Job Mobility Wage Premiums in Germany and the UK

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Abstract

This article uses data from the BHPS and G-SOEP to explore earnings premiums tied to quits and promotions. Theories of intragenerational mobility propose that authors should focus on continuous (firm tenure, or general experience, for example) and discrete processes (job, regional, or occupational mobility, for example) when exploring inequality in outcomes or career attainment. Continuous processes have received substantial attention while discrete changes have not. Further, studies of job mobility (a classic example of discrete changes) overwhelmingly focus on the effects of quitting, ignoring the effects of promotion; this offers an incomplete picture of mobility. We will consider the effects of quits and promotions in two different markets. Results show that internal promotions carry an earnings premium but are especially important in Germany (a "closed labour" market); this result is different from the UK's (an "open" labour market), where promotions carry a minor premium, but external quits also have a significant effect on earnings. The findings suggest that country institutions shape not only the likelihood of mobility (through employment protection legislation, or collective job matching) but also its consequences. Results emphasise the importance of discrete changes in wages, and help to understand processes of inequality in both countries.

1 Introduction

Intragenerational studies of social mobility focus on worker-specific processes, as opposed to intergenerational studies which focus on worker socio-economic resources,

often secured prior to entering the labour market (Spilerman 1977, Sørensen 1977, Stier & Grusky 1990, Rosenfeld 1992). Worker specific processes can be split into two broad categories, continuous processes (firm level tenure, industry and occupational experience, for example) and discrete changes (job, occupational, or regional mobility, for example), both of which are used to explain inequality in outcomes (like wages, occupational attainment or other measures of "prestige") (Sørensen 1977, Stier & Grusky 1990, Rosenfeld 1992).

Continuous processes receive attention from a range of social scientists, but discrete changes have been explored less often. This is surprising since discrete changes are especially important to sociologists, who see inequality as stemming from position in a structure rather than the characteristics of those holding the position (Le Grand & Tåhlin 2002). In this way, while wages or occupational prestige tend to rise over time throughout a person's career, there are wider debates about whether this change occurs continuously or discretely. In other words, while firm tenure and labour market exerience are important predictors of wages, *"significant increases in job rewards are assumed to take place by changing positions, rather than within a given job"* (Rosenfeld 1992, page 40).

We will focus explicitly on two discrete changes throughout the article, promotions and job quits. Studies exploring the effects of job mobility are rare, but studies focused on comparing quits and promotions are even less common. Researchers exploring job mobility typically focus on the impact of quits, ignoring promotions. This approach offers an incomplete picture of mobility, as internal promotions are the main hopes of most workers.

Further, countries differ in their rates of job mobility, especially external job mobility such as quits and dismissals. For example, liberal countries like the US and UK have significantly higher rates of quitting when compared to Germany (Allmendinger 1989). Part of this difference can be explained by employment protection legislation and other freedoms in hiring and firing. However, authors have also shown that part of this difference could stem from country differences in rewards tied to continuous and discrete changes in earnings (Dustmann & Pereira 2008, Pavlopoulos et al. 2014). It is therefore worth asking, does quitting pay, and crucially does it pay more than internal promotion? A secondary question is therefore does this rule hold in highly mobile and less mobile markets?

We will consider two aims throughout. First, we will compare the effects of quits and promotions on earnings. Second, we will consider their effects in two different labour markets (Germany and the UK). Both countries are routinely comapred and contrasted as two different labour market, one being a prime liberal example, and the other being a prime coordinated or corporatist example (Mills et al. 2008, Hall & Soskice 2001).

Exploring the wage premiums of quits and promotions under two different institutional settings is useful for two reasons. First, if inequality stems from position in a structure, then the wage premiums tied to moving help to confirm this. Second, we should consider the limits to discrete changes. When we assume that mobility always leads workers to better positions, we implicitly suggest that country differences in mobility rates resemble differences in life chances or opportunities (Le Grand & Tåhlin 2002). In other words, if quitting provides a net benefit to workers but quitting is more common in the UK than Germany, we imply that German workers are held back from potential gains through mobility to a new employer. Instead, country differences may mean that the nature of quitting or promotion is different in both countries (Fasang et al. 2012, Allmendinger 1989). Only when we look at differences in the consequences of mobility do we find useful institutional characteristics that could explain differences in movement.

We will consider two longitudinal datasets throughout; the British Household Panel Survey (BHPS) and the German Socio-Economic Panel (G-SOEP). The approach has two strengths. First, both panels contain detailed job history files and earnings information. Since authors often operationalise job mobility in complex ways, surveys that explicitly measure mobility events within and between firms are useful (Kalleberg & Mastekaasa 2001). Second, by taking a longitudinal approach, models can compare the effects of moving instead of comparing movers to non-movers (Sørensen 1977, Sørensen & Tuma 1978, Stier & Grusky 1990). Specifically, we will avoid issues of individual heterogeneity by using fixed-effects estimates of mobility on earnings; this issue stems from the non-random nature of job mobility.

The article offers two findings. First, quits and promotions differ in their effects on earnings despite both being "voluntary mobility types. On one hand, quits have few significant effects on wages, with a minor effect in the UK and no effect in Germany. On the other, promotions have a significant and positive effect in

both countries. This effect remains even when controlling for occupational changes (the effect is "pure", as argued by Le Grand & Tåhlin (2002)), as well as several continuous processes like firm tenure and general experience. Second, the effect, or premium, of promotion is larger in Germany than in the UK. This suggests that worker promotions are rewarded more in Germany than the UK. Although models are parallel case studies from two separate panels, the difference in effects warrants attention. This premium likely acts as an incentive to commit to the firm instead of the market, hence the lower rate of quitting in Germany compared to the UK.

Results are useful for three reasons. First, the impact of dicrete changes cannot be explained by continuous changes like firm tenure or general labour market experience. This highlights the importance of discrete changes in studies of inequality. Second, the type of discrete change also matters, as it appears that promotions are a significant predictor of increased earnings in both countries, and yet studies of mobility typically omit this measure. Third, we confirm the importance of institutional strcutres in shaping not only the likelihood of mobility but also its impact on earnigns.

More generally, workers who are best able to pursue promotion see a premium in earnings. The decline of career ladders and the death of careers (Cappelli 1999, Jacoby 1999) prompted researchers and policy advisors to focus on flexible and mobile labour markets (Briscoe et al. 2006, Brown et al. 2008). These authors suggest that workers can gain through quits what was previously on offer through promotion. The findings presented below will show that promotions and quits are distinctly different mechanisms for improving earnings, and although quits may be a strategy to place oneself near better career ladders, access to promotion is a key mechanism of inequality, especially in Germany.

2 Theoretical approaches to institutions, mobility, and earnings

2.1 Continuous processes, and discrete changes

We noted above that intragenerational explanations for inequality often rely on continuous and discrete processes (Spilerman 1977, Sørensen 1977, Stier & Grusky

1990, Sørensen 1975). Continous processes dealing with differences in wages, for example, have been widely discussed. The correlation between firm tenure and earnings is at the heart of at least three theoretical approaches. First, earnings may grow because of human capital grows over time, which can be related to firm-specific knowledge, or wider sector-specific knowledge (Becker 2009). Second, the positive relationship between tenure and earnings may stem from specific work rules, like those tied to internal labour markets, or wider training programmes designed to internalise key talents and key knowledge (Althauser 1989). Finally, the correlation between worker earnings, and worker tenure, may simply be mitigated by a good match. Well matched workers tend to be more productive than poorly matched workers, and so the relationship between tenure and earnings reflects this (Jovanovic 1979).

However, discrete processes also have explanatory power in explaining differences in wages, and occupational prestige (Sørensen 1977, 1975, **?**). Most noteably, occupational achievement is a process that takes place over time but is largely a process of job shifts. As **?**, p.45 writes *"the continuous approach ignores the fact that careers represent a sequence of jobs held by the individual... a person's prestige hence remains constant as long as the individual keeps his job. Except for secular (real and inflationary) increases in earnings, major variations in income may also be assumed to occur only through job shifts."* This suggests that discrete changes in position are also important measures of inequality in sociological studies.

Further, the *reservation wage* approach in job-searching literature, explicitly notes the importance of job mobility events, independent of the workers socio-economic status, or their other resources. Burdett (1978) proposes two such wages, X and Y (where $X < Y$). *Reservation wage X* draws workers out of unemployment. It represents the minimum pay a worker will accept before taking a job. However, once in employment, workers may continue to search for *Reservation Wage Y*, which represents the minimum pay a worker will accept for changing jobs or taking any new position, despite already receiving *Reservation Wage x*. If the initial offering is greater than *Reservation Wage Y*, workers are assumed to work until retirement. Workers search for Wage Y on the job, which gives them more information about their industry or occupation, and a wider network with which to secure new positions (whether within a firm or between firms). Schmelzer et al. (2011) summarises

the process, *"compared to the stayers, the income of voluntary direct movers should increase"*.

In general, if we consider the theories above, mobility differences between countries stem from variance in wages. Countries with standardised wages for similar jobs (like Germany) likely see less mobility than countries with varied wages for similar jobs (like the UK). However, neither theory explicitly considers the role of country differences, we will consider these below.

2.2 Predicting mobility across institutions

While the approaches above offer clues regarding country differences in mobility, they do not consider these explicitly. Authors from the field of comparative political economy, industrial relations, and comparative sociology offer additional insight as to why countries differ in their rates of mobility. Across a range of typologies, Germany and the UK routinely sit opposite each other regarding firms (Hall & Soskice 2001), labour markets (Mills et al. 2008, Sørensen 1983), and welfare states (Esping-Andersen & Myles 2009). This section briefly summarises these theoretical differences, and presents three relevant examples.

The varieties of capitalism approach compares firms and employers in both countries (Hall & Soskice 2001, Thelen 2014). This typology claims that firms in Liberal Market Economies (where the UK is cited as a key case) are reluctant to invest in firm-specific skills. Such an investment is risky due to the high turnover of workers at all levels. If firms invest in skills, there is no guarantee employers will benefit from this investment. Managers see poaching as a cost-efficient alternative to training, and see wage-premiums (within poaching) as a cheaper alternative to untrained workers, provided these premiums fall below the cost of training. Further, since government intervention is limited, bargains for wages, working time, and conditions are individualised. As a result, wage inequality between and within occupations is high, and so opportunity to secure reservation wages is also high.

Coordinated Labour Markets (where Germany is cited as a key example) are the near opposite of this. Such markets routinely invest in training, knowing that workers are committed to the firm. Turnover (mobility between firms) is low and career ladders are shorter than those of Liberal Market Economies (DiPrete et al.

1997). Poaching is ineffective since wage inequality is low and determined by firm or occupational tenure. In this way commitment to the firm leads to greater earnings growth than mobility to a new employer, most often captured by tenure within the firm. Wage inequality within occupations is minor, although wage inequality between occupations is wide due to occupation-based stratification. In this way, mobility between employers but within a certain occupation is unlikely to yield large rewards. In short, the varieties of capitalism approach sees Coordinated Germany as a set of institutions that limit wage inequality. In a similar vein, it sees Liberal UK as one that exacerbates wage inequality, which in turn leads to greater mobility.

In Esping-Anderssen's discussion of welfare capitalism, Liberal welfare states (like the UK) support market solutions and market-based institutions to welfare; by contrast, Corporatist welfare states (like Germany), support occupational licensing and welfare provision on a means-tested basis. In this way, Liberal welfare states tend to be *"unregulated, leading to higher turnover, social insecurity, and wage inequality"* (Esping-Andersen & Myles 2009) while corporatist welfare states contain strong employment protection legislation which minimises mobility into new positions. Welfare, as seen in corporatist countries, is the responsibility of the state, the employer, and the employee, collectively. Since unemployment benefits are generous and costly, employment protection and other regulations try to limit unemployment as much as possible. On the other hand, welfare in liberal states is the responsibility of the individual, and so no long-term relationship is fostered by the employer and the employee, at least not in the form of employment protection legislation. These differences also lead to mobility differences among the employed.

Regarding labour markets, Mills et al. (2008) suggest work councils, wage bargaining, labour legislation, and other measures of industrial relations will lead to distinct national differences in labour markets, which can be broadly summarised as open or closed. Open employment systems are described as decentralised, and individualised, with workers largely bargaining with employers on their own behalf. Union density is low and the prospect of patchwork careers is high. Mills et al. (2008) propose that mobility is higher in open employment systems, but do not speculate which type of mobility; quits, promotions, or both. If workers in these labour markets quit regularly, does this mean that they are at a disadvantage with little to gain? Or do they quit because the rewards tied to such movements are

better than the positions they leave behind? Overall, they hypothesise that such patterns destabilise long-term employment relationships, which are implied to bring their own earnings growth. Industry stakeholders closely coordinate "closed" employment systems. Here, the labour market is centralised, with strong unions, strong employment protection and a strong link between position and reward. Such labour markets are said to protect "insiders, who move little, but outsiders are susceptible to involutnary mobility. Mills et al. (2008) also suggest that these markets have significant mobility, but this mobility is confined to a group of workers who are outsiders. Once respondents find core positions, they remain in the position as long as possible, it would seem. Here too, there is a strong suggestion that workers make significant gains through long-term employment relationships. In the next section we summarise previous research on mobility and earnings growth.

3 Mobility and earnings

In this section, we will split articles that explore mobility and earnings into three groups. First, are those who consider external quits alone. Generally, these authors find a positive link between earnings and quitting; they then highlight the importance discrete changes (mobility to a new employer) but focus exclusively on mobile markets, ones where workers move between firms (Brown et al. 2008, Keith & McWilliams 1995, 1997, Latzke et al. 2016). The second group contains articles that control for internal promotion as well as external quits. Here, authors find that internal changes reward workers better than quits (Le Grand & Tåhlin 2002, Gesthuizen & Dagevos 2008, Gesthuizen 2009). Third, is the group of authors who compare countries in their effects of mobility on earnings (Pavlopoulos et al., 2008; Dustmann and Pereira, 2008; Fasang et al., 2012). These authors find important differences between countries but differ in their definitions of mobility, and their approach.

3.1 External mobility

Authors typically find a positive relationship between quitting and earnings. Workers who quit, move to more favourable positions; even when remaining in the same occupation (Schmelzer et al. 2011, Kronberg 2013, Cha 2014, Topel & Ward 1992).

The effect is significant over the long-term, and is increasing for some workers (Latzke et al. 2016). Even when models correct for individual heterogeneity (where certain workers are more likely to quit than others), and when models correct for continuous processes like changes in firm tenure and labour market experience (Sørensen 1975), economic quits lead to better paid positions with new employers (Keith & McWilliams 1995, Fuller 2008).

This effect is especially important for young workers with limited labour market experience and limited firm tenure. Topel & Ward (1992) explore the earnings growth and wage premiums tied to mobility, experience and tenure. On the topic of mobility between employers, they find that about one third of earnings growth during the first ten years of labour market experience is attributed to job changing activity (Topel & Ward 1992). These papers offer strong support for the job-search approach and by extension, the importance of discrete changes as proposed by Sørensen (1975); workers who use mobility, reach a certain reservation wage, which they supposedly cannot secure by remaining with the same employer. Topel & Ward (1992) emphasis that continuous processes (as proposed by Sørensen (1975)) are particularly important pointing to firm tenure's effect.

There are some caveats to the effect. First, most authors find that the premium of quits depends on direct mobility; where workers avoid unemployment and move from one position directly to another. Second, there are significant differences between workers in the mobility-outcomes relationship. The positive effect of quitting may be mitigated by worker characteristics, where men benefit from mobility more than women (Keith & McWilliams 1997, 1995), and white workers gain more from mobility more than black workers do (Kronberg 2013). Although these differences are not always replicated in other studies, generally, authors agree that core workers benefit from external mobility more than periphery workers (Cha 2014; Fuller 2008). Finally, at least some of this mobility may be driven by match heterogeneity, where workers move specifically to secure a good fit between their skills and their conditions (Dustmann and Pereira, 2008; Topel and Ward 1992). The quality of a given match is generally unknown to researchers.

Most importantly the authors above do not consider the importance of promotion as a discrete change or as a form of mobility. As a result, the articles take a limited view of "voluntary mobility. Despite a decline in firm tenure and ca-

reer opportunities (Jacoby 1999), internal careers are the *most desired type of job mobility, because promotions increase status, esteem, responsibilities, and financial rewards* (Ng et al. 2007, page.365). It is important to note that the mechanism tied to promotion is separate to contniuous processes like firm tenure or general labour market experience. This is a key arguments noted by Sørensen (1975). How does this mobility type compare to quits?

3.2 Internal and external mobility

Studies comparing quits and promotions in their effects on earnings are rare. However, when compared and contrasted, two wrinkles typically emerge. First, promotions lead to stronger and more significant effects on earnings when compared to quits (Le Grand & Tåhlin 2002, Gesthuizen & Dagevos 2008, Van der Klaauw & Da Silva 2011). Second, promotions are associated with a mix of positive and negative consequences for workers (Lup 2018, Rigotti et al. 2014).

In Sweden Le Grand & Tåhlin (2002) compare internal and external mobility, controlling for both continuous and discrete processes, as well as a variety of statistical biases. They find internal promotions have the strongest effect on earnings growth, although quits also carry an earnings premium. The effect is pure, in that it remains even when controlling for occupational change, suggesting that discrete changes are not simply the effect of occupational attainment. In the Netherlands Gesthuizen & Dagevos (2008) report a similar finding, internal promotion has the strongest effect on earnings growth and socio-economic status when compared to external quits to a new employer. Similar to Le Grand & Tåhlin (2002), quits contain a premium in terms of earnings; but this premium is weaker and less significant than the premium tied to promotion. In Canada, Javdani & McGee (2019) find that promotions contain significant pay premiums for both men and women without children. Women with children however are penalised with lower returns on promotion, a finding similar to Cha (2014). Hence, while discrete changes have an impact on earnings, there may be heterogeneity here, with different "voluntary" mobility types impacting workers in different ways.

On the second point, promotions may lead to higher earnings, but those who experience internal mobility often report trading higher earnings for poorer conditions

and work-life balance. Respondents who experience promotion report both positive and negative changes in outcomes (Lup 2018, Rigotti et al. 2014). In the UK Lup (2018) finds that women who are promoted often report poorer working conditions after the transition, despite seeing minor positive changes in satisfaction with work. This likely reflects the sharp change in work demands following a promotion, and could reflect an increase in stress. In Germany Rigotti et al. (2014) show that promotions lead workers to a mix of both positive and negative outcomes. Here, higher career satisfaction is balanced with increased strain and increased demands. It makes sense that promotions would yield stronger earnings growth (outlined by the job-search approach, and structure of attainment outlined by Sørensen (1975)) but negative effects on subjective job-fit; promoted workers transition to positions with new responsibilities and pressures. These pressures are often greater than the objective rewards and resources given to those promoted, and so internal mobility moves workers to better jobs in some outcomes, but compromises in others. For this reason, it is possible that internal promotions are mostly motivated by reservation wages, while external mobility, may be motivated by job-fit with possible earnings premiums attached under specific conditions.

One important argument in several of the papers discussed here, is the importance of heterogeneity in the effect of discrete changes like job mobility. We also note the number of papers which capture group differences in how quits and promotions affect workers. Lup (2017), Cha (2014) and Keith and McWilliams (1999) consider the effect of mobility on women. While there are likely group differences in the way mobility rewards workers, this paper is primarily interested in the country differences that stem from this relationship, which are briadly uncommon. However, a number of papers suggest that cross country differences in mobility can be expected.

3.3 Country differences

A final caveat to both sets of findings above is that they rely on single country settings and examples. In this section we will briefly consider authors who compare and contrast these changes between different countries.

Pavlopoulos et al. (2014) analyse panel data from the UK and Germany. Results from Britain confirm Le Grand & Tåhlin (2002) findings, promotions have the

strongest effect on earnings. However, results from Germany are the reverse; quits have the strongest effect on workers earnings. Further, these results apply only to workers in the bottom quintile of the income distribution. Elsewhere, Fasang et al. (2012) compare the effects of internal and external mobility on satisfaction across a range of countries, finding that mobility has a particularly positive effect in Corporatist (where Germany, France, and Belgium feature among others) and Post-socialist countries (were Estonia, and Hungary feature among others), compared to Social Democratic states (Denmark and Sweden). Lastly Dustmann & Pereira (2008) consider the importance of firm tenure and labour market experience as the main drivers of earnings growth in Germany and the UK. This appraoch does not explicitly consider the impact of job mobility, but authors note that labour market experience provides the highest returns to earnings, which is especially true for British workers. When outlining worker differences, they find that the stall in German earnings growth is mainly confined to Germany workers who were trained in the apprenticeship programme. Workers with a third level education have similar earnings growth tied to labour market experience. Interestingly, the authors find almost no earnings growth tied to firm tenure in their approach.

In general, the papers, which explicitly measuring the impact of mobility, agree; Germany and the UK feature in the three analyses and appear to offer similar results for movers. In Pavlopoulos et al. (2014) both Germany and the UK reward voluntary mobility, but differences emerge in the type of mobility and its effect. In Fasang et al. (2012) mobility in Germany rewards workers better than mobility in Liberal countries (like the UK). Yet, some limitations should be noted. First, Pavlopoulos et al. (2014) have a unique definition of job mobility, one that considers all direct changes as voluntary and all indirect changes as involuntary. In this way direct changes that occurred because of dismissal, redundancy, or firm closure are coded as voluntary. In this paper, we will consider what they refer to as "subjective definitions of voluntary change; worker-perceived quits and promotions. We propose that these are distinct channels for changing jobs and not simply subjective evaluations of change. Second, Fasang et al. (2012) use cross sectional data when evaluating the effects of mobility, and so may be overstating its impact on satisfaction, since this approach does not control for individual heterogeneity, in that mobility does not occur randomly. Finally, Dustmann & Pereira (2008) consider the importance of

internal tenure, but do not consider the importance of mobility within the firm, which is the cerntral argument proposed by **?**. Further, they note the common nature of quits in the UK when compared to Germany, but do not consider the returns on these in both countries. With this review in mind we propose two hypotheses.

- *H1: Independent of continuous processes and other controls, internal promotion will have a positive effect on earnings in Germany.*
- *H2: Independent of continuous processes and other controls, external quits will have a positive effect on earnings in the UK.*

4 Institutional differences between Germany and the UK

In this section, we will briefly outline the institutional differences between both countries using measures of wage setting and mobility. How are German and UK labour markets different and how could these differences affect mobility?

4.1 Institutional differences in wage setting

If mobility stems from differences between positions (wage inequality), or differences in reservation wages, there should be variance not only in wages but also in the way that wages are organised (Hall & Soskice 2001, Mills et al. 2008). Table 1 summarises the major differences between Germany and the UK between 2001 and 2008 in terms of earnings and wage setting.

Insert Table 1 here.

Generally, these measures do not change over time within countries. The differences are largely between countries, with Germany being more equal and the UK being less equal. This is captured by the Gini coefficient, where Germany has a lower inequality score than the UK for both years. Income inequality between quintiles is also lower in Germany than the UK, although Germany sees an increase in the measure in 2008. Despite the increase, the UKs divisions between quintiles is still larger than Germanys. Union coverage, in terms of the portion of the population covered by union agreements, is greater in Germany than the UK, suggesting a larger portion of the wage bargaining process sits with unions and is applicable to a

wider base of workers. A similar argument is made by (Dustmann & Pereira 2008). Lastly, we turn to the Visser (2011) measure of wage bargaining, which considers wage agreements and how they are secured at an individual (1) or a collective (5) level. Here too, Germanys wage bargaining process is coordinated while the UKs is individualised. Although the measure is simplistic and ignores wider variance in wage setting between contract types, it captures the major country-differences in wage-setting for permanent full-time workers.

4.2 Institutional differences in mobility

Country differences in mobility rates and job churning may have nothing to do with wage inequality, or differences in working conditions. If British workers have more positions to choose from than German workers do, then mobility is simply the result of workers reacting to more opportunity or more vacancies in a market. Table 2 summarises the major differences between Germany and the UK between 2001 and 2008 in terms of mobility. Results suggest that there are more employers and more vacancies in Germany than in the UK.

Insert Table 2 here.

Here too, measures change little over time within countries, suggesting institutional consistency. Starting with employment protection legislation[1], the UK contains minimal protection for workers and groups of workers with permanent contracts, while Germany contains stronger protections that limit the frequency of dismissals. This measure suggests hiring and firing should be easier in the UK than in Germany, and this ease has not changed over time. However, regarding employment options between firms, there are more vacancies per 1,000 workers in Germany than there are in the UK, although both countries have seen a minor decline between 2001 and 2008. There are also more active firms per 1,000 active workers in Germany than there are in the UK. Ignoring occupational differences, this suggests that despite wider inequality in income and earnings, Germany has more firms per worker and more vacancies per worker than the UK does. If Germany has lower rates of mobility than the UK, it is not because Germany has few

[1]Data taken from (Visser 2011), measure of employment protection legislation (EPRC_v1), focusing on dismissal of individuals and groups with permanent contracts.

opportunities for mobility. We return to country differences in these rates when presenting the results.

5 Data and samples

Both samples are drawn from the British Household Panel Survey, and the German Socio-Economic Panel, both are representative of British and German workers. We will focus on the 2000-2008 period since both panels cover these years. We will omit the years covering the European Debt Crisis, which are not representational of either country's labour market. Each panel contains socio-economic variables, detailed job history files, household composition details, employment details and measures of earnings growth (gross and net).

Two significant issues should be considered in detail, the first is tied to estimation. Given that mobility is not a random event (individual heterogeneity), Ordinary Least Squares regression could lead to a correlation between the personspecific errors and the estimated effect of mobility on earnings. The second is tied to heterogeneity between respondents regarding their job match, which is unmeasured in the data, but mentioned above. This issue could lead to an underestimation of mobilitys effect on earnings, since several respondents may have quit or taken a promotion to a poorly matched job, which would lead to poorer earnings. We will discuss both of these issues throughout.

5.1 Sample

Both samples are defined as follows, respondents with at least 8 observations between 2000 and 2008; respondents who are employed at each interview; respondents not in self-employment, unemployment or inactivity; respondents without missing values for questions related to job mobility. We will also consider each available region in both countries together; for the UK this is England, Scotland, Wales and Northern Ireland, for Germany this is both East and West. The final data-frame is a person-year file of individual responses. As a result, the models rely on a semibalanced panel of the core workforce (Rabe-Hesketh & Skrondal 2008), who remain employed at every year over the nine years.

The UK data draws from year-specific individual-response files (INDRESP), and

individual job history files (JOBHIST) which contain person-specific job-spell information for the given year. The German data draws from the SOEP-Long file, a longitudinal version of the individual response files. The resulting UK sample is made up of 3,782 respondents with 32,560 person-year observations. The German sample is made up of 4,444 individuals and 36,687 person-year observations. The outcome used throughout the article is gross monthly wages. The measure features in the SOEPLong file (plc0013) and the BHPSs individual response file (paygu). Although net income would give a closer estimate of workers earnings after mobility, we will avoid income tax differences between the UK and Germany, which limit the post-change earnings in Germany more than the UK. Further, since both countries differ by currencies, both sets of values are converted to US dollars ($) as valued in January 2008. In the UK, 1 British pound was worth 0.507 dollars. In Germany 1 euro was worth 0.680 dollars. Lastly, since wages are not normally distributed, each model considers the natural log of these.

We will define mobility using three measures, which we cosider in sequence below. The first determines whether a job change occurred since the previous survey wave. In the UK, movement and non-movement are captured by changes in spell (jspno). In Germany, basic mobility is captured using the survey question "new job since last year?" (plb0031). The second measure determines if the change took place in the same firm, or whether respondents moved to a new firm. In the UK, this is captured using the variable JHSTAT, which asks whether respondents found a new employer or whether they changed jobs with an existing employer. In Germany, the variable "plb0284" measures a similar change. The final measure determines the "subjective" nature of change, either voluntary or involuntary. The variable "JHSTPY" is used in the UK, and the variable "plb0304" is used in Germany. Observations listing promotions, better jobs, and own resignations are assumed voluntary. Those listing redundancies, firm closures and dismissals are assumed involuntary. Those leaving for reasons tied to childcare or retirement are marked "other". One limitation of the data is the SOEP-long file cannot distinguish between voluntary and involuntary changes within the firm, for this reason, all intra-firm changes are considered together, similar to Pavlopoulos et al. (2014). Combining all internal mobility into one category likely underestimates the effect of German promotions, however this is the best available measure.

Estimating the impact of mobility on earnings without considering other measures, would give an untrue estimate. Our main goal is to capture the four determinants of earnings described by (Le Grand & Tåhlin 2002), three of which are continuous and one of which is discrete. First, we capture the macro-level growth in earnings by using year-specific dummies. Second, in order to capture the process of general labour market experience, we control for age and its squared effects. Third, in order to capture patterns of wage growth within the firm, we consider firm level tenure. Finally, we include a measure *discrete* changes in earnings through job mobility, described above, but also control for occupation related changes in order to capture the pure effect noted by Le Grand & Tåhlin (2002). We also control for changes in contract type and changes in the size of the firm which are standard controls for economic sector (Schmelzer et al. 2011).

5.2 Estimation

We originally considered the relationship between mobility and earnings using random-effects estimation. This method contained correlations between controls and person-level errors (our first issue, mentioned above). A Haussmann test confirmed this. In these models individual heterogeneity affected mobility estimates; meaning those who received promotions or other job offers were different to average workers in unobserved ways. By ignoring individual heterogeneity, the estimates for promotion for example, would be inflated by person specific errors (Rabe-Hesketh & Skrondal 2008, Allison 2005). As a result, we will model the relationship between mobility and earnings growth using fixed-effects linear estimation that excludes person specific errors. Our estimation is listed below.

$$Wages_{it} - \overline{Wages_i} = \beta(x_{it} - \overline{x_i}) + (\alpha_i - \overline{\alpha_i}) + (\mu_{it} - \overline{\mu_i})$$

Where average deviations in wages ($Wages_{it} - \overline{Wages_i}$) for an individual ($i$) at a given time ($t$), are estimated using person-specific deviations from a set of controls, which include job mobility ($\beta(x_{it} - \overline{x_i})$). In this way, person-specific errors that contain individual heterogeneity, the first issue mentioned above, are cancelled out from the model ($\alpha_i - \overline{\alpha_i}$), leaving only the time-related errors, tied to a specific respondents cluster mean ($\mu_{it} - \overline{\mu_i}$).

Previous authors have used similar methods, Gesthuizen & Dagevos (2008) estimate the effect of inter and intra-firm mobility using a difference in difference approach, similar to a within-estimator, for several waves of data. Latzke et al. (2016) use propensity score matching to avoid the issue using German data. Pavlopoulos et al. (2014) also use fixed-effects regression when estimating the relationship.

5.3 Sources of Bias

Estimating the link between mobility and earnings contains three importance sources of bias which are worth noting explicitly. The first is mentioned throughout the methodology. There is a fixed worker component to earnings growth, and the premium tied to job mobility. This fixed component likely varies between workers leading to individual heterogeneity, since mobility is not a random event. We eliminate the effect using fixed-effects within-estimators.

Second is the unmeasured heterogeneity between workers in terms of job match, outlined by the job-match approach (Dustmann & Pereira 2008, Jovanovic 1979). Here, wage estimates of tenure and experience will be biased since high-quality matches will increase the returns to these measures, while low quality matches will decrease the returns on these measures. It is also possible that such heterogeneity affects estimates of mobility, since the quality of the match cannot be determined in the short term. Poor matches may dampen the estimated effect of mobility on earnings. However, since work is an "experience good", internal promotions are not susceptible to this bias (Van der Klaauw & Da Silva 2011). Dustmann & Pereira (2008) use instrument variables to avoid the issue when estimating the effect on tenure and labour market experience, both continuous processes, since neither is the primary concern in the paper, we will not include these, but note the existence of such bias.

The final bias is tied to sample selection, specifically the issue of job mobility affecting respondent likelihood of participating in both surveys. Studies show that regional mobility yields larger returns than intra-regional job changes (Reichelt & Abraham 2017). Workers who make regional job changes may be those who are simultaneously most likely to benefit from mobility and least likely to participate in future surveys. On this point, both panels cover all regions of both countries,

and strive to achieve full participation in follow-up surveys. However, a portion of respondents, especially those who leave Germany and the UK, make changes that drop them from the panel. This mechanism likely underestimates the positive impact of mobility to some degree, but again only applies to inter-firm mobility or quits. As before, this issue is noted by other authors studying the returns on mobility (Schmelzer et al. 2011, Fuller 2008).

6 Results

This section is split into three parts. First, I present the frequency of mobility in the sample (between and within respondents). Second, I present descriptive statistics on the earnings of movers and nonmovers. Third, I list the fixed effects estimates of mobility in both countries and compare countries.

Insert Table 3 here.

The top half of Table 3 lists mobility rates for the UK. Columns one and two show that voluntary mobility is much more common than other mobility types, with quits (5.7%) being more common than promotions (5%). Columns three and four, which show mobility within respondents, suggest that 33% of workers quit at least once during the nine-year period, while 30% of respondents gain a promotion at least once during the nine-year period. This column adds to more than 100% because mobility categories are obviously not mutually exclusive within respondents. Germanys results are listed in the bottom half of the table. Once again, columns one and two show that mobility is less common in Germany than in the UK; although voluntary types of movement remain the most prevalent, with quits (2.3%) being more common than promotions (0.7%). Columns three and four capture mobility within respondents, and suggest 14% of workers quit at least once during the nine-year period, while 5% of respondents gain a promotion at least once during the nine-year period.

Thinking of section 4 above, Germany has less earnings inequality and less mobility despite having more active firms per worker, and more vacancies per worker, when compared to the UK. The UK, in turn, has higher inequality with higher mobility, which is mostly voluntary. This is despite having fewer firms and fewer

vacancies per 1,000 workers than Germany. Overall, the most important difference between both countries is that a majority of UK workers move at least once, leaving a minority who never move; while a majority of German workers never move, leaving a minority who change jobs at least once. The next section briefly compares the net earnings of movers and non-movers.

Insert Table 4 here.

Starting with the UK, respondents who change positions for any reason ($2,809) earn more than respondents who stay in the same position for the nine-year period ($2,357). Those who remain in the same position have a more predictable wage (+/-$1,608), than those who move between positions for voluntary and involuntary reasons (+/-$2,073). In Germany, respondents who change position for any reason ($4,105) earn slightly more than those who have never moved jobs ($4,068). The variance in earnings between movers (+/-$2,535) and non-movers (+/-$2,266) is similar. Surprisingly, the results above suggest that earnings in Germany are less predictable than earnings in the UK. This could stem from differences in sample size, or the tendency of German earnings to be stratified by occupations.

Regarding promotion. In the UK, those who never receive a promotion earn less overall ($2,427) than those who receive a promotion if only once ($3,196). Further, the wages of those who never receive a promotion are more predictable (+/-$1,774) than the wages of those who are promoted (+/-$2,197). In Germany, those who never receive a promotion earn less on average ($4,026) than those who receive a promotion ($5,037). Further those who never receive a promotion report a much more predictable wage (+/-$2.235) than those who receive a promotion (+/-$3,569). Lastly, regarding job quits, British workers who never quit their job earn less ($2,612) than British workers who quit their job at least once ($2,757). Further, wages are more predictable among British workers who never quit their job (+/-$1,857), than they are among British workers who do (+/-$2,105). This result is flipped in Germany, where workers who never quit their job earn more ($4,089) than German workers who quit their job at least once ($4,006). Further, workers who never quit have a more predictable wage (+/-$2343), than workers who quit their job even once (+/-$2,250). Although these differences are minor, they warrant further attention.

We will now explore the effects of mobility on earnings. The estimates of a fixed

effects linear regression predicting earnings is listed in Table 5. German models rely on 30,000+ observations from 4,000+ respondents, while the British estimates rely on 26,000+ observations from 3,700+ respondents. The R-squared figure is consistently higher in the UK than in Germany, despite using identical controls. This suggests that individual level indicators are particularly important in the UK. The constant value in Table 5 is lower for German respondents than British respondents, suggesting that wages are also lower. Since the constant values contains a smaller standard error in the German sample when compared to the UK sample, we can also say that wages are more predictable in the German sample than the UK sample.

Insert Table 5 here.

The estimates above consider both countries. Considering the sources of earnings growth, outlined by (**?**), in mind we can note four trends in the results. First, there is a continuous rise in earnings over time in both countries. This is evident by the year dummies for both Germany and the UK, capturing changes in wages while treating the year 2000 as the baseline. This growth appears to be larger in the UK than in Germany, suggesting a higher increase in earnings over time. Second, there is a continuous growth in earnings that applies to peoples labour market experience (age and age squared), but this growth does not emerge for firm level experience (tenure). The growth of earnings over age is positive and significant in both countries, suggesting that respondents earn more as they age. This effect slows down in both countries, as seen in the age squared terms. The effect also appears to be slightly larger in Germany than in the UK. In both samples, the effect of firm tenure is not significant.

Third, Le Grand & Tåhlin (2002) note the change of earnings that comes with changes in occupations, which we do not explore in this paper. However the change is a discrete process, and we note that respondents who change occupations from professional positions to other occupations typically see a fall in earnings, suggesting some link between occupational positions and earnings which cannot be explained by personal characteristics or the other continuous processes (Sørensen 1977).

Finally, and most importantly, we note a set of premiums tied to certain types of mobility in both countries even when we control for changes in occupational position. This suggests that the premium tied to mobility is "pure", in that it

exists even when respondents remain in the same occupation. Generally voluntary mobility types have a positive but minor effect on wages in both samples. The only exception is job quitting in Germany, which has a negative but insignificant effect on earnings. Job quits in the UK carry a minor positive effect on earnings, as do promotions. Specifically, we find that UK job quits yield roughly a 1.5% increase in monthly wages. Internal promotions produce statistically significant results in both Germany (4% increase in pay) and the UK (2.5% increase in pay).

We also find an interesting effect for changes in the respondents firm size. In both countries, when respondents remain in the same job with the same employer, they see a growth in earnings when the number of workers at the firm level increases. This effect remains when we control for job mobility and occupational mobility. The findings may suggest that as firms grow, at least part of this growth is passed to employees in the form of wage premiums, although further research would be needed here.

Using the findings above, we confirm hypothesis 1, independent of continuous processes, and other controls, German internal promotions have a positive effect on earnings. Beyond this, external quits have no effect on earnings. Despite workers leaving behind their firm-specific knowledge, they are able to recreate their wages with new employers, possibly due to strong protections surrounding occupational standards. Further, we cautiously accept hypothesis 2; independents of continuous processes, and other controls, British external quits to a new employer have a positive effect on earnings. However, we note that the effect is weak, minor, and lower than the effect tied to internal promotions. Despite the UKs larger rate of mobility, and its larger measures of income inequality, external quits do not produce higher earnings premiums than promotions. These changes still yield a significant effect, whereas German labour markets do not reward external quits, on average.

The findings above run counter to several authors. Our results find no positive effect for inter-firm mobility in Germany. Latzke et al. (2016), Schmelzer et al. (2011), Pavlopoulos et al. (2014) find an effect for this type of change in their respective analyses. However, each paper uses wider samples and a different definition of mobility to the one proposed here. Since we consider only the economic core, it is possible that premiums tied to mobility appear only for early-career workers, or those who are loosely attached to the labour market. However, our findings do

resemble those of Gesthuizen & Dagevos (2008) and their sample of Dutch workers. Here, inter-firm mobility brought only a 1% increase in pay after the move, but intra-firm mobility brought significant gains in terms of pay.

In general our resutls show that discrete processes are important to studies of inequality, and that these processes can compliment continuous processes like those tied to firm tenure and labour market experience. We also show that these processes differ by country analysed, and that internal romotions are an especially improtant measure of discrete change, one that works as a significant predictor in both Germany and the UK.

7 Discussion

This article explored worker return on mobility in two institutional settings. Theoretically, it offers support for Sørensen (1977) who notes that career processes can operate in discrete, rather than continuous processes. Empirically, the work confirms that these differences are largely dependent on the institutional setting, and further that an often omitted measure of job mobility, internal promotions, is especially important in predicting earnings, independent of continuous processes like firm tenure and labour market experience. Future work could consider the inetarction between occupational mobility and volutnary job change, although we noted a significant relationship between changes in occupation and changes in monthly earnings for both countries, we were not able to explore this effect further.

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Table 1: Institutional differences in wage setting (2001 & 2008, Germany & The UK)

	UK 2001	UK 2008	Germany 2001	Germany 2008
Gini coefficient (a)	36.0	34.1	30.3	31.3
Income inequality (b)	5.4	5.7	3.5	4.9
Union coverage (c)	36%	36%	68%	64%
Coordination of wage setting (d)	1	1	3	4

Source: Authors Calculations. Gini data sourced from World Banks, Income inequality sourced from Eurostat, Union Coverage and Coordination of wage sourced from Visser (2011) ICTWSS.

Note a: World bank gini coefficient. Data for Germany only available for 2001 and 2007. Data for the UK is only available in 2004 and 2008.

Note b: Data for UK 2001 is not available, using UK 2000. Using Eurostat inequality of income distribution (income quintile share ratio).

Note c: Data taken from Visser (2011) measure of collective bargaining coverage (coord)

Note d: Visser measure of wage coordination ranging from 1 (individualised) to 5 (collectively set).

Table 2: Institutional differences in mobility (2001 & 2008, Germany & The UK)

Measure	UK 2001	UK 2008	Germany 2001	Germany 2008
Employment protection legislation	1	1	2.8	2.8
Vacancy rates	2.4	2.2	3.8	3.1
Active firms per 1,000 workers	-	70.59	-	72.4

Source: Authors Calculations. Employment protection legislation sourced from Visser (2011) ICTWSS. Vacancy rates and active firms per 1,000 workers sourced from Eurostat

Table 3: Mobility frequencies (Germany and the UK 2000-2008)

UK Mobility	UK Overall	UK Between		
	Freq.	Percent	Freq.	Percent
Same job, same employer	27,091	83.2	3,781	99.97
Changed employer, voluntary	1,872	5.75	1,238	32.73
Changed employer, involuntary	468	1.44	418	11.05
Changed employer, other reasons	873	2.68	726	19.2
Changed job, kept employer, voluntary	1,630	5.01	1,120	29.61
Changed job, kept employer, involuntary	96	0.29	84	2.22
Changed job kept employer, other	530	1.63	436	11.53
Total	32,560	100	7,803	206.32
German Mobility	Germany Overall	Germany Between		
	Freq.	Percent	Freq.	Percent
Same job, same employer	37,148	96.02	4,444	100.00
Changed employer, voluntary	893	2.31	638	14.36
Changed employer, involuntary	370	0.96	312	7.02
Changed employer, other reasons	4	0.01	4	0.09
Changed job, kept employer	272	0.70	222	5.00
Total	38,687	100	5,620	126.46

Source: Authors Calculations. UK data sourced from BHPS. German data sourced from G-SOEP

Table 4: Net earnings by movers and non-movers (Germany and the UK 2000-2008)

Ever changed jobs?	UK mean ($)	UK SD ($)	Germany mean ($)	Germany SD ($)
Yes, change occurred	2,809.60	2,073.84	4,105.93	2,535.26
No, same job always	2,357.44	1,608.71	4,068.65	2,266.12
Total	2,660.26	1,944.28	4,077.15	2,330.25
Ever been promoted?	UK mean ($)	UK SD ($)	Germany mean ($)	Germany SD ($)
No, never promoted	2,427.81	1,774.07	4,026.95	2,235.48
Yes, at least once	3,196.58	2,197.39	5,037.34	3,569.73
Total	2,660.26	1,944.28	4,077.15	2,330.25
Ever quit their job?	UK mean ($)	UK SD ($)	Germany mean ($)	Germany SD ($)
No, never quit	2,612.23	1,857.32	4,089.16	2,343.36
Yes, quit at least once	2,757.19	2,105.63	4,006.12	2,250.04
Total	2,660.26	1,944.28	4,077.15	2,330.25

Source: Authors Calculations. UK data sourced from BHPS. German data sourced from G-SOEP

Table 5: Estimated fixed-effect predicting net earnings (2000-2008 Germany and the UK)

Objective earnings; Fixed Effects		UK		Germany	
		Log gross pay		Log gross pay	
VARIABLES	LABELS	coef	se	coef	se
2bn.M_event	Changed employer- voluntary	0.015**	0.008	-0.010	0.009
3.M_event	Changed employer- involuntary	-0.064***	0.015	0.009	0.011
4.M_event	Changed employer- other reason	-0.092***	0.013	0.163	0.169
5.M_event	Changed job, kept employer- voluntary	0.020***	0.008	0.040**	0.017
6.M_event	Changed job, kept employer- involuntary	-0.063	0.040		
7.M_event	Changed job, kept employer- other	-0.024*	0.013		
jbhrs	Hours normally worked per week	0.013***	0.001	0.004***	0.000
age	Age at date of interview	0.052***	0.008	0.061***	0.003
age_sq	Age squared	-0.001***	0.000	-0.000***	0.000
0b.permanent	Job contract is temporary	0.000	0.000	0.000	0.000
1.permanent	Job contract is permanent	0.064***	0.024	0.050***	0.013
1b.jbsize1	Size of firm, (1-200) base	0.000	0.000	0.000	0.000
2.jbsize1	Size of firm, (201-2000)	0.028***	0.008	0.035***	0.010
3.jbsize1	Size of firm, (2000+)	0.049***	0.010	0.041***	0.011

Table 5: Estimated fixed-effect predicting net earnings (2000-2008 Germany and the UK)

tenure	Firm level tenure	-0.000	0.001	-0.000	0.001
10b.wave	wave = 10, base	0.000	0.000	0.000	0.000
11.wave	wave = 11	0.061***	0.009	0.006**	0.003
12.wave	wave = 12	0.116***	0.015	0.023***	0.003
13.wave	wave = 13	0.162***	0.022	0.039***	0.003
14.wave	wave = 14	0.220***	0.028	0.041***	0.003
15.wave	wave = 15	0.272***	0.035	0.028***	0.003
16.wave	wave = 16	0.319***	0.041	0.008***	0.003
17.wave	wave = 17	0.363***	0.048	0.004	0.003
18.wave	wave = 18	0.405***	0.054	0.000	0.000
1b.isco10	Managers	0.000	0.000	0.000	0.000
2.isco10	Professionals	-0.043***	0.011	-0.008	0.011
3.isco10	Technicians and associate professionals	-0.064***	0.010	-0.022**	0.010
4.isco10	Clerical support workers	-0.096***	0.012	-0.047***	0.012
5.isco10	Services and sales workers	-0.146***	0.018	-0.042**	0.018
6.isco10	Skilled agriculture	-0.105***	0.038	-0.062**	0.030
7.isco10	Craft and related work	-0.046***	0.016	-0.024*	0.013
8.isco10	Plant and machinery workers	-0.066***	0.016	-0.027**	0.014
9.isco10	Elmentary work	-0.157***	0.018	-0.049***	0.015
Constant	Constant	6.332***	0.266	6.096***	0.074

Table 5: Estimated fixed-effect predicting net earnings (2000-2008 Germany and the UK)

Observations		27,992		31,392	
R-squared		0.335		0.204	
Number of pid		3,741		4,164	
Wave		10-18		10-18	
SE		Clustered SE		Clustered SE	
* p<0.01, ** p<0.05, * p<0.1					