Regional Unemployment and Job Switches in Germany – An Analysis at District Level

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Zusammenfassung

Dieser Beitrag untersucht den Einfluss regionaler Arbeitslosenquoten auf regionale Arbeitsplatzwechsel und Betriebswechsel. Dazu haben wir einen einzigartigen Datensatz herangezogen, der sowohl detaillierte persönliche Informationen als auch Regionalinformationen über den Betriebsstandort enthält. Diesen Datensatz haben wir mit Arbeitslosigkeitsinformation der Bundesagentur für Arbeit auf Kreisebene verknüpft. Während frühere Untersuchungen oft keinen gesicherten Einfluss bezüglich der Rolle der regionalen Arbeitslosigkeit feststellen konnten, zeigen wir, dass die unterschiedlichen Motive für einen Regionalwechsel mit berücksichtigt werden müssen. Betrachtet man aus welchem Grund der alte Arbeitsplatz aufgegeben wurde, kann man deutliche Einflüsse in zwei verschiedene Richtungen feststellen: bei steigender regionaler Arbeitslosigkeit sinken freiwillige Arbeitsplatzwechsel und unfreiwillige Arbeitsplatzwechsel steigen an. Offensichtlich fällt die Entscheidung für regionale Mobilität insbesondere dann positiv aus, wenn die Nichtmobilität zu einer extrem schlechteren Situation wie längerer Arbeitslosigkeit führen würde. Folglich trägt regionale Mobilität, wenn auch in geringem Maße, dazu bei, die regionalen Arbeitslosenquoten untereinander anzugleichen.

Abstract

This paper looks at the influence of regional unemployment rates on regional job mobility and firm switches. For that purpose we use data from the German Life History Study that includes detailed individual information and regional information about the place of work. This individual level data set is combined with unemployment rates at the level of German Districts from the Federal Employment Services. While many earlier studies did not find a significant impact of regional unemployment rates on mobility, we show that the reason for job switches has to be taken into account. When we do this, we find that regional unemployment rates influence job flows in two directions: voluntary switches decrease and involuntary switches increase. It seems that regional mobility is considered especially often if the alternative is unemployment. We therefore show that regional labour mobility contributes to equalizing regional unemployment rates in Germany, though to a relatively small extent.

1. Introduction

Against the background of persistently high unemployment and marked regional differences, a greater willingness to be regionally mobile has been repeatedly demanded especially of the unemployed. Admittedly, the extent of regional mobility at *Länder* level in Germany seems to be relatively low, at approximately four percent in 2001; higher values can be found at the level of districts (*Kreise*) and labour market regions, however, and these values are continuing to rise. Thus for instance since the early 1980s the proportion of people who move to another district - at least once per year - has risen from just under five to about eight percent (Haas 2000). From the mid-1990s another clear increase can be detected, 11% was reached in 2001. The increase in the amount of commuting is even more marked. Thus for example it has long been possible to observe that commuting is gaining significance compared with moving house (Kalter 1994). Despite this development, however, an increasing equalisation of the regional unemployment rates can not be detected. On the contrary, in eastern Germany the range of the unemployment rate has increased further – and that in spite of the existence of mobility allowances.[1] For Germany there are only few studies which examine the actual impact of regional unemployment rates on the propensity for mobility. This paper contributes to closing this gap in the research.

Theoretically the correlations between regional unemployment rates and regional job mobility can be described quickly: different developments in demand in different regions lead to disequilibria which can be balanced in various ways. In competitive labour markets, wage adjustments and labour mobility rapidly lead to a new equilibrium (Topel 1986). If the adjustment is delayed or if it is even prevented by institutional factors, the result can be unemployment (cf. Blanchard/Katz 1992; Decressin/Fatas 1995). This unemployment increases the pressure to adjust and can then itself affect the wages or labour turnover[2]. Studies on the "wage curve" have shown for various European countries that the level of regional unemployment has a negative effect on regional wages (Blanchflower/Oswald 1990, 1994). Such effects have also already been proven for Germany, though they are not undisputed (cf. for example Bellmann/Blien 1996 und 2001; Wagner 1994, 1996).

[1] Cf. 4th chapter, third section of the Social Code Volume III: §53 "Mobility allowances" and §54 "Mobility allowances when taking up employment". The transition allowance is paid in the form of a loan of up to € 1000 as a benefit for subsistence costs until the first wage or salary is paid. There is also a travel expenses allowance for the initial journey to the new place of work and an allowance for the daily travel expenses for the first six months of employment. In addition there is a separation allowance of up to € 260 for employees who are required to work away from home and are therefore separated from their families, and a relocation allowance under certain conditions.

[2] A European comparison of labour mobility as an adjustment mechanism can be found in Puhani (2001).

One can equally ask whether the regional unemployment rate affects not only the wages but also mobility. High regional unemployment coupled with relatively low wages can raise the willingness to become mobile. In empirical practice it is often difficult to check such assumptions since the official statistics provide hardly any separate data about migration between different regions. In this study, however, we are able to use a combination data set composed of microdata and the unemployment figures from the official statistics, which can be used for analysing the correlations between unemployment and regional mobility. The German Life History Study conducted by the Max Planck Institute for Human Development (Hillmert/Mayer 2004) provides us with a representative data set for the youngest and therefore the potentially most mobile participants on the labour market. These data show the entry into the labour market for the two birth cohorts of 1964 and 1971, and contain not only a lot of personal characteristics of the individuals in the study but also information regarding the reason for changing jobs and regarding the region in which the place of work is located at district (*Kreis*) level. We combined this individual level data set with regional unemployment rates from the Federal Employment Services (Bundesagentur für Arbeit (BA)). What is so special about our data set is that it enables us to determine for all job switches whether the new job is located in a different district from the old one. It remains open whether this job switch entailed moving home or whether the employee opted to commute, but the advantage of this concept is that job-related mobility is recorded in its entirety. This can not be achieved with an examination of changes of residence alone. In addition, the survey makes it possible to differentiate between mobility which is subjectively assessed as voluntary and that which is assessed as involuntary. Section 2 first provides an overview of theoretical connections and empirical literature on the subject, before section 3 describes in more detail the advantages and disadvantages of our data. In section 4 we then examine the correlations between regional mobility and unemployment at district level in the context of event history modelling. In addition to this we estimate comparable models for mobility between firms in order to find out whether regional unemployment has more influence on firm switches in general or specifically on regional job switches. Section 5 summarises the results briefly.

2. Theoretical determinants of regional mobility

Both the migration of labour between the different *Länder* and the regional mobility within individual *Länder* can have a decisive impact on the labour market. However, whereas there is a great deal of varied literature on the first topic (for Germany see for instance Bauer 1998, Dustmann 1993, Fertig/Schmidt 2001, Haisken-DeNew 1996, Pischke/Velling 1997, Schmidt 1997, Schmidt/Zimmermann 1992), the second subject is seldom examined empirically – although it is of great importance in terms of structural and employment policy. For this reason we will deal solely with regional mobility within one *Land* in our paper and in this section we first attempt to work out the determinants of this form of mobility.[3]

2.1. Regional unemployment

In his often cited paper, Topel (1986) developed a general equilibrium model in which wage adjustments and labour flows bring the regional labour markets back into balance following asymmetrical demand shocks. What holds here is: the stronger the mobility reaction, the lower the wage adjustments will be. It is well known that regional mobility within the USA is more marked than in Germany and in fact Blanchard/Katz (1992) show that internal labour flows can be an effective balancing mechanism for asymmetrical regional employment shocks. Using aggregated data for the US states, Blanchard and Katz prove that the response to a negative demand shock is first an increase in unemployment and then a drop in the participation rate. Wages respond, too, although not strongly enough to bring the labour market back into balance (for Germany see also Mertens 2002). The balancing factor here is ultimately interregional mobility, which according to Blanchard/Katz (1992) is apparently caused more by rising unemployment than by wage changes. A balancing of this kind does not (yet) occur between European regions, however (Decressin/Fatas 1995). In a study of western Germany, Südekum (2004) attributes the lack of a balancing mechanism among other things to the fact that mobility is selective with regard to qualification level, i.e. the low-skilled are insufficiently mobile. Here it is primarily the participation rate that responds, and unemployment to a lesser extent. It can be assumed that higher mobility costs are the main reason for the differences. Language barriers, legal impediments or peculiarities of the housing markets in Europe can constitute barriers to mobility which in some cases are difficult to surmount. Such barriers can also arise within individual European countries, and reference is often made to the importance of the housing market. A clearly lower mobility rate of home owners compared with tenants is proven in numerous studies

[3] For an extensive overview of the determinants of migration see Greenwood (1997).

(Oswald 1998, Owen/Green 1997 Cameron/Muellbauer 1998). For the time being, however, it must be emphasised that unemployment can be a key cause of regional mobility.

The few existing studies on the correlation between unemployment and the regional mobility of labour within a country do not reveal a clear picture. On the basis of a number of international studies Greenwood (1997) summarises that the effects of regional unemployment on mobility are generally either insignificant or not clear. Pissarides/Wadsworth (1989) show for Great Britain that individual unemployment raises the migration rate but that regional unemployment *per se* does not necessarily lead to an increase in mobility. Pissarides/McMaster (1990) show that the adjustment processes in Great Britain actually proceed very slowly and that migration responds to differences in unemployment to only a small extent. For Germany, Schlömer/ Bucher (2001) calculate correlation coefficients between regional unemployment and mobility for 97 standard statistical regions and obtain values between -0.152 and -0.376. When eastern and western Germany are examined separately, the estimated correlation becomes considerably weaker, and when concentrating on 18-25-year-olds it becomes stronger. Kupiszewski/Rees (1998) show that the migratory movements follow a hierarchical pattern. Regions with low unemployment rates obtain migratory gains compared with regions with higher unemployment rates. Haas (2000) concentrates on the impact of individual unemployment on regional mobility and shows on the basis of the IAB employment sample that since the 1980s previously unemployed people have become increasingly willing to accept job offers from other regions when seeking work. Alecke/Untiedt (1999) on the other hand examine net migration in Germany for the period 1991 to 1997 and come to the conclusion that regional disparities both in wages and in unemployment are reduced over time. However, the magnitude in Germany is not sufficient to balance the market by means of these mechanisms alone. Before we move on to our analysis of the impact of regional unemployment, however, we still have to resolve the question as to what other determinants of regional mobility are known in the literature.

2.2. Further determinants of regional mobility

Individual willingness to migrate is certainly determined not only by macroeconomic but also by microeconomic and individual socio-economic factors. These factors include the qualification level, age, gender, family status and the number of children, but also specific job variables such as the size of the firm, or the industry to which the firm belongs. These correlations are explained briefly in the following paragraphs.

Age is one of the most important determinants of internal mobility. Older people generally prove to be far less mobile. Willingness to move house decreases considerably after starting a family (Fertig/Schmidt, 2002). The reasons given for this are not only that the material and immaterial costs of moving house increase with the size of the family, but also that flexibility, the ability to train and the possibility of specific human capital to adapt to new challenges decrease with age. Millington (2000) proves the sensitivity of mobility to age also for aggregated migration flows.

The influence of family status and the number of children on the decision to move is also regarded as empirically proven. The propensity to move declines with marriage and starting a family, since the costs of mobility increase. The decision to move is no longer made by one individual alone but by a household. Studies that analyse the entire employment history play an important role in this context (Odland/Shumway 1993, Wagner 1989, Frick 1996). The phenomenon of the "tied mover" describes the situation when, in the case of couples, the move is initiated by one partner, e.g. as a result of an attractive job offer, thus inducing the other partner to move at the same time. This may result in a loss of wages for the partner who goes along (cf. Jürges 1998, Flöthmann 1996).

Another key factor is certainly the qualification level. The fact that mobility increases with higher qualification levels is generally accounted for using human capital theory (cf. Sjaastad 1962, Goss/Schoening 1984, van Ommeren/Rietveld/Nijkamp 1999). For people with higher qualifications, a regional job switch can lead to better chances of making a profit from deploying their human capital. Search theory provides an alternative explanatory approach: since the spatial density of job offers decreases with increasing specialisation, highly qualified workers extend their search radius or are additionally mobile in their occupation in order to obtain a higher return on their human capital (Mortensen 1986). Firstly a higher level of education raises the willingness to move in general, secondly highly qualified people also surmount greater distances (Böltken/Bucher/Janich 1997). Chiswick (2000) and Hunt (2000) argue that the mobility costs are lower for more highly qualified workers. In addition, the highly qualified are often concentrated in agglomeration areas (for example due to so-called skill premiums). This concentration itself in turn functions as a point of attraction for other workers (cf. Giannetti 2001 and Möller/Haas 2003).

The existence of an internal labour market can also be a key factor for career advancement. If there are no appropriate offers in the present firm, a change of region can be an option. In large firms the choice of internal career advancement possibilities is larger simply due to the large

number of jobs. In addition to this, larger firms can generally offer more attractive wages, which constitute a key quantity in mobility decisions (Gerlach/Hübler 1995). As the establishment size increases, more trainees are also taken on after their apprenticeships as the costs of training constitute a large investment (Franz/Zimmermann 1999). In addition to this it is plausible that different industries have different levels of mobility. On the one hand mobility gives rise to adjustment costs for the employer, e.g. familiarisation or redistributing work among the workforce, and these costs differ in amount from industry to industry. On the other hand the demands regarding the employees' mobility vary. For this reason, somewhat higher mobility rates are typically found in the services sector than in manufacturing.

There are also obviously differences between individuals regarding regional mobility behaviour, however. DaVanzo (1978) discovered that some workers change their place of work again if there are dissatisfied with their mobility decision. One explanatory approach puts this repeated switch down to the imperfect information about the totality of the returns from and costs of mobility. Changes in the individual's personal and labour-market-related situation lead to different alternative quantities for making the decision. Thus a lucrative job offer may make it worthwhile to switch jobs again despite the resulting mobility costs. Here the particular phase of the life cycle is also decisive, which is recorded by age, family status and occupational status. In this context Molho (1986) speaks of the path dependence of the decision to migrate. If experience has already been made with changing the place of work, then one can assume that information is obtained and evaluated more effectively. Information that is relevant for the decision can be selected more specifically due to comparable situations. In the context of the signalling approach, experience of migration can be judged as an additionally positive hiring signal, even more so than firm switches. Regional mobility in a curriculum vitae signals to the employer flexibility, the ability to adapt and a greater willingness to work and is therefore highly estimated by employers. In certain industries, repeated regional moves are the precondition for advancement and rises in income.

Finally, various studies share the view that the economic situation also has an influence: if the economic situation is weak in general, the willingness to migrate seems to be restrained (Pissarides/Wadsworth 1989; Haas, 2000; Hughes/McCormick 1989, Antolin/ Bover 1997 for Spain).

3. Life history data and information on regional unemployment

For our analyses we use the most recent data from the *German Life History Study (GLHS).* The *GLHS* consists of a number of unique retrospective surveys of people from selected birth years, beginning with the 1929-1931 cohorts and ending with the 1964 and 1971 birth cohorts (cf. Mayer 1990, Brückner/Mayer 1998). The survey for the latter two years was conducted by the Max Planck Institute for Human Development in co-operation with the Institute for Employment Research (Institut für Arbeitsmarkt- und Berufsforschung (IAB)) and the survey institute infas (cf. Hillmert/Mayer 2004).

The basis of the survey of the 1964 and 1971 birth cohorts was a residents' registration sample in 100 representatively selected municipalities in western Germany. The information for the almost 3000 individual data sets available was collected from June 1998 until February 1999 – mainly by means of computer assisted telephone interviews but in some cases also in personal interviews. As such retrospective surveys can be prone to error, the data were lavishly checked, edited and coded after the survey.[4]

The life history data, with just under 3000 respondents, therefore constitute a relatively small data set. In estimates this leads to the occurrence of the well-known problems of small case numbers. Nevertheless it is worthwhile to examine regional mobility using this data set, since individual information is recorded in more complexity and more precisely than is the case for example with process-produced data such as the IAB employment sample. The data are not restricted to employment relationships subject to social security contributions, but also include self-employed people, people in marginal part-time employment and civil servants. We have at our disposal detailed information about the training, labour market experience (also in self-employment), partners and children. In addition to this, detailed information about firms is also available, such as the district code of the particular employer, which is important for our research issue. In this way it is possible to record changes in the place of work. Our concept of mobility therefore includes both changes of residence associated with mobility and also decisions to commute. In order to examine the importance of the labour market for mobility, this procedure is more comprehensive than just including a change of residence. In addition, for each change of workplace the interviewee was asked as to his/her subjective assessment of whether the switch was voluntary or involuntary. The combination of this diverse individual-level information together with the regional unemployment rates make this data set attractive.

[4] At the same time an attempt was made to link the survey data with the process data of the employment statistics, provided that the respondents had given permission for this (80.9% agreement). It is possible to match some of the individual data but not to the extent hoped for (cf. Schnell et al. 2004, Reimer/Künster 2004).

In order to record the impact of regional unemployment, we use the unemployment rate at the level of autonomous municipal authorities (*Kreisfreie Städte*) and districts (*Landkreise*). The information about unemployment is obtained from the employment statistics of the Federal Employment Services (*Bundesagentur für Arbeit*) augmented by information about the civil servants obtained from the microcensus, and therefore refers to persons in civilian dependent employment. The time series of the unemployment rates on a monthly basis is available from 1984 for western Germany and from 1996 for eastern Germany. When interpreting the unemployment rates it should be taken into account that they can be relatively low in areas where commuters have good access to agglomerations with a good supply of jobs. Please note that the majority of our sample (some 97%) refers to employment relationships in western Germany. However, since our data concern retrospective surveys of a sample from 1998 it is of course possible that older employment relationships existed in eastern Germany.

Table 1 provides an overview of the development of the mean regional unemployment rates and their standard deviations for the period 1990-1999. The enormous disparities at district level result in accordingly high standard deviations.

< Table 1 >

In western Germany the range of the unemployment rate in the period under observation, 1984-1999, goes from 3% (Esslingen, Baden-Württemberg 1985) to 20% in Leer (1985). In eastern Germany the range is similar but somewhat higher in level: from 8% in Potsdam (1995) to 28% in Hoyerswerda (1999). If the districts are ranked according to their unemployment rates in Table 2, then the 10 positions with the lowest unemployment rates in 1985 are occupied mainly by districts in Baden-Württemberg (8 districts). In 1999, the end of our period of observation, all 10 of the districts with the lowest unemployment rates belong to Bavaria. Of course special effects, such as Munich Airport, play a considerable role (Freising and Erding in positions 1 and 2). When examining the 10 districts with the highest unemployment rates in 1985 it stands out that 6 of the districts are in Lower Saxony and represent more peripheral areas there. In 1999 districts in the Ruhr area are also included, two districts in Rhineland-Palatinate (Kaiserslautern and Pirmasens) have joined the list, and the city of Bremerhaven brings up the rear.

< Table 2 >

The survey was conducted in 97 municipalities in western Germany. When selecting the municipalities, care was taken that the settlement structure, measured in terms of population density, centrality and location of the municipality, was representative for western Germany. The workplaces were determined from the respondents' biographical information about their employers. They are distributed across 288 districts (of a total of 328) in western Germany and 63 districts (of 113) in eastern Germany. Therefore the focus of the study is clearly on western Germany. As the regional information is only available from 1984 (western Germany) and from 1996 (eastern Germany), employment relationships before this period have to be excluded from the analysis (approx. 6% of the observations). Since we always add to the respective observations the unemployment at the end of the particular employment spell, however, it is possible to examine at the same time episodes that began before the period and project into the analysis period. Civil servants and self-employed individuals are also excluded[5], as are observations with missing codes for key determinants such as establishment size and the industry.

4. An empirical study of regional mobility and firm switches

As is clear from the description of the data set, the life history study is a data set which can be used to examine the duration of certain events (episodes) on a monthly basis. In our case we observe regional and firm-specific employment episodes. The process time starts at the moment when an employment relationship begins. In the case of firm-specific episodes the process time is ended when the individual switches to a different establishment; in the case of regional episodes it is ended when the individual switches to a different establishment in a different region. In our study the process time therefore continues to run during spells of economic inactivity. For this we include a control variable which indicates whether an employment relationship currently exists or not. The process time is also ended when the month of the interview is reached. In this case the episodes are regarded as right-censored. Employment durations in a region are therefore measured. As a comparison we also examine the duration time in a firm in each case, in order to find out whether regional unemployment affects the workers' mobility in general or just specifically the regional mobility.

[5] It is not possible to ask self-employed people the question as to voluntary or involuntary switches as they can not be dismissed. On the other hand, although civil servants can be transferred against their will, they are generally not dismissed, so here too it makes little sense to compare them with employees.

4.1. Some descriptive findings

First of all we examine the duration time in regions and firms purely descriptively depending on some key characteristics. The following Kaplan-Meier curves show the so-called "survivor function", which indicates the probability of an individual experiencing the point in time (month) t. In our case this means that a change of region or firm has not yet occurred up until this point in time. Figure 1 shows the Kaplan-Meier curve of the duration of employment separately for the two birth cohorts. The 1964 cohort is one of the years with particularly high birth rates between 1961 and 1967, in each of which more than a million children were born. Together with the relatively poor economic situation in the early 1980s, a strong competitive situation occurs on the labour market for new entrants here. The 1971 cohort is then already one of the years with declining birth rates (cf. Hillmert 2004 and Bender/Dietrich 2001). The labour market entry of this cohort falls in the late 1980s, the time of reunification with its strongly fluctuating economic demand. In spite of very different initial conditions, however, the survivor curves show no differences between the cohorts as regards regional changes in workplace. The drop at the end of the curve for the 1971 cohort is simply to be attributed to the low case numbers at the end of the observation period. However, significant deviations can be found in the case of mobility between firms, whereby the 1971 cohort has clearly shorter duration times. One possible explanation for this may be the more dynamic economic development following reunification. It is well known that in such times there are more vacancies and opportunities for potential job switches. The greater probability of switching jobs for new entrants to the labour market in the 1971 cohort can be explained in this way.

< Figure 1 >

As can be seen in Figure 2, the regional duration time is shorter for men than for women. This gender difference does not exist in the first months of employment, however. The difference between the sexes in the regional duration time opens up during the course of the duration of employment. This result may appear surprising at first, when one considers job switches and women's typical breaks in employment. It shows, however, that women are less regionally mobile than men even when they are young. The curve divides after approximately two years. If this is compared with the Kaplan-Meier curves for firm switches, then one finds here that women are more immobile to begin with but become more mobile later on. However, the chi-square test for the difference between the curves is not significant.

< Figure 2 >

Finally, Figure 3 shows the Kaplan-Meier curves for our most important variable, the reason for switching. It should be noted that for this the curves need not end on the same (average) basis as in the previous graphs, since here only the uncensored spells were used in the calculation. Censored spells do not contain any information about the reason for the job-switch and were therefore not examined here. At first there is no difference for changes of region. In the case of firm switches, however, it can be ascertained that involuntary switches become more common roughly from the third year onwards. To what extent these descriptive results hold in a multivariate analysis, and what impact regional unemployment has in this respect will be shown in the following.

< Figure 3 >

4.2. Analyses of duration times of regional and firm-specific employment relationships

In this section we estimate Cox proportional hazard models. Our remarks on this subject follow closely the account in Blossfeld/Rohwer 1995. The basis of these models is the time-dependent risk function. If the duration of employment in a region or in a workplace is denoted by t and the risk of ending it dependent on the duration of employment (which is to be explained) is denoted by $r(t)$ (transition rate or hazard) then the following holds:

$$r(t) = \lim_{t' \to t} \frac{\Pr(t \le T < t' | T \ge t)}{t' - t} \qquad \text{für } t < t' . \tag{1}$$

$\Pr(t \le T < t' \mid T \ge t)$ is the conditional probability of a change of region or workplace after t months of employment in the following time interval t'. In short, in our case the transition rate indicates the likelihood of an individual leaving a region (a firm) on condition that the employment episode lasts until the point in time t. Since individuals have different risks of ending their employment in a region and these risks are dependent on firm-specific/regional characteristics and also on individual characteristics, it is necessary to incorporate explanatory characteristics into the model. The base model, which is based on the transition rate, can be formulated as follows:

$$r(t) = g(t, x) . \tag{2}$$

The transition rate is therefore dependent on time and on the covariates (x). If $f(t)$ is defined as the density function of the duration in a job, and $G(t)$ as the survival function which indicates the proportion of persons still in the same job, then it follows that:

$$\mathrm{r(t)} = \frac{f(t)}{G(t)}. \qquad (3)$$

For the Cox model it is assumed that the effects of the covariates on the survival function are proportional as follows:

$$g(t;x) = g_0(t)\exp(x'\beta). \qquad (4)$$

One advantage of this model compared with other models of event-analysis is that the so-called 'baseline hazard' $g_0(t)$ does not have to be specified. Therefore no special distribution assumptions are necessary. However, as the Cox proportional model makes proportionality assumptions which are often not fulfilled, we also estimated piecewise constant exponential models, which do not need to make this assumption (cf. for example Blossfeld/Rohwer 1995). These models reach the same results in our case, however, and are therefore not reported additionally.

The key determinants of regional mobility were explained in more detail in section 2. In our estimates we first control for individual variables such as work experience, the family situation and the qualification level attained. We also control for the establishment size and the industry. In addition we also add control variables for the cohort and for the status "economically inactive". This is necessary since in our sample not all the individuals are permanently in employment. They can for example be unemployed between two different employment relationships, or they may be in training or on childcare leave. There will be individuals among them who start a new job in a different region after such a "gap". The switch is therefore at the end of a phase of economic inactivity. For this reason we introduced a dummy control variable "gap", for phases of economic inactivity. This equals one if the person is not working and is otherwise zero. All the other control variables in phases of economic inactivity are given the values of the previous employment episode.

If this model is estimated in Table 3 (column I), one finds that economic inactivity does indeed have a strong positive impact on the likelihood of moving to a different region.

< Table 3 >

If regional unemployment is included in the analysis, negative values are obtained, though they are not significant. However, the estimates for firm switches (column IV) show that mobility is restricted in general when unemployment is high: the effect of regional unemployment is extremely negatively significant.

The other determinants generally point in the expected direction. Thus the regional mobility of women is lower than that of men. Women are frequently so-called “tied movers”, i.e. the mobility initiative comes from the man, who is generally the principal earner. This also increases the mobility costs for women or for families with children (e.g. childcare, change of school). The variables that are used to control for the family context point in the same direction. The number of children has as negative an influence on regional mobility as the existence of a partner in the household.

The positive influence of work experience seems to be astonishing at first. It is normally assumed that moving to a different region becomes less likely as the duration of employment increases. Social and cultural ties grow with time, people become “rooted” in their environment. There is also increasingly a selection process in the groups of “mobile” and “not mobile”. For this reason we estimate a further model in columns III and IV, which incorporates the number of switches into the analysis. Whereas this value is positive and significant, the coefficient estimator for work experience now turns in the direction expected originally and becomes negative. The two values are obviously highly correlated. Owing to the large explanatory power of previous switches we report only specifications with this control variable in the following, even if some other coefficients then become insignificant.

The coefficients for the different qualification level groups show that graduates are the relatively most regionally mobile group. In some cases the requirements of jobs for people with higher qualification levels are very highly specialised. In order to find suitable employment, the highly qualified therefore generally have to be more mobile than people with lower qualification levels. On the other hand, mobility costs are often lower for more highly qualified people as they have a higher income and have often already gained experience of mobility (e.g. by studying in a different area). People with higher qualifications more frequently have the opportunity to be

regionally mobile within the same firm. Hunt (2000) ascertains that one in four Germans who move to a different *Land* stays with the same employer. This may also explain the different influence of establishment size on regional mobility and firm switches. Whereas the size of the establishment has only a small negative impact on regional job switches, firm switches are highly correlated with the size of the firm: the larger the firm the smaller the likelihood of moving is.

In a further step we then examined whether the regional unemployment rate has a different effect on voluntary and involuntary mobility. Clear differences can be seen in Table 4. Whereas involuntary regional mobility occurs more frequently when regional unemployment is high, voluntary moves are more seldom. Obviously the two effects therefore overlap if the impact of the regional unemployment rate on regional job mobility is estimated in general. The results indicate that in Germany regional mobility seems to be more of a necessary evil that is only accepted if there are no suitable alternatives available locally. However, the same picture emerges for firm switches (cf. also Mertens 1997). The lower level of voluntary mobility in times of high regional unemployment can be explained by two effects: (1) The choice of job offers declines and employment opportunities decrease. (2) In times when the labour market situation is poor, one's own job becomes relatively more valuable, as the risk of becoming unemployed grows. A change of job involves a new familiarisation period and thus a greater risk of dismissal.

< Table 4 >

The characteristic "voluntary/involuntary nature of the switch" says little about the quality of the new job, however. In our last step we therefore try to examine upward and downward social mobility on the basis of income differentials. Unfortunately the information in the life history study regarding income is not optimal as firstly there are quite a lot of missing values and secondly some respondents reported their gross income and others their net income. Nevertheless, it is possible to determine an increase in income for the majority of the episodes. A job switch is defined as upward mobility when the gross or net increase in pay is greater than 5% and as downward mobility when it is less than 5%. In the estimates all the other switches are taken into account like censored spells. By analogy with the previous table we examine whether regional unemployment has an effect on upward and downward mobility. The results can be found in Table 5. Whilst the effects on regional job mobility are small, a mobility-reducing effect can be determined in the case of firm switches. Both upward and downward mobility are uncommon when regional unemployment is high, which in turn indicates a lower level of mobility on average in times of high regional unemployment.

5. Conclusions

This paper examined the impact of regional unemployment rates on regional job mobility and firm switches. For this we used a unique data set which contains both detailed individual information and also the district in which the firm is located, and linked this with data from the Federal Employment Services. We were able to show that regional unemployment can have a decisive effect on mobility decisions in Germany.

Whereas previous studies were often unable to determine any significant effect with regard to the role of regional unemployment, we show that it is also necessary to take into account the different reasons for moving to another region. In fact our data also show that although on average the regional unemployment rate seems to have an effect on firm switches, it has no effect on regional mobility. However, if one takes into account the reason for giving up the old job, it is possible to determine clear effects in two different directions: when regional unemployment rises, voluntary switches decrease and involuntary switches increase. The decision to move to a different region is obviously positive in particular when immobility would lead to a worse situation such as longer unemployment. Thus regional mobility can contribute to equalising regional unemployment rates, albeit to a small extent.

In addition our study confirms the central influence that the individual determinants, such as gender, age, qualification level, work experience and the household context, have on mobility. An individual's decision regarding mobility is thus obviously made on the basis of diverse subjective assessments regarding the potential monetary and non-monetary mobility costs. Although the monetary costs of mobility are especially problematic for the unemployed, they can be clearly reduced by means of the mobility allowances from the Federal Employment Services. However, as our study shows, the non-monetary aspects constitute a quantity that can not be ignored.

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Tables

Table 1: Means and standard deviations of the regional unemployment rates as %

	Western Germany		Eastern Germany	
	Unemployment rate	Standard deviation	Unemployment rate	Standard deviation
1984	10.7	3.8	.	.
1985	9.4	4.6	.	.
1986	8.9	5.2	.	.
1987	8.8	4.9	.	.
1988	8.9	4.8	.	.
1989	6.8	3.7	.	.
1990	6.4	3.1	.	.
1991	5.5	3.0	.	.
1992	5.8	2.8	.	.
1993	7.5	3.1	16.5	2.9
1994	8.4	3.4	16.4	2.8
1995	8.3	3.2	14.9	2.5
1996	9.2	3.2	16.3	2.6
1997	10.1	3.4	18.8	2.9
1998	9.4	3.2	18.5	3.1
1999	8.9	3.2	18.4	3.4
2000	7.7	3.2	18.0	3.2
2001	7.4	2.9	18.6	3.5
2002	8.0	2.7	.	.
2003	8.8	2.5	.	.
2004	8.8	2.3	.	.

Table 2: Regional disparity of the unemployment rates

Lowest unemployment rates		Highest unemployment rates	
1985			
08116 Esslingen	2.9	10041 Stadtverband Saarbrücken	16.5
08235 Calw	3.0	05513 Gelsenkirchen, Stadt	16.7
08115 Böblingen	3.4	01001 Flensburg, Stadt	16.9
08126 Hohenlohekreis	3.6	05913 Dortmund, Stadt	17.2
08117 Göppingen	3.7	03451 Ammerland	17.5
08119 Rems-Murr-Kreis	3.7	03452 Aurich	17.7
09188 Starnberg	3.9	03354 Lüchow-Dannenberg	18.4
08118 Ludwigsburg	4.0	03453 Cloppenburg	19.4
06436 Main-Taunus-Kreis	4.1	03462 Wittmund	19.6
08237 Freudenstadt	4.1	03457 Leer	19.7
1999			
09178 Freising	3.5	07312 Kaiserslautern, Stadt	15.4
09177 Erding	3.6	05112 Duisburg, Stadt	15.9
09180 Garmisch-Partenkirchen	4.2	05913 Dortmund, Stadt	16.5
09175 Ebersberg	4.2	05916 Herne, Stadt	16.6
09176 Eichstätt	4.3	07317 Pirmasens, Stadt	17.2
09778 Unterallgäu	4.4	03405 Wilhelmshaven, Stadt	17.5
09182 Miesbach	4.5	03354 Lüchow-Dannenberg	17.7
09773 Dillingen a.d.Donau	4.6	06611 Kassel, Stadt	17.8
09181 Landsberg am Lech	4.6	05513 Gelsenkirchen, Stadt	18.1
09190 Weilheim-Schongau	4.6	04012 Bremerhaven, Stadt	19.3

Table 3: The impact of regional unemployment rates on mobility

	Change of region				Change of firm	
	I	**II**	**III**	**IV**	**V**	**VI**
Economically inactive	1.805***	1.804***	1.390***	1.391***	1.586***	1.579***
	(0.069)	(0.069)	(0.099)	(0.098)	(0.064)	(0.063)
Regional unemployment rate	.	-0.016	.	-0.019	.	-0.038***
		(0.010)		(0.013)		(0.009)
Cohort 71	-0.112	-0.115	0.061	0.076	0.026	-0.445***
	(0.074)	(0.075)	(0.081)	(0.079)	(0.056)	(0.046)
Number of children	-0.604***	-0.607***	-0.600***	-0.599***	-0.443***	-0.111*
	(0.061)	(0.061)	(0.079)	(0.079)	(0.046)	(0.062)
Partner	-0.261***	-0.260***	-0.164	-0.162	-0.122*	0.038
	(0.069)	(0.069)	(0.117)	(0.118)	(0.063)	(0.055)
Woman	-0.261***	-0.260***	-0.052	-0.057	0.091	0.089
	(0.080)	(0.080)	(0.116)	(0.118)	(0.062)	(0.061)
Apprenticeship	-0.095	-0.101	-0.020	-0.023	-0.120	-0.123
	(0.120)	(0.120)	(0.161)	(0.159)	(0.089)	(0.089)
Full-time voc. school	-0.039	-0.053	0.005	0.014	-0.137	-0.151
	(0.147)	(0.147)	(0.201)	(0.197)	(0.123)	(0.126)
University	0.381**	0.376**	0.614***	0.625***	0.294**	0.307**
	(0.162)	(0.162)	(0.188)	(0.187)	(0.127)	(0.127)
Experience	0.005***	0.005***	-0.019***	-0.019***	-0.010***	-0.011***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Number of switches	.	.	1.476***	1.475***	0.742***	0.752***
			(0.080)	(0.081)	(0.049)	(0.047)
Estab. size (20-499)	-0.109	-0.110	-0.119	-0.123	-0.213***	-0.211***
	(0.069)	(0.069)	(0.115)	(0.116)	(0.061)	(0.061)
Estab. size (> 500)	-0.287**	-0.281**	-0.145	-0.145	-0.494***	-0.492***
	(0.117)	(0.117)	(0.134)	(0.133)	(0.105)	(0.109)
Number of persons	2231				2247	
Number of switches	1087				2227	

Remarks: Cox proportional hazard models. Standard errors in brackets. As further control variables, 15 industry dummies were included in the estimates. ***=significance at the 1% level, **=significance at the 5% level and *=significance at the 10% level.
Source: own calculations on the basis of the GLHS and unemployment rates at district level.

Table 4: Voluntary and involuntary mobility between firms and regions

	Change of region		Change of firm	
	Involuntary	**Voluntary**	**Involuntary**	**Voluntary**
Economically inactive	2.839***	0.928***	2.780***	1.067***
	(0.196)	(0.117)	(0.115)	(0.074)
Regional unemployment rate	0.038*	-0.036**	0.053***	-0.072***
	(0.022)	(0.015)	(0.014)	(0.011)
Cohort 71	-0.782***	-0.569***	-0.641***	-0.441***
	(0.169)	(0.080)	(0.108)	(0.050)
Number of children	-0.183	-0.168	-0.098	-0.146**
	(0.175)	(0.129)	(0.116)	(0.067)
Partner	0.073	0.068	0.119	0.007
	(0.171)	(0.088)	(0.105)	(0.063)
Woman	-0.128	-0.063	-0.232*	0.137**
	(0.189)	(0.131)	(0.126)	(0.070)
Apprenticeship	0.022	-0.045	-0.307*	-0.072
	(0.330)	(0.177)	(0.165)	(0.115)
Full-time voc. school	-0.093	0.074	-0.551**	-0.045
	(0.414)	(0.218)	(0.251)	(0.147)
University	0.798*	0.583***	0.580**	0.261
	(0.470)	(0.208)	(0.293)	(0.166)
Experience	-0.014***	-0.021***	-0.009***	-0.011***
	(0.003)	(0.003)	(0.002)	(0.001)
Number of switches	1.360***	1.518***	0.745***	0.758***
	(0.096)	(0.089)	(0.057)	(0.048)
Estab. size (20-499)	-0.229	-0.103	-0.328***	-0.169**
	(0.176)	(0.122)	(0.112)	(0.067)
Estab. size (> 500)	-0.204	-0.135	-0.675***	-0.442***
	(0.263)	(0.149)	(0.183)	(0.127)
Number of persons	2231	2231	2247	2247
Number of switches	228	846	542	1610

Remarks: Cox proportional hazard models. Standard error in brackets. As further control variables, 15 industry dummies were included in the estimates. ***=significance at the 1% level, **=significance at the 5% level and *=significance at the 10% level.
Source: own calculations on the basis of the GLHS and unemployment rates at district level.

Table 5: Upward and downward mobility when switching regions and firms

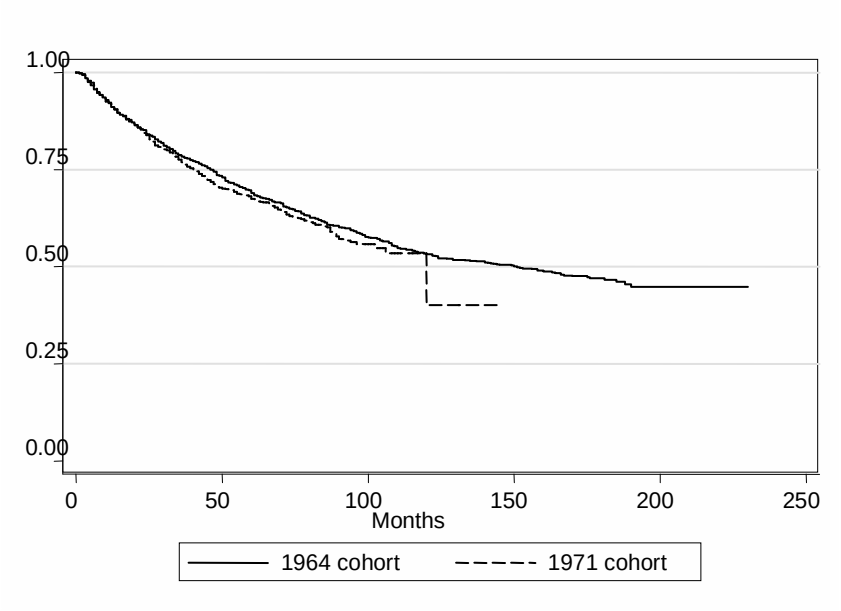
	Change of region		Change of firm	
	Upward mob.	**Downward mob.**	**Upward mob.**	**Downward mob.**
Economically inactive	1.348***	1.476***	1.579***	1.716***
	(0.134)	(0.137)	(0.085)	(0.089)
Regional unemployment rate	-0.021	-0.025	-0.051***	-0.032***
	(0.018)	(0.018)	(0.012)	(0.012)
Cohort 71	-0.657***	-0.504***	-0.472***	-0.394***
	(0.092)	(0.107)	(0.056)	(0.067)
Number of children	-0.150	-0.187	-0.096	-0.108
	(0.142)	(0.142)	(0.087)	(0.088)
Partner	-0.006	0.290**	-0.149*	0.184**
	(0.115)	(0.121)	(0.079)	(0.077)
Woman	-0.139	-0.105	0.011	0.090
	(0.156)	(0.147)	(0.090)	(0.084)
Apprenticeship	0.268	-0.287	-0.031	-0.277***
	(0.236)	(0.184)	(0.136)	(0.106)
Full-time voc. school	0.486*	-0.572*	-0.022	-0.516***
	(0.288)	(0.298)	(0.174)	(0.170)
University	1.116***	-0.030	0.267	0.109
	(0.269)	(0.277)	(0.191)	(0.166)
Experience	-0.023***	-0.016***	-0.014***	-0.010***
	(0.003)	(0.003)	(0.001)	(0.001)
Number of switches	1.546***	1.487***	0.801***	0.800***
	(0.094)	(0.088)	(0.050)	(0.042)
Estab. size (20-499)	-0.184	0.007	-0.247***	-0.137
	(0.141)	(0.148)	(0.083)	(0.088)
Estab. size (> 500)	-0.442**	0.300*	-0.643***	-0.266**
	(0.196)	(0.176)	(0.152)	(0.133)
Number of persons	2206	2206	2198	2198
Number of switches	499	440	989	917

Remarks: Cox proportional hazard models. Standard error in brackets. As further control variables, 15 industry dummies were included in the estimates. ***=significance at the 1% level, **=significance at the 5% level and *=significance at the 10% level.
Source: own calculations on the basis of the GLHS and unemployment rates at district level.

Diagrams

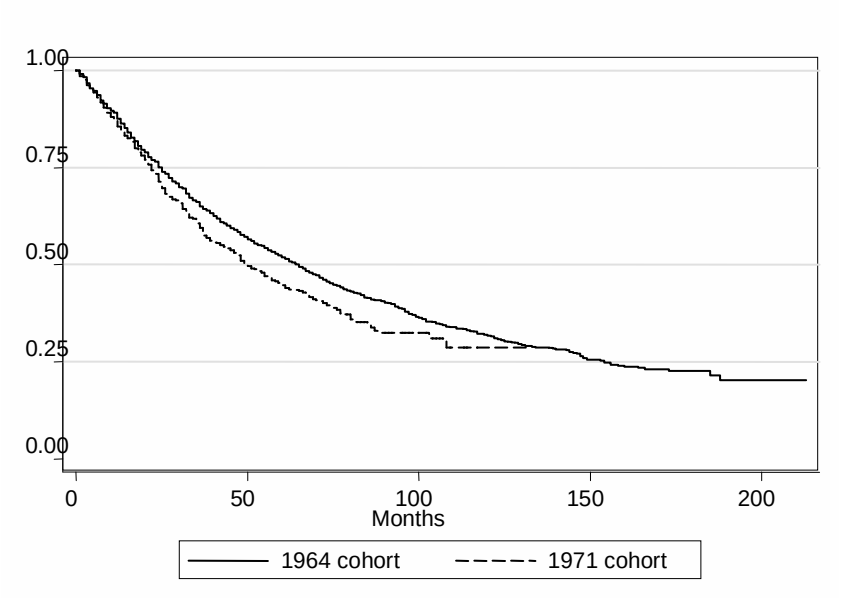
Figure 1: Kaplan-Meier curve of the duration of employment shown separately for the birth cohorts 1964/1971

Panel A – Regional mobility



Test for differences in the survivor curves: $Chi^2=1.14$ p=0.2866

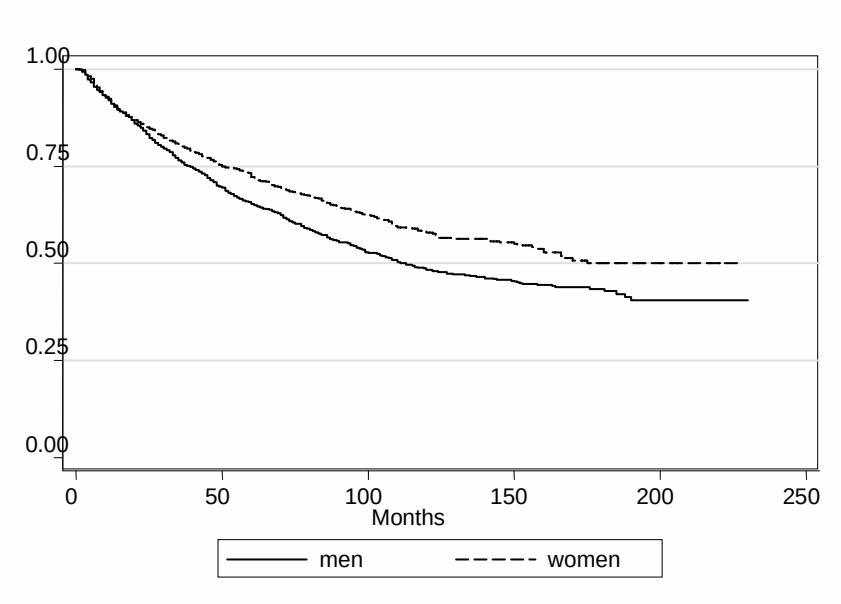
Panel B – Mobility between firms



Test for differences in the survivor curves: $Chi^2=14.10$ p=0.0002

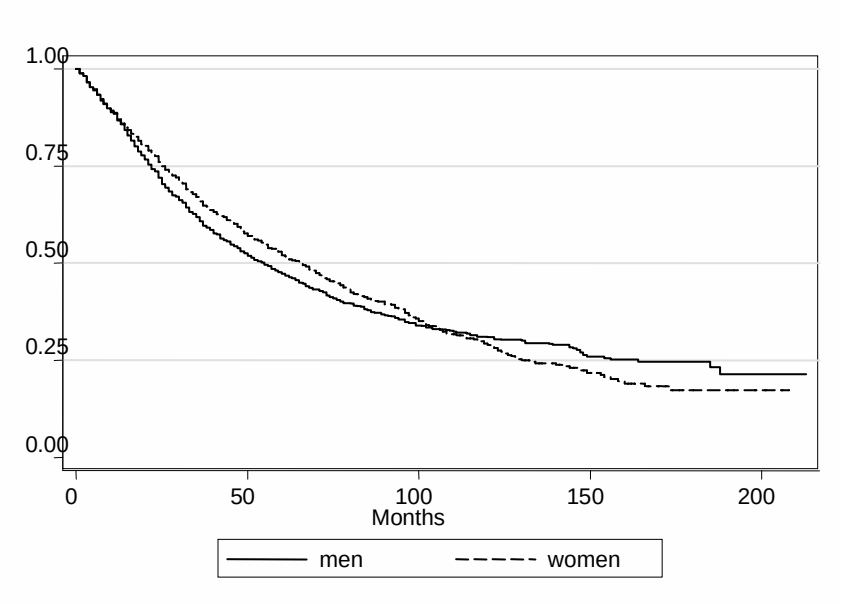
Figure 2: Kaplan-Meier curve of the duration of employment according to gender

Panel A - Change of region



Test for differences in the survivor curves: $Chi^2=17.47$ p=0.0000

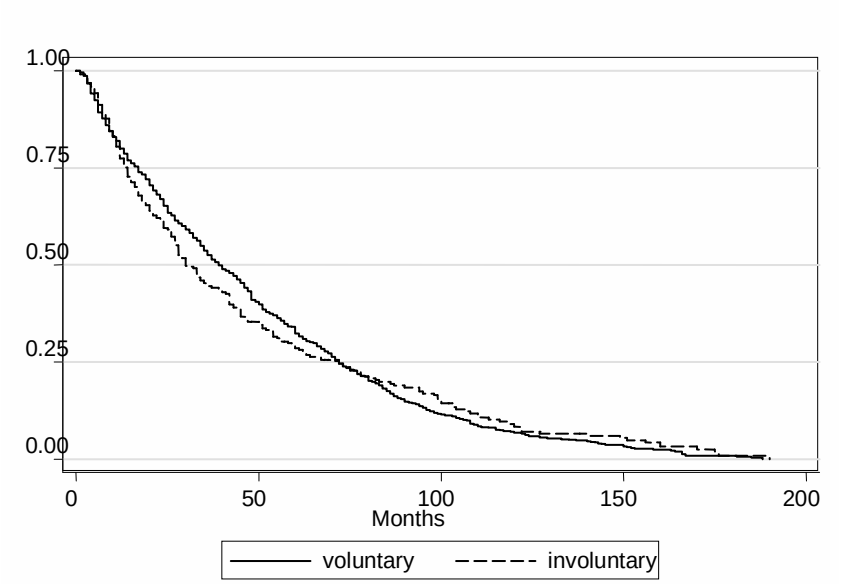
Panel B – Firm switch



Test for differences in the survivor curves: $Chi^2=1.58$ p=0.209

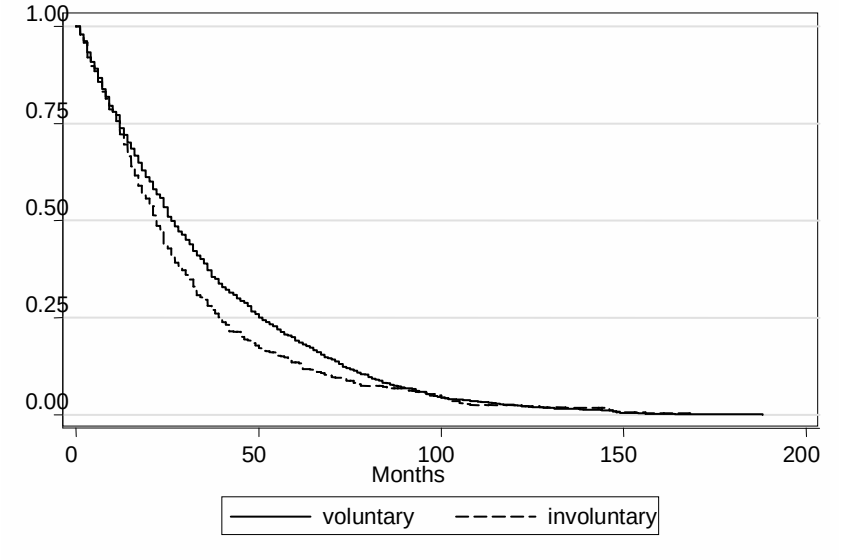
Figure 3: Kaplan-Meier curve of the duration of employment according to the reason for switching

Panel A – Change of region



Test for differences in the survivor curves: $Chi^2=0.09$ p=0.7660

Panel B- Firm switch



Test for differences in the survivor curves: $Chi^2=6.72$ p=0.0095