

# The Impact of Job Insecurity on the Saving Behavior of German Households

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## Abstract

This paper investigates the effect of job insecurity on the saving behavior of households in Germany using data from the 1992 to 2008 waves of the German Socio-Economic Panel. The results from fixed-effects estimations for the probability to save and the amount of monthly saving suggest that job insecurity has a significantly positive effect on saving and accounts for 3% to 6% or approximately EUR 2 - 3 billion of annual saving of employed households in Germany. The analysis shows that it is important to account for heterogeneity among households in this context. Job insecurity only affects the saving of households with moderate or high income, not with low income. Younger households respond more strongly than older households. And the effect is only found for partner households with one main income, but not for singles and households with two or more incomes. Job insecurity is identified in three ways to account for the risk of job loss as well as its economic consequences: subjective worries about job security, subjective probabilities of a job loss, and the state unemployment rate.

Keywords: precautionary saving, job insecurity, household composition, subjective measures

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# 1 Introduction

Saving money for the future is among the most central economic decisions private households have to make on an ongoing basis. Therefore, saving behavior has always been a major field of interest in economic research. While the complexity of the saving decision makes it basically impossible to develop only one general theory, researchers have always tried to disentangle the importance of certain factors that influence saving behavior. These include a great number of economic, psychological, sociological, and institutional factors. The focus of this paper is on the precautionary motive for saving, i.e., the effect of uncertainty regarding future income or expenditures on savings. In particular, the paper contributes to the existing empirical evidence by focusing on the adaptation of household saving behavior to changes in perceived job insecurity.

The effect of job insecurity on saving in Germany is of special interest for two reasons. First, in times of increasing job insecurity, it is important to know if or to what extent people adapt their saving and thus their consumption behavior. The effect of a policy intervention to stimulate private consumption during a recession could be heavily dampened if households use the additional resources not for consumption, but for saving. Second, demographic change puts pressure on the public social security systems which are funded mainly through employee and employer contributions. The need for complementing private insurance has been addressed concerning old-age provisions and health insurance, but much less so for unemployment insurance. A lack of private savings can have very negative consequences for households that are hit by a job loss since unemployment is one of the main triggers of severe over-indebtedness of households in Germany (Keese 2009).

Theoretical work and numerical simulations predict that even small amounts of income uncertainty can lead households to increase their savings substantially, which points to the importance of the precautionary motive in explaining individual as well as aggregate savings. Over the last twenty years, researchers have tried to confirm these predictions empirically (see, e.g., Browning and Lusardi (1996) for a comprehensive survey). Today, there exists a sizable number of empirical studies on the precautionary saving motive yielding very mixed results ranging from no importance to great importance of the precautionary saving motive. This inconsistency of results can be attributed to the measurement of savings and uncertainty as well as to several other methodological issues surrounding the empirical work.

For Germany, there are studies by Fuchs-Schündeln and Schündeln (2005), Essig (2005b), Schunk (2007), Bartzsch (2008), Fuchs-Schündeln (2008), and Fossen and Rostam-Afschar (2009) that address the precautionary saving motive explicitly. This interest is not surprising since “Germany is an interesting country to study household saving behavior since it appears to contradict the familiar textbook version of the life-cycle theory of consumption and saving.” (Börsch-Supan and Essig 2003, p. 3) In particular, the generosity of the German public unemployment insurance and social security systems might significantly reduce the need for private savings to insure against income uncertainty arising from a possible job loss.

In the study at hand, data from the German Socio-Economic Panel (GSOEP) made available by the German Institute for Economic Research (DIW), Berlin, is used. This annual longitudinal survey provides a large number of household and individual socio-economic characteristics that allow studying the link between job insecurity and saving behavior in detail. In contrast to most existing work, the focus here lies on subjective measures of job security which do not only capture pure unemployment risk, but broadly the worries of respondents regarding their future employment and economic situation in case of a job loss.

Some methodological problems surround the empirical estimations, in particular unobserved heterogeneity among households and the saving measure being left-censored at zero. In order to deal with these problems, two models are estimated: a fixed-effects logit model for the probability to save, and a linear fixed-effects model for households with positive saving. Overall, job insecurity is found to have a

significantly positive impact on household saving behavior, accounting for approximately 3% - 6% of the saving of employed households. The impact is increasing with household income. The empirical analyses also show that it is important to distinguish between different households: job insecurity predominantly affects the saving of younger households and of partner households that rely on one main income.

The remainder of the paper is organized as follows. In the next section, the existing empirical literature is briefly reviewed to highlight some of the major issues that surround the empirical work on precautionary saving behavior, focusing on the measurement of saving and risk. In section 3, the empirical strategy and the data are described. The estimation results are presented in section 4. The last section concludes.

## 2 Empirical background

The choice between consumption and saving is at the very center of all economic decisions made by private households. Browning and Lusardi (1996) list a total of nine possible motives why people save, e.g., the precautionary, the life-cycle, the intertemporal substitution, and the enterprise motives. Not all motives give rise to the same amount of savings by each and every person. Depending upon preferences, income, age, etc. different motives will be of different importance to different people at different times. Disentangling the importance of one single motive is extremely difficult, mainly because they cannot be assumed to be independent of one another. Concerning the study at hand, “it is sometimes difficult to draw a clear-cut distinction between precautionary saving and other motives” (Browning and Lusardi 1996, p. 1821), e.g., savings for retirement could also be used to buffer against pre-retirement shocks.

This paper focuses on the precautionary motive because it seems to be one of the two most important motives, the other being the life-cycle motive. Börsch-Supan and Essig (2003) report that “Old-age provision” and “Saving as a precaution for unexpected events” are the two most important saving motives for German households.<sup>1</sup> They find that only 4% of the respondents judge saving as a precaution to be less important but almost 60% judge it to be of great importance. This result is confirmed here with data from the 2001, 2003, 2005, and 2007 waves of the German Socio-Economic Panel, in which households were asked if they had put any money aside for emergencies. Table 1<sup>2</sup> reports the respondents’ answers.<sup>3</sup> While the share of households that possess savings for emergencies has declined continuously from 76% in 2001 to 62% in 2007, the share of households that do not have these savings because of financial reasons increased from 78% to 91%. This hints at income constraints playing an important role for the explanation of non-existing precautionary saving behavior by many households. Combining these numbers, only about 5% of the households deliberately chose not to have any financial reserves for emergencies, i.e., they report not to possess any savings for emergencies because of reasons other than financial ones.

(Table 1 about here)

The beginning of empirical studies on the precautionary saving motive is marked by the work of Skinner (1988). Much of the empirical work has focused on the US and the UK. Only recently, Fuchs-Schündeln and Schündeln (2005), Essig (2005b), Schunk (2007), Bartzsch (2008), and Fossen and Rostam-Afschar (2009) have used data from Germany to study precautionary saving behavior. The empirical findings so far are widely mixed, ranging from none or only limited (e.g., Skinner 1988, Dynan 1993, Lusardi 1998) to great importance of the precautionary motive (e.g., Carroll and Samwick 1998, Ventura

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<sup>1</sup>These results stem from the first wave of the German SAVE panel. Essig (2005a) confirms this result with data from the second SAVE wave.

<sup>2</sup>All tables in this paper were produced using Ben Jann’s estout-package for Stata (Jann 2005, 2007).

<sup>3</sup>The numbers are based on the same sample that is used for the econometric analyses later on. A less restricted GSOEP sample does not change the results. The observations are weighted using cross-sectional weights provided by the GSOEP making the descriptive statistics nationally representative.

and Eisenhauer 2005). This mixed evidence might lead one to the conclusion that “while the precautionary motive is important for some people at some times, it is unlikely to be so for most people” (Browning and Lusardi 1996, p. 1838).

Another explanation of the different empirical findings are the vastly different estimation strategies that were employed. Kennickell and Lusardi (2006) list eight potential “pitfalls and biases” that can arise when estimating precautionary saving. These include the measurement of wealth and risk, the underlying preferences, possible insurance mechanisms, functional specifications, and the influence of other saving motives. A study that “traces all of the sources of differences in conclusions to sample period, sample selection, functional form, variable definition, demographic controls, econometric technique, stochastic specification, instrument definition, etc.” (Browning and Lusardi 1996, p. 1822) does not exist and very likely never will exist.

The measures that have been used as the dependent variable by empirical researchers can be grouped into three categories: consumption, wealth, and saving.<sup>4</sup> While the choice of modeling consumption, saving or wealth seems to be merely a matter of taste or data availability, there are distinct issues that relate particularly to each measure besides the issue of potentially great measurement error that is common to all of them. Measures of financial or total wealth are most prominent, and used by, e.g., Lusardi (1997, 1998), Carroll and Samwick (1998), Carroll et al. (2003), Kennickell and Lusardi (2006), Fuchs-Schündeln and Schündeln (2005). The main problem of wealth measures is the determination of the components (which differ in terms of liquidity and accessibility) to include when testing for precautionary savings. Fuchs-Schündeln and Schündeln (2005) find stronger evidence in favor of precautionary savings for measures of financial than for housing wealth, but Carroll et al. (2003) find a significant precautionary motive only for broad measures of wealth that include home equity which typically represents the largest component of wealth for most households. The wealth stock is also heavily influenced by past events that are not observable in the data. Past shocks might have simultaneously depleted household wealth and raised income insecurity, which would bias findings against the precautionary motive. Kennickell and Lusardi (2006) use information about desired precautionary wealth from the US Survey of Consumer Finance and find evidence in favor of the precautionary motive but its quantitative importance seems to be limited.

Direct measures of the flow of saving have been employed by Fuchs-Schündeln (2008), Guariglia (2001) and Giavazzi and McMahon (2008) who all find a positive effect of income or policy uncertainty on saving. Many of the above mentioned problems of wealth measures also apply to saving measures, e.g., the type of saving to be included or the relevance of past events. The type of saving is especially important when using self-reported information as in these three studies because the respondents cannot be expected to calculate their saving “economically correct”. And typically, only positive saving values are observed which causes the dependent variable to be left-censored at zero.

Benito (2006), De Lucia and Meacci (2005), and Guariglia (2001) study the effect of job and income uncertainty on household consumption, and find evidence in favor of the precautionary saving motive even for the consumption of basic necessities such as food. This is somewhat surprising since variation in basic consumption goods can be expected to be fairly low. Different degrees of income elasticity of different consumption goods pose a problem to the estimation of precautionary behavior. Hence, Benito (2006) also studies the effect on durables consumption, and finds that purchases of durables are delayed when job insecurity increases.

When investigating precautionary saving behavior, the most important explanatory variable is the measure of uncertainty. “The central problem that faces anyone who wishes to determine the role of

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<sup>4</sup>Throughout this paper, the focus is on the flow of saving, i.e., the amount of money put aside during a time period. In contrast, savings are the stock of wealth that has been acquired at a certain time point. The saving rate is period saving divided by the respective period income.

precautionary saving in this way is to identify some observable and exogenous source of risk that varies significantly across the population” (Browning and Lusardi 1996, p. 1835). Although income is not the only source of uncertainty that people want to insure themselves against, most research has focused on this particular type of risk. Kennickell and Lusardi (2006) see a strong need to move beyond earnings risk when studying precautionary behavior and Kotlikoff (1989) presents evidence that uncertainty concerning labor earnings as well as uncertainty concerning remaining life time and possible health expenditures can explain great amounts of precautionary savings in life-cycle simulation studies. The importance of expenditure risks, such as health and longevity, should not be underestimated, but they should be much less important for the explanation of saving in Germany than in, e.g., the US because of the German social security system which provides coverage for these major risks. Hence, the focus here is on income uncertainty, and in particular on the risk of becoming unemployed because unemployment represents the biggest threat to income for most households. Doi (2004) finds that unemployment risk but not income uncertainty helps to explain the increase of saving rates in Japan in the 1990’s. Other examples of studies that focus on the risk of job loss are Lusardi (1998), Carroll et al. (2003) for the US, and Benito (2006) and Guariglia (2001) for the UK. While the first two studies find significant but quantitatively limited evidence, the latter two find rather strong evidence for precautionary behavior due to job insecurity.

Perceptions of risk can be asked from the respondents directly or approximated using other available data. Several authors use the variance of observed income or consumption processes as risk measures. This approach has several shortcomings, the most important being that variation does not necessarily reflect risk (see Carroll et al. 2003, for a discussion). Bonin et al. (2007) criticize these measures for their endogeneity which stems from past choices and individual preferences. If risk aversion and prudence are positively correlated, people might at the same time choose less risky jobs and still save substantial amounts which would lead to a false rejection of the theory.<sup>5</sup> Fuchs-Schündeln and Schündeln (2005) provide evidence for the presence of self-selection and a resulting negative bias regarding precautionary wealth. In contrast, Bartzsch (2008) argues that risk averse individuals save less than others.<sup>6</sup> In addition, a positive effect of the income variance on saving might not be due to precaution, but could well reflect intertemporal substitution.<sup>7</sup>

Subjective measures are more attractive but might suffer from respondents not understanding the questions correctly as they were intended. Guiso et al. (1992) were the first to use a subjective measure of income risk. They believe that “given the unobservable nature of households’ perceived uncertainty, there is no alternative as to rely upon direct survey information on the households’ subjective assessment of specific risks” (p. 309). Alessie and Kapteyn (2001) note the great potential of subjective risk measures for the understanding of saving behavior. A big advantage of subjective measures might actually lie in the possibility that respondents do not precisely answer to one isolated specific question, but include other associated aspects in their answers. Curtin (2003) argues that subjective unemployment expectations contain private forward-looking information as well as publicly available information on economic conditions which makes them useful as measures of future income uncertainty. Most importantly, while people are probably not able to estimate the true risk of losing their job precisely, their consumption and saving behavior should nevertheless be based on their expectations.

Private savings are not the only way to insure against income depletions caused by unemployment. There are several possible insurance mechanisms available to households, public unemployment insurance probably being the most important one in Germany. Gruber (1998) notes that unemployment insurance crowds out other insurance mechanisms, especially private wealth accumulation. Kotlikoff (1989) argues

<sup>5</sup>Theoretically, under the assumption of constant relative risk aversion, constant absolute risk aversion or quadratic utility, prudence, risk aversion and intertemporal substitution are governed by the same parameter.

<sup>6</sup>This result could be due to the fact that this analysis is based on risk aversion regarding financial matters. However, self-selection should be based rather on risk aversion regarding occupational choice.

<sup>7</sup>Using the variance of income as a risk measure, one might also attribute the same measure of risk to different households with very different income processes, e.g., one with steadily increasing income, and one with steadily decreasing income.

that public insurance institutions as well as risk sharing possibilities within families affect precautionary behavior. Browning (2000) discusses the saving behavior of two-person households theoretically and notes that more equal incomes of household members leads to less risk and less saving. In contrast, Mazzocco (2004) shows with data for the US that an optimal allocation of risk within the household can also lead to an increase in household saving. Freyland (2005) studies the saving behavior of different household types in Germany and reports that double earner households save significantly more than others, but the aspect of risk sharing is not addressed. The study at hand adds to the existing literature by looking at the relationship between saving, job insecurity and household characteristics. To this end, three household types are distinguished: singles, partner households with only one major source of income, and partner households with two or more income sources.

### 3 Econometric specification

#### 3.1 Econometric models

The theory on precautionary saving behavior predicts that higher income or expenditure uncertainty leads to higher saving. The reduced form regression equation typically used to estimate precautionary saving behavior with panel data is specified as follows

$$s_{it} = \beta r_{it} + x'_{it}\gamma + \epsilon_{it} \quad (1)$$

where  $i = 1, \dots, N$  indexes households and  $t = 1, \dots, T$  indexes years. The variable  $s_{it}$  measures the saving of household  $i$  in year  $t$ . The variable  $r_{it}$  captures job insecurity of household  $i$  in year  $t$ . The vector  $x_{it}$  comprises all additional explanatory variables, mainly income, household composition and demographics, and individual characteristics. Finally,  $\epsilon_{it}$  represents the error term.

For the data used here, the dependent variable - the amount of monthly household saving - is zero for about one third of all observations. Given this left-censored nature of the dependent variable, a tobit or a sample-selection model might seem most appropriate. However, these models typically impose strong distributional assumptions on the data, and controlling for unobserved heterogeneity is difficult.<sup>8</sup> But unobservable individual- or household-specific effects can be expected to be present and important for saving behavior, e.g., risk aversion.<sup>9</sup> In order to control for left-censoring and for unobserved heterogeneity, two separate models are estimated: a conditional fixed-effects logit model for the probability to save at all, and a linear fixed-effects model including only households who report positive saving in at least one year.

This approach has three additional benefits: first, if income constraints bias results against finding evidence of precautionary behavior this effect should be less pronounced in the sample of households with positive saving. Second, the results from the logit model are less prone to measurement error that might arise from households reporting only certain specific monetary values, e.g., EUR 100.<sup>10</sup> Third, variables could impact differently on the probability to save and the amount of saving. For instance, entrepreneurs could be much less likely to save at all, but have significantly higher saving if they save.

The dependent variable of the conditional fixed-effects logit (Chamberlain 1980) is a binary variable that is 1 if the household reports a positive amount of saving, and 0 otherwise. The latent variable

<sup>8</sup>For probit and tobit specifications, it is not possible to directly estimate fixed-effects models as in the linear case.

<sup>9</sup>Hausman specification tests of random- versus fixed-effects models estimated for the complete sample, and a sample that only includes observations with positive saving clearly reject the hypothesis that the error term is uncorrelated with the explanatory variables.

<sup>10</sup>In fact, the distribution of monthly household saving is indeed clustered around specific values like 50, 100, 500, etc.

specification is

$$s_{it}^* = \beta r_{it} + x_{it}'\gamma + \alpha_i + \epsilon_{it}, \quad (2)$$

and the observation rule

$$\begin{aligned} P(s_{it} > 0) &= 1 && \text{if } s_{it}^* > 0, \\ P(s_{it} \leq 0) &= 0 && \text{if } s_{it}^* \leq 0. \end{aligned} \quad (3)$$

The term  $\alpha_i$  represents the individual- or household specific effect. It must be noted that all observations with positive saving in all periods or no saving in all periods are disregarded. The model is only identified for households that change between saving and not saving at least once.

In the linear fixed-effects regression, the dependent variable is the natural logarithm of the amount of monthly household saving  $s_{it}$  (in real 2007 EUR). This transformation accounts for the highly right-skewed shape of the distribution of household saving that resembles the typical shape of an income distribution.

$$\ln s_{it} = \beta r_{it} + x_{it}'\gamma + \alpha_i + \epsilon_{it} \quad (4)$$

where again  $\alpha_i$  represents the household specific effect. The sample for the linear estimations comprises all households that report positive saving in at least one year in order to account for their variation, too. All households that never save are excluded from this regressions as well as from the fixed-effects logit regressions. Including them in the linear fixed-effects regressions does not change the findings. Since the corresponding random-effects logit and linear random-effects regressions yield almost identical results to the fixed-effects models, it is concluded that disregarding these households does not induce any bias. The standard errors of the linear fixed-effects models are adjusted for clustering on households.

## 3.2 Data

The availability of suited data on individual or household saving behavior and employment dynamics at the same time might be one of the reasons why there has not been very much research on the subject of precautionary saving in Germany until recently. The data used here was made available by the German Socio-Economic Panel (GSOEP) at the German Institute for Economic Research (DIW), Berlin (see Haisken-DeNew and Frick 2005, for a detailed description of the dataset).<sup>11</sup> This interdisciplinary panel study has been carried out annually since 1984. Börsch-Supan and Essig (2003) stress that many aspects of saving decisions can only be understood by using longitudinal data, but most of the empirical studies so far focus on cross-sections. Browning and Lusardi (1996) suggest a minimum of two business cycles (approximately 15 years) as a sufficient survey period because findings from shorter sample periods could be misleading due to common macro shocks. The saving measure that is used here has been available since 1992, which allows constructing an unbalanced panel with a maximum length of 17 years.

While the GSOEP data on employment characteristics and income are numerous and very detailed, data on consumption and saving are not. However, the studies of Fuchs-Schündeln and Schündeln (2005), Bartzsch (2008) as well as Bauer and Sinning (2005), Giavazzi and McMahan (2008), Fuchs-Schündeln (2008), and Freyland (2005) show that the GSOEP data can very well be utilized for the analysis of saving behavior. In the study at hand, household saving  $s_{it}$  is the self-reported flow amount of monthly household saving as used in the latter four studies mentioned above. Thus, it is clear that the focus lies on adaptation of saving behavior due to changes in job insecurity in a longitudinal context, and not on the accumulation of wealth in a life-cycle context. The exact wording of this income screener-type question on household saving reads as follows:

<sup>11</sup>The data used in this paper were extracted using the Add-On package PanelWhiz v3.0 (Nov 2010) for Stata. PanelWhiz was written by Dr. John P. Haisken-DeNew (john@panelwhiz.eu). The PanelWhiz generated do-file to retrieve the GSOEP data used here and any Panelwhiz plugins are available upon request. Any data or computational errors in this paper are my own. Haisken-DeNew and Hahn (2006) describe PanelWhiz in detail.

*“Do you usually have an amount of money left over at the end of the month that you can save for larger purchases, emergency expenses or to acquire wealth? If yes, how much?”*

This is a rather simple approach to approximate the true amount of saving per time. Stein (2009) and Freyland (2005) discuss the problems that surround this measure in detail. These include, e.g., measurement error arising from individuals not defining saving in an exhaustive way, the monthly time-frame, or the left-censored nature of the data.<sup>12</sup> Nevertheless, this self-reported measure is well suited for studying precautionary saving behavior for two reasons. First, people not reporting their saving according to clear cut economic definitions is even an advantage because this self-reported measure can be expected to capture reasonably well the amount of financial resources that people put aside and choose not to consume. Freyland (2005) finds evidence that homeowners do not include repayments of housing loans in their reported saving. If people do not report such regular saving, it can be argued that this measure captures better than others the amount of saving for no special purposes except unexpected or undesired events. Second, monthly net income and monthly saving are reported by the households directly one after the other. Therefore, the subjective perception of the fraction of income that is put aside every month should be quite accurate.

Due to the question design, no negative saving is observed. A value of 0 is attributed to all households that report not to put any money aside.<sup>13</sup> Comparing the corresponding household saving rate to that reported in the German national accounts or in the German Sample Survey of Income and Expenditure (EVS), it is found the GSOEP rates are on average about 2%-points lower. This difference is similar to that reported by Freyland (2005) and Bartzsch (2008), but significantly lower than that reported by Stein (2009). However, it is not the absolute level of saving that matters for the estimation of precautionary saving here, but the relative change from one period to the other. And the course of the saving measure over time accords reasonably well with the macroeconomic saving rates. Figure 1 plots the average amount of monthly saving and the average monthly unemployment rates in Western and Eastern Germany for the years 1992 to 2008. In particular, high saving is observed among households in Eastern Germany after reunification, which has converged toward the Western German level by the late 1990’s. Fuchs-Schündeln (2008) shows that accounting for the precautionary saving motive is essential to reconcile the observed saving behavior with a theoretical life-cycle model. By looking at the development of the unemployment rates, one can infer that most likely only a forward-looking risk measure could explain the observed pattern because the rise in the unemployment rate occurs when saving is declining.

(Figure 1 about here)

As discussed in section 2, subjective measures are best suited for the study of precautionary saving because they contain private forward-looking information. The main risk measure  $r_{it}$  here is identified from information about subjective individual worries about job security available for all waves from 1992 to 2008. The question reads as follows:

*“What is your attitude toward the following areas - are you concerned about them? [...] Your job security? [the answers being] very concerned, somewhat concerned, not concerned at all.”*

This information is used to construct indicator variables reflecting whether an individual is somewhat or very worried about job security, or not at all. The GSOEP includes another variable concerning job insecurity: the self-reported probability of becoming unemployed. In the years 1992 to 1994, 1996 and 1998, this question had 4 possible answer categories from “definitely not” to “definitely”. Since 1999, the question has been asked every two years with 11 answer categories ranging from 0% to 100%.

<sup>12</sup>In principle, the same criticism applies to wealth measures as used in Fuchs-Schündeln and Schündeln (2005) or Bartzsch (2008), too.

<sup>13</sup>For the log transformation, 1 EUR is added to the amount of saving before taking logs.



The information on job worries is better suited for the investigation of precautionary saving for two reasons. First, it is available for a longer time period without any gaps, and the loss of variability is limited because the answers to the more detailed question on the probability of a job loss are clustered at certain values, in particular at 0% and 50%. Second, these two questions are positioned differently in the questionnaire. The subjective probability of a job loss is asked in the part on the employment situation and job characteristics at the beginning of the survey, whereas the subjective worries about job security is asked in the part on attitudes and opinions toward the end of the survey. Because of this framing, the former question could capture the pure risk of losing one’s job more accurately while the latter question could also capture other worries that surround the future employment and economic situation of the respondent. Geishecker (2010) points out that job insecurity comprises both aspects. Hence, for the estimation of precautionary saving behavior, the information about job worries provide a more comprehensive view on personal economic risk.<sup>14</sup>

In order to check the robustness of the results, the self-reported probability of becoming unemployed is also used as a risk measure. The information from before 1999 is used to construct three dummy variables reflecting whether an individual thinks that a job loss is improbable, probable or definite. The self-reported percentage values are recoded to these dummy variables as follows: 0% = definitely no job loss, 10% - 40% = job loss improbable, 50% - 90% = job loss probable, 100% = definite job loss.<sup>15</sup> As a third risk measure, the state unemployment rate at the month of the interview is used. This macroeconomic indicator can be seen as a fairly exogenous source of risk to households. Table 2 reports the results from fixed-effects logit regressions for the risk of losing one’s job due to a dismissal or a company closure. It becomes obvious that the inclusion of the subjective information about job insecurity greatly improves the model: the subjective variables are all highly significant and positive, the Pseudo R-squared is almost doubled, and the Akaike and Schwarz Bayesian information criteria greatly improve.

(Table 2 about here)

The richness of the GSOEP data allows the vector of control variables  $x_{it}$  to include a large number of income, household, personal, job, and financial and wealth characteristics in order to control for the most important aspects that influence household saving decisions, and to isolate the pure effect of job insecurity. The study uses the same income measure as Fuchs-Schündeln and Schündeln (2005), Bauer and Sinning (2005) and Freyland (2005): the self-reported household net monthly income which is reported by the households directly before the saving information. For the regression analyses, the natural logarithm of monthly household income in real 2007 EUR is used.<sup>16</sup> In contrast to many other studies, no measure of permanent income is used because the focus is not on life-cycle saving but on adaptation of saving behavior for precautionary reasons. In addition, the share of the main earner’s income in total household income, and the satisfaction with household income (on a scale from 0 to 10) are included.

Household composition has a strong influence on consumption and saving behavior (Freyland 2005). Here, the square root of the respective household size, and dummy variables that indicate if the household is married, has any children, has any children under the age of 4, owns a home, or resides in Eastern Germany are included. There is also a dummy variable included that reflects whether the household experienced any major change during the previous year (e.g., marriage, divorce, birth or death of a family member).

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<sup>14</sup>In the same question, respondents are also asked about their worries regarding the development of the overall and their personal economic situations. Hence, they can be expected to distinguish between job security and their economic situation to some extent, and endogeneity should be limited.

<sup>15</sup>Values are recoded to match the distribution of the original variable.

<sup>16</sup>Different income specifications were tested (e.g., quadratic terms, income quartile dummies, or splines), but do not change the estimation results.

Regarding personal characteristics of the main income earner, age and dummies for being younger than 30 or older than 50 are included to allow for different saving behavior at different points in life. Additional variables are dummies for being female or German, years of education, and satisfaction with health (scale 0 - 10). Job characteristics include unemployment experience, and a dummy indicating whether the main earner thinks it would be easy to find a new job or not.<sup>17</sup>

Financial and wealth characteristics comprise the annual household asset income, dummies for being somewhat or very worried about one's personal economic situation, the interest rate at the month of the interview<sup>18</sup> and annual real GDP growth in the respective federal state.

Finally, dummy variables for living in Eastern Germany, for the time periods 1992 - 1995, 1996 - 1999, 2000 - 2003, and interaction terms of these variables are included to capture the immediate response and adaptation of saving to the large shock of reunification. Table 3 provides an overview of all variables used in the empirical analyses. A more extensive set of variables with more detailed information on job, household, and wealth characteristics that are available from 2000 onward was tested. While many of the additional variables impact on household saving directly, none of the results concerning the original variables changed. But restricting the sample to the years 2000 to 2008 changes the results compared to 1992 to 2008. Therefore, the empirical estimations are based on the full time frame and a slightly less exhaustive set of variables.

### 3.3 Sample construction

Since the saving data are only available at the household level but many of the explanatory variables - especially the measure of job insecurity - are recorded for the individual household members, one must attribute the individual characteristics to the respective household. Following the approach of Fuchs-Schündeln and Schündeln (2005), the household data is merged with the characteristics of the main income earner. The main income earner is defined as the person who has the highest net monthly labor income, i.e., higher than that of the partner or any other household member. For those households with two or more main income earners, the person who is the head of the household remains in the sample.<sup>19</sup>

The sample is restricted as follows in order to exclude households that might have very different saving motives and to make the findings comparable to previous studies. First, measurement error that arises through the utilization of self-reported saving and income measures is reduced: only households that report reasonable saving rates of less than or equal to 0.5 are included. Households that report unreasonably low income, i.e., less than EUR 500 per month, and those with extremely high income, i.e. more than EUR 20,000 per month, are excluded.<sup>20</sup> Households in which the income share of the main earner exceeds 200% are excluded, and the income share is set to 100% for every remaining household with an income share above 100%.

Job insecurity being the main explanatory variable of interest, all individuals that are unemployed, apprentices, trainees or interns are disregarded. Focusing on the working population, only households whose main income earner is between the age of 18 and the age of 60 are included. Especially younger households might be relevant for the study of precautionary saving because these households have not yet established a buffer-stock of wealth. Retired and older households are left out from the study because the focus lies on the risk of becoming unemployed, which does not exist for retirees.<sup>21</sup>

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<sup>17</sup>The information about the possibility of finding a new job are missing for 3 waves, and imputed using information from the preceding and following years.

<sup>18</sup>Effective interest rates of German banks for new households' deposits with an agreed maturity of up to 1 year

<sup>19</sup>In addition, the main income earner has to be the head of the household, her partner or her spouse, and the household questionnaire must have been answered by the head of the household, her partner or her spouse. In the final sample, 75% are the household head, and 25% the partner.

<sup>20</sup>These values are based on the 1st and 99th percentile of the income distributions but less strict.

<sup>21</sup>The age of 60 instead of the official retirement age of 65 is chosen because of the possibility of early retirement.

Entrepreneurs and civil servants are excluded from the sample because they cannot really lose their jobs (compared to employees), do not contribute to the German public unemployment insurance system, and might have very different saving motives. Hurst et al. (2006) and Fossen and Rostam-Afschar (2009) study the saving behavior of entrepreneurs and find that pooling them with other population groups leads to artificially high estimates in favor of precautionary savings. Civil servants in Germany face basically no unemployment risk. Fuchs-Schündeln and Schündeln (2005) use this status in combination with German reunification to study precautionary savings in Germany. They find that risk averse individuals self-select into low risk jobs but still save substantial amounts, which leads to an underestimation of the precautionary saving motive.<sup>22</sup>

After further eliminating a few observations with missing values on one or more of the employed variables, the final sample comprises a total of 69,717 observations of 11,756 households over a maximum of 17 waves from 1992 to 2008. On average, households are observed for 5.9 years. Since the panel is unbalanced, two indicator variables for not being observed in the previous and the following year are included in the regressions to control for a possible bias arising from panel attrition.<sup>23</sup>

(Table 3 about here)

## 4 Estimation results

Table 3 reports the mean values of the variables included in the regression analysis for those households that are not worried about job security, those that are somewhat worried, and those that are very worried. The self-reported probability of a job loss and the state unemployment rate increase with job worries as one would expect. The saving measures turn out to be lower for the worried households, e.g., the amount of monthly saving of very worried households is about 40% lower than that of their not worried counterparts. Although this is at odds with the precautionary saving theory, it must be noted that the worried households have a lower income (2,327 EUR compared to 2,590 EUR and 2,714 EUR) and lower wealth. While 47% of the households that do not worry about job security also do not worry about their financial situation, 61% of the households that are very worried about job security are also very worried about their financial situation. This shows how important it is to control for the income and wealth situation of a household when studying the relationship of job insecurity and saving. Concerning household and personal characteristics of the main income earner, no large differences are observed.

### 4.1 Baseline estimations

For the baseline specification, the two saving measures - the dummy variable that reflects whether a household saves or not, and the log of monthly household saving - are regressed on the dummy variable for being somewhat or very worried about job security, and the set of explanatory variables described in section 3. Table 4 presents the results from the fixed-effects logit and the linear fixed-effects estimations including only households that report positive saving. As noted above, estimation results do not differ significantly between the random- and the fixed-effects models. However, since Hausman specification tests clearly reject the random-effects models, the interpretation here and the results presented in the subsequent tables focus solely on the fixed-effects estimations.

The identification of a causal effect of job insecurity on household saving rests on two main features of the estimations. First, the use of fixed-effects models is supposed to rule out unobserved heterogeneity of households and limit any omitted variable bias. Second, the rich set of control variables is supposed to

<sup>22</sup>Separate regressions for entrepreneurs and civil servants show that job insecurity does not affect the saving behavior of these households.

<sup>23</sup>Regressions were also carried out on a balanced panel, and the results remain unchanged.

capture any remaining endogeneity. In particular, controlling for the wealth situation of the household is essential to rule out reversed causality running from low saving to high job insecurity, which is very unlikely once financial insecurity is controlled for. Otherwise, the coefficient of job insecurity would be biased because job worries are typically correlated with financial worries and low saving as can be seen from table 3.

(Table 4 about here)

The main result of interest is the effect of job security on household saving behavior. The results are robust to all three risk measures and suggest that job insecurity has a significantly positive influence on household saving. In the logit estimations for having positive saving, the effect is significantly positive but small. An average odds ratio of 1.1 translates into a 2%-points higher probability to save for households that face job insecurity compared to those that feel secure.<sup>24</sup> The coefficients from the linear estimations can be readily interpreted as (semi-)elasticities. A 1%-point increase in the unemployment rate is associated with a 1.6% increase in household saving. The effect of job insecurity is stronger for the subjective risk measures. A higher probability of a job loss is associated with 4% to 16% more saving, depending on how likely a job loss is. Statistical significance for this measure is lower than for the more comprehensive measure of job worries. Households that are somewhat worried about job security save 5% more than those who are not worried, the very worried households almost 10% more.

All other results accord reasonably well with economic theory and plain intuition. Households with higher income save more, especially when they are also satisfied with their income. Saving also slightly increases in the share that the main income earner contributes to household income, which could be interpreted as a missing opportunity to share income risk with a second earner or any other income source. Worries about the own financial situation are associated with significantly lower saving (here, causality is most likely reversed, i.e., low saving causes people to worry about their financial situation). The interest rate has a small significantly positive effect on household saving, a similar effect is found for GDP growth.

Not surprisingly, saving decreases with household size, after a change in household structure, and is lower for singles than for partner households. Household with two incomes, married households, and households with children save more whereas persons who are not satisfied with their health and homeowners save less.<sup>25</sup> Households in Eastern Germany in the 1990's save much more, which can also be seen in figure 1. Many of the personal characteristics do not affect saving in a significant way which is also due to the fixed-effects models which greatly reduce variation in variables such as sex of the main income earner or nationality.

## 4.2 Interaction expansions with job insecurity

The baseline estimations presented above provide rather strong evidence for precautionary saving behavior due to job insecurity. However, by only including a job insecurity measure among the explanatory variables of the saving regressions, it is ruled out that job insecurity could have very different effects for different population groups. There are a number of reasons why job insecurity could impact very differently on saving, e.g., insurance possibilities, income constraints, or different consequences of a job loss. In order to allow for such effects, the job insecurity measures are interacted with those characteristics that can be assumed to influence the relationship between job insecurity and saving. To this end, the

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<sup>24</sup>This calculation departs from the average share of households that save of 67%, and assumes that the probability to save increases for the group of the worried households by the same amount that it decreases for the other households.

<sup>25</sup>This effect is due to mortgage payments as suggested by Freyland (2005). In a more extensive specification that included mortgage payments, the dummy for owning a home exerts a positive effect on saving whereas mortgage payments significantly decrease saving.

dummies for job worries and job loss probabilities are collapsed into two dummies for being somewhat or very worried about job security and job loss not definitely ruled out, respectively.

(Table 5 about here)

Table 5 reports the results for the fixed-effects logit and linear regressions that include interaction terms with income, share in household income, age groups, household types and chances of finding a new job as additional variables. Since the interpretation of interaction terms is complicated in non-linear models (see Ai and Norton 2003) and the results of the logit and the linear models are qualitatively similar, the following discussions refer to the linear models only. Comparing the results to the previous ones in table 4, no significant differences appear for the included control variables. Regarding job insecurity, the most striking result is that the job insecurity measures now have a significantly negative effect on household saving. But this negative effect is counterbalanced by income, i.e., households that face job insecurity have a higher marginal propensity to save out of income. For the job worries-model the income elasticity of saving increase from 1.95 to 2.14 in case the household worries about job security. This effect is also present in the model that uses the unemployment rate to proxy for job insecurity. In the models that use job loss probability as the insecurity measure, significance of the results vanishes completely. This effect is similar to the one found by Carroll et al. (2003) for the US who find that job insecurity only influences the wealth holdings of households with moderate or high income.

In order to illustrate this effect the following experiment is carried out using regression model (2) of table 5: the predicted amounts of saving are summed up by household income percentiles. Then job insecurity is set to zero for each household, and the predicted amounts of saving are obtained again and summed up by household income percentiles.<sup>26</sup> For each income percentile, the relative difference between these aggregated saving measures is computed. Figure 2 plots these differences as well as those obtained from model (2) in table 4 without interactions. It can be seen that job insecurity reduces saving for the lower quantile of the income distribution, and increases saving by 4% and more for the upper half of the distribution. The predicted share in aggregate saving hovers around 3% for the model without interactions. While the precise predictions must be interpreted carefully, the qualitative result that job insecurity affects saving of moderate and high income households stronger than low income households is fairly robust and accords well with economic intuition. Richer households are less constraint by income, and face more income at risk in case of a job loss. Hence, they should respond more strongly to job insecurity than relatively poor households.

(Figure 2 about here)

The effects of the other interaction terms are less pronounced. Concerning age, the finding of Benito (2006) that younger British households react more strongly to increased job insecurity is replicated here for German households very significantly for the job worries-measure. This finding is in line with buffer stock models of saving (see, e.g., Carroll 1997). Younger households are more affected by job insecurity because they have not yet built up a buffer stock of wealth to insure themselves against income downturns. It also appears that households that find it easy to get a new job are less affected by job insecurity. However, this effect is only significant when the unemployment rate is used as the job insecurity measure.

### 4.3 Households of different age, and type

The finding from the previous subsection that younger households are more affected by job insecurity motivates taking a closer look at households of different age. The sample of all households is split into

<sup>26</sup>Since the dependent variable is the log of saving, predicted values are obtained using the approach outlined in Cameron and Trivedi (2009, chapter 3.6.3):  $E(y_i|x_i) = \exp(x_i'\beta) * E(\exp(u_i))$  where  $u_i$  is the model error.

households younger than 30, between 30 and 50, and older than 50. The regressions with and without interaction expansions are then run for each of the age subsamples. For brevity, only the results for job worries are presented. The results depend partly on the choice of the job insecurity measure and are on average weaker for the job loss probability and stronger for the unemployment rate. A summary for all samples and job insecurity measures is presented in the next subsection.

Table 6 shows the estimation results for the models without interaction terms and table 7 for the models with interaction terms. Overall, younger and middle-aged households are most affected by job insecurity. Being somewhat or very worried about job insecurity raises the saving of middle-aged households by 6.2% and 11.1%, respectively (significant at the 5% level). The estimated effects are even 10% and 24% for the younger households (but only statistically significant for very worried). For older households no significant relationship between job insecurity and saving is found. Looking at the interaction effects, the same pattern that was found for the complete sample is found for the middle-aged households. Since these households represent the largest group, this suggests that the overall result is driven by this group. While there are no significant effects found for the older households, there are two significant effects for the younger households. Worried singles save less, and they save more if they think it would be easy to find a new job, which contradicts the idea that good chances of getting a new job serves as an insurance mechanism.

(Table 6 and table 7 about here)

Similarly to splitting the full sample of households by age, the sample can also be split by household types. It can be expected that household characteristics have a strong influence on the impact of job insecurity on saving, e.g., through risk-sharing among households with two or more income earners (see Browning 2000, Mazzocco 2004). Such a differentiation is particularly important because the number of households in Germany steadily increases and the average household size declines. The share of 1-person households has increased from 33.7% in 1992 to 36.1% in 2000 and to 39.4% in 2008, and is expected to reach 40.1% in 2020 (Destatis 2007, 2009a). Hence, aggregate saving could be affected through this channel if job insecurity has different effects for different household types.

In order to split the sample, the households are classified into three categories. A first distinction is made between singles and partner households. Singles are all individuals that do not live together with a spouse, and partners are either married couples living together, or couples that are not married but living together. A second distinction is made among partner households according to the employment and income status of the two partners. If both partners are working and each contributing at least 25% to household income, they are classified as a 2-income household. If the partner of the main income earner is unemployed, retired, a trainee or in education, the household is classified as a 2-income household if the income of the main earner is less than 50% of the household income.<sup>27</sup> 1-income households are thus all partner households for which the labor income of the main earner accounts for the main share of household income. The longitudinal consistency of household types is relatively high, the probability to remain in one type are 90% for singles, and 80% for 1-income and 2-income households.

Again, the presented results focus on job worries as the measure of job insecurity. Table 8 shows the estimation results for the models without interaction terms and table 9 for the models with interaction terms. Overall, a significant effect is only found for partner households with one income. This suggests that a significant part of the positive effect in the full sample comes from variation between these household types. 1-income households are probably most affected by job insecurity because they face the highest risk in the sense that they have to provide income for their family. One reason for the non-existence of

<sup>27</sup>These are only few cases. And while these households are falsely classified as having two labor incomes, the important aspect is that there is another important source of income, e.g., a pension or investment income, which could induce risk sharing.

precautionary saving behavior among the 2-income households could be household risk-sharing as found by Lusardi (1998) for a sample of older households from the US. For single households, greater flexibility and in particular mobility could serve as an insurance device. The results from the models including interaction terms suggest that particularly younger partner households adapt their saving behavior due to changes in job insecurity. Accounting for the result that younger households that are not worried about job security save less than middle-aged households, the estimation results suggest that worried younger 1-income and 2-income households save 30% and 15% more than worried middle-aged 1-income and 2-income households, respectively.

(Table 8 and table 9 about here)

#### 4.4 The importance of job insecurity for aggregate saving

In order to provide a comprehensive overview of the results presented above, the experiment from figure 2 is computed for the full and all household samples for all job insecurity measures. Table 10 reports the predicted percentage differences between aggregate predicted saving and aggregate counter-factual saving assuming that job insecurity is eliminated. In the case of job worries and job loss probability, this is done by setting the dummy variables (and interaction terms) to zero for all households. In case of the state unemployment rate, it is set to the minimum unemployment rate of the respective year.<sup>28</sup> The presented results focus on the models without interaction terms. The models with interaction terms provide slightly higher shares as can be seen by comparing the first two lines of table 10, but the overall pattern regarding job insecurity measures and samples remains qualitatively the same.

(Table 10 about here)

Overall, job insecurity accounts for 3% up to 11% of the saving of employed households, depending on the regression model and the job insecurity measure used. Focusing on the subjective measures which are believed to approximate true risk best (see discussion in sections 2 and 3), the overall effect is approximately 3% to 6%.

The corresponding absolute amount of saving can be roughly approximated in two ways (in the following example for 2008): based on the GSOEP data only, or based on data from the German national accounts and the German Microcensus. In the estimation sample, weighted average monthly saving is EUR 220 per employed household in 2008, or EUR 2,640 per year. The sample represents about 16 million households (based on the cross-sectional weights of the GSOEP) which yields an estimate of EUR 1.9 billion for aggregate saving of employed households motivated by job insecurity (assuming a share of precautionary in total saving of 4.5%). Starting from the aggregate saving of German households of EUR 178.5 billion in 2008 (Destatis 2009b), and adjusting for the different composition of households and saving in the estimation sample and the German population (Destatis 2009a), the aggregate amount of saving due to job insecurity is estimated at EUR 2.8 billion. The adjustments include accounting for the share of employed households (19.5 million in the total of 40 million households), the age of the household (26.5 million under 60 compared to 29 million under 65), and the different definitions of saving (weighted average saving rate of 8.7% compared to 11.2%).<sup>29</sup> In comparison, the contributions to the German public unemployment insurance system amounted to EUR 26.5 billion in 2008 (German Federal Employment Agency 2009).

It stands out that the significance (bold font) and the size of the effect of job insecurity on household saving depends on the risk measure used as well as on the sample selected. Both has important

<sup>28</sup>The counter-factual situation for the unemployment rate is difficult to define. Here, it is assumed that households compare the unemployment rate in their state with those of the other federal states, and are regionally mobile. Hence, the effects are likely to be overstated.

<sup>29</sup>This is only a rough approximations since it is assumed that saving is distributed equally across occupations and age.

implications for the empirical work on this subject, in particular one must pay close attention to the identification of job insecurity. It is of great importance to account for both the pure risk of a job loss and the economic consequences of this event. Heterogeneity among households must also be taken into account. In particular, the precautionary behavior is most pronounced in terms of significance and size for younger households who do not possess a buffer stock of wealth yet, and for households with one income only. For older households and those with two or more income sources, no significant relationship between job insecurity and saving emerges.

## 5 Conclusion

This paper confronts the precautionary saving theory with micro-data from the German Socio-Economic Panel. The analysis relates two self-reported information about job worries and the probability of a job loss, and the state unemployment rate to the saving behavior of German households. It is argued that subjective measures of job insecurity are the best choice for the study of precautionary saving behavior because they contain private information about (a) the true risk of a job loss and (b) the economic consequences of such an event. In order to account for unobserved heterogeneity of households and saving behavior, as well as for one third of all households that report not to put any money aside for emergencies, fixed-effects logit models for the probability to save, and linear fixed-effects models including only households with positive saving in at least one year are estimated. The regressions include a rich set of control variables, especially wealth measures, in order to establish a causal link between insecurity and saving.

Overall, job insecurity has a significantly positive but rather small effect on the saving behavior of employed households in Germany, and accounts for approximately 3% to 6% or roughly EUR 2 - 3 billion of yearly aggregate household saving. The empirical analyses show that it is of great importance to account for heterogeneity among households when empirically investigating precautionary saving behavior. Most importantly, the effect of job insecurity on household saving depends on the income of the household. A positive effect is only found for households with moderate or high income. The saving of households from the lower quartile of the income distribution is not affected by job insecurity.

Regarding other household characteristics, it appears that younger households under the age of 30 save significantly more than middle-aged or older households if they worry about losing their job. This finding suggests that households who have not yet established a buffer stock of wealth are most affected by increases in employment and hence income risk. The second group that responds strongly to employment uncertainty are partner households that rely on one main income only. In contrast, no significant relationship between employment uncertainty and saving emerges for single households and households with two or more incomes, which could be seen as evidence for greater flexibility and mobility as well as risk sharing, respectively. These findings suggest that it is important to account for both aspects of job insecurity: the pure risk of a job loss and its economic consequences.

There are two main policy implications that follow from the analyses presented here. First, households who feel more insecure about their job have a higher propensity to save. Hence, any policy measure to stimulate private consumption will be dampened if employment uncertainty rises at the same time. In addition, any policy measure that raises perceived employment uncertainty and/or the economic costs of unemployment is likely to impact negatively on household consumption. Second, a large fraction of German households already engages in private saving to insure against employment risk. In order to support private wealth accumulation in this context, public policy should be careful about means-tested unemployment benefits, especially for low-income households who are less likely to forearm themselves against income depletions caused by unemployment.



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## Tables and figures

TABLE 1: Possession of emergency savings

<b>Question</b>	<b>2001</b>	<b>2003</b>	<b>2005</b>	<b>2007</b>
	Mean,(St. Dev.),Obs.	Mean,(St. Dev.),Obs.	Mean,(St. Dev.),Obs.	Mean,(St. Dev.),Obs.
Any savings for emergencies? (1=yes)	0.76 (0.43) 4,990	0.67 (0.47) 4,751	0.65 (0.48) 4,414	0.62 (0.49) 4,476
No, because of financial reasons	0.78 (0.41) 1,097	0.87 (0.34) 1,310	0.89 (0.31) 1,289	0.91 (0.29) 1,434

Note: Data weighted using cross-sectional weights of the GSOEP.  
Source: GSOEP, own calculations

TABLE 2: Determinants of a job loss (dismissal or company closure)

	Model (1)	Model (2)	Model (3)	Model (4)
Worried about job security		1.408*** (0.072)		1.244*** (0.099)
Very worried about job security		2.816*** (0.175)		1.962*** (0.197)
Job loss improbable			1.284*** (0.104)	1.239** (0.105)
Job loss probable			2.470*** (0.225)	2.085*** (0.204)
Job loss definitely			8.515*** (1.135)	6.695*** (0.952)
State unemployment rate	1.044*** (0.012)	1.039*** (0.012)	1.022 (0.015)	1.021 (0.016)
Age	1.045*** (0.008)	1.039*** (0.009)	1.019* (0.011)	1.014 (0.012)
Younger than 30	1.306*** (0.114)	1.335*** (0.121)	1.383** (0.175)	1.448*** (0.188)
Older than 50	1.222** (0.112)	1.263** (0.120)	1.305** (0.169)	1.356** (0.180)
Married	0.781*** (0.064)	0.810** (0.068)	0.791** (0.094)	0.836 (0.102)
Children	1.101 (0.072)	1.104 (0.075)	1.211** (0.113)	1.179* (0.112)
Infants	0.874* (0.065)	0.911 (0.070)	0.870 (0.092)	0.919 (0.100)
Years of education	1.107*** (0.036)	1.090** (0.037)	1.022 (0.050)	1.023 (0.051)
Migrant	0.922 (0.221)	0.869 (0.217)	0.790 (0.275)	0.737 (0.259)
East Germany	1.502* (0.333)	1.349 (0.310)	1.417 (0.428)	1.402 (0.445)
Tenure	1.085*** (0.006)	1.080*** (0.006)	1.072*** (0.008)	1.071*** (0.008)
Trained for occupation	1.304*** (0.073)	1.301*** (0.075)	1.224** (0.101)	1.222** (0.103)
Temporary work contract	0.818*** (0.055)	0.733*** (0.051)	0.508*** (0.054)	0.487*** (0.054)
Unemployment experience	0.602*** (0.023)	0.597*** (0.024)	0.583*** (0.032)	0.587*** (0.034)
Blue collar	1.111 (0.077)	1.118 (0.080)	1.068 (0.108)	1.097 (0.114)
Entrepreneur	0.962 (0.096)	0.856 (0.090)	0.958 (0.143)	0.856 (0.132)
Civil Servant	0.504 (0.211)	0.583 (0.248)	0.428 (0.267)	0.528 (0.339)
Public sector	0.757*** (0.076)	0.750*** (0.078)	0.686** (0.102)	0.676** (0.104)
Satisfaction with job	0.833*** (0.008)	0.854*** (0.009)	0.881*** (0.014)	0.893*** (0.015)
Satisfaction with income	1.034*** (0.012)	1.044*** (0.012)	1.068*** (0.018)	1.073*** (0.019)
Satisfaction with leisure	1.015 (0.010)	1.013 (0.010)	0.997 (0.015)	0.999 (0.015)
Satisfaction with health	1.001 (0.012)	0.999 (0.012)	1.011 (0.019)	1.007 (0.019)
Size dummies	Yes	Yes	Yes	Yes
Sector dummies	Yes	Yes	Yes	Yes
Pseudo R2	0.09	0.11	0.16	0.17
AIC	15,339	14,378	5,926	5,652
BIC	15,744	14,797	6,304	6,042
Observations	28,574	27,286	10,644	10,242
Individuals	3,820	3,717	2,173	2,119

Notes: Table reports odds ratios from fixed effects logit estimations, std. errors in parentheses. Significance levels: \*10% \*\*5% \*\*\*1%  
Source: GSOEP, own calculations

TABLE 3: Variable means by worries about job security

Variable	(1)	(2)	(3)
	Not worried about job security	Somewhat worried about job security	Very worried about job security
Able to save? (Dummy variable)	0.71	0.67	0.56
Monthly household saving (real 2007 EUR)	274	224	163
Monthly household saving rate (Percent)	9.62	8.09	6.48
Job loss definitely not (Dummy variable)	0.52	0.19	0.12
Job loss improbable (Dummy variable)	0.44	0.63	0.35
Job loss probable (Dummy variable)	0.03	0.17	0.42
Job loss definitely (Dummy variable)	0.01	0.01	0.12
State unemployment rate (Percent)	10.48	11.64	12.61
Monthly household income (real 2007 EUR)	2,714	2,590	2,327
Share in household income (Percent)	0.73	0.72	0.71
Satisfaction with income (Scale 0 -10)	6.74	6.09	5.20
Annual household asset income (real 2007 EUR)	1,329	985	577
Not worried about finances (Dummy variable)	0.47	0.11	0.02
Worried about finances (Dummy variable)	0.46	0.72	0.36
Very worried about finances (Dummy variable)	0.07	0.18	0.61
Interest rate (Percent)	4.37	3.99	3.91
Real GDP growth (Percent)	1.55	1.79	2.05
Female (Dummy variable)	0.34	0.29	0.32
German (Dummy variable)	0.92	0.91	0.88
Age	41.30	41.30	42.06
Younger than 30 (Dummy variable)	0.16	0.13	0.12
Older than 50 (Dummy variable)	0.25	0.20	0.23
Married (Dummy variable)	0.56	0.60	0.60
Satisfaction with health (Scale 0 -10)	7.19	6.80	6.23
Years of education	12.20	12.03	11.61
Unemployment experience (Months)	0.34	0.46	0.65
Easy to find new job (Dummy variable)	0.29	0.12	0.06
Single household (Dummy variable)	0.33	0.29	0.29
1-income household (Dummy variable)	0.35	0.37	0.36
2-income household (Dummy variable)	0.32	0.34	0.35
Household size (Number of household members)	2.47	2.66	2.67
Children (Dummy variable)	0.35	0.41	0.42
Infants (Dummy variable)	0.13	0.13	0.12
Change in household (Dummy variable)	0.20	0.18	0.18
Homeowner (Dummy variable)	0.39	0.39	0.32
East Germany (Dummy variable)	0.11	0.21	0.30
1992 - 1995 (Dummy variable)	0.28	0.21	0.20
1996 - 1999 (Dummy variable)	0.24	0.24	0.22
2000 - 2003 (Dummy variable)	0.23	0.23	0.21
2004 - 2008 (Dummy variable)	0.25	0.31	0.37
Observations	26,668	30,870	12,179

Note: Pooled data from 1992 - 2008, weighted using cross-sectional weights of the GSOEP.  
Source: GSOEP, own calculations

TABLE 4: Determinants of monthly household saving -  
Different measures of job insecurity

	Job worries		Job loss probability		Unemployment rate	
	(1) FE Logit	(2) Linear FE	(3) FE Logit	(4) Linear FE	(5) FE Logit	(6) Linear FE
Worried about job security	1.099*** (0.038)	0.053** (0.025)	-	-	-	-
Very worried about job security	1.138*** (0.054)	0.098*** (0.037)	-	-	-	-
Job loss improbable	-	-	1.055 (0.053)	0.039 (0.034)	-	-
Job loss probable	-	-	1.142** (0.075)	0.086* (0.047)	-	-
Job loss definitely	-	-	1.156 (0.154)	0.164* (0.097)	-	-
State unemployment rate	-	-	-	-	1.018* (0.011)	0.016** (0.008)
Log household income	7.747*** (0.651)	2.064*** (0.068)	6.966*** (0.870)	2.051*** (0.094)	7.779*** (0.654)	2.067*** (0.068)
Share in household income	1.008*** (0.001)	0.008*** (0.001)	1.004* (0.002)	0.006*** (0.002)	1.008*** (0.001)	0.008*** (0.001)
Satisfaction with income	1.285*** (0.011)	0.227*** (0.007)	1.294*** (0.017)	0.234*** (0.010)	1.284*** (0.011)	0.226*** (0.007)
Household size	0.317*** (0.037)	-1.129*** (0.103)	0.352*** (0.060)	-1.061*** (0.136)	0.317*** (0.037)	-1.125*** (0.103)
Married	1.206*** (0.082)	0.145** (0.058)	1.189* (0.116)	0.128* (0.076)	1.207*** (0.082)	0.147** (0.058)
Single household	0.977 (0.079)	-0.148** (0.072)	1.127 (0.135)	-0.064 (0.098)	0.977 (0.079)	-0.147** (0.072)
2-income household	1.219*** (0.054)	0.168*** (0.034)	1.140** (0.075)	0.146*** (0.048)	1.221*** (0.054)	0.169*** (0.034)
Children	1.179*** (0.063)	0.154*** (0.045)	1.179** (0.090)	0.176*** (0.056)	1.179*** (0.063)	0.153*** (0.045)
Infants	1.056 (0.051)	0.007 (0.042)	1.033 (0.071)	-0.005 (0.055)	1.052 (0.051)	0.004 (0.042)
Change in household	0.871*** (0.029)	-0.088*** (0.024)	0.920* (0.045)	-0.046 (0.035)	0.871*** (0.029)	-0.087*** (0.024)
Homeowner	0.447*** (0.026)	-0.670*** (0.052)	0.436*** (0.036)	-0.696*** (0.064)	0.448*** (0.026)	-0.668*** (0.052)
Female	1.088 (0.058)	0.032 (0.043)	0.969 (0.074)	-0.018 (0.057)	1.081 (0.058)	0.029 (0.043)
Younger than 30	0.976 (0.059)	0.073 (0.052)	0.938 (0.081)	0.063 (0.066)	0.972 (0.059)	0.069 (0.052)
Older than 50	1.067 (0.062)	0.046 (0.046)	1.125 (0.096)	0.094 (0.058)	1.069 (0.062)	0.049 (0.046)
Years of education	1.022 (0.017)	0.022 (0.013)	1.017 (0.024)	0.017 (0.018)	1.023 (0.017)	0.022 (0.013)
German	1.111 (0.144)	0.011 (0.129)	0.999 (0.191)	-0.046 (0.172)	1.111 (0.144)	0.013 (0.129)
Satisfaction with health	0.971*** (0.008)	-0.026*** (0.006)	0.958*** (0.012)	-0.035*** (0.009)	0.970*** (0.008)	-0.027*** (0.006)
Unemployment experience	1.011 (0.024)	-0.018 (0.023)	1.002 (0.036)	-0.032 (0.031)	1.012 (0.024)	-0.017 (0.023)
Easy to find new job	1.020 (0.043)	0.036 (0.033)	1.013 (0.066)	0.020 (0.049)	1.007 (0.043)	0.028 (0.033)
Household asset income	1.000** (0.000)	0.000** (0.000)	1.000 (0.000)	0.000* (0.000)	1.000** (0.000)	0.000** (0.000)
Worried about finances	0.709*** (0.029)	-0.224*** (0.026)	0.778*** (0.048)	-0.179*** (0.037)	0.727*** (0.029)	-0.209*** (0.025)
Very worried about finances	0.537*** (0.029)	-0.458*** (0.039)	0.579*** (0.045)	-0.413*** (0.053)	0.560*** (0.028)	-0.428*** (0.037)
Interest rate	1.021* (0.012)	0.017** (0.008)	1.032* (0.019)	0.031*** (0.012)	1.033** (0.014)	0.028*** (0.010)
Real GDP growth	1.013* (0.008)	0.012** (0.005)	1.001 (0.012)	0.006 (0.008)	1.011 (0.008)	0.011** (0.005)
East Germany	0.761 (0.136)	-0.191 (0.163)	0.674 (0.171)	-0.418** (0.195)	0.664** (0.131)	-0.316* (0.171)
1992 - 1995	1.099 (0.086)	0.070 (0.064)	1.029 (0.121)	0.007 (0.084)	1.071 (0.084)	0.049 (0.064)
1996 - 1999	1.149*** (0.060)	0.103** (0.047)	1.090 (0.080)	0.057 (0.057)	1.130** (0.060)	0.089* (0.047)
2000 - 2003	1.039 (0.042)	0.016 (0.032)	0.960 (0.060)	-0.035 (0.043)	1.042 (0.043)	0.020 (0.032)
East, 1992 - 1995	1.705*** (0.213)	0.522*** (0.098)	1.835*** (0.377)	0.620*** (0.144)	1.788*** (0.227)	0.567*** (0.101)
East, 1996 - 1999	1.524*** (0.142)	0.365*** (0.079)	1.447*** (0.182)	0.405*** (0.094)	1.533*** (0.143)	0.371*** (0.079)
East, 2000 - 2003	1.099 (0.085)	0.087 (0.058)	1.019 (0.117)	0.073 (0.077)	1.075 (0.084)	0.068 (0.059)
Non-response next year	0.954 (0.038)	-0.012 (0.029)	1.016 (0.061)	0.025 (0.043)	0.953 (0.038)	-0.014 (0.029)
Non-response last year	0.902** (0.038)	-0.057* (0.032)	0.885* (0.063)	-0.039 (0.055)	0.906** (0.038)	-0.053* (0.032)
Pseudo/Within R2	0.09	0.10	0.11	0.10	0.09	0.10
Observations	41,618	64,188	17,284	33,791	41,618	64,188
Households	5,199	9,983	3,417	9,212	5,199	9,983

Notes: Columns (1), (3) and (5) report odds ratios from fixed-effects logit regressions for having a positive amount of saving, columns (2), (4) and (6) coefficients from linear fixed-effects regressions for the log of monthly saving incl. only households that report positive saving at least once, std. errors in parentheses. Reference categories: not worried about job security, definitely no job loss. Significance levels: \*10% \*\*5% \*\*\*1%  
Source: GSOEP, own calculations

TABLE 5: Determinants of monthly household saving - Interaction expansions

	Job worries		Job loss probability		Unemployment rate	
	(1) FE Logit	(2) Linear FE	(3) FE Logit	(4) Linear FE	(5) FE Logit	(6) Linear FE
Job insecurity	0.166** (0.132)	-1.477** (0.575)	0.505 (0.633)	-0.305 (0.871)	0.829* (0.094)	-0.155* (0.086)
* Log household income	1.265** (0.120)	0.191*** (0.068)	1.138 (0.169)	0.059 (0.102)	1.026* (0.014)	0.021** (0.010)
* Share in household income	1.000 (0.002)	-0.000 (0.002)	0.996 (0.003)	-0.002 (0.002)	1.000 (0.000)	0.000 (0.000)
* Younger than 30	1.354*** (0.118)	0.226*** (0.069)	1.200 (0.165)	0.143 (0.107)	1.000 (0.011)	0.003 (0.009)
* Older than 50	0.957 (0.074)	-0.062 (0.054)	0.988 (0.115)	-0.053 (0.076)	1.001 (0.010)	-0.002 (0.007)
* Single household	1.046 (0.094)	0.022 (0.070)	1.100 (0.150)	0.031 (0.099)	1.014 (0.012)	0.006 (0.011)
* 2-income household	1.089 (0.089)	0.064 (0.058)	1.041 (0.132)	0.059 (0.086)	1.013 (0.009)	0.010 (0.006)
* Easy to find new job	0.992 (0.074)	-0.045 (0.056)	0.953 (0.111)	-0.089 (0.082)	0.974*** (0.009)	-0.018*** (0.007)
Log household income	6.675*** (0.685)	1.948*** (0.080)	6.327*** (1.027)	2.003*** (0.122)	5.703*** (1.028)	1.818*** (0.140)
Share in household income	1.008*** (0.002)	0.008*** (0.001)	1.007** (0.003)	0.007*** (0.002)	1.008** (0.003)	0.006** (0.003)
Satisfaction with income	1.285*** (0.011)	0.227*** (0.007)	1.294*** (0.017)	0.234*** (0.010)	1.283*** (0.011)	0.226*** (0.007)
Household size	0.317*** (0.037)	-1.129*** (0.103)	0.349*** (0.059)	-1.061*** (0.136)	0.314*** (0.037)	-1.132*** (0.103)
Married	1.204*** (0.082)	0.142** (0.058)	1.197* (0.117)	0.130* (0.076)	1.212*** (0.082)	0.148** (0.058)
Single household	0.941 (0.092)	-0.169** (0.083)	1.057 (0.161)	-0.084 (0.120)	0.836 (0.137)	-0.213 (0.143)
2-income household	1.149** (0.081)	0.124** (0.049)	1.103 (0.124)	0.102 (0.078)	1.039 (0.117)	0.044 (0.086)
Children	1.176*** (0.063)	0.154*** (0.045)	1.176** (0.090)	0.175*** (0.056)	1.176*** (0.063)	0.152*** (0.045)
Infants	1.052 (0.051)	0.004 (0.042)	1.034 (0.071)	-0.005 (0.055)	1.049 (0.051)	0.002 (0.042)
Change in household	0.871*** (0.029)	-0.088*** (0.024)	0.919* (0.045)	-0.046 (0.035)	0.870*** (0.029)	-0.089*** (0.024)
Homeowner	0.447*** (0.026)	-0.670*** (0.052)	0.437*** (0.036)	-0.694*** (0.064)	0.447*** (0.026)	-0.670*** (0.052)
Female	1.088 (0.058)	0.031 (0.043)	0.969 (0.074)	-0.019 (0.057)	1.072 (0.057)	0.022 (0.043)
Younger than 30	0.816*** (0.064)	-0.058 (0.066)	0.821 (0.108)	-0.044 (0.106)	0.967 (0.135)	0.032 (0.123)
Older than 50	1.101 (0.087)	0.089 (0.057)	1.135 (0.133)	0.132* (0.076)	1.053 (0.140)	0.073 (0.103)
Years of education	1.021 (0.017)	0.021 (0.013)	1.018 (0.024)	0.017 (0.018)	1.024 (0.017)	0.022* (0.013)
German	1.113 (0.145)	0.013 (0.129)	0.999 (0.192)	-0.046 (0.172)	1.108 (0.144)	0.013 (0.129)
Satisfaction with health	0.970*** (0.008)	-0.026*** (0.006)	0.957*** (0.012)	-0.035*** (0.009)	0.970*** (0.008)	-0.027*** (0.006)
Unemployment experience	1.013 (0.024)	-0.016 (0.023)	1.002 (0.036)	-0.032 (0.031)	1.012 (0.025)	-0.017 (0.023)
Easy to find new job	1.029 (0.056)	0.057 (0.042)	1.044 (0.101)	0.078 (0.072)	1.337*** (0.143)	0.223*** (0.083)
Household asset income	1.000** (0.000)	0.000** (0.000)	1.000 (0.000)	0.000* (0.000)	1.000** (0.000)	0.000** (0.000)
Worried about finances	0.707*** (0.029)	-0.228*** (0.026)	0.780*** (0.048)	-0.178*** (0.037)	0.727*** (0.029)	-0.210*** (0.025)
Very worried about finances	0.541*** (0.028)	-0.448*** (0.038)	0.584*** (0.045)	-0.406*** (0.053)	0.560*** (0.029)	-0.428*** (0.037)
Interest rate	1.021* (0.012)	0.018** (0.008)	1.031* (0.019)	0.031*** (0.012)	1.031** (0.014)	0.027*** (0.010)
Real GDP growth	1.013* (0.008)	0.012** (0.005)	1.001 (0.012)	0.006 (0.008)	1.011 (0.008)	0.010* (0.005)
East Germany	0.766 (0.137)	-0.184 (0.163)	0.679 (0.172)	-0.417** (0.195)	0.674** (0.133)	-0.301* (0.172)
1992 - 1995	1.104 (0.086)	0.074 (0.064)	1.028 (0.121)	0.005 (0.084)	1.058 (0.084)	0.043 (0.065)
1996 - 1999	1.149*** (0.061)	0.104** (0.047)	1.086 (0.080)	0.056 (0.057)	1.121** (0.060)	0.085* (0.048)
2000 - 2003	1.037 (0.042)	0.015 (0.032)	0.961 (0.060)	-0.034 (0.043)	1.035 (0.043)	0.016 (0.032)
East, 1992 - 1995	1.676*** (0.210)	0.512*** (0.098)	1.826*** (0.375)	0.619*** (0.144)	1.929*** (0.258)	0.599*** (0.104)
East, 1996 - 1999	1.509*** (0.141)	0.358*** (0.079)	1.439*** (0.181)	0.400*** (0.094)	1.594*** (0.156)	0.386*** (0.082)
East, 2000 - 2003	1.092 (0.084)	0.082 (0.058)	1.021 (0.117)	0.075 (0.077)	1.093 (0.088)	0.073 (0.059)
Non-response next year	0.954 (0.038)	-0.013 (0.029)	1.021 (0.061)	0.029 (0.043)	0.954 (0.038)	-0.013 (0.029)
Non-response last year	0.903** (0.038)	-0.056* (0.032)	0.884* (0.063)	-0.038 (0.055)	0.907** (0.038)	-0.052 (0.032)
Pseudo/Within R2	0.10	0.10	0.11	0.10	0.10	0.10
Observations	41,618	64,188	17,284	33,791	41,618	64,188
Households	5,199	9,983	3,417	9,212	5,199	9,983

Notes: Columns (1), (3) and (5) report odds ratios from fixed-effects logit regressions for having a positive amount of saving, columns (2), (4) and (6) coefficients from linear fixed-effects regressions for the log of monthly saving incl. only households that report positive saving at least once, std. errors in parentheses. Reference categories: not worried about job security, definitely no job loss or job loss improbable. Significance levels: \*10% \*\*5% \*\*\*1%  
Source: GSOEP, own calculations



TABLE 6: Determinants of monthly household saving -  
Younger vs. middle-aged vs. older households

	Younger households		Middle-aged households		Older households	
	(1) FE Logit	(2) Linear FE	(3) FE Logit	(4) Linear FE	(5) FE Logit	(6) Linear FE
Worried about job security	1.212* (0.125)	0.104 (0.074)	1.103** (0.049)	0.062** (0.031)	0.966 (0.083)	-0.031 (0.052)
Very worried about job security	1.469*** (0.213)	0.239** (0.108)	1.142** (0.071)	0.111** (0.046)	0.957 (0.114)	-0.010 (0.076)
Log household income	10.560*** (2.855)	2.413*** (0.203)	7.594*** (0.856)	1.984*** (0.086)	8.733*** (1.910)	1.939*** (0.162)
Share in household income	1.009** (0.004)	0.009*** (0.003)	1.004** (0.002)	0.005*** (0.001)	1.012*** (0.004)	0.009*** (0.003)
Satisfaction with income	1.253*** (0.032)	0.209*** (0.020)	1.304*** (0.015)	0.233*** (0.009)	1.207*** (0.028)	0.159*** (0.016)
Household size	0.330* (0.192)	-1.219** (0.526)	0.380*** (0.058)	-0.890*** (0.130)	0.265*** (0.087)	-1.150*** (0.228)
Married	1.238 (0.225)	0.100 (0.124)	1.245** (0.116)	0.164** (0.075)	1.224 (0.402)	0.178 (0.244)
Children	1.446 (0.478)	0.139 (0.265)	1.099 (0.073)	0.095* (0.052)	1.328 (0.237)	0.246** (0.121)
Single household	1.313 (0.369)	0.028 (0.231)	0.987 (0.111)	-0.100 (0.095)	0.865 (0.298)	-0.189 (0.260)
2-income household	1.030 (0.146)	0.076 (0.102)	1.173*** (0.067)	0.141*** (0.042)	1.382*** (0.163)	0.192*** (0.074)
Infants	0.901 (0.218)	-0.013 (0.175)	1.060 (0.062)	0.011 (0.047)	2.165* (0.982)	0.482 (0.325)
Change in household	0.821** (0.070)	-0.110* (0.064)	0.839*** (0.036)	-0.119*** (0.030)	1.012 (0.097)	0.020 (0.056)
Homeowner	0.620** (0.135)	-0.431*** (0.159)	0.390*** (0.028)	-0.774*** (0.061)	0.759 (0.155)	-0.219 (0.175)
Female	1.122 (0.171)	0.046 (0.120)	1.049 (0.079)	0.004 (0.056)	0.993 (0.158)	-0.073 (0.108)
Years of education	1.009 (0.057)	-0.010 (0.040)	1.034 (0.024)	0.028 (0.018)	0.987 (0.050)	-0.011 (0.033)
German	1.232 (0.494)	0.165 (0.313)	0.815 (0.143)	-0.255 (0.159)	2.512* (1.296)	0.757 (0.538)
Satisfaction with health	0.982 (0.025)	-0.022 (0.019)	0.968*** (0.011)	-0.025*** (0.008)	0.983 (0.020)	-0.017 (0.014)
Unemployment experience	0.815* (0.099)	-0.180* (0.100)	1.068** (0.035)	0.016 (0.027)	0.905 (0.070)	-0.114* (0.060)
Easy to find new job	1.037 (0.115)	0.017 (0.081)	0.992 (0.053)	0.013 (0.039)	1.291 (0.246)	0.191 (0.122)
Household asset income	1.000*** (0.000)	0.000*** (0.000)	1.000 (0.000)	0.000 (0.000)	1.000 (0.000)	0.000 (0.000)
Worried about finances	0.664*** (0.081)	-0.260*** (0.082)	0.712*** (0.038)	-0.219*** (0.033)	0.696*** (0.069)	-0.208*** (0.053)
Very worried about finances	0.479*** (0.076)	-0.568*** (0.116)	0.547*** (0.038)	-0.429*** (0.048)	0.593*** (0.076)	-0.343*** (0.082)
Interest rate	1.021 (0.037)	-0.002 (0.027)	1.022 (0.015)	0.021** (0.010)	1.016 (0.029)	0.001 (0.018)
Real GDP growth	1.022 (0.024)	0.011 (0.016)	1.023** (0.010)	0.017*** (0.006)	0.976 (0.018)	-0.007 (0.011)
East Germany	0.580 (0.278)	-0.190 (0.388)	0.833 (0.209)	-0.109 (0.222)	0.086** (0.088)	-1.314* (0.714)
1992 - 1995	0.630 (0.204)	-0.130 (0.237)	1.159 (0.116)	0.103 (0.079)	0.685* (0.154)	-0.204 (0.159)
1996 - 1999	0.824 (0.209)	-0.030 (0.189)	1.093 (0.073)	0.070 (0.058)	1.098 (0.179)	0.060 (0.120)
2000 - 2003	0.978 (0.168)	-0.015 (0.132)	1.039 (0.054)	0.025 (0.039)	0.950 (0.106)	-0.029 (0.072)
East, 1992 - 1995	2.491* (1.343)	0.619 (0.404)	1.711*** (0.287)	0.474*** (0.126)	3.147*** (1.181)	0.771*** (0.245)
East, 1996 - 1999	2.672** (1.142)	0.576* (0.339)	1.620*** (0.200)	0.381*** (0.101)	1.579 (0.456)	0.289 (0.199)
East, 2000 - 2003	1.304 (0.412)	0.138 (0.233)	1.165 (0.116)	0.116 (0.073)	1.235 (0.260)	0.113 (0.133)
Non-response next year	0.925 (0.109)	0.020 (0.092)	0.945 (0.052)	-0.034 (0.039)	0.929 (0.079)	-0.031 (0.052)
Non-response last year	0.924 (0.105)	-0.030 (0.086)	0.944 (0.053)	-0.021 (0.040)	0.770** (0.082)	-0.179** (0.075)
Pseudo/Within R2	0.13	0.11	0.10	0.10	0.07	0.06
Observations	3,924	8,193	25,675	41,716	6,406	14,279
Households	961	2,800	3,479	7,222	1,142	3,415

Notes: Columns (1), (3) and (5) report odds ratios from fixed-effects logit regressions for having a positive amount of saving, columns (2), (4), and (6) coefficients from linear fixed-effects regressions for the log of monthly saving incl. only households that report positive saving at least once, std. errors in parentheses. Reference category: not worried about job security. Significance levels: \*10% \*\*5% \*\*\*1%

Source: GSOEP, own calculations

TABLE 7: Determinants of monthly household saving -  
Younger vs. middle-aged vs. older households (with interaction expansions)

	Younger households		Middle-aged households		Older households	
	(1) FE Logit	(2) Linear FE	(3) FE Logit	(4) Linear FE	(5) FE Logit	(6) Linear FE
Worried about job security	0.635 (1.896)	0.172 (1.890)	0.061*** (0.064)	-2.047*** (0.733)	1.199 (2.010)	-0.670 (1.109)
* Log household income	1.009 (0.371)	-0.034 (0.233)	1.461*** (0.184)	0.278*** (0.086)	0.947 (0.187)	0.061 (0.132)
* Share in household income	1.008 (0.007)	0.003 (0.005)	0.998 (0.003)	-0.002 (0.002)	1.003 (0.005)	0.002 (0.003)
* Single household	0.527** (0.145)	-0.340* (0.197)	1.241* (0.145)	0.134 (0.087)	0.760 (0.183)	-0.158 (0.164)
* 2-income household	1.213 (0.308)	0.079 (0.178)	1.030 (0.109)	0.026 (0.072)	1.134 (0.234)	0.119 (0.111)
* Easy to find new job	1.477** (0.276)	0.258** (0.129)	0.963 (0.088)	-0.062 (0.066)	0.648 (0.227)	-0.181 (0.229)
Log household income	11.083*** (3.838)	2.444*** (0.238)	5.926*** (0.820)	1.813*** (0.102)	9.059*** (2.292)	1.903*** (0.177)
Share in household income	1.004 (0.006)	0.008** (0.004)	1.005** (0.003)	0.006*** (0.002)	1.010** (0.005)	0.008*** (0.003)
Satisfaction with income	1.253*** (0.032)	0.209*** (0.020)	1.304*** (0.015)	0.233*** (0.009)	1.207*** (0.028)	0.159*** (0.016)
Household size	0.358* (0.209)	-1.159** (0.528)	0.376*** (0.058)	-0.900*** (0.130)	0.261*** (0.086)	-1.149*** (0.228)
Married	1.227 (0.225)	0.090 (0.125)	1.254** (0.117)	0.167** (0.075)	1.240 (0.407)	0.183 (0.243)
Children	1.397 (0.461)	0.119 (0.265)	1.103 (0.073)	0.099* (0.052)	1.338 (0.239)	0.245** (0.121)
Single household	1.939** (0.632)	0.220 (0.264)	0.853 (0.114)	-0.193* (0.110)	1.036 (0.394)	-0.094 (0.275)
2-income household	0.923 (0.197)	0.031 (0.142)	1.146 (0.105)	0.120* (0.062)	1.275 (0.227)	0.120 (0.096)
Infants	0.906 (0.219)	-0.010 (0.174)	1.058 (0.062)	0.009 (0.047)	2.129* (0.970)	0.476 (0.327)
Change in household	0.827** (0.071)	-0.108* (0.064)	0.836*** (0.036)	-0.121*** (0.030)	1.014 (0.097)	0.020 (0.056)
Homeowner	0.612** (0.133)	-0.434*** (0.159)	0.390*** (0.028)	-0.774*** (0.060)	0.751 (0.153)	-0.219 (0.176)
Female	1.139 (0.174)	0.053 (0.120)	1.048 (0.079)	0.003 (0.056)	0.992 (0.158)	-0.072 (0.108)
Years of education	1.009 (0.057)	-0.010 (0.040)	1.035 (0.024)	0.027 (0.018)	0.987 (0.050)	-0.011 (0.033)
German	1.179 (0.473)	0.144 (0.311)	0.805 (0.142)	-0.259 (0.158)	2.562* (1.324)	0.763 (0.536)
Satisfaction with health	0.983 (0.025)	-0.022 (0.019)	0.968*** (0.011)	-0.025*** (0.008)	0.982 (0.020)	-0.017 (0.014)
Unemployment experience	0.813* (0.099)	-0.185* (0.100)	1.069** (0.035)	0.018 (0.027)	0.904 (0.070)	-0.114* (0.059)
Easy to find new job	0.850 (0.124)	-0.119 (0.104)	1.010 (0.069)	0.038 (0.049)	1.499* (0.339)	0.243* (0.138)
Household asset income	1.000*** (0.000)	0.000*** (0.000)	1.000 (0.000)	0.000 (0.000)	1.000 (0.000)	0.000 (0.000)
Worried about finances	0.663*** (0.082)	-0.255*** (0.083)	0.710*** (0.038)	-0.225*** (0.033)	0.693*** (0.069)	-0.213*** (0.053)
Very worried about finances	0.503*** (0.079)	-0.534*** (0.115)	0.552*** (0.037)	-0.419*** (0.047)	0.587*** (0.075)	-0.343*** (0.079)
Interest rate	1.022 (0.037)	-0.001 (0.027)	1.022 (0.015)	0.021** (0.010)	1.016 (0.029)	0.001 (0.018)
Real GDP growth	1.023 (0.024)	0.012 (0.016)	1.024** (0.010)	0.018*** (0.006)	0.976 (0.018)	-0.007 (0.011)
East Germany	0.589 (0.286)	-0.162 (0.387)	0.838 (0.210)	-0.101 (0.222)	0.087** (0.089)	-1.312* (0.716)
1992 - 1995	0.640 (0.208)	-0.117 (0.237)	1.158 (0.116)	0.102 (0.079)	0.689* (0.155)	-0.201 (0.159)
1996 - 1999	0.819 (0.208)	-0.028 (0.189)	1.091 (0.073)	0.069 (0.058)	1.103 (0.180)	0.063 (0.120)
2000 - 2003	0.958 (0.165)	-0.012 (0.132)	1.039 (0.054)	0.025 (0.039)	0.947 (0.105)	-0.030 (0.072)
East, 1992 - 1995	2.413 (1.307)	0.603 (0.405)	1.706*** (0.286)	0.475*** (0.126)	3.081*** (1.157)	0.763*** (0.245)
East, 1996 - 1999	2.655** (1.140)	0.565* (0.340)	1.616*** (0.200)	0.378*** (0.101)	1.543 (0.446)	0.282 (0.199)
East, 2000 - 2003	1.267 (0.401)	0.121 (0.232)	1.160 (0.116)	0.112 (0.073)	1.233 (0.260)	0.112 (0.133)
Non-response next year	0.936 (0.111)	0.019 (0.092)	0.947 (0.052)	-0.033 (0.039)	0.930 (0.080)	-0.033 (0.052)
Non-response last year	0.917 (0.104)	-0.033 (0.086)	0.943 (0.053)	-0.019 (0.040)	0.768** (0.082)	-0.179** (0.075)
Pseudo/Within R2	0.13	0.11	0.10	0.10	0.07	0.06
Observations	3,924	8,193	25,675	41,716	6,406	14,279
Households	961	2,800	3,479	7,222	1,142	3,415

Notes: Columns (1), (3) and (5) report odds ratios from fixed-effects logit regressions for having a positive amount of saving, columns (2), (4), and (6) coefficients from linear fixed-effects regressions for the log of monthly saving incl. only households that report positive saving at least once, std. errors in parentheses. Reference category: not worried about job security. Significance levels: \*10% \*\*5% \*\*\*1%  
Source: GSOEP, own calculations

TABLE 8: Determinants of monthly household saving -  
Singles vs. couples with 1 or 2 incomes

	Single households		1-income households		2-income households	
	(1)	(2)	(3)	(4)	(5)	(6)
	FE Logit	Linear FE	FE Logit	Linear FE	FE Logit	Linear FE
Worried about job security	1.075 (0.087)	0.007 (0.055)	1.101 (0.066)	0.069 (0.043)	1.109* (0.067)	0.040 (0.039)
Very worried about job security	1.177 (0.137)	0.085 (0.081)	1.252** (0.110)	0.160** (0.064)	1.033 (0.083)	0.023 (0.058)
Log household income	14.033*** (3.126)	2.255*** (0.143)	7.948*** (1.358)	2.110*** (0.133)	5.411*** (0.815)	1.799*** (0.117)
Share in household income	1.012*** (0.004)	0.011*** (0.002)	1.005 (0.003)	0.007*** (0.002)	1.007** (0.003)	0.008*** (0.002)
Satisfaction with income	1.289*** (0.026)	0.223*** (0.015)	1.289*** (0.022)	0.215*** (0.013)	1.247*** (0.019)	0.198*** (0.011)
Household size	0.173*** (0.062)	-1.204*** (0.259)	0.346*** (0.073)	-0.973*** (0.183)	0.322*** (0.069)	-1.143*** (0.170)
Children	1.352* (0.229)	0.201* (0.121)	1.340*** (0.143)	0.200** (0.082)	1.088 (0.092)	0.139** (0.064)
Infants	1.158 (0.381)	0.161 (0.234)	1.056 (0.077)	0.026 (0.058)	0.902 (0.087)	-0.062 (0.076)
Change in household	0.874* (0.069)	-0.092* (0.053)	0.938 (0.055)	-0.018 (0.041)	0.850*** (0.053)	-0.115*** (0.041)
Homeowner	0.464*** (0.088)	-0.618*** (0.158)	0.421*** (0.043)	-0.697*** (0.088)	0.429*** (0.042)	-0.709*** (0.080)
Female	2.178 (1.116)	0.297 (0.384)	0.684** (0.122)	-0.273* (0.159)	0.990 (0.075)	-0.034 (0.051)
Younger than 30	0.941 (0.135)	0.027 (0.105)	0.982 (0.110)	0.124 (0.094)	0.926 (0.110)	0.065 (0.089)
Older than 50	0.945 (0.139)	-0.040 (0.114)	1.064 (0.120)	0.071 (0.087)	1.045 (0.098)	0.008 (0.064)
Years of education	1.010 (0.060)	0.026 (0.047)	1.098** (0.045)	0.062** (0.030)	1.030 (0.027)	0.019 (0.018)
German	0.808 (0.441)	-0.076 (0.461)	1.077 (0.249)	-0.008 (0.226)	1.099 (0.272)	0.132 (0.190)
Satisfaction with health	0.998 (0.020)	-0.002 (0.014)	0.969** (0.015)	-0.029** (0.012)	0.963** (0.014)	-0.029*** (0.010)
Unemployment experience	0.774** (0.082)	-0.244*** (0.085)	0.965 (0.065)	-0.045 (0.057)	1.041 (0.036)	0.002 (0.028)
Easy to find new job	1.069 (0.108)	0.079 (0.069)	1.111 (0.082)	0.087 (0.056)	0.967 (0.076)	0.008 (0.053)
Household asset income	1.000** (0.000)	0.000* (0.000)	1.000 (0.000)	0.000 (0.000)	1.000 (0.000)	0.000 (0.000)
Worried about finances	0.718*** (0.067)	-0.183*** (0.057)	0.689*** (0.049)	-0.243*** (0.046)	0.746*** (0.056)	-0.178*** (0.040)
Very worried about finances	0.500*** (0.062)	-0.477*** (0.083)	0.492*** (0.046)	-0.495*** (0.067)	0.655*** (0.062)	-0.282*** (0.061)
Interest rate	1.041 (0.030)	0.023 (0.019)	1.010 (0.020)	0.009 (0.014)	0.996 (0.020)	0.004 (0.013)
Real GDP growth	1.006 (0.019)	0.007 (0.011)	1.023 (0.014)	0.016* (0.009)	1.019 (0.013)	0.016** (0.008)
East Germany	0.694 (0.284)	-0.026 (0.324)	0.767 (0.330)	-0.179 (0.378)	0.442** (0.160)	-0.638** (0.298)
1992 - 1995	0.556*** (0.112)	-0.283* (0.148)	1.151 (0.159)	0.062 (0.107)	1.212 (0.176)	0.099 (0.109)
1996 - 1999	0.740** (0.102)	-0.160 (0.108)	1.182* (0.113)	0.090 (0.080)	1.201* (0.120)	0.133 (0.081)
2000 - 2003	0.721*** (0.071)	-0.185*** (0.071)	1.119 (0.081)	0.054 (0.055)	1.153* (0.088)	0.068 (0.054)
East, 1992 - 1995	1.930* (0.690)	0.522** (0.241)	1.160 (0.305)	0.372* (0.194)	2.084*** (0.433)	0.577*** (0.148)
East, 1996 - 1999	1.288 (0.336)	0.265 (0.199)	0.864 (0.175)	0.066 (0.160)	1.969*** (0.295)	0.445*** (0.113)
East, 2000 - 2003	1.058 (0.210)	0.083 (0.132)	0.803 (0.136)	-0.041 (0.115)	1.203 (0.147)	0.109 (0.084)
Non-response next year	1.068 (0.097)	0.070 (0.061)	0.845** (0.060)	-0.112** (0.052)	1.098 (0.080)	0.077 (0.047)
Non-response last year	0.927 (0.086)	-0.030 (0.064)	0.893 (0.071)	-0.074 (0.058)	1.033 (0.079)	0.024 (0.054)
Pseudo/Within R2	0.11	0.10	0.08	0.07	0.07	0.07
Observations	7,370	13,664	12,915	23,658	13,318	26,866
Households	1,315	3,412	2,145	5,769	2,159	6,266

Notes: Columns (1), (3) and (5) report odds ratios from fixed-effects logit regressions for having a positive amount of saving, columns (2), (4), and (6) coefficients from linear fixed-effects regressions for the log of monthly saving incl. only households that report positive saving at least once, std. errors in parentheses. Reference category: not worried about job security. Significance levels: \*10% \*\*5% \*\*\*1%

Source: GSOEP, own calculations

TABLE 9: Determinants of monthly household saving -  
Singles vs. couples with 1 or 2 incomes (with interaction expansions)

	Single households		1-income households		2-income households	
	(1)	(2)	(3)	(4)	(5)	(6)
	FE Logit	Linear FE	FE Logit	Linear FE	FE Logit	Linear FE
Worried about job security	0.518 (0.969)	-0.879 (1.200)	0.206 (0.286)	-1.144 (0.931)	2.513 (3.719)	0.472 (0.977)
* Log household income	1.121 (0.255)	0.138 (0.148)	1.254 (0.206)	0.162 (0.109)	0.919 (0.163)	-0.038 (0.116)
* Share in household income	0.999 (0.004)	-0.001 (0.003)	0.998 (0.004)	-0.001 (0.003)	0.997 (0.005)	-0.003 (0.003)
* Younger than 30	0.882 (0.165)	-0.050 (0.126)	1.728*** (0.285)	0.438*** (0.135)	1.428** (0.236)	0.201* (0.113)
* Older than 50	0.973 (0.186)	-0.057 (0.140)	1.234 (0.170)	0.104 (0.084)	0.888 (0.116)	-0.064 (0.081)
* Easy to find new job	1.164 (0.201)	0.006 (0.118)	0.962 (0.123)	-0.051 (0.095)	0.994 (0.136)	0.001 (0.093)
Log household income	13.122*** (3.419)	2.180*** (0.166)	6.879*** (1.356)	2.004*** (0.147)	5.728*** (1.104)	1.822*** (0.140)
Share in household income	1.013*** (0.004)	0.011*** (0.003)	1.006 (0.004)	0.007*** (0.003)	1.009** (0.004)	0.009*** (0.003)
Satisfaction with income	1.289*** (0.026)	0.223*** (0.015)	1.287*** (0.022)	0.214*** (0.013)	1.248*** (0.019)	0.198*** (0.011)
Household size	0.172*** (0.062)	-1.215*** (0.259)	0.349*** (0.074)	-0.968*** (0.183)	0.322*** (0.069)	-1.143*** (0.170)
Children	1.359* (0.230)	0.206* (0.122)	1.323*** (0.141)	0.196** (0.082)	1.087 (0.092)	0.139** (0.064)
Infants	1.166 (0.383)	0.162 (0.234)	1.049 (0.077)	0.021 (0.058)	0.898 (0.087)	-0.063 (0.076)
Change in household	0.875* (0.069)	-0.092* (0.053)	0.937 (0.055)	-0.018 (0.041)	0.857** (0.054)	-0.113*** (0.041)
Homeowner	0.463*** (0.088)	-0.617*** (0.158)	0.421*** (0.043)	-0.698*** (0.088)	0.430*** (0.042)	-0.709*** (0.080)
Female	2.150 (1.105)	0.287 (0.386)	0.671** (0.120)	-0.294* (0.159)	0.996 (0.075)	-0.033 (0.051)
Younger than 30	1.008 (0.175)	0.048 (0.122)	0.708** (0.106)	-0.135 (0.126)	0.743* (0.116)	-0.055 (0.111)
Older than 50	0.966 (0.186)	-0.000 (0.148)	0.928 (0.134)	0.005 (0.101)	1.141 (0.154)	0.053 (0.082)
Years of education	1.011 (0.060)	0.027 (0.048)	1.095** (0.045)	0.061** (0.029)	1.031 (0.027)	0.019 (0.018)
German	0.780 (0.426)	-0.098 (0.458)	1.114 (0.258)	0.021 (0.225)	1.105 (0.274)	0.124 (0.190)
Satisfaction with health	0.999 (0.020)	-0.002 (0.014)	0.969** (0.015)	-0.030** (0.012)	0.964** (0.014)	-0.029*** (0.010)
Unemployment experience	0.774** (0.082)	-0.243*** (0.085)	0.970 (0.065)	-0.043 (0.057)	1.043 (0.036)	0.002 (0.028)
Easy to find new job	0.996 (0.125)	0.074 (0.082)	1.128 (0.107)	0.110 (0.070)	0.979 (0.101)	0.013 (0.069)
Household asset income	1.000** (0.000)	0.000* (0.000)	1.000 (0.000)	0.000 (0.000)	1.000 (0.000)	0.000 (0.000)
Worried about finances	0.719*** (0.067)	-0.183*** (0.057)	0.690*** (0.049)	-0.244*** (0.046)	0.748*** (0.056)	-0.174*** (0.040)
Very worried about finances	0.514*** (0.063)	-0.457*** (0.082)	0.508*** (0.047)	-0.471*** (0.065)	0.646*** (0.060)	-0.285*** (0.059)
Interest rate	1.041 (0.030)	0.023 (0.019)	1.009 (0.020)	0.008 (0.014)	0.996 (0.020)	0.004 (0.013)
Real GDP growth	1.007 (0.019)	0.007 (0.011)	1.024* (0.014)	0.016* (0.009)	1.019 (0.013)	0.016** (0.008)
East Germany	0.705 (0.289)	-0.006 (0.327)	0.778 (0.336)	-0.167 (0.376)	0.433** (0.157)	-0.649** (0.299)
1992 - 1995	0.558*** (0.113)	-0.280* (0.149)	1.162 (0.161)	0.062 (0.107)	1.227 (0.179)	0.105 (0.109)
1996 - 1999	0.736** (0.102)	-0.161 (0.108)	1.184* (0.113)	0.089 (0.080)	1.207* (0.121)	0.135* (0.081)
2000 - 2003	0.721*** (0.071)	-0.186*** (0.071)	1.115 (0.081)	0.050 (0.055)	1.154* (0.088)	0.068 (0.054)
East, 1992 - 1995	1.910* (0.685)	0.516** (0.241)	1.139 (0.299)	0.355* (0.194)	2.030*** (0.422)	0.565*** (0.148)
East, 1996 - 1999	1.283 (0.336)	0.260 (0.199)	0.851 (0.173)	0.053 (0.160)	1.954*** (0.293)	0.441*** (0.113)
East, 2000 - 2003	1.053 (0.210)	0.075 (0.132)	0.808 (0.137)	-0.042 (0.115)	1.197 (0.146)	0.106 (0.084)
Non-response next year	1.068 (0.097)	0.071 (0.061)	0.849** (0.061)	-0.111** (0.052)	1.098 (0.080)	0.075 (0.047)
Non-response last year	0.925 (0.086)	-0.029 (0.064)	0.894 (0.071)	-0.074 (0.058)	1.032 (0.079)	0.024 (0.054)
Pseudo/Within R2	0.11	0.10	0.08	0.07	0.07	0.07
Observations	7,370	13,664	12,915	23,658	13,318	26,866
Households	1,315	3,412	2,145	5,769	2,159	6,266

Notes: Columns (1), (3) and (5) report odds ratios from fixed-effects logit regressions for having a positive amount of saving, columns (2), (4), and (6) coefficients from linear fixed-effects regressions for the log of monthly saving incl. only households that report positive saving at least once, std. errors in parentheses. Reference category: not worried about job security. Significance levels: \*10% \*\*5% \*\*\*1%  
Source: GSOEP, own calculations

TABLE 10: Fraction of household saving due to job insecurity

<b>Sample</b>	<b>Observations</b>	<b>Job worries</b> Percent	<b>Job loss probability</b> Percent	<b>Unemployment rate</b> Percent
All households	64,188	<b>3.0</b>	<b>3.2</b>	<b>7.9</b>
All households (incl. interactions)	64,188	<b>5.7</b>	4.9	<b>11.4</b>
Single households	13,664	0.9	<b>0.4</b>	<b>15.4</b>
1-income households	23,658	<b>3.9</b>	0.8	2.6
2-income households	26,866	1.9	2.9	4.1
Young households	8,193	<b>5.8</b>	<b>7.7</b>	0.5
Middle-aged households	41,716	<b>3.7</b>	<b>2.3</b>	<b>11.5</b>
Old households	14,279	-1.2	2.5	-4.9

Notes: Table reports percentage differences in aggregate monthly household saving between the predicted sum of saving from fixed-effects regressions, and the counter-factual sum of saving without job insecurity. Bold font denotes significance of job insecurity coefficients in the underlying regressions.  
Source: GSOEP, own calculations

FIGURE 1: Monthly household saving and unemployment rates in Western and Eastern Germany, 1992 - 2008

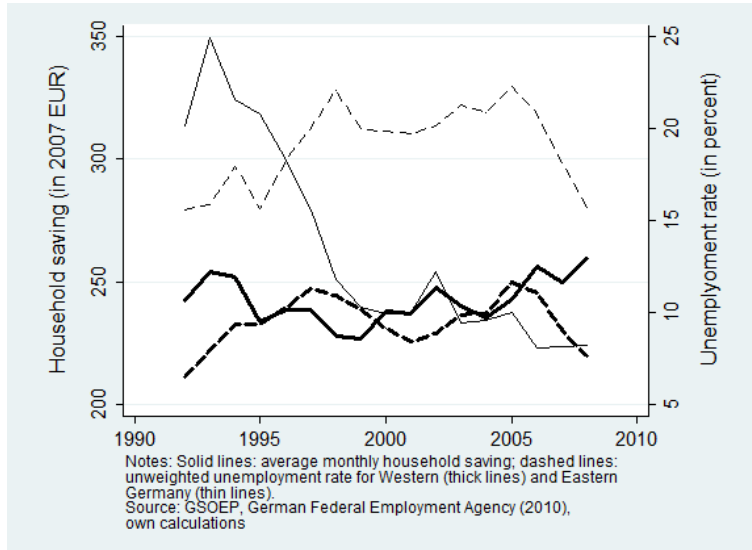


FIGURE 2: Fraction of household saving due to job insecurity by household income percentiles

