss of income during unemployment, which simultaneously acts as an important factor in establishing and maintaining social capital (Andreß et al. 1995). The professional ties that are lost as the result of unemployment are often replaced by new contacts – many of which are unemployed themselves – and by intensifying relationships with existing non-work-related contacts, particularly with respect to close family and household members (Gallie et al. 1994; Jackson 1988; Marquardsen and Röbenack 2010; Spilimbergo and Ubeda 2004). Studies consider the orientation of unemployed individuals towards their social network as an important factor in determining various outcomes ranging from well-being (e.g., Clark 2003) and health (e.g., Warr 1987) to labour market integration (e.g., Brandt 2006; Sattler and Diewald 2010). Together, these results indicate that local social capital has a generally negative effect on regional mobility. Unemployed

individuals rely more on their shrunken core social network, which leads us to assume that they should be particularly vulnerable to potential mobility-induced losses. In light of the variety of results regarding unemployed regional mobility, this vulnerability might be an important underlying factor.

4.3 Theoretical background and hypotheses

In our analysis, we formulate hypotheses that attempt to test the entire range of theoretical propositions for our application. Our hypotheses draw on social capital theory, as developed by James Coleman (1988; 1990) and Henk Flap and colleagues (2013: 225; Graaf and Flap 1988), because their resource-centred approach and emphasis on social capital's normative dimensions suit our application well.

Coleman provides a general definition of social capital as 'the value of [...] aspects of social structure to actors as resources that they can use to achieve their interests' (1988: p. 101). These constitutive 'aspects' of social capital can be divided into the following three dimensions (Graaf and Flap 1988: p. 453). First, they can be classified as mutual obligations, expectations, and trust (generalised reciprocity) (Coleman 1988: 102; Flap and Völker 2013: 226). An actor's membership in a social network means that network ties support that actor, which constitutes at first a onesided investment into the relationship that may include the implicit or explicit expectation of future reciprocation. Trust that future payback will indeed occur and that the investment will be rewarded sufficiently is thus essential for amassing social capital, which can be viewed as being a rational action (see, e.g., Glaeser et al. 2002 for a corresponding economic view). This dimension of social capital can be measured as the number of network ties prepared to help the actor, the resources that they can use to provide this help, and the extent to which they are prepared to help. As with the concept of human capital, the stock of social capital requires on-going reinvestment to avoid depreciation. In contrast to human capital, social capital is invested in ties to other individuals rather than in the actor herself and is therefore conditional on the willingness of other individuals to support the actor when she needs assistance. Second, social capital can provide an actor with information from various channels of the network. Although this function has been the focus of much research⁴⁸, it is not the focus of our study. As a consequence, we hold this effect constant within our experimental design by detaching the job offer from network channels of information. Third, social capital in the form of social group norms and effective sanctions can encourage

⁴⁸ Past findings on the job information effects of social networks also may suffer from serious selectivity issues (see Chua 2011 and the response by Krug 2012).

or discourage behaviour in order to produce collective goods for the group and to influence actors' decision-making processes as a result.

Interregional mobility, defined as relocation to a distant location, entails leaving a familiar social context and greatly diminishing the value of amassed social capital as a result (Flap and Völker 2013: p. 229; Coleman 1988: p. 116). Despite the advances in digital communication, spatial distance makes claiming and honouring mutual obligations more difficult because many forms of support in everyday life require proximity and face-to-face meetings (Mok and Wellman 2007; Nisic and Petermann 2013: p. 200). With relocations, assisting a mobile actor means that there is an increased risk of not being paid back because future meetings are more uncertain with geographical distance (Diekmann 2007: p. 51; Lindenberg 2002). Therefore, rational social capital investors will hesitate to lend their support in the face of mobility. As a result of this mechanism, persons are increasingly denied social support if they actually move away; moreover, anticipating this effect will discourage persons with high levels of social resources from moving. In accordance with the arguments outlined above, we can assume that there is a generally negative relationship between the stock of social capital an actor can command and her willingness to relocate to a new location (H1). As a first approximation for the amount of social capital resources, we use the size of an individual's network of close friends and family (H1a). This approximation relies on the assumptions that more network ties provide more resources *ceteris paribus* – making relocation more costly to potential movers – and that these ties are not concentrated at the new location. Clearly, a more direct measure would be the number of support resources that individuals report are available to them (H1b). Because access to these potential resources is conditioned on the benevolence of an actor's network ties, lower levels of conflict in the relationship with an actor's network (H1c) or with her household (H1d) should result in higher willingness to support. This type of context increases the stock of social capital that is accessible to the actor and discourages mobility as a result.

This first set of mechanisms should generally apply to all individuals, whereas the following arguments should illuminate why the unemployed consider social capital differently in their mobility decisions. Social support from friends and from family, in particular, can help individuals cope with their unemployment status. The resources accessible through the social network can act as a substitute for income losses. The unemployed's lack of economic resources puts them in a weaker network position and a state of dependence vis à vis their social network, which is a state that employed individuals should not typically experience. Although finding employment in another region would weaken this dependency, the unemployed face a higher risk of becoming unemployed again in the future (for Germany see

Schmillen and Umkehrer 2013; for other European results see Arulampalam et al. 2000; Luijkx and Wolbers, Maarten H. J. 2009; Nilsen and Reiso 2011; or Schmelzer 2011). Losing their job at the new location would leave such unemployed individuals with no income and no social support. Thus, with respect to regional mobility, their higher reliance on their existing social capital and their higher risk of failing in the new job should make the unemployed more sensitive to mobility-induced potential social capital losses than employed individuals (H2). The same should also hold for network size (H2a), the amount of social support resources (H2b), and the infrequency of conflict with their network (H2c) and their households, in particular (H2d). For all these dimensions, we assume more negative interactions for the unemployed than the employed. Thus, we would expect that the effects of higher levels of social capital lead to even less willingness to relocate for unemployed individuals than for employed individuals.

In addition to providing support resources and transmitting information, the third dimension of Coleman's 1990 classification emphasises social group norms as a form of social capital. Through norm control, tightly knit social groups can influence group members' behaviour and sanction deviation. Employment norms are of particular interest in our context of job-related interregional mobility. A social network consisting mostly of employed individuals should encourage group members to remain employed or to undertake more effort to quickly find a job. Social group norms can also exert negative influences because downward levelling norms discourage deviant ambitious behaviour (Portes 1998: p. 17; Portes and Landolt 1996). In our case, a network in which unemployment is the group norm might sanction individuals' efforts to find re-employment and create an environment in which responsibility for finding re-employment lies outside the purview of the unemployed individual (Clark 2003). Their weaker network positions and increased dependence on social support resources render the unemployed more susceptible to norm control by their social network, thus making the network a prime source of encouragement or discouragement for this group (Luedtke 1998; Marquardsen 2012; Nonnenmacher 2009). By contrast, employed individuals are affected to a much lesser degree by their social network because of their economic independence and work-related contacts, which can lessen the impact of normative demands from friends and families. We expect unemployed individuals to be more willing to relocate than employed individuals when their network largely consists of employed individuals (H3a). Because it is generally acknowledged that ties to employed individuals gradually become replaced by ties to unemployed individuals in unemployed individuals' networks (Gallie et al. 1994), an unemployed individual's increased orientation towards a social network with less labourmarket orientation should lead to discouragement (Kley 2010). Thus, unemployed individuals will be

less willing to relocate than employed individuals if their network largely consists of the unemployed (H3b).

4.4 Data and methods

We use wave five of the PASS data-set in our analysis. The PASS survey, which consists of both computer-assisted telephone interviewing (CATI) and computer-assisted personal interviewing (CAPI) segments, is conducted annually by the German Institute for Employment Research (IAB) and follows a dual sampling strategy that provides representative data regarding both the general population and Unemployment Benefits II (UB II) recipients⁴⁹ (for an overview see Trappmann et al. 2010; Trappmann et al. 2013). The PASS data-set contains extensive labour market information, including employment histories, job search behaviour and respondents' experiences regarding unemployment both on the individual level and on the household level. This core set of questions is supplemented with sociodemographic data, information on family and household structures, social embeddedness and participation data, and rotating thematic questionnaire modules. Wave five was collected in 2011 and includes a particularly detailed module on the structure of the social network of up to three important contacts, the available social support resources and forms of social capital (see Wolf (2009) for details on the underlying rationale). This combination of detailed information regarding the labour market status of the respondents, sufficient sample sizes of unemployed individuals and detailed data on the social capital endowment of respondents make the PASS data set ideal for our analysis.

The mobility stimulus is part of an experimental factorial survey module (FSM) that was included in the CAPI sample of wave five.⁵⁰ An FSM combines survey research with an experiment. The key idea is that the respondents react to randomly assigned hypothetical descriptions of situations (vignettes) rather than answering single-item questions. By independently varying the dimensions of the vignettes, the exact impact of each dimension on the respondents' decisions can be estimated (for an introduction see Auspurg and Hinz 2015; Rossi and Anderson 1982; Wallander 2009).

In our case, the vignette scenario consisted of hypothetical job offers that featured nine experimentally varied characteristics, including, among others, the expected increase in household income, weekly working hour requirements, distance

49 UB II is a means-tested basic income support scheme, which is granted on the household-level to individuals that are available in principle to the labour market but who earn below subsistence level.

50 The FSM was implemented as part of the Precarious Employment and Regional Mobility research project (Auspurg et al. 2011), which was funded by the German Research Foundation (AU394/1-1).

of the new workplace from the current place of residence, and information regarding the local labour and housing markets at the new place of work (for a detailed description see Abraham et al. 2013; and Frodermann et al. 2013). The job offers were designed to be attractive (i.e., substantially increasing household income) to facilitate the observation of acceptance and mobility in a general population sample consisting of individuals of varying inclinations for job search and mobility. To elicit mobility observations, the job offers were designed to require disproportionately more spatial flexibility from the job seeker with single commuting distances of one, four, or six hours. Each respondent who was available to the labour market in principle⁵¹ received five vignettes. After reading each scenario, respondents evaluated the job offer according to its attractiveness, their willingness to accept it, and their willingness to relocate to the new location to accept it. The three responses were recorded on 11-point-rating scales ranging from very unattractive/very unlikely to very attractive/very likely (see figure 4.1 for a translated example).

Each of the five vignettes displayed different combinations of dimensions. Because each dimension varied independently of the others, the unbiased effect of each dimension on the variation in a respondent's evaluation can be measured while controlling for the other dimensions. Because the vignettes were allocated randomly to respondents, each person received comparable job offers (on average), thus uncoupling the quality and quantity of job offers from personal characteristics including the respondents' human or social capital endowment. In real labour markets, social capital may be instrumental for the arrival rate of job offers. Our experiment controls for this informative function of social capital that has frequently been the focus of research and thus allows estimating the resource effect and normative function of social capital. Another advantage of using an FSM is that it creates an experimental stimulus for job-related mobility. Because we can simultaneously observe mobile and immobile responses to our vignettes, we can derive inferences from a more complete data-set than if we were to rely on information on realised mobility only (Rabe 2006).

When relying on experimental data from an FSM, we draw inferences from stated reactions to hypothetical situations for explaining real behaviour. Therefore, external validity might be an issue.⁵² Until now, the evidence seems to suggest two things: first, that variance between stated behaviour and real world behaviour is mostly caused by changes in circumstances that can alter the costs or utility of

51 The selection criteria were as follows: between 15 and 58 years of age; employed, unemployed or housewife/househusband; not in school; not in the military or civil service; not on any type of parental leave; and not in any type of retirement.

52 The debate regarding the relationship between attitude and behaviour (labelled 'the A-B-problem' by Schuman and Johnson 1976) is not new but has recently been rekindled (see Jerolmack and Khan 2014 and subsequent comments by Cerulo 2014, and DiMaggio 2014).

decision making (Kalter 1997: pp. 198ff.); and second, that the factors influencing both hypothetical and real world decision making regarding regional mobility seem to be similar and seem to work in the same directions (e.g., Nisic and Auspurg 2009: p. 238).

In the context of regional mobility, in particular, there is ample research on the necessity of distinguishing the various stages, beginning with considering relocation to concrete planning to actually relocating (e.g., Huinink et al. 2014; Kalter 1997; Kley 2011; Rossi and Alves 1980; Sell and de Jong 1983). Each of these stages can be influenced by different sets of factors and in different ways; therefore, each stage must be considered in its own right and predictions from willingness to relocate to actually relocating are complex. We can only provide inferences for the first stages of decision making: first, considering relocation in general and second, considering whether to relocate in response to a specific, concrete offer. However, there is evidence that willingness to relocate can be a good indicator of subsequent relocation (Boenisch and Schneider 2010b: p. 489; Brett and Reilly 1988).

4.5 The double hurdle model

As discussed above, mobility researchers emphasise the need to regard mobility decision making as a multi-stage process, at least when analysing voluntary mobility (in contrast to tied movement). The willingness to relocate is therefore seldom an ad-hoc decision; instead, it is made in accordance with an individual's selection process that consists of at least two stages. First, individuals in principle must consider mobility as an option. At this stage, property ownership and/or obligations to care for small children are well-known factors that deter mobility in general. Second, after the first hurdle is passed and individuals are potentially mobile, the individual job offer is evaluated and a more detailed cost-benefit evaluation is performed. The factors influencing the second decision can be different from those influencing the first decision (e.g., reservation wages, preferences regarding working hours) or they may be the same, but they exert influences in opposite directions. A double hurdle model is applied to empirically account for these theoretically proposed differences (Cragg 1971).⁵³

⁵³ Note that a double hurdle model considers the truncation of the dependent variable but does not model the selection into the second hurdle. We choose a double hurdle strategy because zeros in our dependent variable are 'true zeros' or actual outcomes (also called corner solutions, see Wooldridge 2010: Chapter 17), i.e., we observe absolutely no willingness to relocate. By contrast, Heckman models are designed to account for potential outcomes, which are latent variables that are only partially observed (Dow and Norton 2003: p. 6). In our case, there is no selection bias in observing the dependent variable. A tobit model is the direct alternative because it is a special case of the double hurdle model with the same set of independent variables at each stage. Since our theory suggests that different variables may be important at each stage, we opt for the more flexible hurdle approach.

Figure 4.1 Vignette example (translated, varying dimensions highlighted)

If you accepted the offered job, your net household income will rise to **3,510 euros**. The working hours are approximately **20 hours** per week, and the job requirements are **significantly below** your professional skills. The job offers **many opportunities for internal promotion** and is **limited to 3 years**. The one-way trip from your current place of residence to the location of the job is approximately **6 hours**. The labour market at the new location is **worse** than at your current residence. Finding appropriate housing there will require **considerable effort**.

How attractive is the job offer to you?

Very unattractive ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Very attractive

How likely would you be to accept the offer?

Very unlikely ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Very likely

How likely would you be to completely move to the new location?

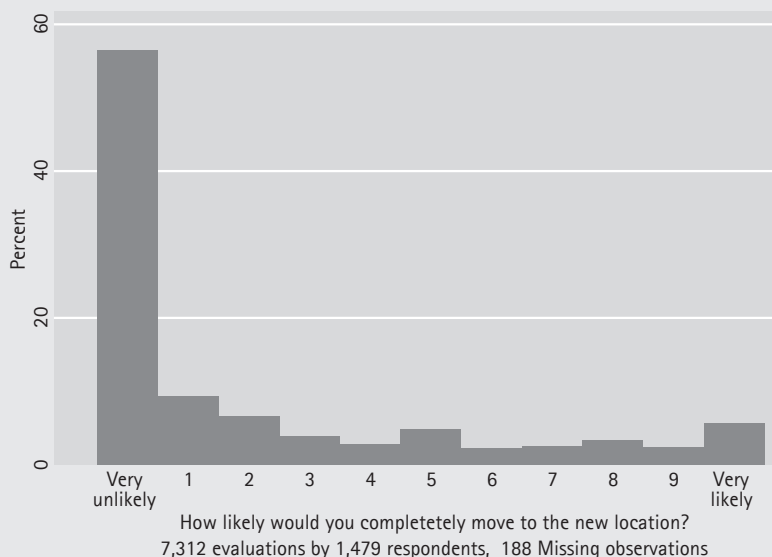
Very unlikely ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Very likely

This family of models combine a probit model for the first decision stage (also called the first hurdle) with a truncated linear regression model for the second stage (hurdle). The same continuous dependent variable is used in both equations; in our case, this variable is the 11-point rating scale of the likelihood to relocate for the job offer. The probit segment only models the decision of the dependent variable taking zero or non-zero values, whereas the truncated-regression model segment estimates the exact values that the dependent variable takes and is conditional on the individuals having passed the first hurdle.⁵⁴ We assume that answers of zero on the rating scale represent a fundamentally different decision by the respondent than answers of non-zero. These answers of zero operationalise the first step of the decision about mobility in general, whereas non-zero outcomes should constitute the second step of the decision about the extent of mobility as a response to a particular and actual job offer. As theoretically proposed, we find that about half of all answers are zero and that there is a big gap between answers of zero and the rest of the scale (see figure 4.2).⁵⁵

⁵⁴ Estimation is done in Stata 14 using the *churdle* command.

⁵⁵ We observe 7,312 answers from 1,479 respondents to our dependent variable 'willingness to relocate' and 188 observations of non-response, approximately one-third of which are non-responses to the vignette experiment as a whole (75 observations or 15 persons). Thus, we have a missing rate of 2.51 per cent. If we exclude the non-responses at the level of the vignette module, we end up with a missing rate of 1.52 per cent.

Figure 4.2 Distribution of the dependent variable "willingness to relocate"



Furthermore, according to theory, the passing of the first hurdle is found to be mainly determined at the respondent level. About half of all zero answers were made by respondents who did not vary their response on any of the five vignettes (see Appendix A – figure A1). In other words, their reluctance to relocate or to accept a job offer in general is unrelated to the varying characteristics of the hypothetical job offers, and therefore seems predetermined mainly by personal characteristics. Since this pattern is unique to answers of zero, we believe that this is the right threshold for the theoretically proposed decision steps.⁵⁶

Both equations are linked to enable joint model inference. The main advantage of these models compared with OLS is that each equation can consist of varying sets of independent variables, thus allowing for different and opposing effects at each hurdle.

The resulting first-hurdle coefficients from the probit part are only interpretable regarding effect direction and significance, whereas the second hurdle coefficients result from a truncated linear model and are thus marginal changes that are conditional on passing the first hurdle. Taken together, these hurdles make interpretation and hypothesis testing difficult; therefore, the unconditional

⁵⁶ Sensitivity checks show that changes in thresholds of one or two scale points do not change our results substantially. As a consequence, the more scale points we subsume under the first hurdle, the less variance there is to be explained at the second hurdle. With increasing thresholds, point estimates are closer to zero and confidence bands are narrower.

overall marginal effect over the two hurdles constitutes our preferred display format. This format allows us to present the results as meaningful coefficients, while simultaneously accounting for the underlying dual decision.

Most of our hypotheses are tested as interactions of variables with groups of respondents (e.g., unemployed vs. employed individuals). Because double hurdle models are highly non-linear, we must be cautious when interpreting these interactions. Ai and Norton (2003) highlight the fact that the coefficient of the interaction term in non-linear models does not represent the interaction effect. Thus, inferences from this coefficient can be misleading because the sign and size may differ from the actual quantity of interest.⁵⁷ We solve this problem by calculating average marginal effects for each variable of interest and each employment group and then testing for significant group differences.

Because each respondent received five vignettes, we employ a hierarchical data structure with evaluations nested within respondents, which inflates sample sizes and thus leads to smaller standard errors that can lead to mistaken inferences. To counter these violations of the Gauss–Markov assumption of uncorrelated standard errors, we estimate our models using clustered sandwich standard errors.

4.6 Variables and operationalisation

For a discussion of the results, we will first provide details regarding the PASS survey's twofold network module, the standard set of variables presented each wave and the extended set presented to respondents in waves three and five. Second, we present some descriptive information and discuss the use of employment status groups as our main tool for testing interactions. Third, we discuss the functional form of our dependent variable to re-emphasise the need for adequate modelling of this corner solution. Finally, we test our hypotheses using series of multivariate regression models.

The PASS data-set provides a standard set of variables to capture the levels and differences in the social embeddedness of respondents in each wave, including network size⁵⁸ and a question on conflict frequency within the respondent's household.⁵⁹ In addition, a more detailed network module was included in waves three and five, which provides information on up to three of the most important contacts in the

57 This difference sparked an ongoing econometric debate regarding how to best test interaction hypotheses and display the effects (e.g., Buis 2010; Frondel and Vance 2012; Greene 2010; Norton et al. 2004); this statistical knowledge seems to be less known in sociology (see for a welcome exception Auspurg et al. 2011; or Best and Wolf 2014: p. 164) or at least widely ignored in applied research.

58 'How many close friends or family members do you have a close relationship with who are outside your household'

59 'How often do misunderstandings, tensions or conflicts occur in your household? 'Very often', 'often', 'sometimes', 'rarely' or 'very rarely or never?'

social network of the respondent⁶⁰ and a generator (Van der Gaag and Snijders 2005) of both social support resources and of the occurrence of positive and negative social capital in the network (see table 4.1). Our dataset does not provide information about the location of network ties or social resources. For our theoretical argumentation to hold, we must assume that these instruments generate mainly local resources. We argue that – at least for the German context – studies support the locality of social contacts. For example, Mewes (2009: p. 41) showed that 65 per cent of all ties were reachable locally within 15 minutes. Additionally, the location of our job offers was hypothetical, which should make systematic effects of potential social capital that is located at the new work place implausible.

Table 4.1 Items of the detailed network module

Available social resources ^a	Existence of social capital ^b
Do you know someone ...	In the past three months, have you had contact with people ...
• Whose advice you can trust • Who would tell you about a job vacancy? • Who encourages you to continue your education? • You can turn to with personal problems? • Who would help you apply for a job? • Who would recommend you to an employer? • Who would help you fill out forms for agencies, taxes or social benefits? • Who supports you in every way? • Who would lend you 1,000 euros? • Who would help you in a conflict	– Who drink a lot of alcohol? + Who own their own business with at least three employees? – Who have been in prison in the last 5 years? + Who are involved in hiring decisions? + Who earn more than 3,000 euros per month? – Who were repeatedly involved in violent conflicts?
^a Please tell me, if you know people who would support you in the following situations. These can be people living in your household or outside your household. I will not ask further questions about these persons.	
^b My following questions concern persons with whom you have had contact in the past three months. Those can be persons living inside or outside your household.	

We include the previous mobility experience of the respondent because this might influence both willingness to relocate and the amount of social capital an actor can access. We generated such previous mobility experience from the duration of residence at the current location and the age of the respondent. We obtain three groups: the first group had never had prior experience with spatial mobility (41 %), the second group had experienced mobility more than 3 years earlier (54 %), and the third group had experienced mobility in the most recent 3 years (5 %) (see 4.A Supplementary data – table 4.A.1 for an overview of descriptive

⁶⁰ Information is provided on gender, education, labour market status, frequency of conflict, and the degree of kinship of that person.

statistics). These figures are comparable to those reported for Germany by Lück and Ruppenthal (2010).

The second set of social network questions was only presented to those respondents that also participated in wave three – thereby enabling comparisons over time – and results in a smaller sample size of about one-third of all available cases in wave five for analyses using information from this detailed set of questions. Selection into this smaller sample should be an exogenous process because the respondents had no control over the selection mechanism. Indeed, wave five of the PASS survey includes a large refreshment sample that was not eligible for the detailed network module, regardless of the personal traits of those respondents. Using this smaller sample might nonetheless be problematic for testing our hypotheses if the resulting group of respondents differs systematically from the general population. Because the selection process is essentially driven by survival in the panel study from waves three to five, the willingness to relocate and the duration of unemployment might both be affected. To test and control for selectivity, we ran a Heckman-style probit model for selection into the extended network module (see 4.A Supplementary data – table 4.A.2). We included a broad range of sociodemographic variables and psychological instruments (such as the big five factors) to capture unobserved heterogeneity. The resulting inverse Mills ratio was included in our estimation models to detect selectivity see 4.A Supplementary data – table 4.A.3). Because the corresponding coefficient for selection bias is insignificant, we conclude that selectivity (at least on observables) is not an issue for our analyses.

The comparison of employed and unemployed persons is at the heart of this study. When studying the unemployed, most studies are limited to using a dummy variable for employment status; only a few studies also include the duration of unemployment. This approach has two drawbacks. First, it hinders the interpretation of results because there is always a main effect of being unemployed when the duration variable is zero (which should represent a meaningful value, e.g., the sample mean). Second, this procedure assumes a linear (or quadratic, etc.) effect of the duration of unemployment, which neglects abrupt institutional changes, (e.g., from unemployment insurance to unemployment benefits II). Modelling unemployment heterogeneity properly involves a number of variables that complicate the interpretation. The relevant information is frequently not available or the data do not provide enough cases for differentiating unemployment groups. However, the PASS data-set provides a sufficient number of cases for a detailed analysis of unemployment. To facilitate the interpretation of our results, we grouped respondents according to their employment status and split unemployed persons into multiple groups according to the duration of their unemployment. The three groups of unemployed persons are split at 24 and 48 months of unemployment, and 24 months is the longest period of unemployment

insurance (unemployment benefits I) receipt. Because of its specific sampling strategy, the PASS data-set involves mostly persons receiving basic income support (unemployment benefits II), which have longer durations of unemployment, on average. Therefore, the unemployment group was split again at 48 months to allow for more detailed analyses. In so doing, we hope to provide novel in-sights into unemployment dynamics.

To separate unemployed from employed persons more clearly, atypically employed persons⁶¹ were removed from the latter group. As atypical employment is frequently between normal employment and unemployment, it is difficult to argue that atypical employees adhere to the logic of either group. Although they are not the focus of this study, they are included in our models, but their results are not displayed.

4.7 Results

Table 4.2 presents a set of double hurdle models that test our general hypotheses about social capital in the mobility-making process. The models are estimated at the level of the responses to the five vignettes. As a consequence, the first set of variables consists of the dimensions of the job offer vignette. The second set consists of socio-demographic variables, chief among them the labour market status groups that are central for testing our second set of hypotheses. Household-level variables and controls on the place of residence complement the model. The social capital variables are added individually in each model to test our first set of hypotheses. Each model in table 4.2 displays the probits and conditional marginal effects for the two parts of the double hurdle model, respectively, and the unconditional overall average marginal effect (AME). The first column represents the probit segment (the first hurdle), which models general willingness to relocate. Because this decision is theoretically independent of specific aspects of job offers, personal traits should primarily explain this decision. Nonetheless, we included two vignette dimensions – distance from home and contract duration – because they might act as strong indicators for refusing a job offer and mobility in general. Coefficients are expressed as probits on the probability of a non-zero outcome.

The second column models the second hurdle of the specific willingness to relocate for a given job offer and is conditional on passing the first hurdle (being mobile in general). At this juncture, job offer characteristics as well as personal and network traits should play an important role. This is a truncated linear regression model and the coefficients are conditional marginal effects. Unconditional AMEs that combine both hurdles are displayed in the third column of each model.

61 Atypical employment comprises all forms of employment that deviate from traditional standard employment: minor (or marginal) employment, part-time employment of less than 21 hours weekly, fixed-term employment, and temporary agency employment.

Table 4.2 Double hurdle regression modelling testing the social capital effects on the willingness to relocate (H1)

Vignette dimension	Double hurdle models DV willingness to relocate (0–1)			Model 1: H1a			Model 2: H1b			Model 3: H1b_pos		
	Hurdle 1 b/se	Hurdle 2 b/se	AME b/se	Hurdle 1 b/se	Hurdle 2 b/se	AME b/se	Hurdle 1 b/se	Hurdle 2 b/se	AME b/se	Hurdle 1 b/se	Hurdle 2 b/se	AME b/se
<i>Percentage increase in household income</i>												
<i>Weekly working hours</i>												
Ref.: 20 h												
30 h		-0.075 (0.306)	-0.018 (0.073)					-0.097 (0.303)	-0.023 (0.073)		-0.241 (0.309)	-0.058 (0.074)
40 h		-0.210 (0.295)	-0.050 (0.070)					-0.232 (0.293)	-0.055 (0.070)		-0.296 (0.298)	-0.071 (0.072)
<i>Level of over-qualification</i>												
Ref.: None												
Slight		-0.261 (0.252)	-0.061 (0.059)					-0.290 (0.251)	-0.068 (0.059)		-0.260 (0.256)	-0.062 (0.060)
Considerable		0.031 (0.240)	0.008 (0.057)					-0.006 (0.241)	-0.001 (0.058)		-0.023 (0.239)	-0.006 (0.057)
<i>Prospects for promotion</i>												
Ref.: None												
Few		-0.205 (0.258)	-0.048 (0.060)					-0.192 (0.257)	-0.045 (0.060)		-0.194 (0.261)	-0.046 (0.062)
Many		0.045 (0.253)	0.011 (0.060)					0.049 (0.252)	0.012 (0.060)		0.065 (0.258)	0.016 (0.062)
<i>Contract duration</i>												
Ref.: Permanent												
Limited to 1 year	-0.457*** (0.040)	-1.809*** (0.281)	-1.184*** (0.094)	-0.456*** (0.040)	-1.812*** (0.281)	-1.185*** (0.094)	-0.458*** (0.041)	-1.857*** (0.285)	-1.185*** (0.094)	-0.458*** (0.041)	-1.857*** (0.285)	-1.198*** (0.096)
Limited to 3 years	-0.218*** (0.039)	-1.311*** (0.244)	-0.726*** (0.093)	-0.218*** (0.039)	-1.305*** (0.243)	-0.726*** (0.093)	-0.221*** (0.040)	-1.342*** (0.245)	-0.726*** (0.093)	-0.221*** (0.040)	-1.342*** (0.245)	-0.741*** (0.095)

Table 4.2 (continued)

	Double hurdle models DV willingness to relocate (0–1)				Model 2: H1b				Model 3: H1b_pos			
	Hurdle 1 b/se	Hurdle 2 b/se	AME b/se		Hurdle 1 b/se	Hurdle 2 b/se	AME b/se		Hurdle 1 b/se	Hurdle 2 b/se	AME b/se	
<i>Distance from home (one-way commuting time)</i>												
Ref.: 1 hour												
4 hours	-0.063 (0.042)	-0.176 (0.262)	-0.147 (0.094)		-0.063 (0.042)	-0.198 (0.262)	-0.152 (0.093)		-0.059 (0.043)	-0.256 (0.267)	-0.160+ (0.095)	
6 hours	-0.200*** (0.044)	-0.032 (0.280)	-0.336*** (0.098)		-0.200*** (0.044)	-0.037 (0.279)	-0.337*** (0.098)		-0.203*** (0.045)	-0.080 (0.283)	-0.351*** (0.099)	
<i>Local employment opportunities compared to place of residence</i>												
Ref.: Similar												
Worse		-0.581* (0.259)	-0.136* (0.060)			-0.581* (0.258)	-0.136* (0.060)			-0.560* (0.264)	-0.132* (0.062)	
Better		-0.065 (0.228)	-0.016 (0.055)			-0.060 (0.228)	-0.015 (0.055)			-0.004 (0.231)	-0.001 (0.056)	
<i>Difficulty of finding adequate housing</i>												
Ref.: Very easy												
Some effort		-0.291 (0.241)	-0.071 (0.058)			-0.308 (0.239)	-0.075 (0.058)			-0.182 (0.244)	-0.045 (0.059)	
Considerable effort		-0.865*** (0.250)	-0.203*** (0.058)			-0.880*** (0.249)	-0.207*** (0.058)			-0.825** (0.254)	-0.194** (0.059)	
<i>Age of respondent in years</i>												
	-0.024*** (0.003)	-0.061*** (0.016)	-0.053*** (0.006)		-0.024*** (0.003)	-0.065*** (0.016)	-0.054*** (0.006)		-0.024*** (0.003)	-0.060*** (0.017)	-0.052*** (0.006)	
<i>Gender: female</i>												
	-0.139* (0.056)	0.080 (0.325)	-0.207+ (0.122)		-0.142* (0.056)	0.145 (0.322)	-0.197 (0.121)		-0.122* (0.057)	0.024 (0.332)	-0.192 (0.125)	
<i>Log of household income in 100 euros</i>												
	0.141* (0.059)	0.393 (0.382)	0.322* (0.137)		0.139* (0.059)	0.441 (0.385)	0.331* (0.138)		0.134* (0.060)	0.314 (0.387)	0.293* (0.139)	
Sociodemographics												

Table 4.2 (continued)

Double hurdle models DV willingness to relocate (0-11)	Model 1: H1a		Model 2: H1b		Model 3: H1b_pos	
	Hurdle 1 b/se	AME b/se	Hurdle 1 b/se	Hurdle 2 b/se	Hurdle 1 b/se	AME b/se
<i>Level of education</i>						
Ref.: No degree/sp. School						
Secondary modern school	-0.044 (0.100)	-0.103 (0.237)	-0.055 (0.102)	0.110 (0.624)	-0.033 (0.100)	-0.143 (0.242)
Middle school	-0.104 (0.104)	-0.288 (0.641)	-0.115 (0.106)	-0.246 (0.647)	-0.093 (0.105)	-0.305 (0.248)
Higher ed. entrance qual.	-0.078 (0.112)	-0.429 (0.693)	-0.090 (0.114)	-0.177 (0.695)	-0.096 (0.114)	-0.279 (0.269)
Number of adults in household	0.029 (0.051)	0.102 (0.112)	0.030 (0.052)	0.189 (0.300)	0.033 (0.052)	0.112 (0.114)
<i>Partner</i>						
Ref.: None						
Inside household	0.104 (0.087)	-0.144 (0.187)	0.102 (0.087)	-1.287* (0.505)	0.123 (0.089)	-0.130 (0.191)
Outside household	0.051 (0.086)	-0.024 (0.195)	0.049 (0.086)	-0.387 (0.483)	0.045 (0.088)	-0.005 (0.201)
Parent of child(ren)	0.002 (0.059)	-0.560 (0.353)	0.001 (0.059)	-0.551 (0.349)	0.014 (0.060)	-0.090 (0.133)
Married	-0.111 (0.082)	0.287 (0.182)	-0.112 (0.082)	1.976*** (0.482)	-0.140+ (0.084)	0.259 (0.186)
<i>Employment Status</i>						
Ref. Regularly Employed						
Unemployed ≤24 Months	-0.055 (0.097)	-0.067 (0.211)	-0.053 (0.097)	0.061 (0.569)	-0.048 (0.100)	-0.051 (0.217)
Unemployed 25-48 Months	-0.019 (0.131)	-0.051 (0.284)	-0.014 (0.131)	-0.148 (0.851)	-0.031 (0.131)	-0.084 (0.281)
Unemployed > 48 Months	0.037 (0.095)	0.259 (0.227)	0.044 (0.096)	0.634 (0.569)	0.035 (0.097)	0.818 (0.232)

Sociodemographics

Table 4.2 (continued)									
Double hurdle models DV willingness to relocate (0–1)									
	Model 1: H1a			Model 2: H1b			Model 3: H1b_pos		
	Hurdle 1 b/se	Hurdle 2 b/se	AME b/se	Hurdle 1 b/se	Hurdle 2 b/se	AME b/se	Hurdle 1 b/se	Hurdle 2 b/se	AME b/se
Place of residence									
Property ownership	-0.339*** (0.077)	-2.731*** (0.537)	-1.197*** (0.186)	-0.341*** (0.077)	-2.643*** (0.531)	-1.182*** (0.185)	-0.337*** (0.079)	-2.738*** (0.544)	-1.197*** (0.190)
Size of community									
German federal states: 15 dummies	yes	yes	yes	yes	yes	yes			
Mobility exp									
Ref.: No exp									
Mobility exp. more than 3 years ago	0.127* (0.057)	0.551 (0.351)	0.330** (0.122)	0.129* (0.057)	0.500 (0.351)	0.322** (0.123)	0.125* (0.058)	0.580 (0.358)	0.334** (0.124)
Mobility exp. less than 3 years ago	0.470*** (0.141)	1.286* (0.636)	1.146*** (0.348)	0.470*** (0.142)	1.190+ (0.623)	1.120** (0.342)	0.501*** (0.144)	1.320* (0.642)	1.209*** (0.353)
Standardised size of network	-0.052 (0.038)	0.132 (0.258)	-0.053 (0.092)	-0.057 (0.039)	0.249 (0.256)	-0.033 (0.092)	-0.057 (0.039)	0.138 (0.261)	-0.060 (0.093)
Index of support resources (0–10)									
Index of positive social capital (0–3)									
Index of negative social capital (0–3)									
Conflict with network (0/1)									
Conflict with household (0/1)									
Intercept	0.641** (0.246)	6.291*** (1.468)		0.585* (0.268)	7.687*** (1.584)		0.586* (0.248)	6.639*** (1.457)	
Observations/persons	6,879	1,392	1,392	6,879	1,392	1,392	6,614	1,339	1,339
AIC/BIC	23,208	23,837	23,837	23,200	23,842	23,842	22,317	22,956	22,956
Coefficients are probits on the probability of a nonzero willingness to relocate (Hurdle 1), conditional marginal effects on the extent of willingness if the first hurdle is passed (Hurdle 2), and the overall unconditional average marginal effects (AME).									
Cluster robust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001.									

Table 4.2 Continued

Vignette dimension	Model 4: H1b_neg			Model 5: H1c			Model 6: H1d		
	Hurdle 1 b/se	Hurdle 2 b/se	AME b/se	Hurdle 1 b/se	Hurdle 2 b/se	AME b/se	Hurdle 1 b/se	Hurdle 2 b/se	AME b/se
Double hurdle models DV willingness to relocate (0–1)									
Percentage increase in household income									
Weekly working hours									
Ref.: 20 h									
30 h		-0.054 (0.307)	-0.013 (0.073)		-0.075 (0.305)	-0.018 (0.070)		-0.046 (0.295)	-0.011 (0.070)
40 h		0.194 (0.296)	0.046 (0.070)		0.212 (0.294)	0.050 (0.070)		0.184 (0.295)	0.043 (0.070)
Level of over-qualification									
Ref.: None									
Slight		0.266 (0.253)	0.062 (0.059)		0.272 (0.251)	0.064 (0.059)		0.267 (0.252)	0.062 (0.059)
Considerable		0.062 (0.240)	0.015 (0.057)		0.023 (0.240)	0.005 (0.057)		0.039 (0.240)	0.009 (0.057)
Prospects for promotion									
Ref.: None									
Few		0.157 (0.258)	0.037 (0.061)		0.203 (0.257)	0.048 (0.060)		0.210 (0.259)	0.049 (0.061)
Many		0.083 (0.254)	0.020 (0.061)		0.050 (0.253)	0.012 (0.060)		0.037 (0.254)	0.009 (0.060)
Contract duration									
Ref.: Permanent									
Limited to 1 year	0.458*** (0.040)	-1.832*** (0.283)	-1.188*** (0.094)	0.460*** (0.040)	-1.804*** (0.281)	-1.182*** (0.094)	0.456*** (0.040)	-1.820*** (0.282)	-1.183*** (0.094)
Limited to 3 years	0.220*** (0.039)	-1.310*** (0.245)	0.728*** (0.093)	0.221*** (0.039)	-1.308*** (0.244)	0.727*** (0.093)	0.217*** (0.039)	-1.337*** (0.244)	0.729*** (0.093)

Table 4.2 (continued)

	Double hurdle models DV willingness to relocate (0-11)			Model 4: H1b_neg			Model 5: H1c			Model 6: H1d		
	Hurdle 1	Hurdle 2	AME	Hurdle 1	Hurdle 2	AME	Hurdle 1	Hurdle 2	AME	Hurdle 1	Hurdle 2	AME
	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
<i>Distance from home (one-way commuting time)</i>												
Ref.: 1 hour												
4 hours	0.062 (0.042)	0.189 (0.264)	0.147 (0.094)	0.065 (0.042)	0.185 (0.262)	0.152 (0.093)	0.066 (0.042)	0.172 (0.262)	0.151 (0.094)			
6 hours	0.197*** (0.044)	0.027 (0.281)	0.329*** (0.098)	0.209*** (0.044)	0.044 (0.279)	0.350*** (0.097)	0.204*** (0.044)	0.043 (0.281)	0.355*** (0.097)			
<i>Local employment opportunities compared to place of residence</i>												
Ref.: Similar												
Worse		0.548* (0.259)	0.128* (0.060)		0.584* (0.259)	0.137* (0.060)		0.574* (0.259)	0.134* (0.060)			
Better		0.045 (0.229)	0.011 (0.055)		0.063 (0.228)	0.015 (0.055)		0.070 (0.230)	0.017 (0.055)			
<i>Difficulty of finding adequate housing</i>												
Ref.: Very easy												
Some effort		0.248 (0.241)	0.060 (0.058)		0.291 (0.240)	0.071 (0.058)		0.274 (0.241)	0.066 (0.058)			
Considerable effort		0.809** (0.249)	0.190** (0.058)		0.873*** (0.250)	0.205*** (0.058)		0.837*** (0.251)	0.196*** (0.058)			
<i>Sociodemographics</i>												
Age of respondent in years	0.024*** (0.003)	0.059*** (0.017)	0.053*** (0.006)	0.024*** (0.003)	0.061*** (0.016)	0.053*** (0.006)	0.023*** (0.003)	0.060*** (0.017)	0.052*** (0.006)			
Gender: female	0.142* (0.056)	0.112 (0.325)	0.204+ (0.122)	0.128* (0.056)	0.096 (0.325)	0.183 (0.121)	0.161** (0.056)	0.067 (0.328)	0.245* (0.121)			
Log of household income in 100 euros	0.142* (0.059)	0.381 (0.383)	0.320* (0.137)	0.146* (0.060)	0.401 (0.387)	0.330* (0.140)	0.120* (0.059)	0.376 (0.386)	0.284* (0.137)			

Table 4.2 (continued)

Table 4.2 (continued)										
Double hurdle models DV willingness to relocate (0–1)		Model 4: H1b_neg			Model 5: H1c			Model 6: H1d		
		Hurdle 1	Hurdle 2	AME	Hurdle 1	Hurdle 2	AME	Hurdle 1	Hurdle 2	AME
		b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se	b/se
Place of residence	Property ownership	0.339*** (0.077)	-2.702*** (0.537)	-1.190*** (0.185)	0.344*** (0.077)	-2.730*** (0.537)	-1.201*** (0.185)	0.350*** (0.077)	-2.733*** (0.538)	-1.213*** (0.186)
	Size of community	0.027* (0.012)	0.051 (0.074)	0.031 (0.027)	0.026* (0.012)	0.049 (0.074)	0.030 (0.027)	0.027* (0.012)	0.046 (0.074)	0.033 (0.027)
	German federal states: 15 dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
	Mobility exp									
Social capital	Ref.: No exp									
	Mobility exp. more than 3 years ago	0.126* (0.057)	0.527 (0.351)	0.324** (0.122)	0.123* (0.057)	0.543 (0.350)	0.321** (0.121)	0.130* (0.057)	0.544 (0.350)	0.333** (0.121)
	Mobility exp. less than 3 years ago	0.468*** (0.142)	1.237+ (0.638)	1.126** (0.347)	0.452** (0.140)	1.229+ (0.643)	1.089** (0.345)	0.455** (0.142)	1.311* (0.646)	1.126** (0.352)
	Standardised size of network	0.051 (0.038)	0.149 (0.259)	0.048 (0.092)	0.044 (0.039)	0.147 (0.256)	0.037 (0.092)	0.047 (0.039)	0.131 (0.259)	0.045 (0.093)
	Index of support resources (0–10)									
	Index of positive social capital (0–3)									
	Index of negative social capital (0–3)	0.006 (0.038)	0.023 (0.230)	0.005 (0.088)						
	Conflict with network (0/1)				0.252*** (0.058)	0.381 (0.360)	0.488*** (0.122)			
	Conflict with household (0/1)							0.196** (0.074)	0.064 (0.403)	0.333* (0.156)
	Intercept	0.648** (0.250)	6.366*** (1.479)		0.443+ (0.253)	6.009*** (1.514)		0.610* (0.245)	6.316*** (1.469)	
	Observations/persons	6,844	1,385		6,879	1,392		6,869	1,390	
	AIC/BIC	23,095	23,737		23,157	23,800		23,136	23,778	
Coefficients are probits on the probability of a nonzero willingness to relocate (Hurdle 1), conditional marginal effects on the extent of willingness if the first hurdle is passed (Hurdle 2), and the overall unconditional average marginal effects (AME).										
Cluster robust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01, *** p<0.001.										

Our theoretical arguments assume a generally negative relationship between social capital resources and inclination to move, which should mainly affect the first stage of our two-stage model. Our theory does not make predictions about effect directions at the individual stages, so we will concentrate on the overall AMEs (third column) to test our hypotheses.

In all the models, all the vignette dimensions show the expected signs, although some do not influence the willingness to relocate significantly. Unsurprisingly, higher income is the main positive pull factor, whereas other positive dimensions, such as more opportunities for promotion and better employment opportunities at the new place of work, do not enhance the willingness to relocate. When controlling for the gain in income, longer working hours, over-qualification, fewer employment opportunities at the new place of work, and, in particular, limited contract durations, tougher housing markets and greater commuting distances decrease a respondent's mobility willingness. Intuitively, distance is a strong determinant of general mobility inclination and has no significant effect on the second hurdle. The socio-demographic variables also confirm the results from previous mobility research. Respondents who are older, who are women, and who own property ownership are less willing to relocate. In contrast to many studies, we find no positive influence for education, which might be explained by the random allocation of job offers to respondents in our experiment, which decouples mobility gains from education. The labour market status variable reflects the heterogeneity of the unemployment groups. All groups fail to differ significantly from the normally employed reference group, and effect directions on both hurdles differ. The previous experience of spatial mobility is a strong indicator for the willingness to relocate; thus, individuals who have moved within the most recent 3 years show the highest willingness.

In model 1, we test (H1a), where we assumed a negative effect of network size⁶² on the willingness to relocate. For the first hurdle, we do find a negative effect – which is insignificant – as are the second-stage and the overall effects. Thus, based on the sheer size of respondents' networks, we can provide only hints of the negative effect on mobility exerted by social capital resources.

In subsequent models, we include network size as a control for the quantity of social ties. This should enable us to attribute effects directly to social resources and not to different network sizes. In models 2, 3 and 4, we use the number of support resources and the occurrence of positive and negative social capital to test (H1b). Focussing on the AMEs in model 2, we do not find significant effects for the social support resources, although the directions of the negative effects are consistent with our resources argument. The deterrent effects of the potential loss of social resources

⁶² Note that network size was mean standardised to produce meaningful zero values.

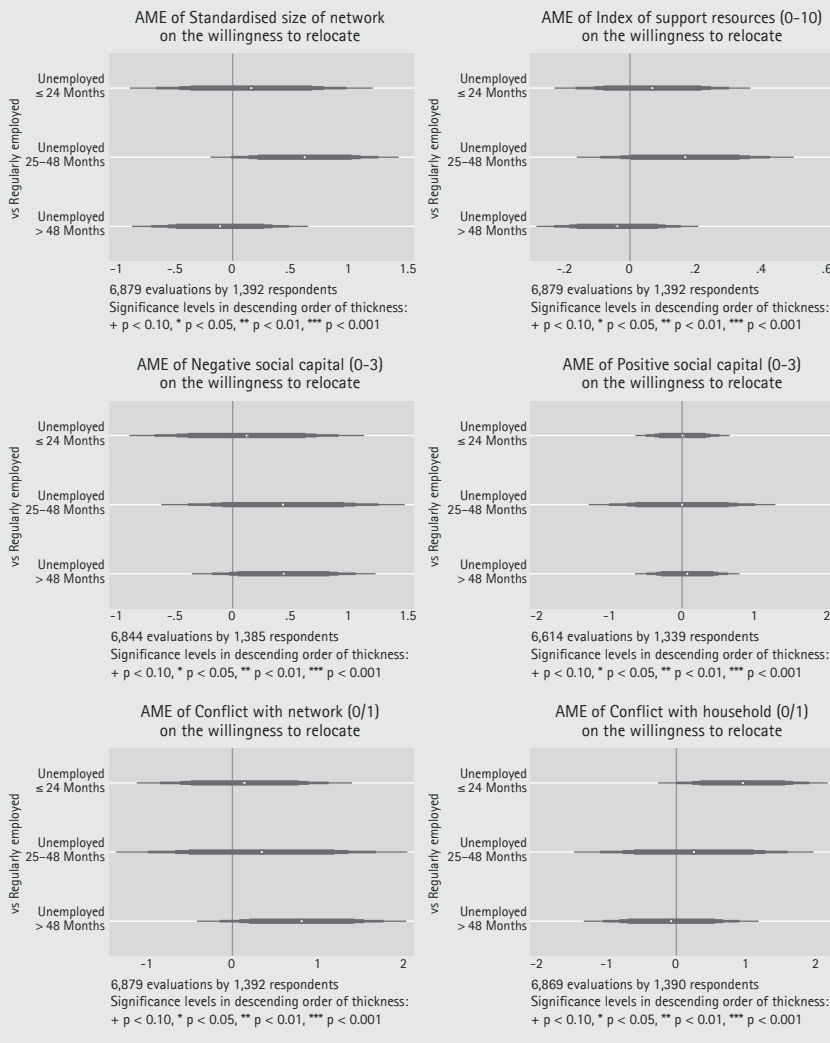
seem to outweigh the job offer traits only at the second stage. The social capital items in models 3 and 4 also fail to differ significantly. Exposure to both positive social capital and negative social capital resources appear to foster mobility. These results might indicate a normative function instead of a resource mechanism that is expressed by contact with individuals who have had success on the labour market, which encourages seizing job opportunities. Thus, we cannot report clear evidence for hypothesis (H1b). Models 5 and 6 test our hypotheses regarding conflicts with the social network (H1c) and with the household (H1d). In the presence of conflicts, we find positive willingness in both cases, primarily affecting the principal willingness for mobility. The similar pattern might hint that voluntary non-kinship relationships outside the household and family relations inside the household play a special role with respect to access to social capital and perceived social support.

Hypotheses (H2) and (H3) are tested using the marginal effects of the interactions between the social capital variables and the employment status groups. As discussed above, the interaction effects differ from the coefficients of the interaction term in the nonlinear case. Therefore, we refrain from presenting regression tables and instead display the results from the appropriate margins' estimation as coefficient plots with their confidence intervals.⁶³ When using a graphical presentation method, the choice of the level of the confidence interval is critical. To convey more information, we present multiple confidence intervals that indicate higher levels of significance by thinner (and longer) lines.

In (H2), we proposed that social capital endowment would have a stronger negative effect on the unemployed compared with employed persons and based this prediction on the unemployed population's greater reliance on social support. Figure 4.3 depicts the group differences for the size of the social network (H2a), the number of support resources, the occurrence of positive and negative social capital (H2b), and the occurrence of conflict within the respondent's social network (H2c) and household (H2d). We find significant effects for network size for the group with medium unemployment duration, which shows higher willingness to relocate in response to larger social networks. This contradicts our expectations and may hint at the difficulties of separating resource and normative effects in this variable. We find a similar pattern for the number of support resources. Once again, only the medium group reacts significantly differently – and with more willingness – in response to more resources. Unemployed individuals do not perceive positive social capital assets differently than employed individuals. As proposed theoretically, individuals who have been unemployed for more than 48 months are more inclined to relocate if they are exposed to a negative social environment.

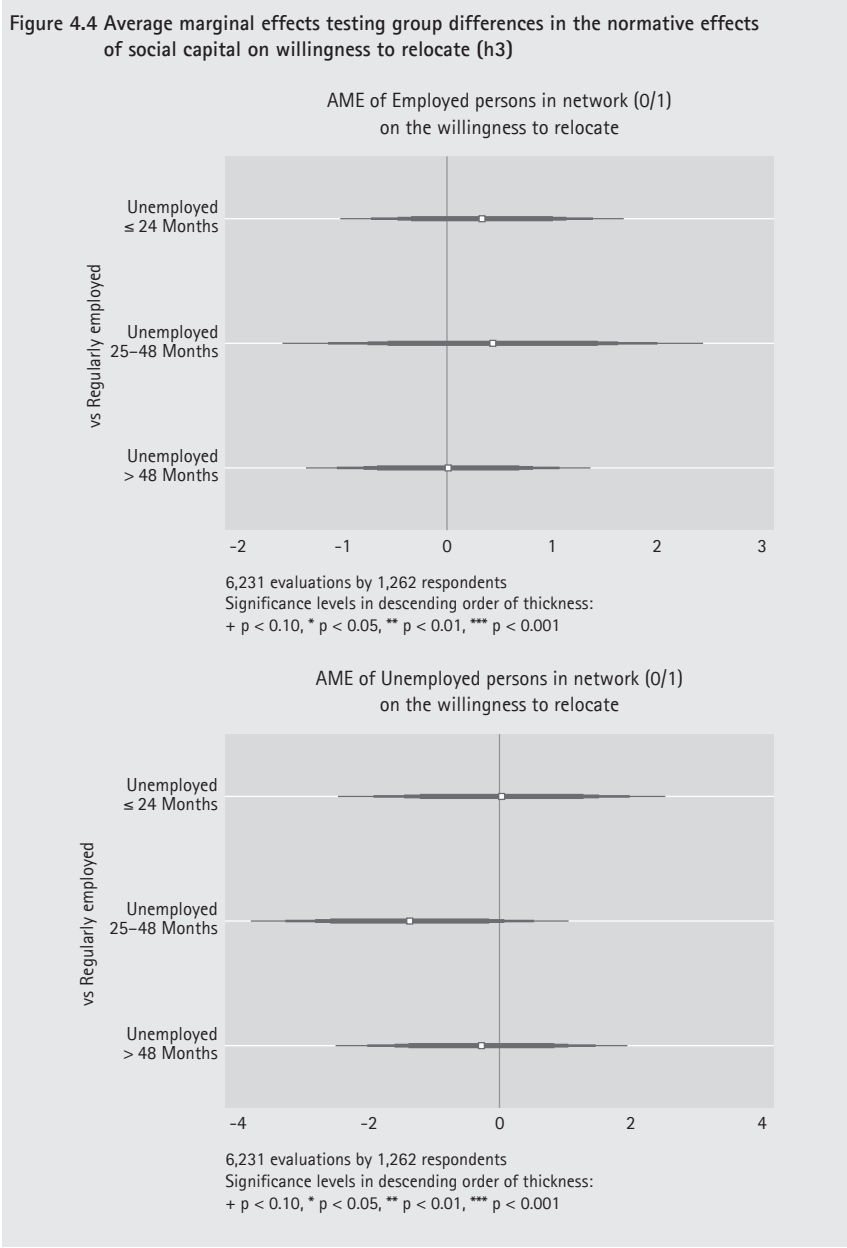
63 For an implementation in Stata, we used Ben Jann's `coefplot` command (2014).

Figure 4.3 Average marginal effects testing group differences in the resource effects of social capital on willingness to relocate (h2)



The importance of a supportive social network structure is reiterated when the level of conflict with the social network is considered (H2c). All unemployment groups react to conflict in the relationships with their network ties with higher willingness to relocate, although this reaction is significant only for the group with the longest unemployment duration. By contrast, the group with the shortest unemployment duration reacts most sensitively to conflicts within the household (H2d), which significantly increase this group's willingness to relocate. Taken together, these results paint a complex picture of the resource mechanism

regarding mobility. The sheer quantity of the network and the number of support resources exert a positive influence on the unemployed with medium duration and thus contradict our resources argumentation. Although positive social capital assets are not weighted differently overall by unemployed persons, the quality



of their relationship to their network ties does indeed seem to be important for the mobility decision making of unemployed persons. Network size may be an imperfect proxy for social capital and the available items for social support resources and social capital may constitute only a special form of social capital related to job seeking chances. Conflict-induced reductions of access to the social capital of any type whatsoever is a more promising – although indirect – measure of social capital. Therefore, hypothesis (H2) cannot be rejected completely; in particular, the conflict-related hypotheses (H2c) and (H2d) seem to be relevant with respect to unemployed persons.

Hypothesis (H3) targeted the normative function of social capital, where we assumed the encouraging effects of network structures that are characterised by higher labour market orientation (H3a) and vice versa (H3b). Figure 4.4 displays the results for these hypotheses. We find no encouragement effects for social networks consisting of employed persons. Regarding discouragement effects, only the group of unemployed persons with a duration of 25 to 48 months react to an increase in the share of unemployed persons in their social network with less willingness to relocate. This effect seems to mirror the medium group's behaviour in the previous panel, which might hint at sensitivity towards group norms, particularly at this stage of unemployment. We do not find that social norms have different effects on the two other groups of unemployed individuals than on employed individuals. Thus, we can present only partial evidence for a normative social capital effect.

4.8 Conclusion and discussion

The aim of this study was twofold. With the help of an FSM, we were able to control for the wellresearched information-providing function of social capital in the context of job-related regional mobility decision making. This control allowed us to analyse the role of social capital and focus on its resource and normative effects. Our second aim was to examine mobility as a strategy for unemployed persons to exit unemployment and the unique weighting of social capital by this group. While mobility should foster the chances of re-entering the labour market, higher reliance on (local) social support by their networks could act as an entrapment mechanism for unemployed persons. Our data-set consists of wave five of the PASS panel study, which provides a unique combination of representative data on unemployed and employed persons and their social networks. The FSM created a standardised mobility stimulus in the form of hypothetical interregional job offers, and the respondents evaluated their willingness to relocate in reaction to these offers. We applied a double hurdle specification to model the corner solution of the evaluation variable,

which included two stages of decision making: general willingness to relocate and specific willingness to relocate in response to a particular job offer.

We proposed negative relationships between the stock of social capital and an actor's willingness to relocate. While no significant effects were revealed for the quantity of networks or for the number of social support resources and the occurrence of social capital items, we found that conflict-induced access restrictions to the social capital stocks of an actor had such effects.

Because unemployed persons tend to rely on their social support networks more strongly, we assumed that this group would have higher levels of sensitivity when there were job-related mobility opportunities. We tested this elevated sensitivity in the form of interactions between the aforementioned general hypotheses and the employment status group variable. Our results indicate that network size and resource endowment have positive effects for unemployed persons with medium benefit receipt, whereas exposure to positive social capital did not have stronger effects on unemployed persons than it did on employed persons. However, exposure to negative social capital and, in particular, to conflict-laden relationships with the social network and the household lead unemployed persons receiving medium and long-term benefits to have a significantly higher willingness to relocate. We tested the normative function of social capital using the share of (un-)employed persons in the social network as a proxy for 'labour market orientation' and the prevalence of work norms. At this juncture, we find weak evidence for the discouragement effects exerted by unemployed network ties in the group with medium unemployment duration.

Together, these results emphasise the importance of factors beyond economic job offer characteristics for mobility decision making. Future research might benefit by considering the negative aspects of social structure more strongly. Longitudinal data and more encompassing instruments for social capital might help identify the causal effects supporting our findings. Our resource argumentation holds only indirectly via conflict-induced access restrictions, and detecting direct effects might be impeded by imperfect proxies or special resource items aimed at job-finding functions. The null results for the main effects of most social capital resources may be explained by our inability to directly control for the location of the social resources. If social resources are dispersed, then we obtain only a gross effect in our models in which local resources impede mobility and resources elsewhere act as pull factors. However, three reasons might argue against this conception: first, we controlled for prior mobility experience, which should capture most of this unobserved variation; second, in the German case, previous research has shown that the majority of social ties are quite local (Mewes 2009: 41); and third, our job offers were hypothetical and the location of the new job could only be identified by the commuting distance.

Considering these three reasons, it seems unlikely that respondents with spatially distributed social capital would attach specific contacts to individual job offers.

The positive effects of network size and resource endowment on the medium unemployment group remains noteworthy. Based on our previous arguments, a different spatial distribution of social recourse for this group seems implausible, and descriptive analyses also show no salient differences regarding social capital endowment. The institutional change from unemployment insurance to the unemployment benefit II system might offer an explanation. With at least 25 months of unemployment duration, this group is definitively out of the insurance regime and faced with the prospect of prolonged basic income support. Although we do not find positive encouragement effects related to employed network contacts (H3a), this group is particularly sensitive to discouragement by unemployed network contacts (H3b). The network and resource effects might therefore be acting as proxies for other forms of normative encouragement (e.g., visibility through better social integration) that drive unemployed persons of this group to be more open to mobility.

The greater sensitivity of unemployed persons with regard to conflicts emphasises the extent to which they rely on social support and is in line with other findings for Germany (e.g., Diewald 2007). The result that normative effects seem to influence the mobility decisions of that group adds to this finding. Unemployment services might follow up on this issue by periodically offering interregional jobs to unemployed persons. Until now, the possibility of mobility is discussed only early in the job referral process. Conflict-induced changes in relocation willingness might bolster the chances of interregional job-related mobility in later phases of unemployment. Whether these referrals make sense from a welfare perspective remains a question for future research.

Appendices

4.A Supplementary data

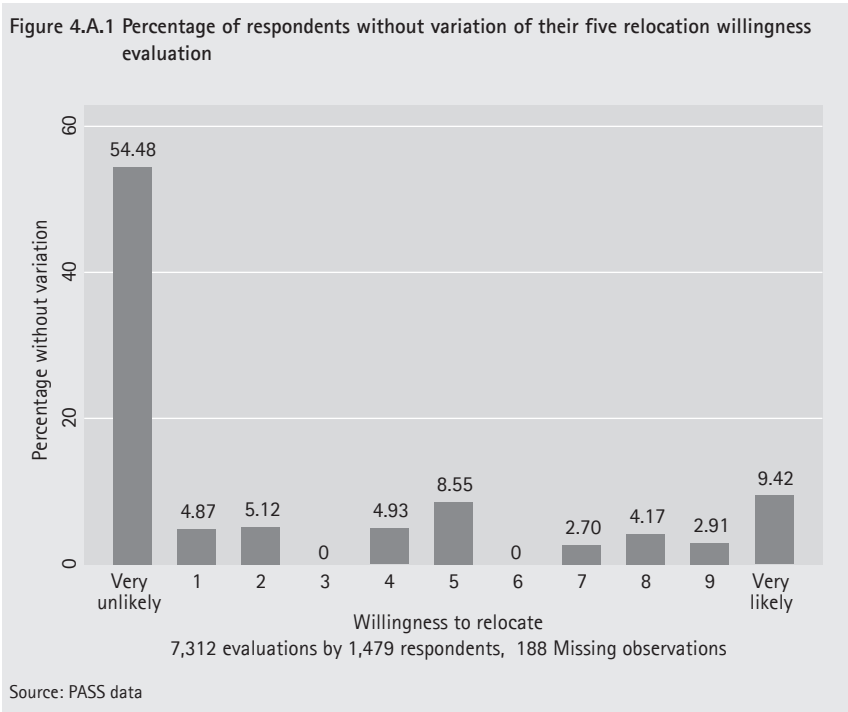


Table 4.A.1 Table of descriptive statistics across employment status groups

	Regularly employed m/sdm	Atypically employed m/sdm	Unemployed ≤ 24 months m/sdm	Unemployed 25–48 months m/sdm	Unemployed > 48 months m/sdm	Total m/sdm
Age of respondent in years	42.10 (9.32)	41.01 (9.61)	39.70 (11.20)	42.76 (11.61)	45.22 (9.53)	42.03 (9.89)
Gender: female	0.48 (0.50)	0.63 (0.48)	0.47 (0.50)	0.49 (0.50)	0.53 (0.50)	0.52 (0.50)
Log of household income in 100 Euros	3.16 (0.59)	2.73 (0.65)	2.30 (0.68)	2.24 (0.58)	2.11 (0.53)	2.76 (0.73)
Level of education						
No degree/sp. School	0.03 (0.17)	0.07 (0.26)	0.18 (0.39)	0.18 (0.38)	0.14 (0.35)	0.08 (0.27)
Secondary modern school	0.26 (0.44)	0.31 (0.46)	0.42 (0.49)	0.54 (0.50)	0.50 (0.50)	0.34 (0.47)
Middle school	0.40 (0.49)	0.42 (0.49)	0.31 (0.46)	0.16 (0.37)	0.28 (0.45)	0.37 (0.48)
Higher ed. entrance qual.	0.31 (0.46)	0.19 (0.39)	0.09 (0.29)	0.12 (0.32)	0.08 (0.27)	0.22 (0.41)
Unemployment duration in months	0.00 (0.00)	13.00 (31.63)	4.23 (6.94)	35.93 (5.85)	94.30 (58.71)	18.48 (41.72)
Number of adults in household	1.50 (0.60)	1.41 (0.58)	1.36 (0.69)	1.41 (0.62)	1.29 (0.57)	1.43 (0.61)
Parent of child(ren)	0.56 (0.50)	0.55 (0.50)	0.47 (0.50)	0.43 (0.50)	0.40 (0.49)	0.52 (0.50)
Married	0.54 (0.50)	0.40 (0.49)	0.32 (0.47)	0.26 (0.44)	0.24 (0.43)	0.43 (0.49)
Partner						
None	0.23 (0.42)	0.37 (0.48)	0.50 (0.50)	0.53 (0.50)	0.56 (0.50)	0.35 (0.48)
Inside household	0.67 (0.47)	0.47 (0.50)	0.34 (0.47)	0.32 (0.47)	0.30 (0.46)	0.51 (0.50)
Outside household	0.10 (0.31)	0.17 (0.37)	0.16 (0.36)	0.15 (0.35)	0.14 (0.35)	0.13 (0.34)
Property ownership	0.39 (0.49)	0.15 (0.36)	0.07 (0.25)	0.00 (0.00)	0.04 (0.20)	0.23 (0.42)

Table 4.A.1 (continued)

	Regularly employed m/sdm	Atypically employed m/sdm	Unemployed ≤24 months m/sdm	Unemployed 25–48 months m/sdm	Unemployed >48 months m/sdm	Total m/sdm
Mobility Experience						
No exp.	0.44 (0.50)	0.39 (0.49)	0.34 (0.48)	0.32 (0.47)	0.40 (0.49)	0.41 (0.49)
More than 3 years ago	0.52 (0.50)	0.57 (0.50)	0.56 (0.50)	0.55 (0.50)	0.56 (0.50)	0.54 (0.50)
Less than 3 years ago	0.04 (0.19)	0.04 (0.19)	0.10 (0.29)	0.14 (0.34)	0.04 (0.19)	0.05 (0.22)
Number of close relatives and friends	5.66 (4.69)	5.30 (4.96)	4.92 (5.04)	4.94 (6.98)	4.97 (6.70)	5.36 (5.25)
Index of support resources (0–10)	9.01 (1.66)	8.44 (2.32)	7.97 (2.26)	7.29 (2.88)	7.48 (6.96)	8.46 (3.27)
Index of positive social capital (0–3)	1.54 (1.23)	0.98 (1.13)	0.62 (0.96)	0.34 (0.80)	0.44 (0.87)	1.09 (1.21)
Index of negative social capital (0–3)	0.35 (0.67)	0.35 (0.66)	0.42 (0.75)	0.45 (0.72)	0.50 (0.88)	0.39 (0.71)
Conflict with network (0/1)	0.69 (0.46)	0.69 (0.46)	0.73 (0.45)	0.59 (0.49)	0.68 (0.47)	0.69 (0.46)
Conflict with household (0/1)	0.70 (0.46)	0.63 (0.48)	0.57 (0.50)	0.56 (0.50)	0.51 (0.50)	0.64 (0.48)
Share of employed persons (0–1)	0.73 (0.30)	0.64 (0.35)	0.58 (0.36)	0.53 (0.34)	0.47 (0.36)	0.65 (0.34)
Share of unemployed persons (0–1)	0.05 (0.16)	0.13 (0.25)	0.20 (0.30)	0.29 (0.34)	0.27 (0.34)	0.13 (0.25)
Observations	3,435	1,720	8,950	340	1,050	7,440
Persons	687	344	179	68	210	1,488

Coefficients are means, standard deviations are in parentheses.

Table 4.A.2 Heckman selection model

Heckman selection Model		Selection Model			
		Probits		AME	
		b	se	b	se
Individual characteristics	Gender: female	0.166***	(0.047)	0.058***	(0.016)
	Age of respondent in years	0.060**	(0.018)	0.000	(0.001)
	Age squared	-0.001**	(0.000)		
	Employment Status				
	Ref. Regularly Employed				
	Atypically employed	0.006	(0.059)	0.002	(0.021)
	Unemployed ≤24 Months	-0.048	(0.083)	-0.017	(0.029)
	Unemployed 25–48 Months	-0.184+	(0.111)	-0.062+	(0.036)
	Unemployed > 48 Months	0.331***	(0.091)	0.121***	(0.033)
	Level of education				
	Ref.: No degree/sp. School				
	Secondary modern school	0.075	(0.086)	0.026	(0.030)
	Middle school	0.010	(0.090)	0.004	(0.031)
	Higher ed. entrance qual.	0.070	(0.098)	0.024	(0.034)
	German citizenship	0.199*	(0.085)	0.067*	(0.028)
Household characteristics	Log of household income in 100 Euros	-0.003	(0.046)	-0.001	(0.016)
	Partner				
	Ref.: None				
	Inside household	-0.194*	(0.097)	-0.068*	(0.034)
	Outside household	0.064	(0.073)	0.023	(0.026)
	Employment Status Partner				
	Ref.: No partner				
	Employed	0.202*	(0.100)	0.07*	(0.035)
	Unemployed	0.153	(0.120)	0.053	(0.042)
	Inactive	0.099	(0.100)	0.034	(0.034)
	Parent of child(ren)	0.13**	(0.050)	0.045**	(0.018)
	Married	-0.123+	(0.065)	-0.043+	(0.023)
	Number of adults in household	-0.051	(0.050)	-0.018	(0.017)
	Property ownership	-0.124*	(0.060)	-0.043*	(0.021)
	Household receives unemployment benefit II	-0.147*	(0.069)	-0.051*	(0.024)
Residence	Size of community	0.01	(0.010)	0.003	(0.003)
	German federal states: 15 dummies		yes		
	Mobility exp				
	Ref.: No exp				
	Mobility exp, more than 3 years ago	0.138**	(0.048)	0.049**	(0.017)
	Mobility exp, less than 3 years ago	-0.463***	(0.091)	-0.143***	(0.025)

Table 4.A.2 (continued)

Heckman selection Model		Selection Model			
		Probits		AME	
		b	se	b	se
Ratings and latent traits	Life satisfaction				
	health rating (0–10)	−0.006	(0.010)	−0.002	(0.004)
	housing rating (0–10)	−0.011	(0.010)	−0.004	(0.004)
	living standard rating (0–10)	0.027*	(0.013)	0.010*	(0.005)
	Employment orientation				
	Factor 1: Motivation to work	0.032	(0.023)	0.011	(0.008)
	Factor 2: Significance of work in life	−0.012	(0.023)	−0.004	(0.008)
	Social participation rating (0–10)	0.006	(0.012)	0.002	(0.004)
	Social position rating (0–10)	0.021	(0.015)	0.007	(0.005)
	General life satisfaction rating (0–10)	−0.006	(0.015)	−0.002	(0.005)
	Big Five Personality Traits				
	Extraversion	−0.025	(0.023)	−0.009	(0.008)
	Conscientiousness	−0.056*	(0.023)	−0.019*	(0.008)
	Neuroticism	0.007	(0.025)	0.003	(0.009)
	Openness	−0.076**	(0.025)	−0.026**	(0.009)
	Agreeableness	0.032	(0.022)	0.011	(0.008)
Intercept		−2.044	(0.429)		
Persons/Log Likelihood		3,883		−11,800	
AIC/BIC		23,805		24,230	
Pseudo R squared		0.06			
Cluster-robust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01, and *** p<0.001.					

Table 4.A.3 Estimation for hypothesis H1a without and with selection control

Comparison of H1a with and without selection control		Without inverse mills ratio			With inverse mills ratio		
		Hurdle 1 b/se	Hurdle 2 b/se	AME b/se	Hurdle 1 b/se	Hurdle 2 b/se	AME b/se
Vignette dimension	Percentage increase in household income		0.017** (0.005)	0.004** (0.001)		0.018*** (0.005)	0.004*** (0.001)
	Weekly working hours						
	Ref.: 20 hours						
	30 hours		-0.118 (0.307)	-0.028 (0.074)		-0.185 (0.306)	-0.045 (0.074)
	40 hours		-0.242 (0.296)	-0.058 (0.071)		-0.323 (0.294)	-0.077 (0.071)
	Level of over-qualification						
	Ref.: None						
	Slight		-0.340 (0.252)	-0.081 (0.060)		-0.311 (0.251)	-0.074 (0.059)
	Considerable		-0.023 (0.240)	-0.006 (0.058)		-0.022 (0.240)	-0.005 (0.058)
	Prospects for promotion						
	Ref.: None						
	Few		-0.192 (0.258)	-0.046 (0.061)		-0.166 (0.259)	-0.039 (0.061)
	Many		0.070 (0.254)	0.017 (0.061)		0.067 (0.256)	0.016 (0.061)
	Contract duration						
	Ref.: Permanent						
	Limited to 1 year	-0.455*** (0.041)	-1.798*** (0.282)	-1.182*** (0.095)	-0.459*** (0.041)	-1.865*** (0.283)	-1.200*** (0.095)
	Limited to 3 years	-0.215** (0.039)	-1.261*** (0.245)	-0.712*** (0.094)	-0.220*** (0.040)	-1.296*** (0.244)	-0.729*** (0.095)
	Distance from home (one-way commuting time)						
	Ref.: 1 hour						
	4 hours	-0.063 (0.043)	-0.131 (0.263)	-0.137 (0.095)	-0.065 (0.043)	-0.073 (0.262)	-0.125 (0.095)
	6 hours	-0.213*** (0.044)	-0.013 (0.282)	-0.352*** (0.099)	-0.212*** (0.045)	-0.015 (0.285)	-0.349*** (0.099)
	Local employment opportunities						
	Ref.: Similar to place of residence						
	Worse		-0.599* (0.260)	-0.142* (0.061)		-0.597* (0.261)	-0.140* (0.061)
	Better		-0.033 (0.230)	-0.008 (0.056)		-0.009 (0.232)	-0.002 (0.056)
	Difficulty of finding adequate housing						
	Ref.: Very easy						
	Some effort		-0.283 (0.243)	-0.070 (0.060)		-0.337 (0.243)	-0.082 (0.059)
	Considerable effort		-0.834*** (0.250)	-0.198*** (0.059)		-0.789** (0.250)	-0.187 (0.059)

Table 4.A.3 (continued)

Comparison of H1a with and without selection control		Without inverse mills ratio			With inverse mills ratio		
		Hurdle 1	Hurdle 2	AME	Hurdle 1	Hurdle 2	AME
		b/se	b/se	b/se	b/se	b/se	b/se
Sociodemographics	Age of respondent in years	-0.024*** (0.003)	-0.061*** (0.017)	-0.054*** (0.006)	-0.024*** (0.003)	-0.058*** (0.017)	-0.053 (0.006)
	Gender: female	-0.150** (0.056)	0.094 (0.326)	-0.223+ (0.124)	-0.156** (0.060)	0.369 (0.336)	-0.166 (0.126)
	Log of household income in 100 euros	0.135* (0.060)	0.376 (0.386)	0.311* (0.139)	0.138* (0.061)	0.444 (0.387)	0.330 (0.139)
	Level of education						
	Ref.: No degree/sp. School						
	Secondary modern school	-0.026 (0.103)	-0.381 (0.620)	-0.142 (0.246)	-0.010 (0.105)	-0.114 (0.637)	-0.046 (0.247)
	Middle school	-0.089 (0.108)	-0.664 (0.642)	-0.312 (0.254)	-0.081 (0.109)	-0.563 (0.654)	-0.268 (0.253)
	Higher ed. entrance qual.	-0.064 (0.115)	-0.669 (0.699)	-0.273 (0.272)	-0.052 (0.117)	-0.398 (0.709)	-0.184 (0.271)
	Number of adults in household	0.036 (0.052)	0.109 (0.303)	0.085 (0.114)	0.023 (0.053)	0.088 (0.302)	0.059 (0.114)
	Partner						
	Ref.: None						
	Inside household	0.078 (0.089)	-1.211* (0.508)	-0.162 (0.190)	0.084 (0.090)	-1.346** (0.506)	-0.185 (0.190)
	Outside household	0.041 (0.087)	-0.465 (0.485)	-0.045 (0.197)	0.026 (0.089)	-0.479 (0.481)	-0.073 (0.197)
	Parent of child(ren)	-0.003 (0.060)	-0.451 (0.357)	-0.114 (0.134)	-0.019 (0.065)	-0.291 (0.384)	-0.100 (0.146)
	Married	-0.105 (0.083)	1.855*** (0.487)	0.272 (0.185)	-0.108 (0.085)	1.705*** (0.500)	0.230 (0.191)
	Employment Status						
	Ref. Regularly Employed						
	Atypically employed	-0.013 (0.072)	0.117 (0.431)	0.006 (0.159)	-0.009 (0.073)	0.039 (0.434)	-0.006 (0.160)
	Unemployed ≤ 24 Months	-0.045 (0.098)	0.159 (0.569)	-0.035 (0.215)	-0.036 (0.104)	-0.116 (0.617)	-0.083 (0.225)
	Unemployed 25–48 Months	-0.040 (0.133)	-0.086 (0.868)	-0.084 (0.288)	-0.015 (0.152)	-0.740 (0.978)	-0.190 (0.311)
	Unemployed > 48 Months	0.037 (0.096)	0.799 (0.568)	0.262 (0.229)	0.015 (0.099)	1.009+ (0.588)	0.281 (0.241)

Table 4.A.3 (continued)

Comparison of H1a with and without selection control		Without inverse mills ratio			With inverse mills ratio		
		Hurdle 1	Hurdle 2	AME	Hurdle 1	Hurdle 2	AME
		b/se	b/se	b/se	b/se	b/se	b/se
Place of residence	Property ownership	-0.336*** (0.078)	-2.705*** (0.538)	-1.195*** (0.188)	-0.323*** (0.080)	-2.786*** (0.539)	-1.190*** (0.190)
	Size of community	0.028* (0.012)	-0.048 (0.075)	0.034 (0.027)	0.025* (0.012)	-0.042 (0.075)	0.031 (0.028)
	German federal states: 15 dummies		yes			yes	
	Mobility exp						
	Ref.: No exp						
	Mobility exp, more than 3 years ago	0.138* (0.058)	0.530 (0.352)	0.346** (0.124)	0.135* (0.060)	0.715+ (0.370)	0.383** (0.131)
	Mobility exp, less than 3 years ago	0.523*** (0.142)	1.184+ (0.651)	1.211*** (0.355)	0.557*** (0.163)	0.489 (0.788)	1.018** (0.375)
Standardised size of network		-0.054 (0.039)	0.122 (0.260)	-0.060 (0.094)	-0.050 (0.039)	0.111 (0.257)	-0.055 (0.093)
Inverse mills ratio					-0.076 (0.223)	2.148+ (1.276)	0.388 (0.463)
Intercept		0.653** (0.251)	6.707*** (1.487)		0.776* (0.395)	3.863+ (2.288)	
Observations			6,711			6,666	
Persons			1,358			1,349	
Log Likelihood			-11,300			-11,200	
AIC			22,744			22,528	
BIC			23,371			23,167	

Cluster-robust standard errors in parentheses; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5 Conclusion

Modern labour markets are characterised by the high levels of flexibility they demand of workers. The prominent role of the standard employment relation (SER) is gradually reduced by forms of atypical employment (e.g., Kalleberg 2003). The latest technological innovations known as "*on-demand-economy*" (The Economist 2015b) or "*crowdsourcing*" abandon employment altogether in favour of more flexible freelancers. These developments put pressure on workers to adapt in order to stay competitive and in employment (Giesecke and Heisig 2011).

Flexibility is especially demanded of unemployed individuals. Their job search is financed by social security contributions of workers and employers in case of Unemployment Benefits I (UB I) or the taxpayer in case of Unemployment Benefits II (UB II). Increasing search efforts and the willingness to make concessions for re-employment are seen as vital for shortening the length of individual benefit receipt and for reducing the aggregate unemployment rate (Kemmerling and Bruttel 2006: 97; Alber and Heisig 2011). Regional mobility in particular is seen as a way out of unemployment that needs to be promoted more. The spirit of the German *Hartz* laws ("*assist and demand*") reflected this. In the course of these labour market reforms, mobility requirements in the job referral process were tightened, sanctions for refusing job offers intensified and mobility assistance increased (Jacobi and Kluge 2007).

In light of these developments, this thesis aims to ascertain the role regional mobility plays in the job search of unemployed individuals. Our contribution to the literature are answers to the following three research questions: First, do the described measures of the *Hartz* reform lead to more mobility of the affected groups of unemployed job seekers? Second, are unemployed individuals more willing to make concessions for a job than employed persons? Third, what is the influence of social networks and social capital on the willingness for regional mobility of unemployed persons? Answering these questions helps to assess the effect of growing flexibility demands on unemployed workers, whether this leads to increased regional mobility, and if so for which subgroups. We also provide in-depth analysis of the determinants of job offer acceptance, which can help to foster our understanding of job referral and matching. Existing or lacking mobility of unemployed persons is important for individual employment chances and the structural composition of unemployment. Understanding the role that social resources play in the mobility decision process can promote our knowledge about this important dimension of social inequality.

Regional mobility is a complex process based on the decision making of individuals in their social contexts (e.g., Kalter 1997). The majority of mobility research is based on observational data of realised mobility. This fact restricts the analysis to the results of the multi-stage mobility process which involves both supply and demand mechanisms. Disentangling these effects is important for sorting out clear causal effects. We address this complexity with our research design by employing quasi-experimental and experimental designs that enable us to arrive at causal relationships, despite the complexity of real labour market data.

In chapter 2, "Regional mobility of unemployed workers in the wake of the German Hartz reforms", we analyse, whether tightened mobility requirements in the context of the German *Hartz* reforms lead to more regional mobility of the affected unemployed job seekers. We use large scale administrative data from the Federal Employment Agency (FEA) that contain records of all unemployment and employment episodes of a 20 % sample of all unemployed individuals at the time of the reforms' implementation. To arrive at causal estimates, we exploit a natural experiment in the implementation of the reform. Only unemployment benefits (UB) recipients without family ties were affected by the regime change. Using a difference-in-differences (DID) approach, we analyse a range of potential reactions to the reform for a number of potential treatment groups. Our results suggest that the *Hartz* reforms have indeed activated the UB recipients. The group without any family ties, which should be most affected by the regime change, indeed transits more frequently out of UB receipt. However, the majority of these individuals chooses not mobility but transits most often into non-employment. This behaviour is evidence for the presumed adjustment effect of this reform measure (Koch and Walwei 2003). Despite being a prerequisite for UB receipt, many recipients are not actively available for job referral and choose to rather end receiving benefits than to consider mobility. Mobility as the communicated direction of reform impact is only increased for certain subgroups. Despite claims of the growing importance of commuting (e.g., Kalter 1994; Eliasson et al. 2003; Sandow and Westin 2010; Pfaff 2012), we cannot report that commuting is higher in the treated groups and does not seem to be affected by the reform. Most treated unemployed persons chose to re-evaluate job opportunities in the local labour market. Marriage seems to protect from the mobility requirements, which hints at its special constitutional protection in Germany. We find strong gender differences, with family ties protecting women more from activation than men. Having children is sufficient for women to stay unemployed, while for men this corresponds with earner roles and leads to an increase in job search behaviour. As expected, reform effects are stronger in regions with unfavourable local labour markets. Taken together, this highlights the complex interactions between the intended activation targets and

the logic of action of subgroups, which have varying levels of protection and different needs structures. Promoting regional mobility has activated unemployed persons, although not directly through more interregional job search. Instead, indirect effects prevail, with treated individuals trying to evade costly relocations.

These results do not tell us whether the lacking mobility is the result of low willingness to make concessions on the unemployed individuals' side or of low demand for unemployed job seekers from other regions as some authors report (e.g., Buch 2007). In chapter 3, "Unemployment and willingness to accept job offers", we aim to disentangle these mechanisms with the help of a factorial survey experiment (Rossi and Anderson 1982; Auspurg and Hinz 2015). We include the experiment in the Panel Study "Labour Market and Social Security" (PASS), a large scale data set with dual samples consisting of Unemployment Benefits II (UB II) recipients and the general population (Trappmann et al. 2010). The factorial survey module (FSM) takes the form of short descriptions of hypothetical job offers, whose characteristics varied experimentally (Frodermann et al. 2013). This design effectively standardises the offers the respondents receive, thereby eliminating any selectivity present in real labour markets. We observe the willingness to accept hypothetical job offers which allows us to analyse the decision process for all respondents – not just those with positive outcomes. From a theoretical standpoint we expect unemployed job seekers to be more willing to make concessions for the chance of re-employment. We find that this largely holds true. Unemployed persons display a higher willingness to accept job offers and are more willing to take up fixed-contract jobs than employed job seekers. Regarding other characteristics of the job offers, we find no different weighting by unemployed workers. This finding seems to indicate that unemployed indeed are willing to accept job offers, which supports the results of high local job-take-up from chapter 2. Regarding mobility, unemployed evaluate the distance to the job offer not different from employed individuals. The fact that unemployed persons do not display lower willingness to accept jobs that require relocation can be viewed as a sign of high motivation. On the other hand, the increased pressure for interregional job search does not seem to manifest in higher willingness to accept job offers in other regions. This result could mean two things: either, the lacking mobility displayed in chapter 2 is the result of low interregional demand for the skills the majority of unemployed job seeker can offer (Buch 2007). Or, the willingness to move is moderated by factors that affect unemployed individuals in a particular fashion.

In chapter 4, "The role of social capital in the job-related regional mobility decisions of unemployed individuals", we analyse whether social support resources act as such an impeding mechanism on the willingness to relocate of unemployed individuals. Utilizing the same data set as in chapter 3, we argue that for unemployed

workers job loss leads to a higher reliance on the social network for support and help with coping with unemployment. These social resources are often invested locally and are not easily transferable to other regions. Relocating for a new job to another region, risks losing the social capital on which unemployed individuals depend to a greater extent than economic self-reliant employed persons (Diewald 2007). We would expect that high levels of social capital induce an unemployed individual to display low willingness to relocate. The FSM provides a standardised mobility stimulus that controls for the information function of social ties. This design enables us to analyse the resource function (Flap and Völker 2013) and normative function (Coleman 1990) of social networks. As a general result, unemployed individuals do not display higher willingness to relocate for the job offers than employed persons. Contrary to our expectations we find positive effects of network size and support resources for the group of unemployed with benefit receipt duration between 25 and 48 months. This behaviour could be the result of the transition from the UB I insurance system to the UB II basic income support system. Unemployed persons in this group are especially aware of their protracted unsuccessful job search period, which could motivate them to make concessions with regard to mobility. We do find clear mobilizing effects for unemployed individuals who are exposed to negative social capital or have conflict-laden relationships within their network or household. We also have weak evidence for discouraging effects of other unemployed individuals in the respondent's social network.

In sum, these results indicate that the flexibility demands regarding regional mobility do not seem to be significantly more prevalent among unemployed individuals. Certain groups with medium unemployment duration react with more willingness to relocate if they have more resources or greater networks. This fact could indicate two things: either, flexibility norms are transmitted and upheld by social contacts for this group or the reality check of the transition into the UB II system generates new motivation. The result of a greater reaction of unemployed individuals to exposure to negative social capital and to conflicts within the social network underlines their reliance on their networks for social support. In our view this does not reflect the effects of external flexibility demands. If conflicts cut the unemployed persons off from the resources of their contacts, mobility becomes less costly and may even have a liberating effect. The potential loss of social capital does not impede mobility directly. Rather, the diminished access to the resources of conflict-laden relationships indirectly indicates the value of social capital.

To conclude, this thesis has shown that regional mobility does play a minor role in the job search of unemployed individuals. The high costs of mobility seem to be prohibitive of large scale relocations of the unemployed job seeker. Low

skilled unemployed workers will also have a hard time competing with the local competition in other regions (Buch 2007). As we have shown, even measures primarily designed to promote mobility affect only a small number of unemployed persons and drive the majority of them to evasive reactions. Our experimental studies confirm this result. While unemployed individuals show a higher willingness to make concessions for a job in general, this does not translate into a higher willingness to relocate for a job offer. This result is in line with the reported low priority that regional job search has in the job referral from qualitative research (Mosley 2006; Sondermann et al. 2007). Considering the efforts to expand the system of sanctions and mobility assistance, this seems counter-productive. Mobility also may be a more promising long-term investment that exceeds the gains from finding work locally only by making excessive concessions. The impact of the increasing demand for flexibility is manifest in the increased willingness of unemployed persons to make concessions in general and in their intensified local job search efforts. If local labour market outlooks are bleak however, immobile unemployed workers stand to lose in an era of increased labour flexibility. This fact has the potential to perpetuate existing inequalities as well as to generate new ones. New developments like *crowdworking* or on-demand freelancing brokered by smartphone applications have the potential, though, to make physical proximity to a place of work increasingly redundant, which could offer relief for tied-down workers.

Our work focussed on the interregional labour supply, which is only one aspect of the whole picture. Demand side effects could help to explain why stated willingness does not transform into behaviour. The ideal-typical process of matching supply and demand in figure 1.1 provides a number of promising starting points for further research on the way employers consider applications from other regions.

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Abstract

Modern labour markets are characterised by the high levels of flexibility they demand of workers. The prominent role of the standard employment relation (SER) is gradually reduced by forms of atypical employment, while new technology firms abandon employment altogether in favour of more flexible freelancers. These developments put pressure on workers to adapt in order to stay competitive and in employment.

Particularly, unemployed individuals are confronted with flexibility demands, because their job search is financed by social security contributions or taxpayer money. Increasing search efforts and the willingness to make concessions for re-employment are seen as vital for shortening the length of individual benefit receipt and for reducing the aggregate unemployment rate. Increasing the willingness for regional mobility is an integral part of this flexibilisation strategy, which was at the heart of the far reaching *Hartz* reforms of the German labour market in the early 2000s. In light of these developments, this thesis aims to ascertain the role regional mobility plays in the job search of unemployed individuals. This research helps to assess the effect of increasing flexibility demands on the unemployed, whether this leads to more regional mobility, and if so for which subgroups.

In chapter 2, we analyse, whether tightened mobility requirements in the context of the German *Hartz* reforms lead to more regional mobility of the affected unemployed. Our results suggest, that the *Hartz* reforms have indeed activated the UB recipients. The majority did however not relocate but instead intensified their search efforts in the local labour market or chose non-employment. We find strong gender differences, with family ties being more protective for women than for men. Taken together, our results highlight the complex interactions between the intended activation targets and the logic of action of subgroups, which have varying levels of protection and different needs structures.

The observed lacking mobility could be the result of low willingness to make concessions on the unemployed's side or a sign of low demand for unemployed job seekers from other regions. In chapter 3, we aim to disentangle these mechanisms with the help of a factorial survey experiment. We find that unemployed individuals display a higher willingness to accept job offers and are more willing to take up fixed-contract jobs than employed job seekers. For job offers that require mobility we find no different weighting by unemployed persons. This seems to indicate that unemployed people indeed are more willing to accept job offers but show no higher inclination for mobility, which supports the results of high local job-take-up from chapter 2.

In chapter 4, we analyse whether social support resources act as an impeding mechanism on the willingness to relocate of unemployed individuals. These subjects depend on their social network to a greater extent than economic self-reliant employed persons. Relocating to another region for a new job risks losing these valuable assets. As a general result, unemployed individuals do not display higher willingness to relocate for job offers than employed persons. We find positive effects of social capital for some groups of unemployed who have recently transitioned to the more stigmatising basic income support system. We do find clear mobilizing effects of negative social capital and discouraging effects of other unemployed individuals in the respondent's social network.

Finally, in chapter 5 we conclude our analysis with a discussion of our results in the wider context of labour market flexibility demands placed upon unemployed workers.

This thesis shows that, despite tighter regulatory rules and heightened flexibility demands, regional mobility only takes a secondary role in the job search of unemployed individuals. The high costs of mobility seem to be prohibitive of large scale relocations of the unemployed. In an era of increased labour flexibility, tied-down unemployed individuals risk losing out. Thus, we contribute to the ongoing debate on flexibility induced inequality in the labour market.

Kurzfassung

Moderne Arbeitsmärkte erfordern ein hohes Maß an Flexibilität von Arbeitskräften. Die immer noch dominierende Position des Normalarbeitsverhältnisses wird sukzessive durch atypische Beschäftigungsformen aufgeweicht. Neue Technologieunternehmen setzen zudem zunehmend auf den Einsatz von Freiberuflern als Ersatz für althergebrachte Beschäftigungsverhältnisse. Diese Entwicklungen setzen Arbeitnehmer zunehmend unter Druck sich anzupassen um weiterhin wettbewerbs- und beschäftigungsfähig zu bleiben.

Besonders Arbeitslose sehen sich mit Flexibilitätsanforderungen konfrontiert, da ihre Stellensuche über Sozialversicherungsbeiträge oder aus Steuermitteln finanziert wird. Intensive Stellensuche in Verbindung mit der hohen Bereitschaft zu Konzessionen für eine Beschäftigungschance ist besonders wichtig, um nachteilige längere Arbeitslosigkeitsphasen für Individuen zu vermeiden und Arbeitslosigkeit zu bekämpfen. Dabei kommt der Bereitschaft zur regionalen Mobilität im Zuge der tiefgreifenden *Hartz*-Reformen des deutschen Arbeitsmarktes eine zentrale Rolle zu. Vor diesem Hintergrund untersucht diese Dissertation, die Bedeutung überregionaler Mobilität im Stellensuchprozess von Arbeitslosen. Unsere Forschung leistet einen Beitrag dazu, die Wirkung erhöhter Flexibilitätsanforderungen auf die Stellensuche von Arbeitslosen zu beleuchten, Transmissionsmechanismen zu identifizieren und besonders betroffene Subgruppen herauszuarbeiten.

In Kapitel 2 untersuchen wir, ob die im Rahmen der *Hartz*-Reform verschärften Zumutbarkeitsregelungen für die Stellenannahme zu höherer regionaler Mobilität der betroffenen Arbeitslosen geführt haben. Unsere Ergebnisse legen nahe, dass es tatsächlich zu einer gesteigerten Aktivierung von Arbeitslosengeld-Empfängern gekommen ist. Diese hat sich nicht wie erwartet in höherer Mobilität niedergeschlagen, sondern v. a. zu einer höheren lokalen Erwerbsaufnahme geführt. Zudem haben große Gruppen den Arbeitslosengeldbezug zugunsten von Nichterwerbstätigkeit beendet. Wir stellen starke Geschlechterunterschiede fest, wobei familiäre Bindungen Frauen in höherem Maße vor den Mobilitätsanforderungen schützen als Männer. Unsere Ergebnisse zeigen die komplexen Interaktionen zwischen den intendierten Aktivierungszielen der Reform und der Handlungslogik einzelner Subgruppen, welche das unterschiedliche Ausmaß des Schutzes vor den Reformwirkungen und die Bedürfnisstruktur der Akteure widerspiegeln.

Die zuvor beobachtete geringe Mobilitätsneigung könnte das Resultat fehlender Konzessionsbereitschaft der Arbeitslosen, oder auf Arbeitsnachfrageeffekte zurückzuführen sein. Im Kapitel 3 unternehmen wir den Versuch, beide Effekte mithilfe eines experimentellen faktoriellen Survey Designs zu trennen. Unsere Befunde deuten auf eine höhere Konzessionsbereitschaft von Arbeitslosen im Vergleich

zu Erwerbstätigen hin. Dies gilt sowohl allgemein, als auch speziell im Fall befristeter Beschäftigung. Stellenangebote, welche Mobilität erfordern, werden von Arbeitslosen jedoch nicht anders bewertet. Diese Ergebnisse einer hohen lokalen Annahmefähigkeit von Arbeitslosen und dem Fehlen einer höher ausgeprägten Mobilitätsbereitschaft unterstützen die bereits in Kapitel 2 berichteten Befunde.

In Kapitel 4 gehen wir der Frage nach, inwieweit die angesichts der Aktivierungsbemühungen geringe Mobilitätsbereitschaft von Arbeitslosen auf ihre soziale Einbettung zurückzuführen ist. Umzüge in andere Regionen sind mit dem Risiko eines stückweisen Verlusts von sozialem Kapital verbunden, auf das Arbeitslose stärker angewiesen sind als ökonomisch selbständigere Erwerbstätige. Generell zeigt sich, dass Arbeitslose nicht umzugsbereiter sind als Erwerbstätige. Arbeitslose, die erst kürzlich in das stigmatisierende Grundsicherungssystem übergetreten sind, werden durch ihre sozialen Beziehungen zu mehr Mobilitätsbereitschaft motiviert. Negatives soziales Kapital wirkt ebenso mobilisierend für Arbeitslose, wohingegen ein hoher Anteil an Arbeitslosigkeit im sozialen Netzwerk demotivierend wirkt.

Zuletzt diskutieren wir in Kapitel 5 die Ergebnisse der vorhergehenden Kapitel vor dem Hintergrund der übergreifenden Forschungsfrage gesteigerter Flexibilisierungsanforderungen an Arbeitslose auf dem Arbeitsmarkt.

Diese Dissertation konnte den, trotz höherem politischen Druck und Flexibilisierung, nachrangigen Stellenwert regionaler Mobilität in der Stellensuche von Arbeitslosen herausarbeiten. Die hohen Kosten der Mobilität scheinen diese Option für weite Teile der Arbeitslosen unattraktiv zu machen. In Zeiten hoher Flexibilitätsanforderungen am Arbeitsmarkt sind immobile Arbeitnehmer zunehmend hohen Abstiegsrisiken ausgesetzt. Die vorliegende Arbeit leistet damit einen Beitrag zur aktuellen Debatte über die Wirkung von Flexibilisierung auf soziale Ungleichheit am Arbeitsmarkt.

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Modern labour markets are characterised by the high levels of flexibility they demand of workers and unemployed individuals in particular. Increasing the willingness of jobseekers for regional mobility is an integral part of this development and was at the heart of the far reaching Hartz reforms of the German labour market in the early 2000s. Within this context, this research assesses the role regional mobility plays in the job search of unemployed individuals. Based on innovative experimental designs, rich administrative and survey data and state-of-the-art econometric analysis, Sebastian Bähr contributes to the ongoing debate on flexibility induced inequality in the labour market.

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