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**Working Paper**

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## ABSTRACT

### **A Note on Risk Aversion and Labour Market Outcomes: Further Evidence from German Survey Data<sup>\*</sup>**

Using the large-scale German Socio-Economic Panel, this note reports direct empirical evidence for significant correlations between risk aversion and labour market outcomes (full-time employment, temporary agency work, fixed-term contracts, employer change, quits, training, wages, and job satisfaction).

JEL Classification: J01, J24, J64

Keywords: employment, job search, human capital, risk aversion, wages

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## **1. Introduction**

Risk aversion enters the utility function in many economic models. Empirical evidence, however, is scarce because most data sets do not contain measures of individual risk taking. Many empirical studies, therefore, use proxies for risk aversion like seatbelt use and smoking behaviour (Feinberg, 1977; Hersch and Viscusi, 1990). New questions to measure risk taking behaviour straightforward have been addressed in the 2004 interviews of the German Socio-Economic Panel, which is a large-scale representative data set of German households (Dohmen et al., 2005). These information have recently been used to analyse, for example, selection into public sector employment (Luechinger, Stutzer, and Winkelmann, 2007; Pfeifer, 2008) and pay for performance schemes (Grund and Sliwka, 2006; Cornelissen, Heywood, and Jirjahn, 2008), reservation wages (Pannenberg, 2007), and union membership (Goerke and Pannenberg, 2007). The impact of risk aversion on more general labour market outcomes has not been studied yet. This research note presents new empirical findings on the correlations between career risk taking attitudes and full-time employment, temporary agency work, fixed-term contracts, employer change, quits, training, wages, and job satisfaction.

## **2. Data and variables**

The German Socio-Economic Panel (GSOEP) is a longitudinal survey of private households and persons in Germany. The data contains a rather stable set of core questions asked every year (e.g., employment, education, income, family, housing) and yearly topics with additional detailed questions. The 2004 wave includes questions concerning individual risk taking behaviour from which the following one is used in the subsequent analysis:

“People can behave differently in different situations. How would you rate your willingness to take risks in your occupational career? (0: risk averse, 10: fully prepared to take risks)”

The subsequent analysis considers only dependent employed individuals from the private sector, who are aged between 18 and 65 years and have no missing values in the

used variables. The average career risk taking attitude is 4.3. Figure 1 gives a closer picture of the distribution of risk taking. About 10 percent of the respondents are not willing to take any risks in their occupational career, whereas only 1.4 percent are fully prepared to take risks.

- Insert Figure 1 about here

Why use career risk taking instead of general risk taking attitudes, which is also available in the data? Since the focus is on labour market outcomes, it seems reasonable to include the more specific risk measure. A comparison between both measures shows remarkable differences. The average general risk taking attitude is 4.9, i.e., 0.6 points higher than career risk taking. The difference is highly significant in a t-test. In fact, 46 percent of the workers are more risk averse in their career, 29 percent are equally risk averse, and only 25 percent are more risk taking in their career than in general. The distribution of the differences is depicted in Figure 2, in which a positive value indicates more risk taking and a negative value indicates less risk taking in the career than in general. Even though general risk taking is highly correlated with career risk taking and a good proxy, the latter is the more precise measure when analysing labour market outcomes.

- Insert Figure 2 about here

As labour market outcomes, I use full-time employment, temporary agency work, fixed-term contracts, employer change, quits, training, hourly wages, and job satisfaction. Several control variables are included in the estimates: schooling, academic degree, gender, German citizenship, workplace in East Germany, age, tenure, full-time work experience, part-time work experience, and unemployment experience. Descriptive statistics for all variables can be found in Table A.1 in the appendix.

### **3. Results**

Table 1 presents marginal effects of career risk taking in binary Probit estimates for full-time employment, temporary agency work, fixed-term contracts, employer change in last year, quit in last year, training at time of interview, and training in last three years.

All estimates control for schooling, academic degree, gender, German citizenship, workplace in East Germany, age, and age squared. Workers who are more risk taking are significantly more likely to be employed in full-time work. The absolute marginal effect is 0.55 percentage points and the relative marginal effect is 0.67 percent. Because the means of most dependent variables in the subsequent analysis are rather small, the absolute marginal effects are also small so that for an economic interpretation the relative marginal effects are more suitable. For example, the absolute marginal effect of career risk taking on temporary agency work is only 0.1 percentage points, whereas the relative marginal effect is quite sizeable: workers who are one point more risk taking are on average 5.2 percent more likely to be employed in temporary agency work. The relative marginal effect of risk taking on fixed-term contracts has approximately the same size. Overall, the results indicate that more risk averse workers are less likely to be employed in contingent work. If not only wages and leisure but also employment stability enters the utility functions of workers, this finding is quite plausible and supports the ideas of compensating wage differentials.

- Insert Table 1 about here

Job search theory predicts that more risk averse workers have lower reservation wages and accept lower wage offers (Pissarides, 1974; Feinberg, 1977; Pannenberg, 2007). Moreover, risk aversion should reduce on-the-job search intensity because search is a risky investment. Thus, more risk averse workers should have lower probabilities of changing the employer and of quitting a job. The results in Table 1 support this hypothesis. One point more in risk taking increases the probability of changing the employer by 5.9 percent and the quit probability by 12.6 percent.

Human capital investments are also subject to risks because the quality of the training itself and the rates of return to acquired skills are uncertain (Levhari and Weiss, 1974; Shaw, 1996). Therefore, risk averse workers should invest less in their human capital. Consistent with this hypothesis, the results in Table 1 show that workers, who are one point more risk taking, are 6.3 percent more likely to participate in a training course at time the interview took place and 6.7 percent more likely to have participated in a training course in the last three years.

The previous estimates indicate that risk averse workers invest less in job search and human capital, which implies that also wages should be negatively correlated with risk aversion. Table 2 presents results of a log-linear earnings function with the hourly net wage in Euros as dependent variable. In addition to career risk taking, the ordinary least squares (OLS) estimate controls for schooling, academic degree, gender, German citizenship, workplace in East Germany, age, age squared, tenure, tenure squared, full-time work experience, full-time work experience squared, part-time work experience, part-time work experience squared, unemployment experience, and unemployment experience squared. Workers, who are one point more risk taking, receive on average 0.73 percent higher wages. Because job utility might not only depend on wages, an additional estimate is performed for job satisfaction. Conditional on the same set of variables, job satisfaction is also positively correlated with risk taking, though the effect is of weak significance.

- [Insert Table 2 about here](#)

#### **4. Conclusion**

This research note has reported empirical evidence for significant correlations between a direct measure of career specific risk aversion and several labour market outcomes: (1) risk takers are more likely to be employed in full-time jobs, in temporary agency work, and in fixed-term contracts; (2) risk takers are more likely to change the employer and to quit their job; (3) risk takers are more likely to participate in training; (4) risk takers receive higher wages and are happier with their work. The findings are in line with existing theories about preferences for employment security, job search, and human capital investments.



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## Appendix

Table A.1: Variable list and descriptive statistics

	sample Table 1 (N=6822)				sample Table 2 (N=6097)			
	mean	std. dev.	min	max	mean	std. dev.	min	max
full-time work (dummy)	0.8228	0.3819	0.0	1.0				
temporary agency work (dummy)	0.0189	0.1362	0.0	1.0				
fixed-term contract (dummy)	0.0580	0.2339	0.0	1.0				
employer change in last year (dummy)	0.0582	0.2341	0.0	1.0				
quit in last year (dummy)	0.0248	0.1554	0.0	1.0				
training participation at time of interview (dummy)	0.0161	0.1260	0.0	1.0				
training participation in last three years (dummy)	0.2943	0.4558	0.0	1.0				
log wage (monthly net income in Euros / actual working hours)					2.1602	0.5261	0.5	5.1
job satisfaction (0: low, 10: high)					6.9946	1.9764	0.0	10.0
career risk taking (0: low, 10: high)	4.2987	2.5196	0.0	10.0	4.2942	2.5022	0.0	10.0
low schooling , "Hauptschule" (dummy)	0.3094	0.4623	0.0	1.0	0.3123	0.4635	0.0	1.0
medium schooling, "Realschule" (dummy)	0.3882	0.4874	0.0	1.0	0.3900	0.4878	0.0	1.0
high schooling, "Abitur" (dummy)	0.3024	0.4593	0.0	1.0	0.2977	0.4573	0.0	1.0
academic degree (dummy)	0.2303	0.4210	0.0	1.0	0.2250	0.4176	0.0	1.0
female (dummy)	0.4022	0.4904	0.0	1.0	0.4031	0.4906	0.0	1.0
German citizenship (dummy)	0.9537	0.2102	0.0	1.0	0.9518	0.2142	0.0	1.0
workplace in East Germany (dummy)	0.2109	0.4080	0.0	1.0	0.2137	0.4100	0.0	1.0
age (years)	41.8770	10.3967	18.0	65.0	41.7026	10.3604	18.0	65.0
tenure (years)					10.0783	9.1987	0.0	48.5
experience full-time work (years)					16.4621	10.9609	0.0	47.6
experience part-time work (years)					2.0586	4.7644	0.0	41.0
experience unemployment (years)					0.4467	1.1761	0.0	24.0

Note: German Socio-Economic Panel 2004. Samples contain only dependent employed individuals from the private sector, who are aged between 18 and 65 years and have no missing values in the used variables.

*Figures and tables included in text*

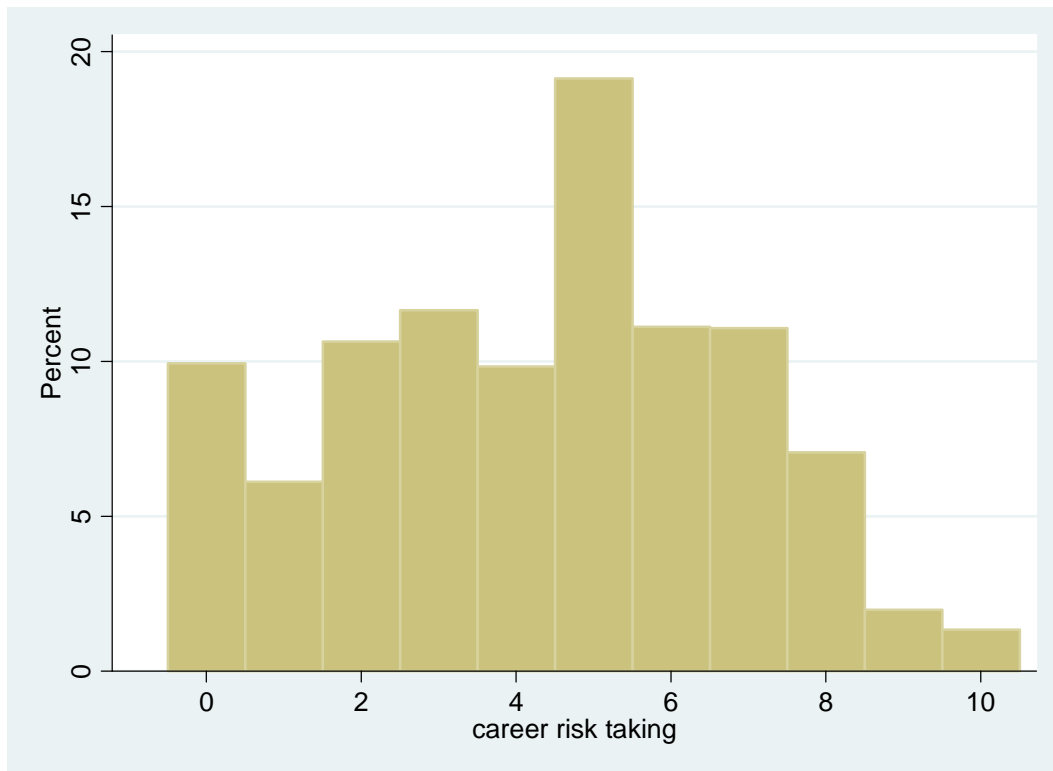


Figure 1: Career risk taking attitudes (N=6822)

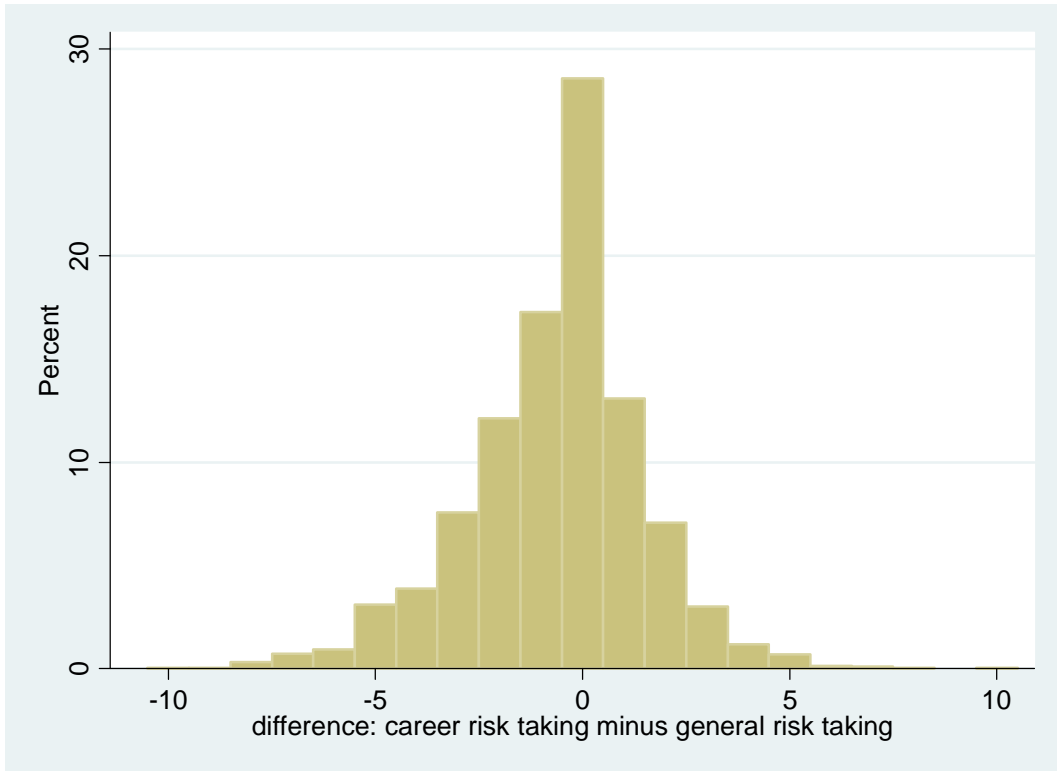


Figure 2: Difference between career and general risk taking attitudes (N=6822)

Table 1: Employment contracts, job mobility, and training (N=6822)

	(1) full-time work	(2) temporary agency work	(3) fixed-term contract	(4) employer change	(5) quit	(6) training time of interview	(7) training last three years
career risk taking (0: low, 10: high)							
absolute marginal effect	0.0055	0.0010	0.0030	0.0034	0.0031	0.0010	0.0198
robust standard error	(0.0015***)	(0.0006*)	(0.0010***)	(0.0011***)	(0.0006***)	(0.0005**)	(0.0023***)
relative marginal effect	0.0067	0.0523	0.0512	0.0587	0.1259	0.0634	0.0672
mean dependent variable	0.8228	0.0189	0.0580	0.0582	0.0248	0.0161	0.2943
Pseudo R-squared	0.2915	0.0494	0.0904	0.0547	0.0552	0.0806	0.0617
log likelihood	-2257.9961	-608.0854	-1374.8581	-1431.4766	-748.1301	-517.7205	-3879.1765

Note: ML-Probit estimates. Number of observations is 6822 in all estimates. All estimates control for schooling, academic degree, gender, German citizenship, workplace in East Germany, age, and age squared. Relative marginal effects are calculated dividing the absolute marginal effect by the mean dependent variable. Significant at \* 10%-level, \*\* 5%-level, and \*\*\* 1%-level.

Table 2: Wages and job satisfaction (N=6097)

	(1) log hourly wage	(2) job satisfaction
career risk taking (0: low, 10: high)		
coefficient	0.0073	0.0214
robust standard error	(0.0024***)	(0.0113*)
mean dependent variable	3.6071	6.9946
R-squared	0.3794	0.0129

Note: OLS estimates. Number of observations is 6097 in all estimates. All estimates control for schooling, academic degree, gender, German citizenship, workplace in East Germany, age, age squared, tenure, tenure squared, full-time work experience, full-time work experience squared, part-time work experience, part-time work experience squared, unemployment experience, and unemployment experience squared. Significant at \* 10%-level, \*\* 5%-level, and \*\*\* 1%-level.