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Decomposing the Returns to Regional Mobility*

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Abstract

This paper studies the returns to regional mobility based on a sample of job-to-job transitions in Germany. Additionally, we provide evidence for the selection mechanisms into regional mobility and sorting into firms and matches. Using linked employer-employee data we estimate a wage decomposition including individual, firm and match fixed effects. Our (preliminary) results suggest a wage level increase of 28% for regionally mobile individuals, whereas workers making a job-to-job transition in their local labor market region experience an increase of 24%. Further, workers generally experience a move to higher paying firms, whereas this effect is smallest for regionally mobile workers. In addition, workers find relatively better matches due to the job-to-job transition; with regionally mobile workers benefiting most from this increase in match quality.

JEL classification: J31, J62, R23

Keywords: regional mobility, wage growth, job-to-job transitions, firm effects, match effects

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1 Introduction

Job-to-job transitions are an important determinant of wage growth (e.g. [Topel and Ward, 1992](#)). Furthermore, they are associated with increasing the match quality and thereby wages ([Jovanovic, 1979](#)). Besides these established empirical facts, not too much is known about heterogeneity in wage growth following job-to-job transitions. We add to this field by answering the question to which extent it makes a difference whether the worker searches locally or across labor market regions.

Thus, we consider regional mobility in a context of job-to-job transitions and investigate whether a relationship between regional mobility and wage growth is existing. Using linked employer-employee data, namely the LIAB-Mover-Model from 1999-2008, we define three different mobility types conditional on making a job-to-job transition. Locally mobile individuals stay in their labor market region, partially mobile individuals start commuting and regional mobile individuals move to a new labor market region.

In a first step we study the selection into regional mobility by verifying a common trend assumption, amongst others. We further use two estimation steps for identifying the returns to regional mobility and providing evidence for the selection mechanisms into regional mobility and sorting into firms and matches. First, we investigate the relationship between regional mobility and wage growth using a wage decomposition according to [Woodcock \(2015\)](#). Second, we are able to compare the size and variation in the worker, firm, and match fixed effects before and after the job-to-job transition for the different mobility types. This allows us to examine whether regional mobility helps workers to sort into high-wage firms and/or to increase the match-specific component of the wage, either by actually increasing productivity through match-related synergies or by improving the worker's bargaining position.

Overall, the existing literature analyzing the returns to job-to-job transitions finds a strong association with wage growth.

Theoretical literature dealing with job-to-job transitions observes increasing match quality and wages, as workers select themselves out of jobs with low productivity ([Jovanovic, 1979](#)). In addition, according to [Haltiwanger et al. \(2017\)](#) job-to-job transitions correspond to a wage ladder model with reallocation towards higher paying firms. The empirical literature examines that only voluntary, non-family related job-to-job transitions are associated with higher

wages of about 8-11% in comparison to non-voluntary or family related transitions (Keith and McWilliams, 1999). Further, Topel and Ward (1992) state that job moves explain about 1/3 of the wage growth in the first 10 years of labor market experience and that higher wages are key determinants of job changing decisions.

In addition to the literature confirming positive returns to job-to-job transitions, there is also empirical evidence analyzing the returns to regional mobility. In general, positive returns to regional mobility can be expected for several reasons. For example, workers have to be compensated for commuting/moving to a new region and job search on a supra-regional scale implies a higher job offer arrival rate which in turn results in a higher probability of receiving high wage offers.

However, existing literature analyzing the returns to regional mobility for unemployed individuals finds zero returns (e.g. Fackler and Rippe, 2017). More explicit, they use mass-layoffs to avoid selection into unemployment and compare post-unemployment wages of regional mobile to locally mobile individuals, conditional on being employed again (e.g. Findeisen, Dauth and Lindner, 2015). These missing returns to regional mobility for unemployed individuals might be explained by the fact that they accept any wage offer above their reservation wage (Jenkins and Morin, 2017). In addition, it might be a negative selected group as they are potentially those unemployed individuals who do not find a job locally.

In comparison to these findings of zero returns for unemployed individuals, existing empirical evidence analyzing the returns to regional mobility conditional on making a job-to-job transition identifies positive returns. However, positive returns are only observed for specific groups of workers, for example, for low-skilled (Magrini and Lemistre, 2013) and young workers with regard to early career moves (Yankow, 2003).

We thus contribute empirically to the literature regarding on-the-job search models (e.g. Rogerson, Shimer and Wright, 2005) and regional mobility and wage growth (e.g. Fackler and Rippe, 2017), besides the literature on job-to-job transitions and wage growth. Additionally, we are able to investigate whether the potential wage gains of making a job-to-job transition can be explained by moving to high-wage firms and/or finding better matches and if these sorting mechanisms differ between the mobility types.

Our descriptive analysis emphasizes that the mobility types differ, for example, with re-

spect to their wage level, age and education. This indicates a selection into regional mobility with regard to observable characteristics. However, checking the common trend assumption of our outcome variable provides evidence that no time-varying heterogeneity of the wage growth between the different mobility types exists before the job-to-job transition.

The (preliminary) estimation results show positive and statistically significant returns to job-to-job transitions that increase with being more mobile. Locally mobile workers experience a wage level increase of 24% whereas the wage level of regionally mobile workers increases by 28%. In general, workers gain due to moving to high-wage firms and finding relatively better matches. However, locally mobile individuals gain more due to moving to high-wage firms, whereas regionally mobile individuals gain more from finding relatively better matches.

2 Empirical Strategy and Data

2.1 Empirical Strategy

To identify the returns to regional mobility we use a wage decomposition according to [Woodcock \(2015\)](#). Hence, the job mover's wage level is decomposed in an individual, firm and match effect according to:

$$\ln(w_{it}) = \alpha_i + \delta_j + \gamma_{ij} + X'_{it}\beta + \epsilon_{it} \quad (1)$$

where $\ln(w_{it})$ is the log daily wage of worker i at time t . α_i is an individual fixed effect, δ_j the firm fixed effect and γ_{ij} are match fixed effects. X'_{it} are further time-varying individual characteristics like the age, age² and tenure.

Using the wage decomposition allows us to control for observed and unobserved heterogeneity on the individual-, firm- and match-specific-level simultaneously. Not controlling for the match effect would reduce the model to the person and firm effects model which has been introduced by [Abowd, Kramarz and Margolis \(1999\)](#). However, omitting match effects results in biased estimation of the person and firm effects if the match effects are non-zero ([Woodcock, 2015](#)). The so-called exogenous mobility assumption implies that no sorting of workers into firms exists and thus do not take the match quality of their future employer into account. Nevertheless, this assumption does not hold, as workers do not pick their employer randomly. For

example, usually more productive workers tend to work at more productive firms due to sorting into these firms (Hagedorn, Law and Manovskii, 2017). Thus, unobserved characteristics like firm specific unobservable effects or the certain match quality, depending on the specific employer and employee, may influence the positive relationship between wages and mobility of workers when match effects are omitted. Thus, we follow Woodcock (2015) and explicitly control for the match quality.

The identification of the match effect is generally based on the variation in wages within each match that is not captured by the individual and firm effect. In addition, the match effects can only be identified if mobility of workers between different firms can be observed. The resulting within-match estimator according to Woodcock (2015) is identified under the assumption that match effects are orthogonal to the individual and firm effect, which further results in the fact that the match effect must sum to zero for each individual and firm (Mittag, 2017).

As we are interested in investigating the returns to regional mobility we differentiate the sample of job-to-job transitions into three types of mobility, namely, local, partial and regional mobility. Being locally mobile is defined by changing the employer but staying in the same labor market region with regard to the working and living place. In comparison to that, partially mobile individuals change their labor market region with respect to their working region but stay in the same region of residence. The group of interest are the regional mobile individuals, who change their labor market region with respect to their region of residence and working. We further consider in this third definition the aspect that individuals probably do not move directly in their 'new' labor market region of work but only a few years later. Thus, we define individuals moving later in their 'new' working labor market region also as being regional mobile and therefore take postponed moves into account.

These three definition are partially in line with the three categories of mobile workers defined by Eliasson, Lindgren and Westerlund (2003). They define a group of workers that changes the residence and workplace region, a second group that does not change their region of residence but starts commuting to another workplace region and a third group that already commutes and does not change the region of residence, but change the working region. The workplace regions are also defined by labor market areas, in this example for Sweden.

General, the identification of the wage decomposition rests on a sample of job-to-job transitions, as we are interested in this group. However, we further include stayers for a better identification of the firm fixed effect in the wage decomposition. Stayers are defined as individuals that stay at their employer during the whole period of observation. If we would estimate equation 1 only based on a sample of job-to-job transitions the estimated firm fixed effects are possible biased as potentially only a few workers per firm can be observed. Equation 1 depicts our baseline regression. However, as we want to identify the returns to regional mobility we need to include our main variables of interest and hence estimate the returns to regional mobility based on the following equation 2:

$$\begin{aligned}
\ln(w_{it}) &= \beta_0 + \beta_1 \text{ mover}_i + \beta_2 \text{ partially mobile}_i + \beta_3 \text{ regionally mobile}_i + \beta_4 \text{ post transition}_{it} \\
&+ \beta_5 \text{ post transition}_{it} \cdot \text{ partially mobile}_i + \beta_6 \text{ post transition}_{it} \cdot \text{ regionally mobile}_i \quad (2) \\
&+ \alpha_i + \delta_j + \gamma_{ij} + X'_{it}\beta + \epsilon_{it}
\end{aligned}$$

The dummy variable mover_i is defined as 1 if the individual makes a job-to-job transition and 0 for stayers. The variables $\text{partially mobile}_i$ and $\text{regionally mobile}_i$ are indicated as 1 if the individual is partially or regionally mobile with regard to the job-to-job transition. The baseline category are respectively the locally mobile individuals. $\text{Post transition}_{it}$ is a dummy variable indicated as 1 for the spells after the job-to-job transition and 0 for the spells at the old employer. This dummy variable is always 0 for stayers as they do not change their employer by definition. Furthermore, interaction terms of the post transition and mobility dummies are included, estimating the effect of being partially or regionally mobile after the transition. Thus, the coefficients β_5 and β_6 are the main coefficients of interest. The fixed effects are defined like in equation 1. The observable, time-varying characteristics X'_{it} are age, age² and tenure.

Our results indicate that selection into regional mobility and sorting into firms or rather matches can be observed. Therefore, we want to understand these selection mechanisms and provide further evidence in a second analysis.

The underlying identification strategy, namely decomposing the wage level, can be exploited for investigating the incentives of individuals resulting in the outcome of being mobile. Thus, we estimate again a wage decomposition, but without including the mobility dummies (cf.

eq. 1). Using the algorithm from [Mittag \(2017\)](#) we are able to estimate the individual, firm and match effects explicitly. Hence, the change of the fixed effects for each individual can be compared before and after the potential movement to another employer or rather region.

In the subsequent step, it is thus possible to use these estimated fixed effects as dependent variables for identifying the selection and sorting mechanisms into regional mobility, firms and matches based on a sample of job-to-job transitions. The respective estimation equation 3 is the following:

$$\begin{aligned}
 \widehat{Fixed\ Effect} &= \beta_0 + \beta_1 \text{partially mobile}_i + \beta_2 \text{regionally mobile}_i + \beta_3 \text{post transition}_{it} \\
 &+ \beta_4 \text{post transition}_{it} \cdot \text{partially mobile}_i \\
 &+ \beta_5 \text{post transition}_{it} \cdot \text{regionally mobile}_i + \epsilon_{it}
 \end{aligned} \tag{3}$$

We provide estimation results using the individual, firm and match effect as dependent variables, which leads us to provide evidence regarding the different types of selection and sorting mechanisms which may differ between the mobility groups.

If the individual fixed effect is depicted as the dependent variable the results provide evidence regarding the selection into regional mobility. Using the firm fixed effect as dependent variable identifies the sorting into firms for the different mobility types before and after the transition. In addition, taking the match effect as dependent variable confirms further evidence related to the match quality before and after the transition for the different mobility types.

2.2 Data

The empirical analysis is based on the LIAB-Mover-Model 9308 of the IAB which is available from 1993 to 2008. It is a linked-employer-employee data set and consists of the survey data from the 'IAB-Establishment Panel' and administrative data on individuals. The LIAB-Mover-Model is constructed to depict the maximum information about workers moving between establishments. Therefore, only establishments are part of the data set in which at least once a mover can be observed. This feature of the data set allows us to rule the limited mobility bias out which arises when only few movers between firms can be observed ([Andrews et al., 2008](#)). For the establishments all employee information, for up to 500 workers per establishment, are

included. This allows well identified firm fixed effects.

The data include establishment information like the industry (WZ93 classification) on the one-digit level, the average wage and further employee characteristics. The administrative data serve information like age, gender, education, wage and occupation (KldB2010 classification) of the individuals. In addition, the district information for the place of work and residence is given for each individual from 1999 onwards. Thus, we concentrate on a sample of job-to-job transitions of full-time employees from 1999 to 2008, where we condition on the first observed job-to-job transition only. Second or later job-to-job transitions are dropped as they implicitly include already earlier transitions. We assume that individuals make their job-to-job transition on a voluntary basis and that they choose the new employers by themselves as we only allow for a maximum unemployment duration of 8 days for changing from the old to the new employer. Thus, they are not forced to accept any wage offer which is in line with the literature showing that job-to-job transitions are associated with strong wage growth (e.g. [Jovanovic, 1979](#)). The wage is right-censored according to the respective earnings ceiling in each year for West- and East-Germany and left-censored, because the lowest 0.05 percentile of the earnings distribution is dropped.

The district information of the working and living place is used for defining the labor market regions. According to [Kosfeld and Werner \(2012\)](#), labor market regions are defined by close commuter links. Furthermore, the commuting time should not exceed 45-60 minutes per distance and at least 50 000 inhabitants should live in a labor market region. These requirements guarantee some homogeneity of the labor market region sizes. Due to these conditions, [Kosfeld and Werner \(2012\)](#) divide Germany into 141 labor market regions, based on commuting data from 2009. Using labor market regions to define the different mobility types accounts for decisions motivated by labor market reasons instead of housing decisions ([Eliasson, Lindgren and Westerlund, 2003](#)).

It has to be taken into account that the used data set is not representative due to two reasons. First, the LIAB-Mover-Model is based on the IAB-Establishment Panel which is by itself not representative when no weighting is conducted. Second, we focus on a sample of job-to-job transitions. These individuals may be a positive selection as they may differ from stayers, which is shown in table 1.

TABLE 1
SUMMARY STATISTICS.

	Stayer (1)	All separations (2)	Locally mobile (3)	Partially mobile (4)	Regionally mobile (5)
Avg. wage (before transition)	96.7416	95.3745	94.0094	105.5353	108.0297
Avg. wage growth due to transition	0.0306	0.0831	0.0780	0.0765	0.1202
Share of occupation change	0.0071	0.1507	0.1456	0.2073	0.2324
Share of males	0.6970	0.6811	0.6853	0.7410	0.6718
Avg. age	41.9622	38.0381	38.9533	37.5336	33.2478
Education					
Share of upper secondary school	0.1257	0.0983	0.1150	0.0612	0.0423
Share of vocational training	0.7525	0.6830	0.7071	0.5960	0.4759
Share of university degree	0.1218	0.2187	0.1780	0.3428	0.4818
Nr. of observations	13 800 000	195 137	126 013	58 042	11 189

Notes: Mean values of observable characteristics for the different mobility types.

Source: Calculations based on LIAB-Mover-Model 9308.

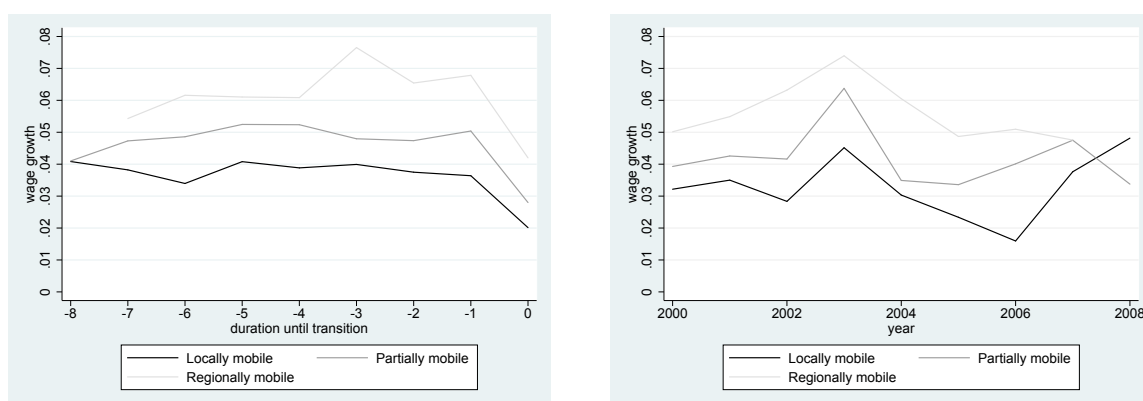
Table 1 states the mean values of observable characteristics for the different groups of individuals used in the analysis. The first column only includes stayers, the second is based on all individuals making a job-to-job transition and column (3)-(5) show the mean values for the different mobility types.

Regarding the first row the average wage before the transition increases with being more mobile. The average wage and wage growth for the stayers is respectively defined by the average values at their employer. The share of occupation changes, on the one-digit level, increases with being more mobile and the average age decreases, whereas stayers are on average the oldest individuals. The shares of the different education levels also suggest that the regional mobile individuals are on average higher educated than locally mobile individuals. The number of observations decreases with being more mobile, as most individuals stay at their employer or stay in their labor market region when changing employers.

Overall, the summary statistics provide evidence that selection into regional mobility with regard to observable characteristics can be observed. Hence, it is possible that the behavior of the groups was already different before the event, namely the job-to-job transition. Therefore, we provide a graphical description of our outcome variable before the transition for the different mobility types.

The left graph of figure 1 shows the wage growth with regard to the duration until transition, whereas the 0 indicates the last spell before the transition. The right graph shows the wage growth with regard to real-time, respectively. Both figures suggest that regionally mobile

FIGURE 1
CHECKING THE COMMON TREND ASSUMPTION.



Notes: Mean values of the wage growth in each spell before the job-to-job transition (left graph) and according to real-time (right graph).

Source: Calculations based on LIAB-Mover-Model 9308.

individuals experience a higher wage growth at their old employer in comparison to partially and locally mobile individuals. However, as this difference is constant over time, these level differences will be captured in the individual fixed effect in the wage decomposition. The right graph of figure 1 further states that the mobility groups react in the same way to ‘macro-shocks’. Therefore, it can be assumed that the common trend assumption with regard to the wage growth is fulfilled as no time-variant heterogeneity is existent.

3 Results

We estimate the returns to regional mobility according to equation 2, where $\ln(\text{daily wage})_{it}$ is the dependent variable. Table 2 shows the respective estimation results, whereas different fixed effects are included stepwise. Column (1) reports results based on a Mincer wage equation, column (2) controls for individual and firm fixed effects and column (3) gives results for the match effects model.

The estimation results in column (1) depict that movers, individuals that make a job-to-job transition, have a higher wage level of about 2% than stayers, which are those individuals that always stay at their employer. Further, the coefficients for the partially and regionally mobile dummies indicate that mobile workers earn more than locally mobile workers. However, all mobile individuals gain from the transition, which is also found in the theoretical and empirical literature (e.g. Jovanovic, 1979; Keith and McWilliams, 1999). Locally mobile

individuals receive statistically significant higher wages of about 17%. However, the negative coefficients of the interaction terms of the post transition and mobility dummies suggest that partially and regionally mobile individuals earn less than locally mobile individuals after the transition. This observation is not in line with the already existing literature finding positive returns to regional mobility. However, the presented results in column (1) do not control for any unobserved heterogeneity.

Hence, we control for unobserved heterogeneity on the individual and firm level in the next specification, column (2). The statistically significant wage level increase for locally mobile individuals due to the transition decreases to 8.2%, in comparison to the result shown in column (1). This observation suggests an upward bias in the specification shown before (cf. column (1)). The upward bias might result from the fact that individuals making a job-to-job transition might be a positive selected group, which is now captured in controlling for the individual fixed effect. In addition, a sorting into high-wage firms after the transition in comparison to stayers might be a second reason for this upward bias, when not controlling for unobserved heterogeneity on the individual and firm level. Further, the returns to regional mobility become positive, suggesting a positive and statistically significant increase after the transition for being partially and regionally mobile in comparison to being locally mobile and therefore changing the employer in the old labor market region. Partially mobile individuals experience a wage level increase of 9.4% and regionally mobile individuals of 11.8%. The changing coefficients of the interaction terms further suggest biased results when not controlling for unobserved heterogeneity on the individual and firm level.

When we further control for the match quality in column (3) individuals making a job-to-job transition gain much more through the transition than in specification (2), for example locally mobile individuals receive a statistically significant higher wage level of 24%. This large difference between the two specifications occurs due to the omission of match effects in column (2). The coefficients of the interaction terms are about the same compared to column (2), indicating that partially mobile individuals have a statistically significant higher wage level of 25% and regionally mobile individuals receive a wage that is 28% higher in comparison to their wage before the transition. The further control variables have the expected signs and are statistically significant at the 1%-level.

TABLE 2
DECOMPOSITION OF THE JOB MOVER'S WAGE LEVEL.

Explanatory Variable	ln(daily wage)		
	(1)	(2)	(3)
<i>mover</i>	0.0201*** (0.0005)	0 (omitted)	0 (omitted)
<i>partially mobile</i>	0.0533*** (0.0009)	0 (omitted)	0 (omitted)
<i>regionally mobile</i>	0.0811*** (0.0019)	0 (omitted)	0 (omitted)
<i>post transition</i>	0.1702*** (0.0007)	0.0824*** (0.0004)	0.2445*** (0.0016)
<i>post transition#partially mobile</i>	-0.0521*** (0.0013)	0.0117*** (0.0006)	0.0101*** (0.0027)
<i>post transition#regionally mobile</i>	-0.0365*** (0.0024)	0.0356*** (0.0010)	0.0359*** (0.0081)
<i>age</i>	0.0304*** (0.0001)	0.0348*** (0.0001)	0.0201*** (0.0001)
<i>age</i> ²	-0.0004*** (0.0000)	-0.0002*** (0.0000)	-0.0003*** (0.0000)
<i>tenure</i>	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0001*** (0.0000)
<i>women</i>	-0.1401*** (0.0002)	0 (omitted)	0 (omitted)
<i>vocational training</i>	0.1491*** (0.0002)	0.0277*** (0.0103)	0 (omitted)
<i>university degree</i>	0.4829*** (0.0003)	0.2938*** (0.0275)	0 (omitted)
<i>constant</i>	3.6120*** (0.0012)		
N	14,695,248	14,695,248	14,695,248
Adj. R ²	0.2831	0.9255	0.9363
Individual FE	No	Yes	Yes
Firm FE	No	Yes	Yes
Match effects	No	No	Yes

Notes: The dependent variable is the ln(daily wage). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are enclosed in parentheses.

Source: Calculations based on the LIAB-Mover-Model 9308.

Overall, the results indicate that positive returns to job-to-job transitions are existent which become slightly higher with starting commuting or even moving to a new labor market region. In line with [Mittag \(2017\)](#), we are further interested in examining which permanent character-

istics, for example being regionally mobile, drives the observation that firms pay higher wages or that individuals receive relatively higher wages. Especially with regard to the changing coefficients of the interaction terms from column (1) to column (2) we are interested in the selection mechanisms into regional mobility and sorting into firms and matches. Therefore, we conduct a second analysis and run regression 1 again. We use the respective estimated fixed effects as dependent variables and relate them to observable characteristics regarding the job-to-job transitions and regional mobility (cf. eq. 3).

Table 3 shows the respective estimation results using the estimated individual, firm and match effect as dependent variables.

TABLE 3
SELECTION INTO REGIONAL MOBILITY, SORTING INTO FIRMS AND MATCHES.

Explanatory Variable	Individual effect (1)	Firm effect (2)	Match effect (3)
<i>partially mobile</i>	0.1242*** (0.0005)	0.0385*** (0.0005)	-0.0110*** (0.0002)
<i>regionally mobile</i>	0.2253*** (0.0010)	0.0589*** (0.0011)	-0.0321*** (0.0005)
<i>post transition</i>		0.1535*** (0.0004)	0.0368*** (0.0002)
<i>post transition#partially mobile</i>		-0.0736*** (0.0007)	0.0284*** (0.0003)
<i>post transition#regionally mobile</i>		-0.0756*** (0.0013)	0.0498*** (0.0006)
<i>constant</i>	3.6072*** (0.0003)	0.0797*** (0.0003)	-0.0221*** (0.0001)
N	1,498,862	1,407,696	1,407,696
Adj. R ²	0.0727	0.1126	0.0752

Notes: The dependent variables are the estimated individual, firm and match effect based on a wage decomposition including age, age² and tenure as explanatory variables. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are enclosed in parentheses.

Source: Calculations based on the LIAB-Mover-Model 9308.

The results in column (1) indicate that partially and regionally mobile individuals are a positive selected group out of the sample of job-to-job transitions as they have permanently higher individual effects than locally mobile individuals. More precisely, partially mobile individuals have on average a higher individual fixed effect of 0.12 and regionally mobile individuals of 0.23 in comparison to locally mobile individuals.

Taking the firm effect as dependent variable, column (2), sheds light on the sorting mechanisms into firms and provides evidence regarding the observable characteristics that lead to a firm that pays high wages to all employees. The results in column (2) suggest that partially and regionally mobile workers have higher firm effects than locally mobile individuals before the transition. However, after the transition all individuals gain with respect to their firm fixed effect, whereas locally mobile individuals gain the most. Thus, the firm effect of locally mobile individuals increases on average by 0.15 after the transition, whereas regionally mobile individuals experience only an average increase of 0.07. This finding suggests a selection of workers into high-wage firms, whereas locally mobile individuals sort themselves into an even higher level of high-wage firms. Thus, the observed job-to-job transition of locally mobile individuals is a potential special event, to be specific it is potentially their first or one of their first job-to-job transitions, indicating a higher potential to receive a higher wage due to the transition. Thus, if individuals do not change their employer often they have a higher probability of being locally mobile, which further indicates that they have a higher probability of being at a low wage firm before the transition. In contrast, it can be assumed that regionally mobile individuals have in general a higher probability of making job-to-job transitions and thus already received higher wages in their past employment career. This points out that regionally mobile individuals were already close to the top of the wage ladder and already sorted into high wage firms in their early career. Hence, regionally mobile individuals have in general a lower potential of changing to even higher-wage firms as they are already at high wage firms before their observed job-to-job transition. This finding can be related to the changing signs of the interaction term in table 2 from column (1) to column (2). The effect of moving to a high wage firm is captured with controlling for firm fixed effects in table 2, column (2).

Finally, using the match effect as dependent variable provides evidence which observable characteristics regarding regional mobility result in a relative change of the match quality. The estimation results presented in column (3) suggest that workers end up in a match that has a relatively higher quality in comparison to their old match. This relative increase of the match effect due to the transition is highest for partially and regionally mobile individuals. More precisely, the relative increase of the match effect for locally mobile individuals is 0.04, whereas regionally mobile individuals experience a relative increase of 0.09. Thus, regionally mobile

individuals experience the highest change in the match quality due to changing the employer and additionally moving to another labor market region.

4 Conclusion

The empirical analysis investigates whether positive returns to regional mobility in a context of job-to-job transitions exist. Further, we provide evidence regarding the selection mechanisms into regional mobility and sorting into firms and matches. We use German linked employer-employee data and define three different types of individuals making a job-to-job transition using labor market regions as the regional unit.

The results indicate that workers making a job-to-job transition experience in general positive returns that increase with being more mobile. Hence, locally mobile individuals gain a higher wage level of 24%, partially mobile individuals of 25% and regionally mobile individuals experience a wage level increase of 28%, whereas all effects are statistically significant. This finding of positive returns to regional mobility is in line with the existing literature analyzing the returns to regional mobility, conditional on making a job-to-job transition (e.g. [Yankow, 2003](#)). Further, our results show that a positive selection into regional mobility with regard to observable and unobservable characteristics exists. For example, regionally mobile individuals are younger, better educated and already receive higher wages at their old employer.

In addition, the results provide evidence that workers experience a move to higher-wage firms, which points to a sorting into high-wage firms due to the transition. However, this increase is smallest for regionally mobile workers which can be explained by the fact that they already selected themselves into higher-wage firms before the observed transition. Thus, regionally mobile individuals have a lower potential of moving to even higher-wage firms in comparison to locally mobile individuals. In addition, workers making a job-to-job transition find relatively better matches, whereas this increase is highest for regionally mobile workers.

Overall, our estimation results point out that job-to-job transitions allow workers to move to high-wage firms in the spirit of a job-ladder model. Additionally, regionally mobile workers face a broader labor market containing more potential employers, thereby increasing the possibility to either find a productivity-enhancing match and/or strengthening the worker's bargaining position.

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