The Importance of Risk Attitudes on Job Changing Behaviour: Evidence from the Young

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Voluntary job changes are a means to increase labour income or escape bad employer-employee matches, increasing utility eventually. Changing the employer is a decision under uncertainty and has potential long-term consequences for the worker's labour market position, especially when the decision is made during the early career. Uncertainty essentially makes the individual attitudes toward risk-taking a crucial component in the decision-making process. I first apply an on-the-job search model based on Jovanovic (1979) and Mortensen (1986) which I adjust in a manner that individuals risk attitudes are taken into account. Estimating the model using the representative German panel data set SOEP, I look at the role that individual risk attitudes play in association with voluntary job changes. I focus on voluntary job changes because the relationship between involuntary changes and risk attitudes is less obvious. This study is different from previous research in that it only considers the individuals' adolescent risk attitudes and their early career on the labour market. Overall, risk averse individuals change job less often and experience lower wage growth than risk tolerant individuals within the first seven years on the labour market. In a concluding discussion I present various possible channels by which my findings might come through.

Keywords: risk aversion, SOEP, labour mobility, wage growth

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Contents

1   Introduction

As virtually every individual economic decision, the decision to change job is marked by imperfect information. Future outcomes are never known with certainty, so that expectations need to be made. This is also true in light of job mobility. That changing job is linked to one's willingness to take risk to a non-negligible degree does not come out of the blue. The fact that employees have more information about their current job than about potential options illustrates this quite well. In particular, during the early career with a lack of experience it is not only the uncertainty about how the employer values one's skills in the future but also the uncertainty about the own skills that add up to it. Individuals can never fully predict future earning streams and other crucial job properties, such as career opportunities, working conditions or job securities. Once in a new job, it takes time to reassess the actual employer-employee match. This time is characterized by insecurities and related to costs of which there are basically four categories. First of all opportunity cost accrue. These comprise foregone earnings in the transition period from one employer to another and uncertainty about alternative options. Additionally, financial costs, transaction costs, and psychological costs involved in job change decisions arise. Such costs are expressed in time and effort spending for job search activities, moving to another place, and the loss of a familiar environment as well as relationships at the workplace (Shaw, 1996).

Individuals are not able to say what would have been the outcome in alternative scenarios, i.e. counterfactual outcomes are not observable simultaneously. Mobility, however, is a crucial determinant of success on the labour market. Job mobility is of particular importance for instance when the held job turns out to be a bad match. Enduring such a situation implies a loss in wages and has negative implications in the long run of the career, in particular if it occurs at early stages. In this regard, the decision to change job is an opportunity to correct for errors.

In an attempt to compare young adult individuals with different willingness' to take risk with regard to their job changing behaviour, I use the German SOEP questionnaire to identify the importance of individual risk taking characteristics on job mobility in the first years of a working career. Although job mobility describes all kind of movements within or between employers and positions geographically as well as occupationally, I concentrate on job changes between employers. I address the following two main questions: i) how important are risk attitudes with regard to job changes in the early career?; ii) Can voluntary job changes predict wage growth? Hence, the scope of this study is twofold. First and foremost, this paper aims to clarify the importance of risk attitudes on job mobility early in life. By observing and holding constant risk attitudes when individuals are as young as aged 17 and as old as 21, confounding factors such as job experience or previous job mobility cannot influence their job changing behaviour.

Thus, through the isolation from important endogenous third elements I claim to get closer to the true impact of risk attitudes on job change. The age when risk attitudes are measured are indeed important and assumed to be fully developed towards the end of adolescence (Dohmen et al., 2017). The second scope is to find out about the relation between wage growth and job changes. The design does not allow to infer causal interpretations inasmuch as we do not know how it would have been with or without a job change. Longitudinal data, however, will help in a simple way to analyze spells before and after move. The advantage of this study is the timing when risk attitudes are observed, that is before individuals enter the job market and before risk attitudes can get biased by a lot of other things like previous job mobility experience. I subdivide my sample population in risk averse and not risk averse (henceforth referred to as *risk tolerant*). Risk aversion means that more risk is worse and undesirable in a way that risk averse subjects are less likely to make a decision that involves risk compared to their risk tolerant counterparts.

My study is inspired by *Argaw et al. (2017)* and *van Huizen and Alessie (2019)* but different to the extent that I use the individual reported general willingness to take risk instead of outcomes from a lottery and a occupational specific risk measure, respectively. Apart from that, I have a larger sample as the latter and strictly pay attention to observe risk preferences before individuals have their first real job. By doing so, I first of all have better control over reversed causality, that is, experience on the labour market is very limited or non-existent for these cohorts and unlikely to affect risk attitudes. Hetschko and Preuss (2020) for instance show that labour market experience can influence risk attitudes and find that individuals become more risk averse after a job loss. Unlike the two-year period observed by van Huizen and Alessie (2019), I follow my sample seven years into the labour market and, thus, have a good overview in the early career where risk attitudes are expected to be of particular impact. Furthermore, individual attitudes towards risk are taken from a panel questionnaire instead of laboratory experiments where risk is commonly elicited by means of tasks that involve financial decisions. In contrast, I rely on self-reported values. By restricting the sample to younger subjects I want to point out that first labour market experiences are setting the course for the subsequent career and I believe risk attitudes in early adulthood to have a somewhat strong impact on job change behaviour. Young workers are rather low-paid in their first real job. Therefore, a voluntary job change has the potential to be particular rewarding. I focus on young employees for another reason. Topel and Ward (1992) point out the most job changes rather occur during the early stage. My reasoning goes as follows. Supposing that young employees receive less job offers than experienced workers due to a lack in experience and skills, the decision to change job is even more risky as getting a better job offer is not very probable in case the new job turns out to be a bad match. As we will see later, voluntary job changes seem to pay off with respect to wage growth.

I find a negative effect of being risk averse on the probability of changing job

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voluntary during the early career. However, the magnitude and of the effect is weaker than expected. Voluntary job changes are positive for wage growth but, interestingly, in combination with risk aversion detrimental. Risk aversion also implies lower overall wage growth in the longer run compared to risk tolerant individuals.

This essay contributes to the literature in two ways. It is well known that parents pass on at least parts of their risk attitudes to their offspring (Dohmen et al., 2012; (Cesarini et al., 2009) and risk attitudes in turn affect educational attainment (Woelfel and Heineck, 2012). Thus, risk attitude is inherited by the better part and formed during childhood and adolescence. I turn the wheel further, capture the developed risk attitudes of individuals in their early adulthood and link it to labour market outcomes. There is also evidence that risk tolerant individuals are more geographically mobile than risk averse individuals (Jaeger et al., 2010; Bauernschuster et al., 2014). To this strand I add voluntary job change decisions and specifically elaborate the role of risk attitudes in this process. Risk attitudes are also interrelated with occupational choice and earnings (Bonin et al., 2007; Fouarge et al., 2014). I argue that risk aversion has an impact on two more choices, namely the search effort and acceptance rate of job offers which is related to wage growth.

The essay's remainder is structured as follows. Section 2 sheds light on the theoretical background and findings from previous research. In Section 3, I describe the data and clarify the characteristics of my sample population. The empirical method is explained in Section 4. Results and a discussion of the findings follows in Section 5 before the essay finishes with a conclusion in Section 6.

2 Literature

In this chapter related and relevant research in the area of risk attitudes and job mobility is summarized. There are not many studies that actually link individual risk attitudes and job changes between employers. I present two main contributions that my study is closest to. Before that, however, I will set up the theoretical background and framework. More insights into the risk attitudes and job mobility literature follow in subsequent sections.

2.1 Conceptual Framework

The aim of this section is to understand why and when individuals would switch jobs from a mere theoretical point of view, and why risk attitudes are relevant in this context. Although the model needs to be extended with risk attitudes and non-wage characteristics, I rely on Mortensen's (1986) on-the-job search model as groundwork. Later on, arguments about the connection between job change and wage growth are put forward.

2.1.1 On-the-Job Search

As the term "on"-the-job suggests, the individuals are employed at the point of observation and, nevertheless, search for alternative, better, jobs with an effort that is heterogeneous across individuals. One of the first authors who extended a job search model with the option to search while employed was Burdett (1978). In his seminal paper, he states that an individual would prefer the *work and search* option as long as the maximum wage offer is at least as large as the sum of unemployment benefits and cost of searching. The reason why I concentrate exclusively on on-the-job search models, and do not include unemployed search, is related to my research question. Whereas moving from one job the another is highly expected to be associated with risk (as pointed out in the Introduction), the impact of risk when moving from unemployment to employment is less pronounced. Job offers arrive at a certain rate, say λ, that is interrelated with personal search efforts, called s. Once a job offer arrives, the employee faces the decision of accepting or declining based on available information and future expectations. How the future is weighted against the present depends on the individual discount rate r. The value of being employed $W(w)$ at wage w consists of the present wage w, the cost related to search effort c(s), the aforementioned job offer arrival rate λ, and the largest wage offer x at given time t. The cost of search, c(s), is an upward sloping function that increases with search effort s. Wage offers are randomly drawn from a cumulative probability distribution function F($\cdot$). The individual position on the distribution is determined by the worker's general skills whereas

the dispersion reflects the job specific ability (Mortensen, 1988). In a nutshell, the discounted value of being employed simply equals the sum of net income and future expected returns on search effort. Transitions into unemployment are not allowed by the model. Expressed as an equation it looks as follows (based on Mortensen (1986)):

$$rW(w) = max\Big[w - c(s) + \lambda s \int_0^\infty \{max[W(x); W(w)] - W(w)\}F(w)\mathrm{dw}\Big], \quad (1)$$

where $W(w)$ represents the expected present utility from receiving the current wage w, which is equivalent to stay in the held job, whereas $W(x)$ the future expected present utility from earning the offered wage x, implying a job change. The monetary value of being employed is positive related to wages and negative related to the cost of searching for jobs. A representative employee eventually quits and moves to another job if and only if a transition to a new employer yields higher utility. Utility in this framework is derived from wages and costs only. The utility maximizing search effort s^* equalises cost and return of an additional unit spent searching. The higher the wage w in the present job the harder to find a better job offer. Hence, s^* is negative related to w. Job search leads to higher wage offers with probability $\lambda s[1-F(w)]$ and, if accepted, to a net benefit of $W(x)-W(w)-c(s)$. Simplified, a positive discounted net return goes along with moving to another employer.

$$PV_t = f(G_t), \quad (2)$$

where G_t can be written as:

$$G_t = W_t(x) - W_t(w) - c_t(s). \quad (3)$$

The individual present value at time t (see (2) and (3)) is equal to the expected present value of income in the held job W(w) if a job offer is rejected while it is equal to the future expected present value subtracted by the cost of searching W(x)-c(s) if the offer is accepted. An offer gets accepted if W(x)-c(s)¿W(w) and rejected if W(x)-c(s)¡W(w). Given equality, the individual is indifferent between both options.

What is missing so far is the identification of the risk component. Canonical job search models (see Lippman and McCall (1976) for an survey over early job search models), no matter if on-the-job or unemployed search is addressed, often did assume risk indifferent individuals that homogeneously act in manner that maximizes their present value of income. An exception is Pissarides (1974) who introduces the concept of risk premia. Faced with the decision to accept or decline a job offer, every individual has a personal risk premium, p, in mind. Such a premium, essentially a mark-up on the wage, is understood to compensate for the risk that an individual bears by changing the employer. These risks are of various nature (insecurity about colleagues, work atmosphere within the company, job security, moving to another place etc.) and harder

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to accept with the degree of risk aversion. Pissarides (1974) suggests a positive risk premium for risk averse, zero risk premium for risk neutral, and a negative premium for risk tolerant people. Hence, the risk premium p is a growing function of $p(\pi)$, where π stands for the degree of risk aversion. A higher (lower) p reduces (increases) the expected return of a marginal unit of search effort and, thus, the job search intensity.

Lastly, the non-wage properties, referred to as d, of a job and its part in the decision process should not be forgotten. For instance, geographical location, working hours, or non-monetary benefits and bonuses cannot be neglected when faced with the decision to change or not to change job. The utility that arises from a job is, accordingly, rather be seen as an additive function of wage and non-wage features. The non-wage benefits of a job offer, x, are represented by d_x. Again, individuals change job if and only if the offered job's expected utility is greater than the present utility that now is added by the risk premium p. Having introduced the risk premium and non-wage characteristics as well as their role within the job change process, I can implement these two terms to the model, so that it now looks like:

$$
\begin{aligned}
rW(w) = max\Big[(w + d_w) - c(s) + \lambda s \int_0^\infty \{max[W(x + d_x) - p(\pi), W(w + d_w)] - \\
W(w + d_w)\}F(w + d)\mathrm{dw}\Big]
\end{aligned}
\tag{4}
$$

In equation 4, job offers are randomly drawn from the joint distribution F(w,d) and come in at rate λ, just as before. Expectations about non-pecuniary benefits may be harder to predict than monetary benefits, at least in the short run, that are usually stipulated in the contract. The risk premium serves as compensation for this uncertainties.

Some early literature was discussing the 'nature' of jobs that comprises two approaches. Firstly, jobs could be defined as experience goods (Jovanovic, 1979b) and information about job changing benefits arrive through sampling the job oneself. In this sense, information on the match quality arrives ex post. If jobs are pure experience goods we can assume that the match quality of a new job is unknown for the time being before it clarifies once in the new job. Isolating the expected utility of a new job, two events are possible. Either the expected match turns out to be better or worse than before. If the given the expected value, the sum of both, good and bad, possible outcomes multiplied with their respective probabilities, ε and 1-ε, is greater than the reservation match, the job offer will be accepted. The reservation match is related to the willingness to take risks in that risk aversion (i.e. higher risk premium) leads to a larger reservation price and essentially makes job changes less likely. Secondly, jobs were referred to as search goods (Burdett, 1978) with new information and alternatives available due to search effort and, thus, available before the actual decision is made. If jobs are regarded as search goods, a longer time on the job market implies spending

more time on search and lower probability of getting a higher offer. Both approaches have in common that the amount of information at hand drives job changing behaviour but differ in the timing the information is generated.

2.1.2   Job Change and Wage Growth

According to the job search models from above, changing the job must lead to positive wage growth as the individual seeks to maximize her utility which is substantially expressed in wages. This is, however, a very short term perspective. The effects of job changes on wages can go in both directions. A negative effect due to foregone returns on investment in job specific human capital that is not transferable. A positive effect thanks to a better match in the new job. Combinations of both effects are not unlikely. The question is one about the predominance of either of the effects.

According to Topel and Ward (1992) job changes at a young age tend to be positive for wage growth but these gains diminish with age, tenure and the number of job changes. They suggest that one third of the earnings growth during the first ten years in the labour market arises due to job mobility. Nevertheless, wage growth is most favourable if the transition to a new job is durable, i.e. the number of changes matter. The more job changes and the shorter the periods between them, the smaller, or even negative, the wage growth. Causality is difficult to prove conclusively, nonetheless. Especially the case of reversed causality (job is durable due to higher wages and not the other way around) cannot be taken care of plausibly. The authors conclude that wage growth reduces the chance of changing job another time significantly. Theoretically, growth in wages arrives as return to investment in human capital which in turn causes higher productivity (Bartel and Borjas, 1981). The search for a new job can be seen as such an investment. At the same time, splitting up with the employer also implies a possible loss of what the employee already invested. The question here is to what degree wage growth is determined by job changing behaviour. Bartel and Borjas (1981), in an attempt to explain differences in wage growth between movers and stayers, argue that the moving employee is not satisfied with the wage growth in the present job and therefore changes the employer. This is likely to be the case if the current job could turns out to be a mismatch, so that both sides, employer and employee, invest less in human capital. Hence, wages grow only slowly positive, not at all or negatively. In my study, I am interested in as well wage growth in the short run, within the period after a job change occurs, and long run, several years after the turnover. Rationally, investment in human capital is increasing with job tenure in expectation of higher returns when staying longer. Reversed reasoning is just as illustrative. Those who invest more stay longer.

As I focus on deliberate job changes, a positive wage growth is expected eventually. The age of my sample young people change because of finding a better job in terms

of wages whereas older rather move because of dissatisfaction (Bartel, 1982). Even if economic theory predicts that voluntary job changes only occur because of higher wages, wage growth can still be negative. The latter could be the case if jobs were experience goods and the transition turns out to be a bad match.

2.2 Previous Research

The research design of my study builds upon Argaw et al. (2017) who also use the German SOEP data to connect risk aversion and job changes. They also compare short run wage development of job changers and stayers. A statistical significant negative effect of risk aversion on job changes emerges. The magnitude of the coefficient is about a third of a standard deviation. With respect to wage growth they, surprisingly, find that those who change job have a lower wage growth compared to rather risk averse people who stay in their jobs. However, this finding only applies in the short term. A second contribution that is similar comes from van Huizen and Alessie (2019) who use Dutch panel data. Although the coefficients are much smaller, they conclude that risk aversion is negatively related to job mobility. By applying a Logit model they show a lower probability to change employers for risk averse workers compared to risk tolerant individuals. Unlike the former study, van Huizen and Alessie (2019) infer individual risk attitudes from lottery experiments and only have two consecutive years of observations. The results are driven by the male experiment subjects to a large degree. The authors argue that the effect is negative due to a lower job acceptance rate but cannot show that conclusively.

With respect to my second research question, job changes and their influence on wage growth, previous research has shown interesting patterns. Borjas (1981) argues, in line with human capital theory, that job mobility causes higher wages right after a job change but overall lower wage growth once the new job is held for several years compared to employees who do not change job. Less investment in on-the-job training by mobile subjects could be the main reason. Within the group of changers, Borjas (1981) finds that wage growth tends to be smaller or even negative the later in life job mobility occurs. Jovanovic (1979b) suggests that longer tenure implies a lower probability of changing the job, he concludes that low-wage workers quit and high-wage workers stay. Mismatches, a primary cause of lower wages, would then lead to job changes. Within the psychology literature, Allen et al. (2005) show that the rate of individual job turnover intention and actual turnover decreases with risk aversion. That said, more risk averse individuals are less likely to convert their expressed intention to change job into action and actual quit their present job. Findings from Light and McGarry (1998) who look at wage growth of young adults in the US within eight years after leaving school suggest that wage growth becomes less and less positive with the number of job changes taking non-changers as reference group. They explain their estimates with the notion that jobs are experience goods.

Other research is not directly related to my study but showing various effects of risk attitudes on the labour market. Fouarge et al. (2014) and Bonin et al. (2007), establish the link between risk attitudes and occupational choice whereas Bauernschuster et al. (2013) as well as Jaeger et al. (2010) use German regional data to conclude that risk tolerant individuals are more mobile across regions within Germany than risk averse individuals. Bonin et al. (2007) suggest that, compared to their counterparts, risk tolerant individuals sort into occupations where the cross-sectional variation in earnings is greater. Also using SOEP data, Pfeifer (2010) provides evidence between risk aversion and public sector employment and identifies an increasing probability of working in the public sector with risk aversion. Some research was made on the nature (genetic variation) and nurture (differences in socialisation) background of risk attitudes. Following a study from Cesarini et al. (2009) (also see Zumbuehl et al., 2013; Necker and Voskort, 2014), a significant part of an individual's willingness to take risk is inherited from the parents.

3 Data

This section takes on a closer look on the data structure. I will clarify where the data comes from, why it is suitable in order to answer my research questions, and what particularities and limitations it is accompanied by. I also describe the steps on the path to the final sample.

3.1 Source Material

To test the relation between risk attitudes and job changes empirically, I use data from the German Socio-economic panel (SOEP) - a large representative annual survey of roughly 15 000 households and 30 000 individuals across Germany (see Goebel et al. (2019) for more information). The first wave dates back to the year 1984 and is conducted annual ever since. The SOEP contains a vast set of self-reported variables on, e.g., income, education, parental background, and employment but also harder to measure variables like personal satisfaction, personal attitudes and moral values. Every individual is assigned a unique unchangeable personal identifying number. Extensive information about performance on the labour market and individual specific characteristics is collected every year again and provides the necessary material to link individual risk attitudes and behaviour on the labour market as I do in this study. Some individuals enter the survey as early as aged 17, allowing me to trace mobility during the early career and growth of wages consecutively. Questions about the willingness to take risk are included in the questionnaire from the 2004 wave onward. Hence, I need to truncate the sample accordingly. The question block about risk attitudes asks about the general "willingness to take risk" (original wording) but also contains the same questions with different contexts (e.g. career, driving the car, doing sports). However, I prefer to take the general risk measure due to the number missing values in other risk questions.

The observability of risk attitudes and wages in combination with the panel structure provides useful information for distinguishing between job changing behaviours among individuals with heterogeneous attitudes towards risk. For my estimation purpose, I select an appropriate sample as follows. First, other than van Huizen and Alessie (2019) and Argaw et al. (2017), individuals older than 23 at first observation and subjects without valid risk attitudes by that time are excluded. That is before most individuals have their first real job and isolates potential bias' that arise because of former labour market experience. Individuals' willingness to take risk is presumably subject to change over life time and especially sensitive to labour market experience and other unobservable events. In fact, roughly ten percent report an unchanged willingness to take risk after seven years after labour market entrance. First real job is defined as the first time that the employee works full time or part time occupation on

permanent or temporary contract. Entering the labour market coincides by first real job. The sample is further restricted to individuals who enter the labour market before the age of 28. Subjects that start their first job later than that are likely to be quite different, thus not comparable, to the other individuals. At least six observations of full- or part-time employment experience upon entry are required. In other words, one observation of unemployment, mini job, parental leave etc. during the seven years is allowed. Later, I will also use a sample where subjects with any kind of non-employment spell are dropped as a means to address sample selection issues. First of all, subjects with temporary contracts or unemployment spells are less likely to change jobs voluntarily within the seven years of observation but are not particular risk averse on average and could, thus, downsize the effect. Secondly, the restricted sample is more homogeneous in terms of characteristics which implies better comparability and interpretation of the results. Those who are self-employed in either of the seven years of observation are dropped as well. Eventually, I have a sample of 439 young individuals left and an overall of 3.073 observations.

3.1.1   Key Variables

Information about job changes, the first variable of interest, is retrieved from answers on the question if there was a job change in the year prior to the survey. The variable *voluntary* job change is binary and takes on the value one if two essential criteria are satisfied, and zero otherwise. First, the job change needs to be on grounds of own will. That said, the working contract must be terminated by the individual proactively and not because of forced action due to dismissal, end of temporary employment, or company shut down for example. Second, the individual has to find a new job at a new employer. the question on type of employment change has to be answered with 'new employer'. Both information is taken from the question about type of employment termination and type of employment change, respectively. No other options like transitions to parental leave, changes within the company, or takeover after apprenticeship is included in the definition. Additionally, first voluntary job change must not appear before the first risk attitude is available. Exclusively voluntary job changes are considered because the relation between risk and involuntary job changes is less clear.

Predicting the key independent variable, risk attitudes, I take the individuals' self-reported scores on the question about the general willingness to take risk. The score is marked by the participant on an eleven-point Likert scale. Self-reported values should always be handled with caution. Measurement errors potentially cause serious issues. Dohmen et al. (2005) take the 2004 SOEP wave, the first that contains questions about the willingness to take risks, to compare answers on the question with experimentally deduced data. The simultaneously conducted field experiment consists of a lottery game, a typical way to elicit risk attitudes in the lab. The authors perform the experiment on a random sample of non-student subjects and compare risk attitudes from the

experiment with the self-reported willingness to take risk of the same subjects. Dohmen et al. (2005) indeed find a significant positive relation and conclude that answers from the SOEP questionnaire are actually a good proxy. It is often assumed that every individual has only one risk preference, implying that the attitude towards risk stays constant across different situations. This is a somewhat heavy assumption but turns out to be close to what the experiment in the same study suggests, a significant positive correlation of self-reported scores across different contexts. By relying on Dohmen et al. (2005), I conclude that the self-reported (general) willingness to take risk is a quite trustworthy. Unluckily, I do not have enough valid responses to all the context specific risk questions to test this hypothesis myself. After all, I simplify generate a new variable for risk aversion that assigns the value one to each individual that reports a willingness to take risk that is below the median score. The median is five in my sample, such that an individual is risk averse if the willingness to take risk is less or equal than four on the eleven-point Likert scale. With respect to my second question, wages are equal the monthly gross labour income and reported in Euro currency. As a second wage measure I calculate the wage per hour by means of actual weekly working hours (overtime included) and the monthly gross income for each individual. Wages per hour usually contain more information on individual's productivity and isolate potential confounders.

Control variables

I create more variables that are likely to have impact on job mobility too and later used as control variables in the estimated model. From previous research I identify gender, education, parental background, age, migration background, tenure, and public sector employment as the most important control variables. According to Dohmen et al. (2011), women are more risk averse than men whereas education is positive related to the willingness to take risk (also see Hartog et al., 2002). The evidence on migration background and job mobility is somewhat mixed. Bonin et al. (2009), for Germany, suggest that first generation immigrants show higher risk aversion than natives. This is, however, not true for the subsequent generations of immigrants. Parental background is important as better parts of the parents attitudes and preferences are passed on to the next generation (e.g. Zyphur et al.,2009). Public sector employees are regarded as a rather risk averse group (Pfeifer, 2011) whereas working in occupations within which wages vary a lot are related to less risk aversion (Bonin et al.,2007). The length of job tenure was found to be positive related with wage growth (Bartel and Borjas, 1981). I distinguish between low education and tertiary education, both of which are binary coded. Low education comprises secondary school degree, dropout and no school degree. Tertiary education is coded as one if the subjects holds at least an university degree, zero otherwise. Gender, migration background, and parental background are also implemented as binary variables. Migration background takes on value one if an individual is born in another country than Germany, has either parent

born in a foreign country or at least a parent with different citizenship than German. Parental background is based on, combined, the parents education and professional occupation. That said, if at least one parent finished minimum upper secondary school or worked in leading positions the variables turns to value one. The public sector employment is generated similarly. Besides, I take information on working contract at first employment (permanent or temporary; full time or part time), tenure of first job and also wage variance within occupation classifications. Marital status or children at home should be of secondary interest in light of the subjects' age.

3.1.2 Sample Characteristics

The total sample population consists of 439 individuals of which are 227 male and 212 female. Overall less than 30 percent are actually classified as risk averse according to my definition. Men, as visualized in Figure 1, report higher scores in their willingness to take risk by almost one point compared to women. The average man in my population reports a score of 5.9 while the same is 5.0 for the average woman. The mean across gender is 5.5. This pattern is unsurprising and in line with Dohmen et al. (2011). The average age at first observation is approximately 20.3 years, and coincides with the age at which I measure the risk attitudes, while the first real job is held at age 22.4. About 36 percent (N=158) of individuals within the sample did not change their job at all, neither voluntary nor voluntary, during the observation period. This represents the biggest subgroup followed by one-time changers that make roughly 34 percent (N=147). In terms of *voluntary* job changes it looks quite different. 77 percent (N=338) did not change job voluntarily at all whereas a bit less than 18 percent did so at least once. A few individuals changed voluntary twice (5%) and almost nobody more than that. Apart from risk attitudes, a gender gap exists in terms of education and public sector employment. Male subjects are more likely to have low education and are less likely to work in public sector than female subjects. The latter is probably associated with higher risk aversion of women as public sector employment is vested with securities, fixed wages and less income variation that the private sector does not provide. Figure A.2 offers an comprehensive overview on the sample composition and gender differences.

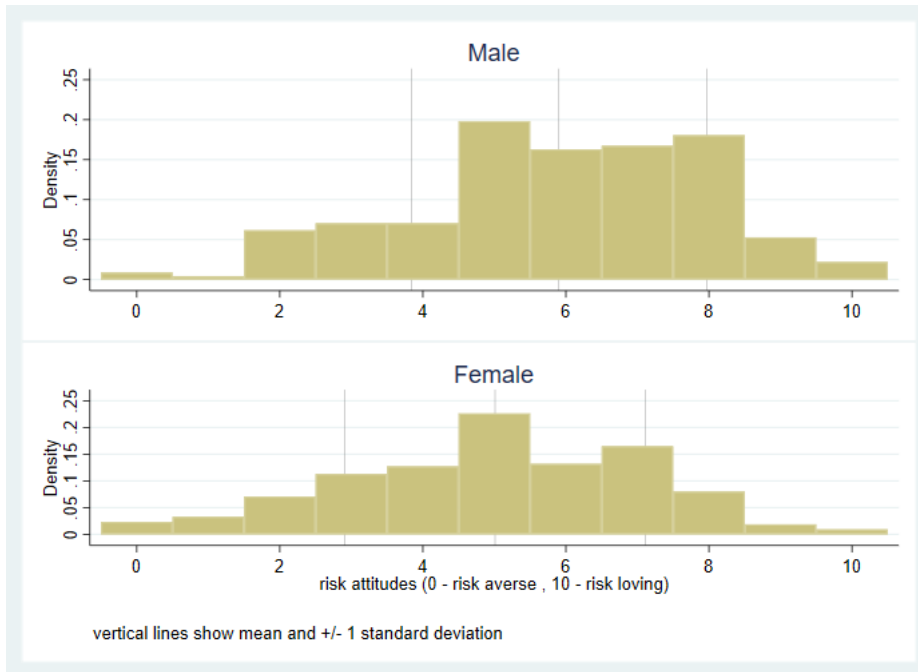**Figure 1:** Willingness to take risk at first observation (by gender)

4 Method

4.1 The Estimation Model

Before processing the prepared data in the model estimation, a formalized description of the estimation steps follows. Again, two questions stand in the center. What is the effect of risk attitude on job changes and what is the effect of job changes on wage growth.

4.1.1 Risk Attitudes and Job Changes

I start by estimating the effect of the willingness to take risk on the total number of job changes. As I look at individuals retrospectively both variables are constant on the subject level. I collapse both, total number of job changes and risk attitudes, to get one entry for each individual in the dataset. The number of job changes range from zero to four (see Figure A.1. Equally, the explanatory variable reported willingness to take risk takes values from zero to ten but is transformed to a categorical measure and takes on the value 1 (referred to as risk averse) if the individual reports a score less than the median, and zero otherwise. That said, I estimate the following equation similar to Argaw et al. (2017):

$$JC_i = \beta_0 + \beta_1 RA_i + \delta X_i + \varepsilon_i, \tag{5}$$

where JC reflects the number of job changes and β_1 the coefficient of interest. X includes a range of individual characteristics, as discussed before. If possible, all controls are determined before the labour market entry in order to avoid potential sources of the bad control problem.

4.1.2 Wage Growth

I first make use of the longitudinal data structure and run a fixed effects panel regression to find out about the connection between voluntary job changes and wages. I regress voluntary job changes on log monthly wages and include an interaction term that is activated when both voluntary job change and risk aversion is true. I add employment experience (in months) and employment experience squared. Typically, wages increase with experience but non-linearly. Industry classifiers (2-digit NACE industry sector) and occupational position act as dummies. The within-effect estimation helps to surmount potential selection bias'. Thus, unobserved factors that are fixed over time can be controlled for. More interesting, interest, however, is the long run effect of risk aversion and voluntary job changes on wage growth throughout the

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observation period, i.e. setting the wages relative to the initial wage. Without loss of generalization, I take the wage ratio by subtracting the first observed monthly wage from the averaged aggregated wages over seven years in the numerator, and divide it by the wage at first employment in the denominator.

$$\Phi ln(w_{it}) = \alpha_0 + \beta f_i + \delta c_{it} + X_{it}\eta + Z_i\theta + v_{it}, \tag{6}$$

In equation (6) we see the formula that is estimated (Del Bono and Vuri, 2011). The log wage ratio $\Phi ln(w_{it})$ is taken for every individual i at time t while f_i is a dummy for female and c_{it} a dummy for job change. X_{it} constitutes observable individual specific characteristics at time t, whereas Z_i represents individual characteristics that stay constant over time. There is the concern of under- or overreporting labour income. Assuming that under-/overreporting is uncorrelated with job changes this will not bias my results. However, it is a reason to additionally test the same model with non-logged values because the log of the monthly gross labour income as dependent variable could yield inconsistent estimates. Based on previous literature (Argaw et al., 2017; Burdett, 1978; Schmelzer, 2012), I expect three different findings with respect to wage growth: First, positive wage growth in the short run; Second, positive but lower wage growth in long run compared to the short run; Third, a negative relation of total number of changes and wage growth.

5   Empirical Analysis

First of all, I plot the number of voluntary job changes over time and sort by risk aversion in Figure 1. Although the trend for risk tolerant individuals always lies above risk averse individuals in each of the seven observations, there is no clear pattern as in Argaw et al. (2017). The trend for number of voluntary job changes grows over time for both groups alike. However, apart from the observations between the years five and six, the gap between the to groups is minimal and not really increasing over time. The kink in the slope for risk averse subjects is caused by a lower number of job changes among risk averse subjects in year 6 of observation. The difference between both groups becomes more distinct when using the restricted sample while the kink in the slope for risk averse subjects around year 6 is almost smoothed out (see Figure A.2). Overall, the number of voluntary job changes is quite low during the early career. This does not necessary mean that young employees are immobile in general but rather has to be regarded against the background of temporary working contracts and moves within the employer as we will see later.
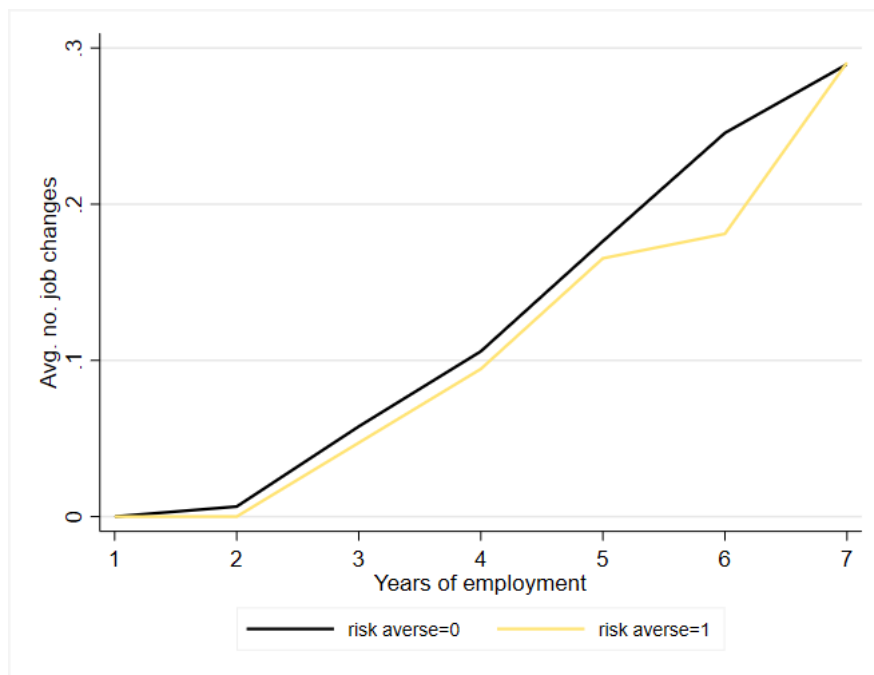

Figure 2: Voluntary job changes (mean) employment experience by risk aversion

5.1 Results

The empirical part is going to elaborate on results from the estimation and connects my findings with the theory. Some robustness checks follow. A discussion at the end will come up with potential explanations and weaknesses to complete this section. Subsequently, a replication of the regressions in Argaw et al. (2017) is conducted.

5.1.1 Risk Preferences and Job Change Behaviour

As described, I start by regressing the independent variable, willingness to take risk, on the variable of interest, total number of voluntary job changes. The results are presented in Table 1. The control variables and dummies are added from column to column. Risk aversion indeed has a negative impact on the number of job changes in the early career. The size of the effect, however, is pretty small. Column (1) shows my baseline estimate of the effect of being risk averse on the number of voluntary job changes, expressed in units of standard deviations. I find a small, statistical insignificant, and negative coefficient. Being risk averse implies -0.026 standard deviations in the number of voluntary job changes in the course of the first seven years after entering the labour market compared to being risk tolerant. Adding controls and dummies for year and parental background tends to increase point estimates. With all controls and dummies for year and parental background included in column (3), I get point estimates of -0.031 and, with all dummies included, -0.014 standard deviations by willingness to take risk. Interpretations can only be cautious on light of statistical insignificant main coefficients. Notably, working in public sector has a somewhat large negative and highly significant effect on the number of job changes. Jobs within the public sector often come with securities in terms of job retention and salary and are disproportionately chosen by risk averse individuals which is also true in my sample. The significant negative effect of tenure in the first job implies a decreasing likelihood of changing job the longer the subject stays with the same employer. Additional dummies for industry and occupation mitigate the effects. Surprisingly, being female has a positive impact on number of voluntary job changes. However, when running the regressions by gender, I find a bit larger negative coefficients for risk averse women than for risk averse men. Restricting the sample to individuals with only permanent contracts and no unemployment spells (restricted sample) as presented in Table 2, I find larger negative effects of risk aversion on the number of voluntary job changes. Still, the lack of significance remains. Taking the career specific willingness to take risk score, the results show larger negative effects but only by a little and without significance either (see Table A.3). Excluding female participants, the estimates deliver a significant, and larger, negative baseline result.

Table 1: The effect of risk aversion on the number of voluntary job changes

	(1)	(2)	(3)	(4)	(5)
Risk averse	-0.026	-0.043	-0.031	-0.004	-0.014
	(0.063)	(0.063)	(0.057)	(0.062)	(0.063)
Female		0.062	0.045	0.061	0.060
		(0.058)	(0.053)	(0.057)	(0.061)
Migration background		-0.108	-0.084	-0.077	-0.073
		(0.085)	(0.080)	(0.095)	(0.094)
Low education		-0.011	-0.003	-0.002	-0.002
		(0.068)	(0.061)	(0.061)	(0.065)
Tertiary education		0.008	-0.066	-0.095	-0.125
		(0.081)	(0.074)	(0.074)	(0.089)
Age first employment		0.017	0.006	0.016	0.010
		(0.015)	(0.014)	(0.015)	(0.015)
Wage first employment		-0.002	0.000	-0.003	-0.006
		(0.004)	(0.005)	(0.004)	(0.004)
Job satisfaction first job			-0.011	-0.004	-0.006
			(0.016)	(0.016)	(0.017)
Public sector employment			-0.225***	-0.196**	-0.188**
			(0.053)	(0.095)	(0.095)
Permanent contract			0.096*	0.139**	0.105*
			(0.053)	(0.056)	(0.058)
Part-time first employment			-0.052	-0.023	-0.032
			(0.081)	(0.083)	(0.083)
Tenure first job			-0.095***	-0.103***	-0.107***
			(0.012)	(0.013)	(0.013)
Wage variance first occupation			-0.122	-0.068	5.599***
			(0.106)	(0.135)	(1.629)
constant	0.301***	-0.326	1.457*	0.410	-39.234***
	(0.034)	(0.306)	(0.810)	(1.021)	(11.600)
Year dummies		YES	YES	YES	YES
Parental background		YES	YES	YES	YES
Industry dummies				YES	YES
Occupation dummies					YES
R-sqr	0.000	0.046	0.221	0.342	0.368
N	439	439	439	439	439

Note. Mean OLS estimation coefficients; robust standard errors in parentheses; *$p < 0.10$,**$p < 0.05$,***$p < 0.001$

Based on these findings I conclude that being risk averse has a negative impact on voluntary mobility on the labour market, although less than expected. Besides, working in the public sector and staying with the first employer reduces the likelihood of voluntary job changes significantly.

Table 2: The effect of risk aversion on the number of voluntary job changes: Restricted Sample

	(1)	(2)	(3)	(4)	(5)
Risk averse	-0.044	-0.062	-0.077	-0.028	-0.038
	(0.080)	(0.085)	(0.074)	(0.092)	(0.098)
Female		0.061	0.036	-0.013	0.015
		(0.087)	(0.079)	(0.082)	(0.092)
Migration background		0.000	0.009	0.027	0.046
		(0.133)	(0.119)	(0.144)	(0.156)
Low education		-0.025	0.004	0.007	0.018
		(0.096)	(0.090)	(0.100)	(0.113)
Tertiary education		0.126	-0.018	0.010	0.071
		(0.137)	(0.108)	(0.127)	(0.157)
Age first employment		0.018	-0.014	-0.011	-0.012
		(0.023)	(0.021)	(0.025)	(0.027)
Wage first employment		-0.008	0.012	0.012	0.014
		(0.010)	(0.009)	(0.011)	(0.013)
Job satisfaction first job			-0.010	-0.009	-0.012
			(0.023)	(0.026)	(0.028)
Public sector employment			-0.254***	-0.294*	-0.249
			(0.073)	(0.161)	(0.175)
Permanent contract			0.045	0.038	0.060
			(0.075)	(0.097)	(0.105)
Part-time first employment			-0.004	0.018	-0.011
			(0.118)	(0.143)	(0.166)
Tenure first job			-0.124***	-0.109***	-0.113***
			(0.022)	(0.023)	(0.026)
Wage variance first occupation			-0.039	-0.165	0.048
			(0.137)	(0.227)	(1.377)
constant	0.261***	-0.320	1.553	1.797	0.011
	(0.049)	(0.446)	(1.032)	(1.591)	(9.421)
Year dummies		YES	YES	YES	YES
Parental background		YES	YES	YES	YES
Industry dummies				YES	YES
Occupation dummies					YES
R-sqr	0.001	0.067	0.312	0.429	0.436
N	202	202	202	202	202

Note. Mean OLS estimation coefficients; robust standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.001$

5.1.2 Job Changes and Wage Growth

Are subjects who change job voluntarily better off because of their mobility in the labour market? Descriptively, the individuals in my sample indeed seem to use the job change opportunities to climb up the wage ladder, as Table **??** suggests. A jump after around four years of employment experience coincided with the fact that those who change job do so the first time after four years, on average, in the labour market. Following, I estimate a fixed effects regression model. The result in column (1) of Table 3 show that voluntary job changes lead to higher wages. A voluntary

job change is positively associated monthly labour market income by 0.082 standard deviations. Here, too, no statistical significance is emerging. Adding full-time working experience, squared full-time work experience squared, and tenure (see column (2)) to the model, however, the effect becomes much lower. The main reason is the labour market experience that has a significant positive effect on wages. This is mind, a voluntary job changes is more beneficial after some years in full-time employment. More experience means more skills, especially in the case of young labour force, and is of higher value for other employers which in turn could be followed by higher wage offers. The negative coefficient for squared work experience shows that the marginal utility of work experience is diminishing in terms of wage growth. The positive effect of an extra unit work experience is always a bit lower compared to of the one before. Tenure at the same employer, on the other hand, is slightly negative related to wage growth. This implies that the individuals in my sample experience lower wage growths if they stay with their employer instead of changing. Bearing in mind the rather short time of observation, it cannot be said if this would be true in the longer run. I do the same with the restricted sample in columns (3) and (4). Almost all the coefficients are smaller compared to the non-restricted sample. The effect of voluntary job changes on log monthly wages basically becomes zero when controlling for experience and tenure.

The interesting finding, in both non-restricted and restricted sample, is the negative effect of voluntary job change and risk aversion combined. Thus, being risk averse and changing job voluntary implies lower labour incomes compared to voluntary job changes of risk tolerant subjects. It seems that risk averse subjects change job to worse conditions than risk tolerant subjects do. A possible explanation is related to job search effort and acceptance rate of job offers. Risk averse individuals tend to accept wage offers quicker than their counterparts because they are not as willing to risk the present offer for a better one in the future. Behaving this way may lead to a hasty acceptance rate of job offers. Risk tolerant individuals could be better of by declining more job offers and waiting to accept those with higher wage offers. Also, risk averse individuals might perform worse in negotiating higher wages and less willing to compete. Although I find no means to test this hypothesis empirically, the research on the latter is extensive (Niederle and Vesterlund, 2007; Bartling et al., 2009, Cárdenas et al, 2012). I look through the question that asks how the subject's current position was obtained, either by active search or by just coming up. When distinguishing between risk averse and risk tolerant individuals within the group of voluntary job changers, I see that the share of risk averse subjects that actively search for a new employment is higher compared to the risk tolerant subjects who report more frequently that the new job just came up. This is at most a weak hint that it is not the search effort but the job offer acceptance rate that drives the difference in voluntary job changing behaviour between risk averse and risk tolerant individuals.

Table 3: The effect of voluntary job change on log monthly wages

	non-restrictive		restrictive	
	(1)	(2)	(3)	(4)
Voluntary job change	0.074	0.035	0.074	0.035
	(0.045)	(0.045)	(0.045)	(0.045)
Voluntary job change × Risk averse	-0.048	-0.065	-0.048	-0.065
	(0.079)	(0.081)	(0.079)	(0.081)
Full-time employment experience		0.165**		0.165**
		(0.048)		(0.048)
Full-time employment experience squared		-0.011*		-0.011*
		(0.006)		(0.006)
Tenure		0.001		0.001
		(0.010)		(0.010)
Industry dummies		YES		YES
Occupation dummies		YES		YES
Within R-sqrd	0.007	0.342	0.007	0.342
Between R-sqrd	0.003	0.157	0.003	0.157
Overall R-sqrd	0.004	0.212	0.004	0.212
Observations	273	273	273	273

Note. Panel data fixed effect estimates with clustered robust standard errors in parentheses. Dependent variable: log monthly wage; $*p < 0.10$, $**p < 0.05$, $***p < 0.001$

In a second attempt, I estimate the effect of total number of job changes on wage growth. This time the wage ratio, as described in the Methods part, determines wage growth. The aim is to find out about the longer run impact of voluntary job changes. In Table 4 the results are presented. Overall, risk aversion per se is, again, negatively related to wage growth, implying that risk averse subjects experience lower wage growth than risk tolerant subjects. The effects are smaller within the restricted sample (columns (4) to (6)). Systematic differences in educational attainment between risk averse and risk tolerant subjects do not seem to be the reason for the effect. The share of low and tertiary educated individuals is similar across risk attitudes. Total number of voluntary job changes. Over the observation period more voluntary job changes imply, slightly, higher positive wage growth. Here, the effect increases with restrictions. The interaction of risk aversion and number of voluntary job changes deteriorates wage growth as risk aversion and voluntary change already did in Table 3. The negative effect of the interaction is statistical significant and quite large in column (4). The strong positive effect of tertiary education on wage growth is striking. Over time, women experience lower wage growth than men.

Table 4: The effect of risk aversion and number of job changes on wage growth

	non-restrictive			restrictive		
	(1)	(2)	(3)	(4)	(5)	(6)
Risk averse	-0.115	-0.127	-0.125	-0.046	-0.014	-0.037
	(0.078)	(0.081)	(0.081)	(0.082)	(0.092)	(0.090)
No. vol. job changes	0.010	0.020	0.020	0.083	0.075	0.076
	(0.072)	(0.067)	(0.068)	(0.082)	(0.088)	(0.093)
Risk averse × No.vol.job changes	-0.141	-0.141	-0.130	-0.416**	-0.438*	-0.363
	(0.128)	(0.131)	(0.131)	(0.182)	(0.229)	(0.224)
Female		-0.082	-0.085		-0.037	-0.042
		(0.077)	(0.077)		(0.095)	(0.093)
Migration background		0.007	0.026		-0.097	-0.036
		(0.109)	(0.112)		(0.111)	(0.116)
Low education		-0.006	0.006		0.006	0.043
		(0.084)	(0.086)		(0.089)	(0.088)
Tertiary education		0.499***	0.477***		0.092	0.033
		(0.124)	(0.128)		(0.165)	(0.174)
Age first employment		-0.021	-0.025		0.013	0.002
		(0.022)	(0.022)		(0.024)	(0.021)
constant	0.050	0.697	0.755	-0.077*	0.084	0.234
	(0.054)	(0.477)	(0.476)	(0.047)	(0.531)	(0.509)
Year dummies	YES	YES	YES	YES	YES	YES
Parental background		YES	YES		YES	YES
Employment gap dummies			YES			YES
R-sqr	0.121	0.196	0.199	0.047	0.184	0.215
N	437	437	437	201	201	201

Note. OLS estimates with robust standard errors in parentheses. Dependent variable: log wage growth; $*p < 0.10$, $**p < 0.05$, $***p < 0.001$

Robustness checks

I test the robustness of my results by applying different regression methods and altering the dependant variable a bit. First, I simply apply individually reported scores on willingness to take risk in career matters instead of the general measure. I present the results in Table A.3. The coefficients become a bit larger for risk aversion but still statistical insignificant. As the number of voluntary job changes takes on ordinal values from zero to four, an ordered Logit regression is feasible. For that purpose, I generate a categorical job change variable with the value 1 if the number of voluntary job changes is zero, 2 if the number is one, and 3 in case of two or more voluntary job changes. The results are presented in Table A.4. Effects are similar compared to my initial regression but there are larger negative coefficients for the explanatory variable risk aversion. Working in public sector and tenure at first job remains negative with statistical significance.

Last, I want to exploit the panel structure and keep all observations instead of collapsing them as before. By transforming total number of voluntary job changes into a continues variable that counts the number from observation to observation, I

have count data and a delimited time block (seven years) that is the same for every individual. Given this setting I run a Poisson regression in which the performance of risk averse and risk tolerant individuals is compared. The result of the Poisson regression will tell how probable it is that individuals change job voluntary once, twice, three or four times by risk attitude. Here, as well, the results are qualitatively the same. Only quantitatively I find differences but not of big extent as presented in Table A.5.

I also check whether typical panel data problems like missing values and sample attrition lead to sample selection with respect to the initial sample. The control group comprises 2245 individuals that did not make it into the selected sample but were surveyed within the same period of time and of similar age. A Probit model with a dependent variable that is equal to one if the individual is part of the final sample and zero otherwise is supposed to shed light on the sample characteristics. Each column represents one year of observation. Column (1) for example compares all individuals at their first observation. Figure A.1 is showing the results. Number of voluntary job changes, monthly wages, and low education are statistical significant selected. The coefficient for monthly wage is quantitatively very small, low education only little significant, and the pseudo-R^2 is weak. However, individuals in my sample tend to change job more frequently.

5.2   Discussion

I find positive associations between total number of voluntary job changes, risk tolerance and wage growth. This appears, however, in light of a rather short to intermediate time frame as I only have seven years per individual to observe. In the long run, a negative effect of too many voluntary job changes could well have contrary effects on wages. Workers gain firm specific skills over time in the same job and invest in firm specific capital by staying instead of changing. Typically, the return on such investment comes in later stages of the career and might not be visible in the early career.

Possible reasons for my findings are twofold. Job search is costly and risk averse individuals are less willing to invest as much as risk tolerant individuals in a process with unforeseeable returns, what job search and acceptance essentially is. Such a reasoning implies a lower voluntary mobility on the labour market for the former group of individuals simply because of the reluctance to invest more in job search activities. In this vein, risk tolerant individuals search more intense which in turn ameliorates job matches. Thus, through better employer-employee matches, voluntary job changes should consequently decrease.

Another point worth noting is the country I look at in my study. The German job market is, compared to more liberal countries like the UK or the USA, strongly

regulated. Even after the German labour market reforms in the early 2000s, that led to more flexible labour markets, earnings dispersion across the labour market is lower and wages rather stable in comparison to aforementioned countries. A good part of the German labour market is unionized. Typically, German employees rather invest in firm-specific skills and, therefore, gain from within-firm mobility rather than from between-firm mobility (Pavlopoulos et al., 2014). In very liberal countries, risk taking is generally recompensed stronger. Thus, voluntary job changes are heavier incentivized.

It could also be that big firms form an internal labour market so that employees are less likely to change between employers when they work for large employers but perhaps do more so within the job. Especially young individuals tend to chose bigger companies at first employment. Indeed, about 23 per cent of subjects in my sample work in companies with 2000 and more employees at first employment. In order to get a bigger picture I take all kind of job changes, that is voluntary, involuntary, and internal, into account. First, I plot the wage growth by type of job change in Figure A.4. The sample is divided into four groups: (1) no job change at all (2) involuntary job change (3) voluntary job change (4) internal job change. All four categories are defined exclusively which means that a mix of two or more categories is excluded. Indeed, in terms of hourly wages changing job within the same employer seems to be most beneficial. It is abstracted from the total number of job changes, however. Without distinguishing between types of job changes I find larger negative effects for risk aversion on the total number of job changes.

DellaVigna and Paserman (2005) find that impatient individuals search less intensively and set lower reservation wages. Patience is also measured in the SOEP questionnaire on a 11-point Likert scale (0-very impatient; 10-very patient). However, I have to make do with smaller sample because there are some missing values for patience in my sample. I add impatience as control variables to the original regression in Table 1 (not displayed in this version). Impatience is significantly (10 percent level) negative related to number of voluntary job changes in columns (5) and (6). Impatience is also negatively related to voluntary job changes in general and, thus, supports the theory that that impatient individuals with rather myopic preferences exert less effort in job search activities due to underrated future benefits and lower job arrival rates accordingly.

Finally, I find another interesting aspect between individual characteristics and job search effort in the locus of control. The locus of control describes to what degree an individual believes that what happens in life is beyond their control. Individuals are classified in either having an internal or external locus of control. While the latter rather believe what happens in life is a matter of luck or fate, the former are convinced that the very own decisions determine outcomes. In terms of job search, individuals with an external locus of control believe that job search effort does not, or only little, influence their chances of getting a new job. In contrast, those with an internal locus of

control believe it is dependent on their self-effort. There are ten locus of control items available in the SOEP data. Every item is answered on a seven point Likert scale. For sake of simplicity I pool the answers and take the average of these ten items to elicit the locus of control for each individual. I find a negative, although not statistically significant, relation between number of voluntary job changes and an external locus of control, suggesting that an external locus of control is detrimental for job search effort.

Endogeneity in my model potentially appears in three forms: (1) omitted variables, as innate abilities and some other individual inputs of individuals are not observed. The OLS estimation in Table 1 and Table 4 relies on a rich set of control variables from the large SOEP panel data to proxy for initial abilities and unobserved characteristics but I do not have the means to isolate unobserved personal traits. (2) Simultaneity bias, which implies, figuratively, that the dependent variable Y might cause the independent variable X and not vice versa. I tackle this problem by measuring risk attitudes before the individuals enter the labour market. (3) Measurement error, the self-reported willingness to take risk may be over- or underreported or different than usual just on the day of the survey. Imprecise information about job changes or reported monthly wages is possible too. I use a second measure for willingness to take risk, namely the willingness to take risk in career decisions, to address this problem. Bearing in mind that this measure is as well subject to the same error, this is not sufficient. However, if I assume that any under- or overreporting is uncorrelated with job changes this will not be an issue to my results.

6 Conclusion

How does the personality trait risk aversion affect voluntary turnover behaviour? In this essay, I show that the willingness to take risk matters in the context of job changes which in turn also affects the wage growth of individuals. Using the self-reported willingness to take risk from an extensive German panel dataset as proxy for actual risk attitudes, I focus on the early career of young individuals. I find that risk aversion has small negative effects on the number of voluntary job changes throughout the first seven years into the labour market. Voluntary job changes lead to an immediate increase in wages. Wage growth becomes relatively weaker in the longer run. Risk averse individuals, however, make worse "deals" and experience lower wage growth when they change job voluntary, compared to risk tolerant subjects. That is true in the very short-run as well as in the longer run of seven years. In summary these results suggest, in line with the theoretical approach, that risk averse individuals are less mobile on the labour market than their risk tolerant counterparts and if they change job voluntary they do it to worse conditions. Results are, albeit smaller and without statistical significance, consistent with earlier findings from Argaw et al. (2017) and Van Huizen and Alessie (2019) who use data from Germany and the Netherlands, respectively. Both authors conclude that this pattern is possibly due to different job acceptance rates between risk averse and risk tolerant individuals rather than differences in job search effort. That said, I do not find an appropriate strategy to claim causality. Although I am addressing and tackling endogeneity problems, I cannot rule it out conclusively. Causation would be true only if I assume to have controlled for every, observed as unobserved, individual characteristic that is correlated to job changes. Such an assumption is too strong, however. After all, finding proper causal effects with instruments that are correlated with risk aversion but not with job change behaviour is quite hard and remains a very interesting challenge for future research. It is barely possible to draw any policy implications from the present standpoint. Future research explaining how individuals differ by job search effort and job acceptance rates may provide further insights into the heterogeneous job change behaviour of employees. It surely would be interesting to see how employees react to an exogenous decrease in job search cost or an increase in the arrival rate of job offers. Based on the results one could argue what kind of policies are more effective to increase job mobility.

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A Appendix

Table A.1: Differences between Initial and Selected Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female	-0.075	-0.074	-0.062	-0.084	-0.064	-0.059	-0.051
Age	0.020	-0.008	-0.003	-0.008	-0.001	0.003	0.005
Parents education	-0.053	-0.030	-0.025	-0.020	-0.032	-0.029	-0.059
No. vol. job changes	0.255**	0.247*	0.211*	0.150	0.143	0.170	0.244**
Low education	-0.147*	-0.145*	-0.146*	-0.147*	-0.131	-0.127	-0.135
Tertiary education	-0.010	0.049	0.036	0.081	0.105	0.038	0.009
Monthly wage	0.001***	0.001***	0.001***	0.001***	0.000***	0.000***	0.000***
Pseudo R^2	0.048	0.066	0.074	0.085	0.083	0.078	0.059

Note: Marginal effects calculated at the means, except for *female*.$^*p < 0.05,^{**}p < 0.01,^{***}p < 0.001$

Table A.2: Descriptive Statistics

|	Female	Male	Total
Risk averse	0.368	0.216	0.289
	(0.483)	(0.412)	(0.454)
Risk attitude	5.009	5.903	5.472
	(2.099)	(2.063)	(2.126)
No. of job changes	1.175	1.079	1.125
	(1.173)	(1.114)	(1.143)
No. voluntary job changes	0.316	0.273	0.294
	(0.615)	(0.584)	(0.599)
Age	25.47	25.34	25.41
	(2.134)	(2.175)	(2.154)
Age risk measure	20.45	20.22	20.33
	(1.972)	(1.906)	(1.939)
Age first employment	22.41	22.30	22.35
	(2.112)	(2.186)	(2.149)
Migration background	0.132	0.145	0.139
	(0.339)	(0.353)	(0.346)
Low education	0.175	0.326	0.253
	(0.380)	(0.470)	(0.435)
Tertiary education	0.208	0.207	0.207
	(0.407)	(0.406)	(0.406)
Public sector	0.264	0.137	0.198
	(0.442)	(0.344)	(0.399)
Permanent contract	0.566	0.542	0.554
	(0.497)	(0.499)	(0.498)
Tenure first job	6.123	6.548	6.343
	(2.453)	(2.545)	(2.508)
Observations	212	227	439

Note: mean coefficients; sd in parentheses
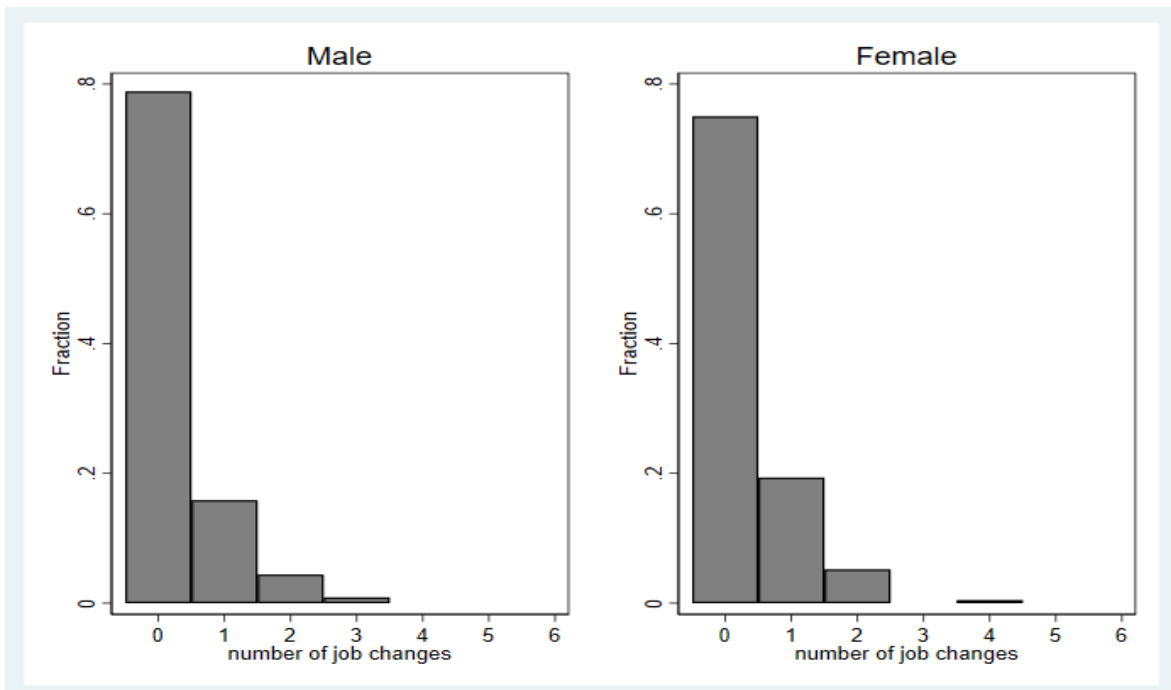
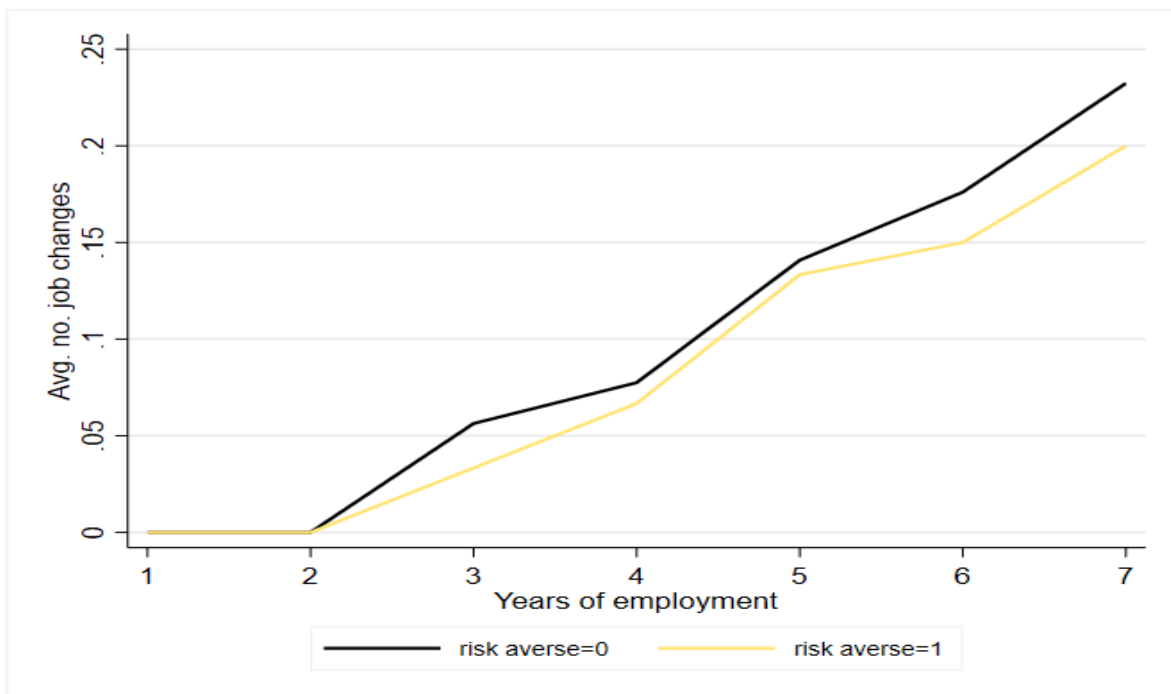**Figure A.1:** Total number of changes during first seven years in the labour market (by gender)

Figure A.2: Voluntary job changes over employment experience by risk aversion (restricted sample)

Table A.3: The effect of career risk aversion on the number of voluntary job changes

	(1)	(2)	(3)	(4)	(5)
Risk averse (career)	-0.068	-0.069	-0.069	-0.036	-0.037
	(0.077)	(0.083)	(0.074)	(0.091)	(0.099)
Female		0.053	0.025	-0.020	0.009
		(0.084)	(0.078)	(0.083)	(0.092)
Migration background		0.002	0.010	0.031	0.048
		(0.134)	(0.120)	(0.145)	(0.156)
Low education		-0.024	0.003	0.007	0.017
		(0.096)	(0.091)	(0.101)	(0.115)
Tertiary education		0.111	-0.035	0.001	0.060
		(0.131)	(0.108)	(0.126)	(0.154)
Age first employment		0.019	-0.013	-0.010	-0.011
		(0.023)	(0.021)	(0.025)	(0.027)
Wage first employment		-0.008	0.012	0.012	0.014
		(0.010)	(0.010)	(0.011)	(0.013)
Job satisfaction first job			-0.011	-0.009	-0.012
			(0.023)	(0.025)	(0.027)
Public sector employment			-0.251**	-0.282*	-0.237
			(0.075)	(0.165)	(0.178)
Permanent contract			0.041	0.037	0.059
			(0.075)	(0.096)	(0.105)
Part-time first employment			0.003	0.022	-0.005
			(0.121)	(0.145)	(0.168)
Tenure first job			-0.124***	-0.109***	-0.113***
			(0.022)	(0.023)	(0.026)
Wage variance first occupation			-0.040	-0.171	-0.001
			(0.139)	(0.223)	(1.374)
constant	0.275***	-0.309	1.575	1.826	0.335
	(0.054)	(0.447)	(1.037)	(1.577)	(9.416)
Year dummies					
Parental background					
Industry dummies					
Occupation dummies					
R-sqr	0.004	0.069	0.313	0.429	0.436
N	202	202	202	202	202

Note. Mean OLS estimation coefficients; robust standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.001$

Table A.4: The effect of risk aversion on job changes using *ordered logit*

	(1)	(2)	(3)	(4)	(5)
Risk averse	-0.099	-0.140	-0.176	-0.036	-0.053
	(0.249)	(0.265)	(0.278)	(0.333)	(0.336)
Female		0.275	0.115	0.283	0.287
		(0.246)	(0.277)	(0.336)	(0.354)
Migration background		-0.562	-0.571	-0.386	-0.343
		(0.435)	(0.486)	(0.661)	(0.643)
Low education		-0.137	-0.026	-0.049	-0.082
		(0.298)	(0.355)	(0.421)	(0.436)
Tertiary education		-0.005	-0.291	-0.539	-0.758
		(0.325)	(0.367)	(0.422)	(0.564)
Age first employment		0.053	0.010	0.069	0.034
		(0.062)	(0.070)	(0.092)	(0.102)
Wage first employment		-0.024	-0.012	-0.030	-0.049
		(0.021)	(0.019)	(0.022)	(0.026)
Job satisfaction			-0.013	0.029	-0.000
			(0.068)	(0.080)	(0.087)
Public sector employment			-1.564**	-1.200	-1.251
			(0.482)	(0.775)	(0.703)
Permanent contract first employment			0.371	0.657	0.467
			(0.283)	(0.342)	(0.357)
Part-time first employment			0.047	0.256	0.073
			(0.380)	(0.406)	(0.408)
Tenure first job			-0.517***	-0.629***	-0.659***
			(0.066)	(0.085)	(0.086)
Wage variance within first occ.			-0.359	0.010	16.338***
			(0.342)	(0.417)	(1.504)
N	439	439	439	439	439

Note. Marginal effects; Estimation method: ordered Logit; robust standard errors in parentheses; $*p < 0.05, **p < 0.01, ***p < 0.001$

Table A.5: The effect of risk aversion on total number of job changes using *Poisson regression*

	(1)	(2)	(3)	(4)	(5)
Risk aversion	-0.089	-0.136	-0.181	-0.049	-0.008
	(0.223)	(0.214)	(0.174)	(0.186)	(0.185)
Female		0.208	0.019	0.103	0.124
		(0.193)	(0.172)	(0.201)	(0.212)
Migration background		-0.414	-0.332	-0.192	-0.098
		(0.375)	(0.343)	(0.393)	(0.381)
Low education		-0.033	0.040	0.080	0.011
		(0.235)	(0.228)	(0.253)	(0.245)
Tertiary education		0.019	-0.123	-0.272	-0.388
		(0.252)	(0.225)	(0.243)	(0.310)
Age first employment		0.054	0.028	0.040	0.008
		(0.048)	(0.050)	(0.056)	(0.056)
Wage first employment		-0.007	0.000	-0.008	-0.020
		(0.016)	(0.013)	(0.014)	(0.016)
Job satisfaction			-0.024	-0.002	-0.019
			(0.041)	(0.045)	(0.046)
Public sector			-1.179**	-0.963*	-0.836*
			(0.372)	(0.463)	(0.397)
Permanent contract			0.198	0.364	0.241
			(0.181)	(0.189)	(0.187)
Part-time first employment			0.010	0.238	0.090
			(0.251)	(0.253)	(0.248)
Tenure first employment			-0.353***	-0.411***	-0.414***
			(0.041)	(0.050)	(0.047)
Wage variance within first occ.			-0.248	-0.057	16.426***
			(0.228)	(0.231)	(0.869)
N	439	439	439	439	439

Note. Marginal effects; Estimation method: Poisson regression; robust standard errors in parentheses; *$p < 0.05$,**$p < 0.01$,***$p < 0.001$

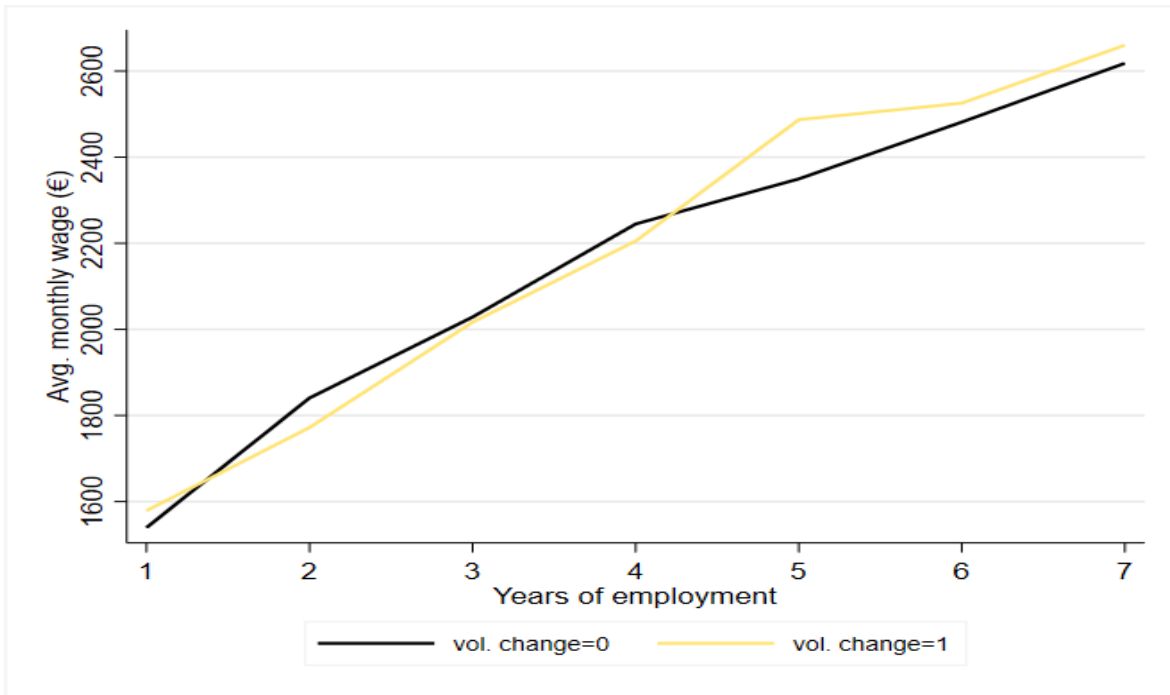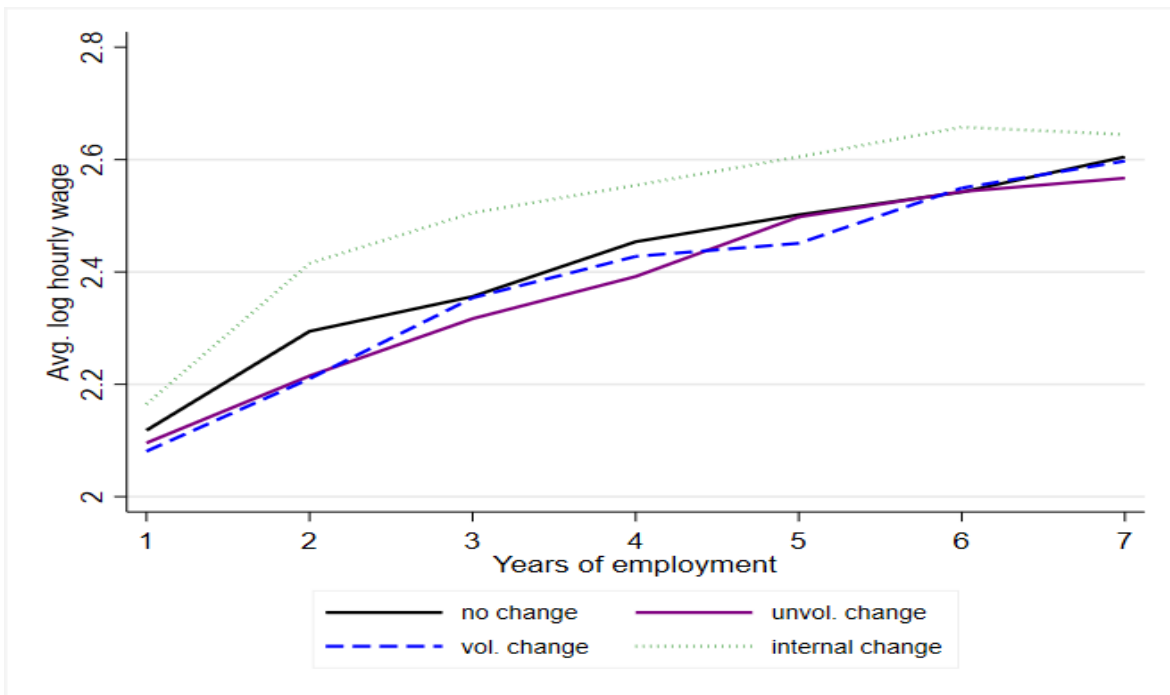**Figure A.3:** Wage development between those who change job voluntary and those who do not

Figure A.4: Logged hourly wages by sort of job change