The University Of Sheffield.

Department Of Economics.

Sheffield Economic Research Paper Series.

Financial Concerns and Overall Life Satisfaction: A Joint Modelling Approach

Daniel Gray

ISSN 1749-8368

SERPS no. 2014008
May 2014

Inst EAD. | Institute for Economic Analysis of Decision-making.

www.sheffield.ac.uk/economics instead.group.shef.ac.uk

Financial Concerns and Overall Life Satisfaction: A Joint Modelling Approach

Daniel Gray

E-mail: d.j.gray@sheffield.ac.uk, Tel: +44 (0)114 222 9653
Department of Economics
University of Sheffield
9 Mappin Street
Sheffield, S1 4DT

Abstract

This paper explores the relationship between the household's financial position and overall life satisfaction. The empirical analysis, based on a large nationally representative panel survey for Germany, aims to ascertain the impact of a household's subjective and monetary financial positions on overall life satisfaction. Within a fixed effects framework, the level of household assets and net wealth are positively related to overall life satisfaction, as is household income. Allowing for different types of debt to have differential impacts on overall life satisfaction reveals that unsecured debt, opposed to secured debt, has a detrimental impact on overall life satisfaction. In addition, the household's subjective financial position is found to be an important determinant of overall life satisfaction. The potential endogeneity of the subjective financial measures in the overall life satisfaction equation is accounted for using a recursive bivariate ordered probit model. The results suggest that the subjective financial position mediates the association between the household's monetary financial position and overall life satisfaction.

Keywords: Bivariate Ordered Probit; Fixed Effects Ordered Logit; Household Finances; and Overall Life Satisfaction

JEL Classification: D14; I31; J28

Acknowledgements

I am grateful to the the Department of Policy and Management, Cornell University, and the German Institute for Economic Research, Berlin, for supplying the GSOEP data. I am also grateful to Sarah Brown, Jennifer Roberts, Bert Van Landeghem and participants at the *Work and Pensions Economics Group Annual Conference*, University of Sheffield, 2013, for excellent comments. The normal disclaimer applies.

1 Introduction and Background

The topic of well-being has received a large amount of attention from a variety of academic disciplines in the past three decades, including both psychology and economics, and also from a wider public audience. Measures of well-being are increasingly being proposed as measures of economic progress as they potentially capture information beyond that contained in more traditional measures of economic development, such as GDP. Consequently, it is argued that well-being measures should be used in conjunction with these traditional measures to inform and evaluate public policy. This idea is being replicated across the world and as a result it is important to fully understand the determinants of well-being.

One area of an individual's life that could potentially have a dramatic impact on their well-being is their household's financial position. In the decade prior to the latest economic crash, there was a dramatic increase in the level of household debt in the developed world. At the aggregate level, household debt levels in Germany increased from approximately €360 billion in 1993 to exceed €1,000 billion in 2007. The Bundesbank's borrowers statistics showed that the total debt of households stood at €1,403 billion of the end of 2010. In addition, average household unsecured debt stood at €1,700 in 2008 compared to €1,300 in 1998 whilst the average secured debt held by households increased by €5,900 across this time period[1]. Debt levels and the general financial position of the household, could potentially have a significant impact on an individual's level of well-being. Hence, this paper will explore the effects of a household's financial situation on individual well-being from an empirical perspective.

The determinants of overall life satisfaction have been explored in a variety of contexts, see, for example, Dolan et al. (2008), Clark et al. (2008), MacKerron (2012) and Stutzer and Frey (2010) for comprehensive reviews of the existing literature. In the existing literature, a vast quantity of studies explore the impact of income, with many using income as a proxy for the level of financial resources, see for example, Clark et al. (2008). However, there remains a relatively small number of studies which consider the

[1]The statistics are based on figures from the Bundesbank (www.bundesbank.de).

impact of other variables which capture the household's financial resources on overall life satisfaction. The household's levels of assets, debt and net wealth arguably capture different aspects of the household's financial position and therefore are potentially important determinants of individual well-being.

Despite the dramatically changing composition of household asset and debt portfolios in recent decades, the analysis of their effects on overall life satisfaction remains relatively sparse. In the existing literature there exists a limited number of studies that control for the household's level of net wealth, debt or asset levels. For example, Headey and Wooden (2004) analysed the 2002 wave of the 'Household Income and Labour Dynamics in Australia' (HILDA) survey and explored the link between net wealth and well-being. In the study, the authors made a distinction between an individual's level of well-being and ill-being, arguing that they are distinct concepts rather than opposite ends of the same distribution. The authors found that household net wealth was as important as income in determining an individual's level of well-being and ill-being. Similarly, Headey et al. (2008), using a fixed effects linear model, found that net wealth is a statistically significant determinant of overall life satisfaction in the Netherlands and Hungary.

In a related area, Brown et al. (2005) analysed the 2000 wave of the 'British Household Panel Survey' (BHPS), via an ordered probit model, and found that it was unsecured debt, opposed to secured debt, which influences an individual's level of psychological well-being. Using data from the USA, Drentea (2000) showed that anxiety was positively related to debt levels and the debt to income ratio. Keese and Schmitz (2013) assessed the relationship between household indebtedness and a variety of different health measures in Germany using data drawn from the GSOEP survey from 1999 to 2009. The authors reported that once individual fixed effects were accounted for, household debt displayed a strong negative relationship with self-assessed health status and mental well-being.

In addition to the monetary financial position of the household potentially influencing an individual's well-being, their subjective financial position could also be a key determinant of their overall life satisfaction. It is consistently found in the existing literature that subjective measures of the household's financial position are important determinants

of individual well-being. For example, Bridges and Disney (2010) explored the link between the likelihood of reporting depression and a variety of objective and subjective debt measures in Britain using the 'Family and Children Survey'. The study found that the subjective, rather than the objective, debt measures had a direct impact on the likelihood of reporting depression. The study went on to report, using a bivariate probit model, that the level of debt influenced the likelihood of reporting being depressed and it's impact was mediated via the subjective debt measures. Similarly, Reading and Reynolds (2001) found that self-reported debt problems were associated with higher levels of maternal depression.

Analysing the BHPS, Wildman (2003) found that self-reported financial status, as well as the expected future financial position were positively related to self-reported health measures. Similarly, Mentzakis and Moro (2009) analysed the BHPS and used the current subjective financial position as a proxy for an individual's relative financial position. They found that it is an important determinant of subjective well-being, whilst, Brown et al. (2005) shows that past and expected future financial positions were important determinants of psychological well-being in the UK.

Analysing the 2002 and 2007 waves of the GSOEP survey, the analysis presented in this paper builds on the existing literature by providing a longitudinal analysis of overall life satisfaction in Germany, whilst controlling for the household's level of net wealth, assets and debt. This study builds on the existing literature by allowing different types of debt to have differential impacts on an individual's level of well-being. The analysis also accounts for the head of household's subjective financial position, in conjunction with the household's monetary financial position, which has previously been shown to be an important determinant of individual well-being. The empirical analysis then further develops the existing literature by accounting for the potential endogeneity of the subjective financial measure in the overall life satisfaction model by employing a recursive bivariate ordered probit model. This approach will also allow the exploration of the potential mediating effects of the subjective financial position between the household's monetary financial position and its overall life satisfaction.

The results from the fixed effects ordered logit specification indicate that higher levels of household income, household assets and net wealth are positively related to overall life satisfaction. In line with Brown et al. (2005) for the UK, the results provide evidence that in Germany it is also unsecured, as opposed to secured, debt which has a detrimental impact on well-being. The subjective financial position has the expected impact on overall life satisfaction, with individuals who are concerned about their economic situation reporting lower levels of overall life satisfaction. The joint modelling approach reveals that the subjective financial position appears to mediate the effects of the household's level of assets and debts in addition to the effects of unemployment and household income.

2 Data

The empirical analysis is based on data drawn from the German Socio-Economic Panel (GSOEP) survey. The GSOEP survey is a nationally representative panel survey of private households that commenced in West Germany in 1984 in which every household member above the age of 16 was eligible to be interviewed. The survey was extended in 1990 to include East Germany. Wealth measures, which are the focus of this paper, were included in the 2002 and 2007 waves of the GSOEP survey. The GSOEP survey asks respondents about the value of their property, financial assets, business assets and tangible assets. It also asks participating individuals about their outstanding debts, which makes it possible to construct a variety of financial measures. Following Bertaut and Haliassos (2001) and Brown et al. (2005), the analysis focuses on the head of household, who is defined as *"the individual in the household who best knows how the household acts under general conditions"*. The analysis presented in this paper considers a balanced panel of household heads[2]. Omitting observations with missing values of the relevant variables yields a sample of 7,712 household heads aged between 18 and 97, with 37.1% of household heads being females.

Following Dolan et al. (2008) and MacKerron (2012), this study analyses a single item measure of overall life satisfaction which is now widely used in the existing literature. The

[2]Similar results are obtained using an unbalanced panel.

dependent variable is based upon the question, *"How satisfied are you with your life, all things considered?"* This is measured on an ordinal 11 point scale where 0 indicates *"completely dissatisfied"* and 10 represents *"completely satisfied"*. Figure 1 in the appendix shows the distribution of the head of household's level of overall life satisfaction. In line with Dolan et al. (2008), the distribution of overall life satisfaction is highly skewed with the majority of individuals tending to report higher levels of overall life satisfaction.

The subjective financial position, in accordance with Delken (2008) and Hofmann and Hohmeyer (2013), is based on the question *"What is your attitude towards the following areas - are you concerned about them? Your own economic situation"*. The three possible responses to this question were, *"not at all concerned"*, *"concerned"* and *"very concerned"*. This variable is measured on an ordinal scale where zero indicates *"not at all concerned"* and two represents *"very concerned"*. The subjective financial measure is initially assumed to be an exogenous determinant of overall life satisfaction and as a result it is included as an explanatory variable. In the single equation analysis, *"not at all concerned"* is defined to be the omitted category, whilst binary variables indicating *"concerned"* and *"very concerned"* are included. The summary statistics of the subjective financial measures are presented in Table 1. The average subjective financial position score is 0.898, with 48.8% and 20.5% of household heads reporting *"concerned"* and *"very concerned"* respectively. It is argued that the subjective financial position will capture information beyond that contained in the monetary financial measures which are discussed below. As argued by Mentzakis and Moro (2009), the head of household's subjective financial position captures their relative financial position compared to their peers. Equally, as suggested by Bridges and Disney (2010), the subjective financial position could capture the level of control the individual feels they possess over their current financial position.

There is a vast literature which has explored the relationship between income and overall life satisfaction, see for example Ferrer-i Carbonell (2005) and Clark et al. (2008); however, income is arguably not the best indicator of the household's financial resources. Consequently, in line with Brown et al. (2005), Headey and Wooden (2004) and Headey

et al. (2008), this study controls for a variety of monetary financial measures. These are namely the household's total assets, total debt, the level of unsecured and secured debt and the household's level of net wealth. This will allow exploration of whether assets and different types of debt have differential impacts on overall life satisfaction.

Following Brown and Taylor (2008), the level of total assets held by the household is given by the summation of the household's financial assets, tangible assets and the current value of any property owned. The household's level of secured debt is generated from the question *"If you still have a loan taken out on your house/apartment, how high is the remaining debt (excluding interest)?"* and clearly refers to the value of any outstanding debt secured against any property owned. The level of unsecured debt is defined to be any outstanding debt, other than secured debt. This is generated from the question *"Leaving aside any mortgages on house or property or house-building loan: Do you currently still owe money on loans that you personally were granted by a bank, other organization, or private individual, and for which you personally are liable? How high are your outstanding debts?"* Total debt is given by the summation of unsecured and secured debt whilst the household's level of net wealth is defined to be the household's total assets minus their total debt. In line with Gropp et al. (1997), the natural logarithm is taken in order to account for the skewed nature of the variables[3]. All financial variables are inflated to the 2007 price levels.

Based upon the existing literature, a variety of other socioeconomic and demographic characteristics are controlled for in the analysis. Age and age squared of the head of household are included in the analysis in addition to the the natural logarithm of household size. The natural logarithm of net household income is included, in addition to the head of household's highest level of education. A series of variables capture whether the highest level of education is equivalent to general compulsory education, general intermediate education, having a vocational qualification or possessing a degree level of education or above. The omitted category is defined to be having below compulsory education as

[3]Where assets and debt take a positive value, the natural logarithm is simply taken. Where these variables are zero the natural logarithm is defined to be zero. When the value of net wealth is negative, the natural logarithm of net wealth is defined to be $-ln(|nw|)$.

the highest level of education. Controls for the head of household's labour market status are included which capture whether the head of household is unemployed, not in the labour force or retired, with being employed being the omitted category. A considerable literature has explored the relationship between employment status, with unemployment consistently shown to have a significant detrimental impact on individual well-being. The relationship status is also included with being married defined as the omitted category. The head of household's health is captured by self-assessed health status, which is measured as a series of four binary variables, where reporting *"very poor"* is defined as the omitted category. These variables are included as they have all been previously found to be important determinants of individual well-being in the existing literature, see for example, Dolan et al. (2008). Table 1 presents the summary statistics of the variables employed in this study.

3 The Determinants of Overall Life Satisfaction

3.1 Methodology

The analysis of overall life satisfaction employs the methodology proposed by Baetschmann et al. (2011), namely the fixed effects ordered logit model estimated via the "Blow-up and Cluster" estimator. This approach has been used to analyse overall life satisfaction in a variety of contexts, see for example, Frijters and Beatton (2012) and Dickerson et al. (2012) who explore the "U-shape" age pattern in life satisfaction and the relationship between commuting and well-being, respectively. Following Ferrer-i Carbonell and Frijters (2004) it is important to account for individual heterogeneity when analysing subjective well-being measures. The underlying model is based on the latent variable model

$$y_{it}^{*} = x_{it}'\beta + \alpha_i + \epsilon_{it}, i = 1, ..., N, t = 1, ..., T \tag{1}$$

where y_{it}^{*} is a latent measure of the i^{th} head of household's overall life satisfaction in period t, x_{it} is the vector of observable characteristics, and β is a vector of coefficients to

be estimated. α_i is a time invariant unobserved component and ϵ_{it} is a white noise error term. What is observed, however, is y_{it}

$$y_{it} = k \text{ if } \mu_k < y^*_{it} \leq \mu_{k+1}, k = 1, ..., K. \tag{2}$$

The threshold parameters, μ_k, are assumed to be strictly increasing for all values of k, and μ_1 = -∞ and μ_{K+1} = +∞. Assuming that the white noise error term, ϵ_{it}, is independently and identically distributed (*IID*) by the logistic distribution, it follows that the probability of observing outcome k for individual i in time period t is given as

$$Pr(y_{it} = k|x_{it}, \alpha_i = \Lambda(\mu_{k+1} - x'_{it}\beta - \alpha_i) - \Lambda(\mu_k - x'_{it}\beta - \alpha_i) \tag{3}$$

where $\Lambda(.)$ represents the cumulative logistic distribution.

To consistently estimate the coefficients of β, it is required that the K levels of y_{it} are dichotomized, that is collapsed into binary outcomes. This estimation method is called the "Blow-Up and Cluster" (BUC) estimator. The estimator initially "blows-up" the sample size by replacing every observation in the sample by $K - 1$ copies of itself, and then dichotomises every $K - 1$ copy of the individual at all available cut off points. The conditional maximum likelihood logit estimate is then estimated using the entire sample, giving the "BUC" estimates[4].

One potentially limiting factor for the "BUC" fixed effects estimator is that it is not possible to calculate the marginal effects relating to each of the parameter estimates. It is possible however to comment on the sign and significance of each of the estimates.

3.2 Results

Table 2 presents the coefficients of the determinants of overall life satisfaction. The table presents four different specifications as a consequence of the construction of the household's monetary financial variables. Specification 1 includes the basic demographic and

[4]The fixed effects ordered logit model is implemented in STATA using the "bucologit" command proposed by Dickerson et al. (2012).

socio-economic variables, in addition to the subjective financial position of the household. Specification 2 includes the net wealth of the household, whilst, Specification 3 separates net wealth into total assets and total debt. Finally, Specification 4, in line with Brown et al. (2005), separates total debt into secured and unsecured debt. Within all these specifications, it is assumed that the head of household's level of concerns relating to their finances is an exogenous determinant of overall life satisfaction.

It is not possible to comment on the magnitudes of the estimated coefficients, however, the sign and significance of the parameter estimates are still meaningful. The results indicate that compared to being married, being divorced or separated is inversely related to overall life satisfaction. Similarly, in line with Winkelmann and Winkelmann (2003), Headey and Wooden (2004) and Ferrer-i Carbonell and Frijters (2004), unemployment has a detrimental impact on an individual's level of overall life satisfaction. Consistent with the existing literature, self-assessed health status is positively related to overall life satisfaction, that is, better health is associated with higher levels of overall life satisfaction. In accordance with the results presented in Dolan et al. (2008), the natural logarithm of household income exerts a positive and statistically significant impact on overall life satisfaction, suggesting diminishing marginal utility of income.

The variables which capture the head of household's concerns relating to the financial position have the expected impact on the level of overall life satisfaction. That is, compared to reporting *"not concerned"*, both being *"concerned"* and *"very concerned"* are detrimentally related to the level of overall life satisfaction. This supports Wildman (2003) and Bridges and Disney (2010) who both found that the subjective financial measures were significant determinants of overall life satisfaction.

Focusing on the financial variables included in Specifications 2, 3 and 4 of Table 2 reveals that, in line with prior expectations and Headey and Wooden (2004), higher levels of household net wealth are associated with higher levels of overall life satisfaction. Specifications 3 and 4 indicate that the level of total assets held by the household is associated with higher levels of overall life satisfaction. Specification 4 shows that, in accordance with Brown et al. (2005), it is unsecured, as opposed to secured debt, which

is inversely related to overall life satisfaction.

The results develop the findings of Brown et al. (2005) by showing that their results are not unique to British survey data, and are robust to accounting for individual heterogeneity and the household's present subjective financial position. Similarly, the results show that the subjective financial position is an important determinant of overall life satisfaction, in addition to the monetary level of the household's financial position. This potentially reflects the subjective financial position capturing information beyond that contained in the monetary financial position. The results highlight the importance of controlling for financial factors beyond the household's income when exploring the relationship between financial resources and well-being. The next section further explores what factors influence an individual's subjective financial position in addition to accounting for potential endogeneity problems.

4 The Determinants of Overall Life Satisfaction and Financial Concerns: A Joint Modelling Approach

4.1 Methodology

One potential problem with the analysis presented in Section 3 concerns the inclusion of subjective financial measures as determinants of overall life satisfaction. As both measures are self-reported subjective measures, there may exist unobservable characteristics which influence both overall life satisfaction and the financial concerns[5]. This could lead to the estimated parameters capturing the effects of both subjective financial concerns and unobserved characteristics. In addition, despite the analysis presented in Section 3 indicating that the subjective financial concerns are an important determinant of overall life satisfaction, the analysis does not inform us about what influences the head of household's financial concerns. The empirical analysis subsequently presented aims to account for these factors.

[5]It should be acknowledged that the health measure employed in this study is also a self-reported measure. However, this is not the focus of the study and equivalent results are obtained if these self-assessed health measures are omitted or if the number of doctors visits is used as an alternative measure.

Following Greene and Hensher (2010), this study employs a bivariate ordered probit model in order to account for the potential endogeneity of financial concerns in the overall life satisfaction equation. As previously argued in Section 3.1, it is also important to control for unobserved heterogeneity when exploring the determinants of subjective satisfaction measures. Consequently, a Mundlak correction is implemented following Mundlak (1978), that is, the inclusion of the group means of the time varying variables. A full formulation of the model is presented in Greene and Hensher (2010). For the two dependent variables, y_{i1} and y_{i2} which indicate subjective financial concerns and overall life satisfaction, respectively, the recursive bivariate ordered probit specification is defined as

$$y_{i1}^{*} = \beta_1{}'\mathbf{x}_{i1} + \gamma_1{}'\bar{\mathbf{x}}_{i1} + \epsilon_{i1}, y_{i1} = j \text{ if } \mu_{j-1} < y_{i1}^{*} \leq \mu_j, j = 0, ..., J \tag{4}$$

$$y_{i2}^{*} = \delta_1 y_{i1} + \beta_2{}'\mathbf{x}_{i2} + \gamma_2{}'\bar{\mathbf{x}}_{i2} + \epsilon_{i2}, y_{i2} = k \text{ if } \mu_{k-1} < y_{i2}^{*} \leq \mu_k, k = 0, ..., K \tag{5}$$

where $\boldsymbol{\beta}_1$ and $\boldsymbol{\beta}_2$ are vectors of parameters to be estimated, δ_1 is an unknown scalar, $\mathbf{x}_{i1}$ and $\mathbf{x}_{i2}$ are vectors of observable characteristics and $\bar{\mathbf{x}}_{i1}$ and $\bar{\mathbf{x}}_{i2}$ are the group means of time varying variables and provide the Mundlak correction. μ_j and μ_k represent the threshold parameters which are to be estimated, whilst the error terms ϵ_{i1} and ϵ_{i2} are identically distributed, with a bivariate normal distribution, with a mean of zero and unit variance and correlation coefficient. That is

$$\begin{pmatrix} \epsilon_{i1} \\ \epsilon_{i2} \end{pmatrix} \sim N \left[\begin{pmatrix} 0 \\ 0 \end{pmatrix} , \begin{pmatrix} 1 & \rho \\ \rho & 1 \end{pmatrix} \right] \tag{6}$$

where the covariance term is defined to be $\text{Corr}(\epsilon_{i1}, \epsilon_{i2}) = \rho_{1,2}$. All standard errors are clustered at the individual level to allow for repeated observations over time. In the case where ρ is equal to zero, the bivariate model becomes a pair of univariate models. If ρ is found to be statistically different from zero, then this implies correlation between the unobservable characteristics of the two equations and so a joint modelling approach is preferred as it accounts for the endogeneity of subjective financial concern in the overall

life satisfaction equation[6].

In a bivariate specification, failure to reject the null hypothesis ($\rho = 0$) suggests that endogeneity is not a problem and therefore the coefficients estimated in a single equation model do not suffer from bias. Should there be sufficient evidence to reject the null hypothesis, this suggests that subjective financial concerns are not exogenous and consequently the results of the single equation approach are biased. In the case where ρ is positive, it follows that unobserved characteristics increase both financial concerns and overall life satisfaction. If ρ is negative, then the opposite applies.

Although the system of equations presented by Equations 4 and 5 can be identified on the non-linearity of the system, see Wilde (2000), a series of exclusion restrictions are introduced in order to aid the identification properties of the model. Certain variables are included in one of the equations, and not included in the other equation. In the financial concerns equation, measures of risk aversion and whether the individual holds a life insurance policy or a private pension plan are included[7].

In line with Joo and Grable (2004), the risk attitudes of the head of household are controlled for in the subjective financial position equation. It is argued that risk attitudes partly capture the level of financial knowledge possessed by the household head. In line with Ferrer-i Carbonell and Ramos (2010), Keese (2012) and Brown et al. (2013), it is assumed that individual risk attitudes are time invariant. As a result, information contained in the 2004 wave of the GSOEP survey relating to general risk attitudes is matched with the head of households in the 2002 and 2007 waves of the GSOEP survey. The risk aversion measure is based on the question *"Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?"* Respondents are asked to indicate their answer on an 11 point scale where 0 indicates *"risk averse"* and 10 represents *"fully prepared take risks"*. In accordance with Dohmen et al. (2005), this eleven point scale is collapsed into a binary variable, where 1 indicates being risk tolerant, that is reporting a score of 6 or above, and 0 indicates being risk averse, that is reporting

[6]The bivariate ordered probit model was implemented in STATA using the "bioprobit" developed by Sajaia (2008).

[7]As with all instrumental variables, some controversy about the choice of the variables will exist. However, we have explored a variety of different specifications and in general similar results are obtained.

5 or below on the original scale. Of the sample analysed, 33.6% of household heads are defined to be risk tolerant, with the remaining heads of households being defined as risk averse.

In this context, the head of household's level of risk aversion is thought to influence their level of financial satisfaction but not their level of life satisfaction. Risk attitudes have long been associated with financial and investment decisions. In addition, risk preferences have been found to be strongly correlated with an individuals level of financial knowledge, see for example, Joo and Grable (2004). Therefore, risk attitudes could arguably influence the investment decisions the individual makes and these, in turn, could influence the individuals level of financial satisfaction.

In addition, a binary variable to capture whether the head of household possesses a life insurance policy or private pension plan is included in the financial concern equation. Possessing a life insurance policy or private pension will potentially alleviate some of the financial concerns an individual may experience, as it may provide a source of financial security for the head of household.

4.2 Results

Preliminary exploration is carried out in order to ascertain whether the monetary position of the household is correlated with an individual's level of financial concerns. Figure 2 presents the average level of financial concerns over the life course. The figure shows that, in line with Plagnol (2011) and Hansen et al. (2008) who found that financial satisfaction increased in old age, the level of financial concerns falls in later life. This reduction in financial concerns, despite significant decreases in household income, could potentially be due to revised expectations and adaption in older age to the household's current financial position. Alternatively, as suggested by Plagnol (2011), other financial variables, such as a reduction in debt levels in later life, could explain this reduction of financial concerns. Figure 3 presents the average level of financial concerns associated with each decile of the net wealth distribution. The diagram shows an inverse relationship between net wealth and the level of financial concerns. That is, the average level of financial concern as

measured on a 0-2 scale where 2 indicates *"very concerned"*, in the bottom decile of net wealth is 1.2, compared to those in the top decile who report an average level of financial concern of below 0.5.

In addition to Figures 2 and 3, Table 3 presents the correlation coefficients and the corresponding p-values between financial concerns and the household's monetary financial position. Recalling that higher values correspond to higher levels of concerns, the correlations indicate that income is inversely related to financial concerns. In addition, the level of net wealth and level of total assets are inversely correlated with financial concerns. In line with prior expectations, the level of financial concern is increasing in the level of household total debt as well as in the level of unsecured debt. Interestingly, the level of secured debt serves to reduce the level of concerns experienced by the head of household. The result could potentially be capturing the fact that the act of owning a house is negatively related to financial concerns. The correlation between the instruments and financial concerns shows that both risk aversion and possessing life insurance are associated with lower levels of financial concerns. The regression analysis, subsequently presented, will allow further exploration of these relationships whilst controlling for additional individual and household characteristics. In addition, this analysis will explore the potential mediating effects of an individual's level of financial concerns between the household's financial position and overall life satisfaction.

The results presented in Table 4 relate to the recursive bivariate probit specifications. Once again, in line with the univariate analysis presented in Section 3, four specifications are estimated differing by the construction of the monetary independent variables. Across all four of the specifications considered, the results advocate the use of a joint modelling technique; the null hypothesis that the correlation between the unobservable characteristics is equal to zero is rejected. This suggests that the results presented in the single equation analysis are biased due to endogeneity. Furthermore, a positive correlation is found between the unobservable characteristics of both overall life satisfaction and subjective financial concerns; that is there are some unobservable characteristics which cause heads of households to report higher levels of overall life satisfaction and greater

concerns with their current economic situation.

Considering Specification 1 and focusing on the determinants of the subjective financial concern reveals that females report being more concerned about their economic situation compared to males. Being divorced or separated is associated with higher levels of financial concerns compared to household heads who are married or in a relationship. In line with Headey and Wooden (2004), Plagnol (2011) and Hansen et al. (2008), better health status is inversely related to financial concerns.

As expected, the variables closely related to an individual's financial position are statistically significant determinants of the head of household's level of financial concerns. For example, across all the specifications considered, household income serves to reduce the level of financial concerns experienced by the head of the household, whilst being unemployed is associated with higher levels of financial concern. Considering the instrumental variables, the risk attitudes of the head of household are found to be a statistically significant determinant of financial concerns, with more risk averse household heads reporting higher levels of financial concern. Following Joo and Grable (2004), this could be due to the risk attitudes of the head of household capturing the the level of financial knowledge of the head of the households. Similarly, having a private pension or life insurance policy reduces the level of financial concern reported by the household head.

Specifications 2, 3 and 4 include measures of the monetary financial position of the household in the bivariate models. The monetary financial measures indicate that all types of debt considered (total, unsecured and secured) are positively related to the level of financial concern. Interestingly, the level of assets held by the household does not influence the head of household's level of concerns about their financial situation. This lack of a statistical relationship could be attributed to the wording of the question, which may cause individuals to focus on negative aspects of their financial position, rather than positive aspects such as their levels of savings and assets. Alternatively, it might simply be that the financial concerns of the head of household are not related to the absolute level of assets held by the household.

Focusing on the determinants of overall life satisfaction in the joint modelling frame-

work, there are some differences compared to the analysis presented in Section 3. In contrast to the single equation analysis, it is found that the level of household income is not a statistically significant determinant of overall life satisfaction. Similarly, unemployment is not a statistically significant determinant of overall life satisfaction once a bivariate specification is implemented. In line with the existing literature, for example, Dolan et al. (2008), females are found to report higher levels of overall life satisfaction. Similarly, in line with the analysis presented in Section 3, an individual's level of education and relationship status do not have a statistically significant impact on overall life satisfaction. Self-assessed health status maintains a positive relationship with overall life satisfaction; better health is associated with higher levels of overall life satisfaction. These results are consistent across all the specifications considered.

The results reveal that the subjective financial position is a statistically significant determinant of overall life satisfaction with higher levels of financial concern being associated with lower levels of overall life satisfaction. Once a joint modelling approach is implemented, the results suggest, at the 5% level, that the monetary financial measures fail to have a statistically significant impact on the level of overall life satisfaction.

The results presented in this paper support the findings of Bridges and Disney (2010) who found that the subjective debt burden mediates the effects of debt levels on the likelihood of reporting depression. The results presented here indicate that the effects of the household's monetary financial position on overall life satisfaction is mediated through the subjective financial position. In addition, variables closely related to the household's financial position, such as income and employment status, also have a limited direct effect on overall life satisfaction. They are found, however, to have an indirect impact through the head of household's level of financial concerns.

The results from the bivariate ordered probit model suggest that care should be take when including the subjective financial position as a determinant of overall life satisfaction as endogeneity could result in biased estimates. Furthermore, the results suggest that the monetary financial position of the household has a limited direct impact on the level of overall life satisfaction. What is found, however, is that the subjective financial position

acts as a mediator between the household's monetary financial position and overall life satisfaction. Consequently, reductions in the concerns relating to the household's financial position may lead to significant increases in an individual's well-being. This could be achieved by increasing an individual's levels of financial knowledge and understanding. This could potentially increase the perceived control an individual has over their financial position, and as a result, reduce the level of financial concern they experience.

5 Conclusion

Overall life satisfaction has received considerable interest from a variety of academic disciplines in recent decades, including psychology and economics. At the same time, across the developed world, the financial position of households has dramatically changed as a result of increasing debt levels. Despite the changing structure of the financial position of households, the existing literature exploring household finances and well-being remains relatively sparse. A large amount of attention has been placed on the influence of income on well-being. However, income is arguably an imperfect measure of a household's financial resources. As a result, this paper has explored a variety of monetary financial measures including assets, debt and net wealth, in addition to the head of household's subjective financial position using data from the 2002 and 2007 GSOEP survey.

The single equation results indicated that the subjective financial concerns of the head of household are a statistically significant determinant of overall life satisfaction, with concern relating to the current economic status being inversely related to overall life satisfaction. The level of assets and unsecured debt are positively and inversely related to overall life satisfaction, respectively. In line with the existing literature, unemployment and divorce are inversely related to overall life satisfaction, whilst better self-assessed health and higher levels of household income are positively related with overall life satisfaction.

The results from the recursive bivariate ordered probit model supported the joint modelling approach, suggesting that the results presented in the univariate model are bi-

ased. The results indicated that the level of debt held by the household increases the level of financial concerns. Also, unemployment and the level of household income increased and reduced the level of financial concern, respectively. With a joint modelling approach, the results suggested that the subjective financial position mediated the effects of the variables closely related to the household's financial position. That is, the level of debt, income and the employment status of the head of household influenced the subjective financial position but did not directly influence the level of overall life satisfaction.

The findings suggest that unsecured debt, rather than secured debt, has an detrimental impact on overall life satisfaction in Germany, once individual heterogeneity is accounted for. In addition, the subjective financial position of the household is found to be an important determinant of overall life satisfaction, mediating the effects between the monetary financial position of the household and overall life satisfaction. Future research could be conducted on the mediating effects of other domains to overall life satisfaction. Also, additional research could potentially explore the relationship between financial knowledge, an individual's subjective financial position and their overall life satisfaction.

References

Baetschmann, G., K. E. Staub, and R. Winkelmann (2011). Consistent estimation of the fixed effects ordered logit model. *IZA Discussion Paper, No. 5443*.

Bertaut, C. and M. Haliassos (2001). Debt revolvers for self control. *HERMES Center Working Paper*, 01–11.

Bridges, S. and R. Disney (2010). Debt and depression. *Journal of Health Economics 29*(3), 388–403.

Brown, S., G. Garino, and K. Taylor (2013). Household debt and attitudes toward risk. *Review of Income and Wealth 59*(2), 283–304.

Brown, S. and K. Taylor (2008). Household debt and financial assets: Evidence from Germany, Great Britain and the USA. *Journal of the Royal Statistical Society: Series A (Statistics in Society) 171*(3), 615–643.

Brown, S., K. Taylor, and S. Wheatley Price (2005). Debt and distress: Evaluating the psychological cost of credit. *Journal of Economic Psychology 26*(5), 642–663.

Clark, A. E., P. Frijters, and M. A. Shields (2008). Relative income, happiness, and utility: An explanation for the Easterlin paradox and other puzzles. *Journal of Economic Literature*, 95–144.

Delken, E. (2008). Happiness in shrinking cities in Germany. *Journal of Happiness Studies 9*(2), 213–218.

Dickerson, A., A. Risa Hole, and L. Munford (2012). The relationship between well-being and commuting re-visited: Does the choice of methodology matter? *Sheffield Economic Research Paper Series, No. 2012016*.

Dohmen, T., A. Falk, D. Huffman, U. Sunde, J. Schupp, and G. Wagner (2005). Individual risk attitudes: New evidence from a large, representative, experimentally-validated survey. *IZA Discussion Paper, No. 1730*.

Dolan, P., T. Peasgood, and M. White (2008). Do we really know what makes us happy? a review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology 29*(1), 94–122.

Drentea, P. (2000). Age, debt and anxiety. *Journal of Health and Social Behavior*, 437–450.

Ferrer-i Carbonell, A. (2005). Income and well-being: an empirical analysis of the comparison income effect. *Journal of Public Economics 89*(5), 997–1019.

Ferrer-i Carbonell, A. and P. Frijters (2004). How important is methodology for the estimates of the determinants of happiness? *The Economic Journal 114*(497), 641–659.

Ferrer-i Carbonell, A. and X. Ramos (2010). Inequality aversion and risk attitudes. *IZA Discussion Paper, No. 4703*.

Frijters, P. and T. Beatton (2012). The mystery of the u-shaped relationship between happiness and age. *Journal of Economic Behavior & Organization 82*(2), 525–542.

Greene, W. H. and D. A. Hensher (2010). *Modeling ordered choices: A primer*. Cambridge University Press.

Gropp, R., J. K. Scholz, and M. J. White (1997). Personal bankruptcy and credit supply and demand. *The Quarterly Journal of Economics 112*(1), 217–251.

Hansen, T., B. Slagsvold, and T. Moum (2008). Financial satisfaction in old age: a satisfaction paradox or a result of accumulated wealth? *Social Indicators Research 89*(2), 323–347.

Headey, B., R. Muffels, and M. Wooden (2008). Money does not buy happiness: Or does it? a reassessment based on the combined effects of wealth, income and consumption. *Social Indicators Research 87*(1), 65–82.

Headey, B. and M. Wooden (2004). The effects of wealth and income on subjective well-being and ill-being. *Economic Record 80*(s1), S24–S33.

Hofmann, B. and K. Hohmeyer (2013). Perceived economic uncertainty and fertility: Evidence from a labor market reform. *Journal of Marriage and Family 75*(2), 503–521.

Joo, S. and J. E. Grable (2004). An exploratory framework of the determinants of financial satisfaction. *Journal of Family and Economic Issues 25*(1), 25–50.

Keese, M. (2012). Who feels constrained by high debt burdens? subjective vs. objective measures of household debt. *Journal of Economic Psychology 33*(1), 125–141.

Keese, M. and H. Schmitz (2013). Broke, ill, and obese: Is there an effect of household debt on health? *Review of Income and Wealth*.

MacKerron, G. (2012). Happiness economics from 35,000 feet. *Journal of Economic Surveys 26*(4), 705–735.

Mentzakis, E. and M. Moro (2009). The poor, the rich and the happy: Exploring the link between income and subjective well-being. *Journal of Socio-Economics 38*(1), 147–158.

Mundlak, Y. (1978). On the pooling of time series and cross section data. *Econometrica: Journal of the Econometric Society*, 69–85.

Plagnol, A. C. (2011). Financial satisfaction over the life course: The influence of assets and liabilities. *Journal of Economic Psychology 32*(1), 45–64.

Reading, R. and S. Reynolds (2001). Debt, social disadvantage and maternal depression. *Social Science & Medicine 53*(4), 441–453.

Sajaia, Z. (2008). Maximum likelihood estimation of a bivariate ordered probit model: implementation and monte carlo simulations. *The Stata Journal 4*(2), 1–18.

Stutzer, A. and B. S. Frey (2010). Recent advances in the economics of individual subjective well-being. *Social Research: An International Quarterly 77*(2), 679–714.

Wilde, J. (2000). Identification of multiple equation probit models with endogenous dummy regressors. *Economics letters 69*(3), 309–312.

Wildman, J. (2003). Income related inequalities in mental health in Great Britain: Analysing the causes of health inequality over time. *Journal of Health Economics 22*(2), 295–312.

Winkelmann, L. and R. Winkelmann (2003). Why are the unemployed so unhappy? evidence from panel data. *Economica 65*(257), 1–15.

Appendix

Table 1: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.
Overall Life Satisfaction	6.901	1.748	0	10
Financial Concerns - Index	0.898	0.709	0	2
Concerned with Financial Position	0.488	0.5	0	1
Very Concerned with Financial Position	0.205	0.404	0	1
Net Wealth	143,680	379,701	-4,639,700	19,751,096
Ln(Net Wealth)	7.286	6.409	-15.35	16.799
Total Assets	179,669	439,404	0	22,464,780
Ln(Total Assets)	8.153	5.373	0	16.927
Total Debt	35,989	136,960	0	9,171,500
Ln(Total Debt)	3.551	5.153	0	16.032
Unsecured Debt	5,586	57,018	0	5,39,5000
Ln(Unsecured Debt)	1.783	3.698	0	15.501
Secured Debt	33,072	123,073	0	9,171,500
Ln(Secured Debt)	3.01	4.985	0	16.032
Risk Tolerance	0.336	0.473	0	1
Possesses Life Insurance	0.524	0.499	0	1
Female	0.371	0.483	0	1
Age	51.992	15.227	18	97
Age Squared/100	29.35	16.522	3.24	94.09
Household Size	2.467	1.24	1	13
Ln(Household Size)	0.775	0.516	0	2.565
Household Income	37304	30690	107	1017318
Ln(Household Income)	10.315	0.657	4.681	13.833
Never Married	0.155	0.362	0	1
Widow	0.091	0.287	0	1
Divorced	0.137	0.344	0	1
Not in Labour Force (NLF)	0.139	0.346	0	1
Retired	0.203	0.402	0	1
Unemployed	0.051	0.219	0	1
General Compulsory Qual.: Highest Education Level	0.021	0.142	0	1
General Intermediate Qual.: Highest Education Level	0.018	0.131	0	1
Vocational Qual.: Highest Education Level	0.152	0.359	0	1
Tertiary Degree: Highest Education Level	0.169	0.375	0	1
Poor Health	0.144	0.351	0	1
Satisfactory Health	0.354	0.478	0	1
Good Health	0.396	0.489	0	1
Very Good Health	0.07	0.255	0	1
Number of Observations		15,424		

Where assets and debt take a positive value, the natural logarithm is simply taken. Where these variables are zero the natural logarithm is defined to be zero. When the value of net wealth is negative, the natural logarithm of net wealth is defined to be $-ln(|nw|)$. Monetary variables are inflated to 2007 prices and presented in Euros.

Table 2: Fixed Effects Ordered Logit Model: Determinants of Overall Life Satisfaction

	Specification			
	1	2	3	4
Independent Variables	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)	Coeff. (s.e.)
Concerned	-0.549***	-0.547***	-0.549***	-0.549***
	(0.0739)	(0.0741)	(0.0741)	(0.0741)
Very Concerned	-1.384***	-1.380***	-1.378***	-1.379***
	(0.104)	(0.104)	(0.104)	(0.104)
Ln(Net Wealth)		0.0172***		
		(0.00578)		
Ln(Total Assets)			0.0193**	0.0156*
			(0.00802)	(0.00805)
Ln(Total Debt)			-0.0103	
			(0.00754)	
Ln(Unsecured Debt)				-0.0232***
				(0.00856)
Ln(Secured Debt)				0.00518
				(0.00849)
Age	0.0358	0.0201	0.0259	0.0344
	(0.0269)	(0.0273)	(0.0272)	(0.0272)
Age Squared	-0.0750***	-0.0631**	-0.0675***	-0.0719***
	(0.0251)	(0.0254)	(0.0253)	(0.0253)
Ln(Household Size)	0.0401	0.0254	0.0340	0.0118
	(0.130)	(0.130)	(0.130)	(0.131)
Ln(Household Income)	0.352***	0.341***	0.339***	0.342***
	(0.0921)	(0.0920)	(0.0925)	(0.0928)
Never Married	-0.261	-0.254	-0.267	-0.260
	(0.191)	(0.193)	(0.192)	(0.192)
Widow	0.0740	0.0547	0.0489	0.0353
	(0.280)	(0.282)	(0.283)	(0.284)
Divorced	-0.391**	-0.375**	-0.386**	-0.388**
	(0.167)	(0.169)	(0.168)	(0.170)
Not in Labour Force	0.166	0.172*	0.165	0.166
	(0.103)	(0.104)	(0.104)	(0.103)
Retired	0.218	0.220	0.211	0.209
	(0.145)	(0.146)	(0.146)	(0.145)
Unemployed	-0.372***	-0.373***	-0.374***	-0.376***
	(0.134)	(0.134)	(0.135)	(0.134)
Compulsory - Education	-0.361	-0.362	-0.358	-0.331
	(0.566)	(0.559)	(0.569)	(0.554)
Intermediate - Education	-0.183	-0.192	-0.183	-0.211
	(0.676)	(0.672)	(0.672)	(0.687)
Vocational - Education	0.350	0.338	0.332	0.309
	(0.510)	(0.511)	(0.511)	(0.525)
Tertiary - Education	-0.0424	-0.0681	-0.0875	-0.0865
	(0.688)	(0.692)	(0.695)	(0.713)
Poor Health	1.114***	1.119***	1.113***	1.105***
	(0.168)	(0.167)	(0.168)	(0.167)
Satisfactory Health	1.809***	1.814***	1.810***	1.801***
	(0.177)	(0.176)	(0.176)	(0.176)
Good Health	2.529***	2.530***	2.528***	2.521***
	(0.185)	(0.184)	(0.184)	(0.184)
Very Good Health	2.935***	2.939***	2.935***	2.933***
	(0.216)	(0.216)	(0.216)	(0.216)
Individuals	7,712	7,712	7,712	7,712
Observations	18,402	18,402	18,402	18,402

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 3: Pair-Wise Correlation between Household Financial Measures and Financial Concerns

	Financial Concerns
Household Income	-0.251
	(0.000)
Net Wealth	-0.282
	(0.000)
Total Assets	-0.286
	(0.000)
Total Debt	-0.046
	(0.000)
Unsecured Debt	0.127
	(0.000)
Secured Debt	-0.076
	(0.000)
Life Insurance	-0.068
	(0.000)
Risk Tolerant	-0.056
	(0.000)

P-values presented in parentheses.

Table 3: Bivariate Ordered Probit Model: Financial Concerns and Overall Life Satisfaction

	Specification							
	1		2		3		4	
	Financial Concerns	Life Satisfaction	Financial Concerns	Life Satisfaction	Financial Concerns	Life Satisfaction	Financial Concerns	Life Satisfaction
	Coefficient (Standard Error)	Coefficient (Standard Error)	Coefficient (Standard Error)	Coefficient (Standard Error)	Coefficient (Standard Error)	Coefficient (Standard Error)	Coefficient (Standard Error)	Coefficient (Standard Error)
Concerned		-0.897***		-0.940***		-0.934***		-0.938***
		(0.136)		(0.114)		(0.117)		(0.112)
Very Concerned		-1.886***		-1.973***		-1.960***		-1.966***
		(0.265)		(0.220)		(0.226)		(0.216)
Risk Tolerance	-0.0729***		-0.0803***		-0.0816***		-0.0907***	
	(0.0223)		(0.0216)		(0.0216)		(0.0216)	
Life Insurance	-0.105***		-0.0686***		-0.0696***		-0.0782***	
	(0.0206)		(0.0202)		(0.0203)		(0.0203)	
Ln(Net Wealth)			-0.00505**	0.00433*				
			(0.00242)	(0.00231)				
Ln(Total Assets)					-0.00478	0.00540*	-0.00497	0.00420
					(0.00343)	(0.00327)	(0.00348)	(0.00328)
Ln(Total Debt)					0.0131***	0.00149		
					(0.00305)	(0.00294)		
Ln(Unsecured Debt)							0.0142***	-0.00275
							(0.00343)	(0.00332)
Ln(Secured Debt)							0.0134***	0.00616*
							(0.00346)	(0.00321)
Female	0.0833***	0.0864***	0.0754***	0.0859***	0.0765***	0.0863***	0.0766***	0.0855***
	(0.0254)	(0.0229)	(0.0254)	(0.0225)	(0.0254)	(0.0226)	(0.0254)	(0.0226)
Age	0.0403***	0.0270**	0.0454***	0.0241**	0.0457***	0.0262**	0.0346***	0.0249**
	(0.0121)	(0.0113)	(0.0124)	(0.0115)	(0.0123)	(0.0114)	(0.0123)	(0.0112)
Age Squared	-0.0141	-0.0317***	-0.0169	-0.0290***	-0.0158	-0.0301***	-0.00910	-0.0290***
	(0.0115)	(0.0104)	(0.0117)	(0.0105)	(0.0117)	(0.0105)	(0.0117)	(0.0105)
Ln(Household Size)	0.0994*	0.0314	0.107*	0.0316	0.0969*	0.0299	0.102*	0.0252
	(0.0558)	(0.0522)	(0.0566)	(0.0519)	(0.0566)	(0.0519)	(0.0568)	(0.0520)
Ln(Household Income)	-0.208***	0.0603	-0.211***	0.0508	-0.218***	0.0487	-0.222***	0.0491
	(0.0402)	(0.0425)	(0.0405)	(0.0407)	(0.0407)	(0.0410)	(0.0408)	(0.0409)

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 3 (*cont.*): Bivariate Ordered Probit Model: Financial Concerns and Overall Life Satisfaction

	Specification							
	1		2		3		4	
	Financial Concerns	Life Satisfaction	Financial Concerns	Life Satisfaction	Financial Concerns	Life Satisfaction	Financial Concerns	Life Satisfaction
	Coefficient (Standard Error)	Coefficient (Standard Error)	Coefficient (Standard Error)	Coefficient (Standard Error)	Coefficient (Standard Error)	Coefficient (Standard Error)	Coefficient (Standard Error)	Coefficient (Standard Error)
Never Married	0.0362	-0.114	0.0343	-0.108	0.0498	-0.107	0.0532	-0.100
	(0.0760)	(0.0745)	(0.0771)	(0.0742)	(0.0770)	(0.0744)	(0.0773)	(0.0744)
Widowed	-0.0199	0.0383	-0.0170	0.0350	-0.0203	0.0335	-0.0169	0.0310
	(0.129)	(0.130)	(0.131)	(0.130)	(0.131)	(0.130)	(0.131)	(0.130)
Divorced	0.156**	-0.131*	0.151**	-0.120*	0.168**	-0.119	0.173**	-0.116
	(0.0751)	(0.0733)	(0.0760)	(0.0724)	(0.0760)	(0.0727)	(0.0763)	(0.0727)
NLF	0.0169	0.0593	0.0185	0.0610	0.0220	0.0603	0.0245	0.0609
	(0.0431)	(0.0396)	(0.0436)	(0.0396)	(0.0436)	(0.0396)	(0.0437)	(0.0396)
Retired	0.0409	0.0908	0.0487	0.0929*	0.0560	0.0920*	0.0601	0.0947*
	(0.0621)	(0.0558)	(0.0628)	(0.0559)	(0.0629)	(0.0559)	(0.0632)	(0.0560)
Unemployed	0.554***	0.0271	0.563***	0.0412	0.567***	0.0397	0.574***	0.0397
	(0.0603)	(0.0691)	(0.0610)	(0.0643)	(0.0611)	(0.0651)	(0.0611)	(0.0643)
Compulsory Qual.- Education	-0.219	-0.156	-0.214	-0.161	-0.213	-0.158	-0.227	-0.160
	(0.290)	(0.266)	(0.289)	(0.266)	(0.290)	(0.266)	(0.292)	(0.265)
Intermediate- Education	-0.416*	-0.00858	-0.416*	-0.0217	-0.407*	-0.0131	-0.421*	-0.0252
	(0.245)	(0.287)	(0.248)	(0.286)	(0.247)	(0.286)	(0.248)	(0.286)
Vocational- Education	-0.393**	0.0960	-0.394**	0.0783	-0.393**	0.0797	-0.394**	0.0748
	(0.199)	(0.237)	(0.200)	(0.236)	(0.199)	(0.236)	(0.201)	(0.236)
Tertiary Qual.- Education	-0.363	0.0361	-0.368	0.0247	-0.362	0.0232	-0.359	0.0230
	(0.231)	(0.273)	(0.232)	(0.272)	(0.231)	(0.272)	(0.231)	(0.272)
Poor Health	-0.0880	0.505***	-0.0866	0.498***	-0.0817	0.498***	-0.0828	0.498***
	(0.0781)	(0.0762)	(0.0791)	(0.0749)	(0.0789)	(0.0751)	(0.0792)	(0.0747)
Satisfactory Health	-0.228***	0.735***	-0.228***	0.721***	-0.224***	0.723***	-0.224***	0.722***
	(0.0811)	(0.0890)	(0.0821)	(0.0854)	(0.0819)	(0.0858)	(0.0822)	(0.0847)
Good Health	-0.378***	0.964***	-0.379***	0.941***	-0.376***	0.945***	-0.378***	0.944***
	(0.0843)	(0.106)	(0.0854)	(0.0993)	(0.0852)	(0.100)	(0.0854)	(0.0980)
Very Good Health	-0.493***	1.150***	-0.491***	1.121***	-0.490***	1.126***	-0.494***	1.125***
	(0.0977)	(0.129)	(0.0988)	(0.119)	(0.0986)	(0.121)	(0.0988)	(0.118)

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 3 (*cont.*): Bivariate Ordered Probit Model: Financial Concerns and Overall Life Satisfaction

	Specification							
	1		2		3		4	
	Financial Concerns	Life Satisfaction	Financial Concerns	Life Satisfaction	Financial Concerns	Life Satisfaction	Financial Concerns	Life Satisfaction
Constant	-7.966***		-6.570***		-6.821***		-6.797***	
Cut 1,1	(0.341)		(0.350)		(0.359)		(0.359)	
Cut 1,2	-6.389***		-4.969***		-5.221***		-5.190***	
	(0.339)		(0.348)		(0.357)		(0.357)	
Cut 2,1	-4.309***		-4.211***		-4.271***		-4.268***	
	(0.724)		(0.527)		(0.551)		(0.531)	
Cut 2,2	-3.960***		-3.867***		-3.926***		-3.923***	
	(0.737)		(0.538)		(0.561)		(0.541)	
Cut 2,3	-3.513***		-3.426***		-3.484***		-3.482***	
	(0.755)		(0.553)		(0.577)		(0.555)	
Cut 2,4	-3.065***		-2.984***		-3.041***		-3.038***	
	(0.774)		(0.568)		(0.592)		(0.570)	
Cut 2,5	-2.705***		-2.628***		-2.685***		-2.682***	
	(0.789)		(0.580)		(0.605)		(0.582)	
Cut 2,6	-2.058**		-1.989***		-2.044***		-2.041***	
	(0.816)		(0.603)		(0.628)		(0.603)	
Cut 2,7	-1.608*		-1.543**		-1.597**		-1.594***	
	(0.835)		(0.619)		(0.644)		(0.619)	
Cut 2,8	-0.925		-0.869		-0.921		-0.918	
	(0.864)		(0.643)		(0.669)		(0.642)	
cut 2,9	0.140		0.183		0.134		0.136	
	(0.909)		(0.681)		(0.707)		(0.678)	
Cut 2,10	0.920		0.952		0.904		0.906	
	(0.943)		(0.709)		(0.736)		(0.706)	
Rho	0.478		0.509		0.504		0.506	
	(0.104)		(0.086)		(0.088)		(0.084)	
	Wald test of Independent Equations - Chi Squared (P-Value)							
	15.00 (0.0001)		23.61 (0.0000)		22.15 (0.0000)		24.56 (0.0000)	
Observations	15,424		15,424		15,424		15,424	

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

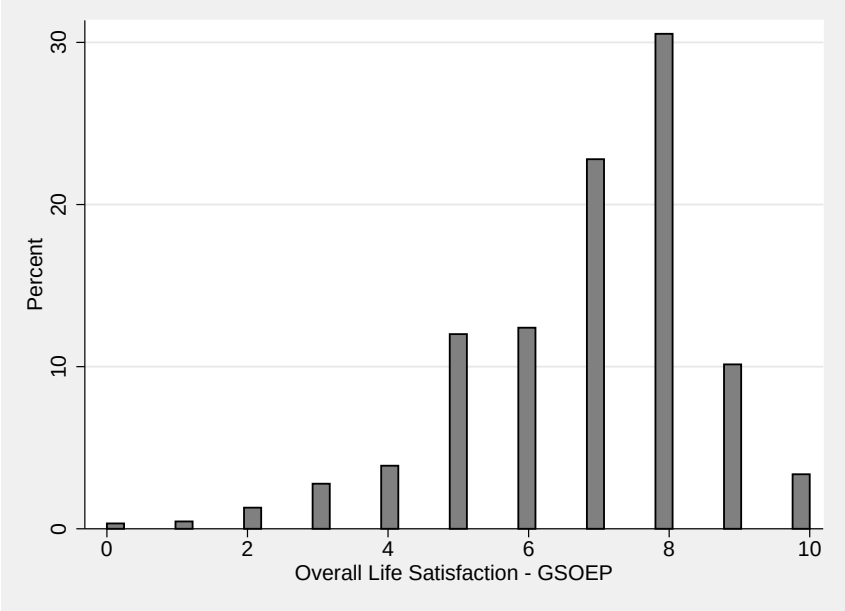

Figure 1: Overall life satisfaction

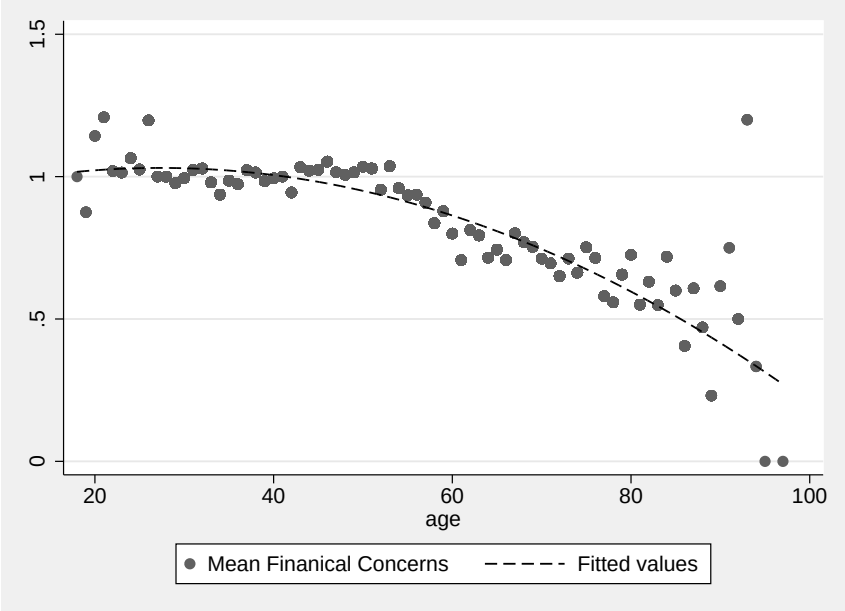

Figure 2: Financial Concerns Over the Life Course

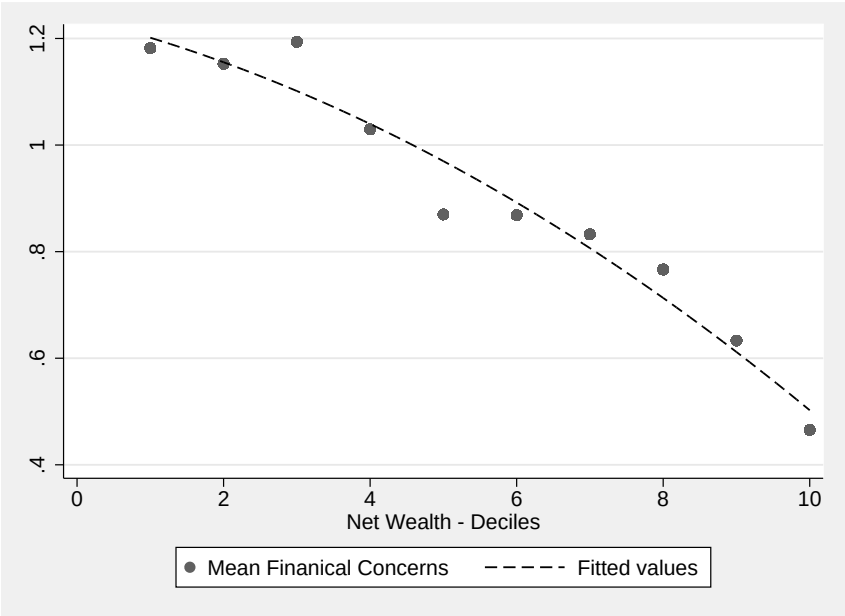

Figure 3: Financial Concerns and Net Wealth Deciles