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Household Finances and Well-Being: An Empirical Analysis of Comparison Effects

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Abstract

This paper explores the importance of the household's financial position for an individual's level of well-being. Initially, the empirical analysis, based on a large nationally representative panel survey, aims to ascertain the impact of the household's monetary financial position on overall life satisfaction and financial well-being, with the latter being measured by financial satisfaction and subjective prosperity. Taking into account monetary factors in addition to income, the results indicate that the household's level of net wealth, assets and debt are important determinants of overall life satisfaction and financial well-being. The paper also explores whether the financial situation of households in a comparison group influences an individual's overall life satisfaction and financial well-being. The results suggest that the financial position of households in the comparison group is an important determinant of an individual's level of overall life satisfaction and financial well-being, with information effects generally dominating comparison effects. In addition, the effects of the comparison group are asymmetric depending on whether a household's financial position is above or below the average of the reference group.

Keywords: Financial Satisfaction; Fixed Effects Ordered Logit; Household Finances; Overall Life Satisfaction; and Subjective Prosperity.
JEL codes: D14; G02; I31; and J28.
PsycINFO Classification: 2900; 3920.

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Notes: This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Project was initiated and is funded by the Australian Government Department of Social Services (DSS), and is managed by the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute). The findings and views reported in this paper, however, are those of the author and should not be attributed to either DSS or the Melbourne Institute.

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1 Introduction and Background

Overall life satisfaction is frequently argued to be made up of a variety of domains, such as financial satisfaction, job satisfaction and leisure satisfaction, amongst many others, see for example, Easterlin (2006), Layard (2006) and Van Praag and Ferrer-i-Carbonell (2007). In this setting, it is assumed that specific behaviours influence certain domains, and in turn these domain satisfactions determine an individual's level of overall life satisfaction. In the existing literature, however, there remains a limited number of studies which explore the determinants of financial well-being and within this literature, relatively few studies focus on the role of household assets and debt. In addition, income comparisons between individuals have been extensively shown to influence individual well-being, see for example, Clark and Oswald (1996), Ferrer-i-Carbonell (2005), Luttmer (2005), Clark et al. (2008) and Senik (2008). However, potential comparison effects of financial measures beyond income have not previously been explored. Initially, the empirical analysis presented in this paper aims to ascertain the impact of a variety of household financial measures, such as the level of household assets and debt, in addition to household income, on well-being in Australia whilst accounting for individual heterogeneity. The paper then goes on to explore whether the financial position in a specified comparison group influences an individual's level of well-being. In this context, based on potential interdependence of preferences and the importance of relative position, the financial position of households in a comparison group may influence an individual's level of well-being. Such comparison effects related to the more general concept of household finances have not attracted attention from the existing literature. Such a lack of attention is surprising given that, for example, assets such as housing and cars are somewhat conspicuous and may thus influence well-being.

Financial well-being comprises of both objective and subjective aspects of one's financial position, and captures how content an individual is with their material and non-material financial position (Joo and Grable (2004)). This paper explores two measures of financial well-being, namely, financial satisfaction and subjective prosperity, as they potentially capture different aspects of financial well-being, as well as, for purposes of comparison, overall life satisfaction. In line with overall life satisfaction, financial well-being is frequently found to have a "U-shaped" age pattern, see,

for example, Hansen et al. (2008) and Plagnol (2011). This observation is potentially at odds with prior expectations as an individual's income often decreases in old age, and consequently, one may expect financial well-being to fall in line with the observed decreases in income. One possible explanation for this observation is that older individuals become accustomed to lower levels of financial resources, that is, individuals revise their expectations and so report higher levels of financial satisfaction, despite their changing economic position. An alternative explanation for this phenomenon is that financial variables, in addition to income such as debt and financial assets, become important determinants of well-being at later stages of the life-cycle (Plagnol (2011)).

Furthermore, the financial position of households across the developed world has dramatically changed over the past three decades, with household debt levels dramatically increasing. In Australia, the debt to income ratio has increased by 28% over the past decade. Statistics from the Reserve Bank of Australia (RBA) indicate that, in 2013, the debt to income ratio stood at 148%, however, this has fallen from its peak of 156% in 2006[1].

In the existing literature, however, relatively few studies explore the influence of assets and debt on financial well-being. Headey and Wooden (2004), using cross-section data from the 2002 wave of the Household, Income and Labour Dynamics in Australia (HILDA) survey explore the impact household net wealth, defined as the household's total assets minus total debt, has on both subjective well-being and ill-being. The results reveal that both income and net wealth are positively associated with financial satisfaction.

Analysing the German Socio-Economic Panel Survey and the British Household Panel Survey, Van Praag and Ferrer-i-Carbonell (2007) explore the relationship between financial satisfaction, savings and income. Using a 'probit adapted OLS' estimation technique, they find that household savings and income have positive impacts on the level of financial satisfaction in both countries.

Hansen et al. (2008) explore financial satisfaction in old age in Norway. Analysing the first wave of the Norwegian Life Course, Aging, and Generation Study (NorLAG), the authors aim to assess whether assets and liabilities can explain increasing financial satisfaction in old age. The findings

[1]Data taken from www.rba.gov.au.

suggest that financial satisfaction is influenced by a wide range of financial measures beyond simply income. Furthermore, the study reports that a large proportion of the increase in the level of financial satisfaction in old age can be explained by increased levels of assets and decreased levels of debt held in later life. However, it is still found that, at low levels of income and wealth, older individuals tend to be more financially satisfied than their equally poor younger counterparts.

Plagnol (2011) explores the impact of assets and debt on financial satisfaction across the life course in the USA, using data from the second and third waves of the "National Survey of Families and Households" (NSFH). The analysis reveals that financial satisfaction steadily increases between the ages of 30 and 78. The findings also indicate that income follows a concave pattern over the life course, suggesting that financial satisfaction is influenced by other factors besides income. In line with prior expectations, the regression analysis reveals that financial satisfaction is increasing in income. The analysis also indicates that the increase in financial satisfaction in later life can be explained by an increase in the level of assets and a decrease in the debt level of the household.

In addition to the financial position of an individual's own household, an individual's level of well-being is potentially influenced by the financial position of others. Based on the theory of the interdependence of preferences, it is anticipated that an individual's level of utility is not only related to personal circumstances but also the circumstances of a comparison group. For example, an extensive literature on overall life satisfaction aims to ascertain the relationship between income and well-being. In the related literature, several studies assert not only the importance of one's own income, but also an individual's income compared to the average in a comparison group. In these studies, it is anticipated that there will be a positive own income effect and a negative comparison income effect, see for example, Ferrer-i-Carbonell (2005), Luttmer (2005) and Clark et al. (2008). Alternatively, an increase in the average income of the comparison group could potentially be associated with an increase in utility. This phenomenon is potentially capturing positive ambition effects and is called the 'information effect' by Senik (2008) but was also called the 'tunnel effect' by Hirschman and Rothschild (1973) in the context of economic development. Consequently, a higher reference income could potentially be perceived as relative deprivation, or an indicator of better future prospects. Senik (2008) argues that comparison and information effects are both present and the individual's personal economic circumstances will determine which

effect dominates. In a recent study, FitzRoy et al. (2014) explore potential tunnel and comparison effects in Britain and both West and East Germany and how these effects vary with age. The authors argue that comparison and tunnel effects potentially dominate at different stages of life, specifically, that tunnel effects should dominate in early life, while comparison effects should be more apparent in later life. Spitting the sample by age, FitzRoy et al. (2014) find that the average income of the comparison group has positive and negative impacts on overall life satisfaction for younger and older individuals, respectively. These results are found to be robust to a wide range of specifications.

In summary, this paper builds on the existing literature by conducting longitudinal analysis of individual well-being in Australia, as measured by overall life satisfaction, financial satisfaction and subjective prosperity, whilst controlling for the household's level of assets, debts and net wealth and, in addition, accounting for unobserved individual heterogeneity. More importantly, the empirical analysis explores the impact of comparison and information effects on overall life satisfaction, financial satisfaction and subjective prosperity. Specifically, it explores the relationship between the level of net wealth, total assets and debt (both unsecured and secured) of households in a specified comparison group and overall life satisfaction, financial satisfaction and subjective prosperity. In line with Ferrer-i-Carbonell (2005), this paper explores the influence of both the average financial position of a comparison group and the potential asymmetry of the comparison effects, that is, whether an individual's household financial position is above or below that of the comparison group. In the existing literature, such comparison effects have been related to income only. In contrast, in this paper we adopt a more holistic view of household finances.

2 Data

The empirical analysis is based on data drawn from the Household, Income and Labour Dynamics in Australia (HILDA) survey. The HILDA survey commenced in 2001 and is financed by the Australian Government with the Melbourne Institute of Applied Economic and Social Research being responsible for its design and management. The HILDA survey is a nationwide panel survey

that contains a wide range of social, demographic and socio-economic information. Further details of the HILDA survey are described in Wooden et al. (2002). This paper focuses on the 2002, 2006 and 2010 waves as these waves contain a supplementary wealth module. This wealth module includes detailed information on the household's wealth, including the monetary values of a variety of assets and debts held by the household. The analysis draws on an unbalanced panel of 27,530 observations of individuals aged between 16 and 93.

In line with the existing literature, see for example, McBride (2001), Ferrer-i-Carbonell (2005) and Luttmer (2005), we initially explore the effects of income, assets and debts on overall life satisfaction. Overall life satisfaction is based on the question *"All things considered, how satisfied are you with your life?"* This is measured on an eleven point scale, where zero indicates *"totally dissatisfied"* and ten corresponds to *"totally satisfied"*. The mean level of overall life satisfaction is 7.90 whilst the median is 8. In line with Dolan et al. (2008), the distribution of overall life satisfaction is skewed, with individuals tending to report higher values of overall life satisfaction.

Financial well-being captures a variety of aspects relating to one's current financial position, including both subjective and objective measures. This paper explores two different measures of financial well-being, namely, financial satisfaction and subjective prosperity as they capture potentially different aspects relating to financial well-being. In line with Headey and Wooden (2004), and similar to Hansen et al. (2008) and Plagnol (2011), financial satisfaction is based on the question, *"I am now going to ask you some questions about how satisfied or dissatisfied you are with some of the things happening in your life... Your financial situation."* In line with overall life satisfaction, this is measured on an eleven point scale, with higher values indicating being more satisfied. The mean level of financial satisfaction is 6.40 with the median being 7. In line with overall life satisfaction, financial satisfaction is skewed with individuals tending to report higher rather than lower levels of financial satisfaction.

The level of subjective prosperity is based on the question, *"Given your current needs and financial responsibilities, would you say that you and your family are..."* This is originally measured on a six point scale ranging from *"very poor"* to *"prosperous"*. However, due to a lack of observations in the lowest two categories, the lowest two categories are combined and as a result subjective prosperity

is measured on a five point scale with the mean level of subjective prosperity being 1.81. 52.7% of the sample report being *"reasonably comfortable"*, that is, reporting a score of 2, whilst only 1.4% of individuals report being *"prosperous"*, that is, reporting the highest value of subjective prosperity. This measure has been used extensively in the previous literature, and has been argued to capture a variety of different aspects of an individual's financial position. For example, Siahpush et al. (2007) use this variable to capture an individual's level of material well-being, whereas, Cole et al. (2009) argue that it captures financial deprivation. Similarly, Qu et al. (2009) interpret the responses to this question as capturing an individual's level of perceived prosperity.

A variety of measures are used to capture the household's financial position. These measures include the household's disposable income, the household's level of net wealth, the total level of assets, the total level of debt and the levels of unsecured debt and secured debt. It is widely acknowledged that financial variables, such as income and net wealth, are hard to measure in surveys and are potentially under-reported and are reported with error. As a consequence, in order to reduce the potential bias relating to these financial measures, we use the imputed derived variables contained in the HILDA survey. Full details of this imputation method are presented in Hayes and Watson (2009), and these imputed measures have been previously used to measure household financial variables by Headey and Wooden (2004). The level of household income is defined as the household's gross income from all sources minus estimated taxes. In some instances, this calculation returns a non-positive income and consequently, these observations, 235 (0.85% of observation), are omitted from the analysis. The household's level of net wealth is defined as the level of household assets minus total debt, where the level of total assets is defined as the summation of the household's financial and tangible assets and total debt is the summation of secured and unsecured debt. The level of secured debt refers to any debt secured against a property, whilst unsecured debt includes all other debt held by the household. In line with Gropp et al. (1997) in order to account to the skewed nature of the monetary financial variables, the empirical analysis includes the natural logarithm of each of the monetary measures. Following Brown and Taylor (2008), where net wealth, assets and debt take a positive value, the natural logarithm is simply taken. Where these variables are zero, as there are no values between 0 and 1, the natural logarithm is defined to be zero. When the value of net wealth (nw) is negative, the natural logarithm of net wealth is defined to be $-ln(|nw|)$. All

monetary financial measures are inflated to 2010 prices.

In line with the existing literature, a wide variety of demographic and socio-economic variables are included in the econometric analysis including: age categories, namely, if the individual is aged 25-34, 35-44, 45-54, 55-64, 65-74 and 75 or above, with less than 25 years old being the omitted category; the highest level of educational attainment distinguishing between high school, vocational degree and degree or above, the omitted category is below high school level; the number of individuals in the household; marital status, i.e., whether the respondent is divorced or separated, widowed or never married, with being married as the omitted category; labour market status, i.e., whether the individual is unemployed, retired or not in the labour force, with being employed being the omitted category; and finally, health status is captured by self-assessed health, i.e. whether the respondent is in *"excellent health"*, *"very good health"*, *"good health"* or *"fair health"*, with being in *"poor health"* defined as the omitted category. In addition, 2 year and 12 region dummies are also included in order to account for business cycle and regional effects. Table 1 presents summary statistics relating to all the variables used in the empirical analysis. Due to a fixed effects specification being implemented in this paper, as discussed in detail below, time invariant characteristics, such as gender and ethnicity are not included in the empirical analysis.

Reference Group

In order to capture potential comparison effects, a reference group for each individual needs to be defined. In the existing literature, a variety of approaches have been taken to define an individual's reference group in the context of income. For example, McBride (2001) defines an individual's reference group to be all individuals five years older or younger than the individual. In contrast Ferrer-i-Carbonell (2005) defines an individual's reference group based on a variety of individual characteristics. These are namely, years of education (less than 10, 10, 11, 12 and 12 or more), 5 age brackets (less than 25, 25-34, 35-44, 45-65, 66 and above), and 2 regions (West and East Germany). In addition, Ferrer-i-Carbonell (2005) also explores the inclusion of gender in the definition of the comparison group and finds similar results. Layard et al. (2010) define an individual's comparison group based on age (plus and minus five years), 3 education levels and gender. Finally, in some existing studies, see for example, Luttmer (2005) and Clark et al. (2009), an individual's reference

group is defined according to precise geographic location.

In this paper, we draw on the existing literature and define an individual's comparison group to be based on a variety of characteristics including the respondent's age, education level, gender and geographical region. Specifically, gender is separated into males and females and education is divided into four categories according to the highest level of education obtained: below high school; high school; vocational degree; and degree or above. In line with McBride (2001) and Layard et al. (2010), the comparison group is defined as individuals 5 years younger and 5 years older. In addition, the geographical region is based on 12 major statistical regions.

In the empirical analysis we implement two specifications. The first specification is simply the average (mean) of the financial measures of households in the comparison group. In line with Ferrer-i-Carbonell (2005) who focuses on income only, the natural logarithm of the average financial position of the comparison group is included in the analysis. If the comparison effect dominates the information effect, it is anticipated that the higher the average level of income, net wealth and total assets of the comparison group, the less satisfied and less prosperous an individual will feel. Similarly, the higher the average level of total, secured and unsecured debt in the comparison group, the more satisfied and more prosperous an individual will feel. However, if the average financial position of the comparison group serves to provide information to an individual, the opposite relationships are expected.

The next specification aims to capture whether the comparison effects are symmetric depending on whether a household's financial position is below or above the average financial position of the comparison group. Following Duesenberry (1949) and Ferrer-i-Carbonell (2005), it is anticipated that an individual's level of well-being will be negatively affected if their financial position is "worse" than that of the comparison group, whilst, if their financial position is "better" than the reference group, then it is not expected to influence an individual's level of well-being. Let FM and FM_r be the household's own financial measure and the average of the financial measure in the reference group, respectively. In line with Ferrer-i-Carbonell (2005), these measures are constructed as follows: if $FM > FM_r$ then $PositiveFM = Ln(FM) - Ln(FM_r)$, $NegativeFM = 0$. If $FM < FM_r$ then $PositiveFM = 0$, $NegativeFM = Ln(FM_r) - Ln(FM)$, and if $FM_r = FM$, then

$PositiveFM = NegativeFM = 0$. In this paper, having income, net wealth, and total assets below that of the comparison group will potentially adversely affect well-being, whilst having debts above the comparison group will be associated with lower levels of well-being. Alternatively, the opposite relationship could be found if the comparison group provides information about the potential future position of an individual.

3 Methodology

The analysis of the determinants of overall life satisfaction, financial satisfaction and subjective prosperity employs the methodology proposed by Baetschmann et al. (2014), 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 studies, see for example, Dickerson et al. (2012) and Frijters and Beatton (2012). It is also appropriate for the analysis of financial satisfaction and subjective prosperity as they are both ordinal measures, where individual heterogeneity is likely to influence the results. 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 upon 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} individual's overall life satisfaction, financial satisfaction or subjective prosperity 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} in a white noise error term. What is, however, observed is y_{it},

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

where the threshold parameters μ_k are assumed to be strictly increasing for all values of k, and μ_1 = -∞ and μ_{K+1} = +∞. It is assumed 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 a different cut off point[2]. The conditional maximum likelihood logit estimate is then estimated using the entire sample, giving the "BUC" estimates. The fixed effects ordered logit model is implemented in Stata using the "bucologit" command proposed by Dickerson et al. (2012). Due to the methodology being employed, it is not possible to calculate the marginal effects relating to individual coefficients. However, it is possible to comment on the sign, statistical significance and the relative size of the coefficients, that is, the ratio of coefficients.

4 Results

4.1 Overall Life Satisfaction, Financial Satisfaction and Subjective Prosperity

Table 2 presents the determinants of overall life satisfaction, whilst Tables 3 and 4 present the results relating to financial satisfaction and subjective prosperity, respectively. All tables present four specifications which capture different aspects of the household's financial position. Specification 1 includes household income, but no other financial measures. This specification provides a basis of comparison with existing studies, many of which have adopted this specification, see for example, Frijters et al. (2004), Ferrer-i-Carbonell and Frijters (2004) and Ferrer-i-Carbonell (2005).

[2]As a consequence of employing this methodology, the number of observations used in the estimation "blows-up" to 37,245, 62,020 and 16,852 observations for overall life satisfaction, financial satisfaction and subjective prosperity, respectively. In addition, the number of individuals is different across the dependent variables considered due to individuals not displaying any variation in their outcome variables not being used in the estimation samples.

Specification 2 broadens the definition of household finances to include the household's level of net wealth, whilst Specification 3 separates net wealth into total debt and total assets in order to explore whether the components of net wealth have distinct influences on overall life satisfaction, financial satisfaction and subjective prosperity. Finally, Specification 4 separates total debt into the household's levels of secured and unsecured debt in order to allow different effects from distinct debt types.[3]

Prior to considering the effects of the household's financial variables, we briefly discuss some of the other determinants of overall life satisfaction as presented in Table 2. In line with the existing literature, compared to being married, never being married, being divorced or being widowed are all inversely related to overall life satisfaction in Table 2. Similarly, compared to being employed, unemployment is inversely related to overall life satisfaction. In addition, self-assessed health status displays a positive association with overall life satisfaction, with higher levels of self-assessed health associated with higher levels of overall life satisfaction, in accordance with the existing literature.

Focusing on the impact of the financial variables, it is apparent that household income is positively associated with overall life satisfaction in all 4 specifications. In line with Headey and Wooden (2004), household net wealth is positively associated with overall life satisfaction. In accordance with prior expectations, the separation of net wealth into total assets and debt reveals that total debt and total assets are negatively and positively related to overall life satisfaction, respectively. In addition, in accordance with Brown et al. (2005), as presented in Specification 4, it is unsecured debt, rather than secured debt, which is inversely related to individual well-being.[4]

In order to explore the magnitude of these associations, we consider the ratio of the estimated coefficients of the financial variables compared to the coefficient associated with household income.

[3] In addition to the level of the financial variables being analysed, we have explored the impact of changes of the household's financial position, that is, the difference between the household's financial position at time t and at time *t-1*. The results are generally in accordance with those presented below, that is, increased levels of net wealth and total assets are positively related to financial well-being, whereas increases in debt levels have a detrimental impact on the dependent variables. However, the changes in financial variables fail to have a statistically significant impact on overall life satisfaction.

[4] We have also explored including two variables to capture whether the household has positive or negative net wealth, and obtain similar results. That is, higher levels of positive net wealth are positively related to overall life satisfaction, financial satisfaction and subjective prosperity. Similarly, higher values of negative net wealth are inversely related to both financial satisfaction and subjective prosperity. However, the level of negative net wealth, does not have a significant impact on overall life satisfaction.

From this it will be possible to calculate the required change in household income in order to maintain a constant level of well-being as a result of changes in the household's other financial variables. Specification 3 indicates that a 1% increase in total debt would require a 0.12% (0.0133/0.109), increase in annual disposable income in order to maintain a constant level of overall life satisfaction. In addition, a 1% decrease in total assets would require a 0.54% (0.0592/0.109) increase in annual disposable income.

Specification 1 of Table 3 indicates that financial satisfaction is inversely related to being unemployed and being divorced. Better health is associated with higher levels of financial satisfaction whilst household size is inversely related to financial satisfaction. The results indicate that household income is positively related to the level of financial satisfaction. These results generally accord with the findings of both Hansen et al. (2008) and Plagnol (2011). Focusing on the financial variables included in Specifications 2, 3 and 4, all of the variables have the expected impacts on financial satisfaction. That is, net wealth and total assets are positively related to financial satisfaction; whilst, all types of debt (total, secured and unsecured) are inversely related to financial satisfaction. These findings indicate that the results presented in Headey and Wooden (2004) are robust to accounting for individual heterogeneity.

Turning to the determinants of subjective prosperity presented in Table 4, in line with prior expectations, the level of household disposable income is positively associated with subjective financial prosperity, whilst the number of people present in the household is inversely related to subjective prosperity. Compared to being married, being divorced or separated and being a widow are associated with lower levels of financial prosperity. In addition, better self-assessed health is also associated with higher levels of subjective prosperity.

Specifications 2, 3 and 4 of Table 4 suggest that the results are consistent with the results from modelling financial satisfaction presented in Table 3. Both household net wealth and total assets are positively related to subjective prosperity, whereas, all types of debt are inversely related to financial prosperity. Once again, these findings support the argument that monetary financial variables beyond income are important determinants of subjective prosperity.

To summarise, the analysis indicates that it is important to account for monetary factors beyond income when considering the determinants of overall life satisfaction, financial satisfaction and subjective prosperity. In addition, the analysis shows that assets and debt have distinct impacts on well-being, illustrating the importance of separating net wealth into its constituent parts. The next section goes on to explore whether the financial position of a comparison group influences overall life satisfaction, financial satisfaction and subjective prosperity.

4.2 Financial Position of the Reference Group

This section explores whether the financial position of households in a comparison group influences an individual's level of overall life satisfaction, financial satisfaction and subjective prosperity. Table 5 includes the standard measure of the average financial position of the reference group, that is, the natural logarithm of the mean of the specified comparison group for each monetary financial measure, for overall life satisfaction, financial satisfaction and subjective prosperity. Table 6 presents the results for when a differential impact is allowed for based on whether the household's financial position is above or below the average of the comparison group. In line with the previous section, four specifications of the financial variables are presented. Tables 5 and 6 present the findings related to the financial variables only. The results relating to the standard control variables are available on request, and are generally in line with those discussed in Section 4.1.

Table 5 presents the results relating to overall life satisfaction, financial satisfaction and subjective prosperity once the variables which capture the average financial situation of the comparison group are included. Considering overall life satisfaction, the results relating to the household's own financial variables are in accordance with those presented in Table 2, that is, household income, total assets and net wealth are all positively related to overall life satisfaction, whilst, total debt and unsecured debt have inverse associations. In accordance with the existing literature, see for example, Ferrer-i-Carbonell (2005) and Luttmer (2005), the average level of income of the comparison group generally displays an inverse relationship with overall life satisfaction. Specification 2 of Table 5 indicates that the average level of net wealth in the reference group is positively related to overall life satisfaction, and the coefficient is over 2.5 times the size of the coefficient associated with household

income. Generally, the average level of debt in the reference group fails to have a significant impact on overall life satisfaction. One potential explanation for these results is that assets, such as housing and cars, are arguably more conspicuous and so individuals are more likely compare themselves in these aspects, as opposed household debt which is potentially harder to directly observe.[5]

The results presented in Table 5 relating to financial satisfaction indicate that the inclusion of controls for the financial position of the comparison group does not change the associations between the household's own financial position and financial satisfaction, that is, total assets and net wealth have positive effects, whilst all types of debt (total, unsecured and secured debt) have inverse associations. The results indicate that the average income of households in the comparison group appears to have a limited impact on an individual's level of financial satisfaction as it is only statistically significant in one of the specifications considered. The results, however, suggest that financial satisfaction is increasing in the average level of net wealth in the reference group. This result potentially supports the idea of information or tunnel effects. This again shows that the financial position of households in a comparison group is an important determinant of financial satisfaction.

Separating net wealth into total assets and total debt shows that the relationship between average net wealth in the reference group and financial satisfaction is driven by the average level of assets in the comparison group as opposed to average debt levels. The average level of total debt held by households in the comparison group fails to be a statistically significant determinant of financial satisfaction. The average level of total assets of the comparison group is found to increase financial satisfaction; the coefficient relating to the average level of total assets in the comparison group is 56.79% ((0.184/0.324)x100) the size of the coefficient associated with household income. Once again, these findings accord with information effects. The average levels of secured and unsecured debt are not found to be statistically significant determinants of financial satisfaction.

[5]To further explore this potential explanation, we separate total assets into financial and non-financial assets. Financial assets, amongst other things, include savings accounts, investments and pension funds, whilst, non-financial assets includes any property, business assets, vehicles and collectibles. Consequently, it would be expected that the average of non-financial assets of the comparison group would have a greater impact, as they are more conspicuous, than financial assets. The results indicate that, for both financial satisfaction and subjective prosperity, it is the average level of non-financial, rather than financial, assets which have a statistically significant impact, supporting the idea that comparisons are drawn from more visible assets. For overall life satisfaction, however, it is the average level of financial assets in the comparison group, which is found to be statistically significant.

The results relating to subjective prosperity presented in Table 5, similar to financial satisfaction, indicate that the household's own monetary financial measures maintain the same relationship with subjective prosperity as in Section 4.1. In addition, in line with the analysis for financial satisfaction, the average net wealth of households in the comparison group has a positive impact on one's own subjective prosperity. The average level of total debt of the comparison group is inversely related to subjective prosperity. This result may reflect the possibility that higher levels of debt of the comparison group may signal that a household will potentially also incur higher levels of debt, and as a result will have a negative impact on subjective prosperity. Once again, the average level of total assets of the comparison group has a positive impact on subjective prosperity, lending support to information effects dominating comparison effects. The average level of secured debt of the comparison group is inversely related to subjective prosperity.[6]

Table 6 presents the results relating to the potential asymmetric effects of the comparison group, that is if the household's financial position is above or below the average in the comparison group, for overall life satisfaction, financial satisfaction and subjective prosperity. The results indicate, for overall life satisfaction, having a level of net wealth above the average of the reference group has a negative impact on overall life satisfaction, whereas having net wealth below the average of the reference group has a positive association with the level of overall life satisfaction. Separation of net wealth into total assets and debt reveals that this relationship is driven by the average level of total assets of the comparison group, not the debt levels. This result potentially indicates that individuals draw information from the average financial position of individuals similar to themselves.

The results relating to financial satisfaction presented in Table 6 indicate that having a household income above that of the average of the comparison group has a positive impact on financial

[6]Following FitzRoy et al. (2014), in order to explore whether comparison or information effects dominate at different stages of the life course, we split the sample by age, specifically, if individuals are younger than, or older, than 50 years of age. The results generally indicate differences between younger and older individuals when considering the effects of the reference group. For individuals aged over 50, the level of assets and net wealth of the comparison group are positively related to overall life satisfaction, suggesting information effects dominate. However the effects are insignificant for younger individuals. Considering both financial satisfaction and subjective prosperity, the level of total assets and net wealth of the reference group appear to provide information for younger individuals. However, comparison effects appear to be present for older individuals. We have also explored separating the sample into retired and non-retired individuals and obtain similar results to those when the sample is split by age. It is potentially important to distinguish between retired and non-retired individuals as retired individuals are arguably less flexible and less able to change their financial position, and as a result, the impact of the average financial position of the comparison group could be different compared to their non-retired counterparts.

satisfaction, whereas, having income below the average of the comparison group does not have a statistically significant impact on financial satisfaction. It appears that increasing an individual's position within a reference group only matters if the individual rises above the average of the reference group. This result is at odds with Ferrer-i-Carbonell (2005) who finds that the average level of income of the reference group has a detrimental impact on overall life satisfaction if the individual is below the average of the reference group. This contradiction is potentially due to the analysis being implemented on a different country or due to the comparison group being defined in a different way. Interestingly, having a level of net wealth below that of the average of the comparison group is positively related to financial satisfaction. This could suggest that individuals with a level of net wealth below the average of the reference group gain utility from potential information effects. In addition, Table 6 shows that having total assets below the average of the comparison group has a positive impact on financial satisfaction. The average level of total debt in the comparison group fails to have a statistically significant impact on financial satisfaction, however, it is apparent however is that having a level of secured debt above the average of the comparison group has a detrimental impact on financial satisfaction.

The findings relating to subjective prosperity presented in Table 6 suggest that having a household income above the average income of the comparison group fails to have a statistically significant impact on subjective prosperity. The results reveal that having net wealth above or below the average of the comparison group has positive effects on subjective prosperity[7]. Possessing total assets below that of the average of the comparison group has a positive impact on subjective prosperity, while, in addition, having total debt below the average of the comparison group has a detrimental impact on subjective prosperity. As a consequence, an individual's level of subjective prosperity could be reduced if they anticipate that they are likely to incur higher debt levels in the future. Having a level of secured debt below the average of the comparison group has a negative impact on subjective prosperity.

The analysis presented in this section suggests that the financial position of households, with similar characteristics, influences an individual's own level of financial well-being. Furthermore,

[7]Separation by age reveals that the positive impact of being below the average is present in the younger sample, suggesting potential information effects, whereas the positive effect of being above the average of the reference group is present in the older sample.

the empirical analysis lends support to the ideas presented by Hirschman and Rothschild (1973) and Senik (2008) with the average financial position of the comparison group potentially providing future information about their own household's financial position. The results suggest that these effects are also present in wider measures of household finances in addition to income. More specifically the results show that household assets and debt have distinct impacts on well-being, demonstrating the importance of separating more aggregate measures of the household's financial position, such as net wealth, into its constituent parts.

5 Conclusion

This paper has explored the determinants of overall life satisfaction, financial satisfaction and subjective prosperity, with a particular focus placed on the role of the household's financial position including the financial position of households in a comparison group. The empirical analysis has explored panel data drawn from the 2002, 2006 and 2010 waves of the HILDA survey.

In a fixed effects framework, in order to account for unobserved individual heterogeneity, the findings suggest that the levels of net wealth and assets are positively associated with overall life satisfaction, financial satisfaction and subjective prosperity, whilst the levels of total debt and unsecured debt are negatively associated with overall life satisfaction, and all types of debt (total, secured and unsecured) are inversely related to financial satisfaction and subjective prosperity. These results highlight the importance of accounting for financial factors beyond income when analysing overall life satisfaction, financial satisfaction and subjective prosperity. Consequently, the high debt levels currently observed in Australia and many developed countries such as the UK and US could be having a detrimental impact on individual well-being.

In the existing literature, the relationship between comparison incomes and overall life satisfaction has been extensively explored. This paper contributes to the existing literature by exploring the impact of the financial position of households in a specified comparison group on an individual's level of overall life satisfaction and financial well-being, that is, we have adopted a more holistic definition of household finances. Consequently, a variety of monetary variables, namely the level of income,

net wealth, total assets, total debt and both secured and unsecured debt of the comparison group were considered. The findings indicate that comparison effects are present in financial measures other than income. More specifically, these results accord with the idea of information effects, that is the financial position of the comparison group provides information on a household's potential future financial position. Our findings thus serve to highlight the importance of exploring financial factors in addition to income and will hopefully serve to stimulate more research in this area.

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Table 1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.
		Dependent Variables		
Life Satisfaction	7.900	1.452	0	10
Financial Satisfaction	6.404	2.255	0	10
Subjective Prosperity	1.809	0.764	0	4
		Independent Variables		
Age 25-34 years	0.163	0.369	0	1
Age 35-44 years	0.213	0.409	0	1
Age 45-54 years	0.198	0.398	0	1
Age 55-64 years	0.148	0.355	0	1
Age 65-74 years	0.102	0.303	0	1
Age 75 and above years	0.063	0.243	0	1
Female	0.537	0.499	0	1
Ln(Household Income)	10.985	0.739	3.219	13.234
Degree	0.229	0.42	0	1
Vocational Degree	0.308	0.462	0	1
High School	0.143	0.35	0	1
Ln(Household Size)	0.901	0.529	0	2.565
Never Married	0.181	0.385	0	1
Divorced	0.096	0.294	0	1
Widowed	0.051	0.22	0	1
Not in Labour Force	0.108	0.311	0	1
Unemployed	0.028	0.166	0	1
Retired	0.211	0.408	0	1
Excellent Health	0.108	0.31	0	1
Very Good Health	0.359	0.48	0	1
Good Health	0.361	0.48	0	1
Fair Health	0.141	0.348	0	1
		Financial Variables		
Ln(Net Wealth)	11.894	4.279	-14.908	16.47
Ln(Total Debt)	7.806	5.249	0	14.979
Ln(Total Assets)	12.765	1.861	0	16.51
Ln(Secured Debt)	5.389	5.954	0	15.05
Ln(Unsecured Debt)	5.312	4.86	0	15.187
		Comparison Group - Financial Position		
Ln(Avg. Household Income)	11.165	0.351	9.149	12.158
Ln(Avg. Net Wealth)	13.228	0.58	9.364	15.253
Ln(Avg. Total Assets)	13.537	0.502	9.451	15.368
Ln(Avg. Total Debt)	11.294	1.69	0	13.655
Ln(Avg. Secured Debt)	10.859	2.276	0	13.176
Ln(Avg. Unsecured Debt)	9.724	1.693	0	13.019
Positive Income	0.146	0.261	0	2.335
Negative Income	0.326	0.499	0	7.926
Positive Net Wealth	0.235	0.441	0	3.502
Negative Net Wealth	1.569	4.054	0	29.111
Positive Total Assets	0.194	0.388	0	3.21
Negative Total Assets	0.966	1.586	0	14.048
Positive Total Debt	0.227	0.486	0	4.318
Negative Total Debt	3.715	4.471	0	13.626
Positive Secured Debt	0.236	0.495	0	4.762
Negative Secured Debt	5.706	5.358	0	13.172
Positive Unsecured Debt	0.191	0.539	0	4.657
Negative Unsecured Debt	4.604	4.351	0	13.019
Number of Observations		27,530		

Note: "Average" refers to the average (mean) of the financial measure in the comparison group. "Positive" refers to $Ln(FM) - Ln(FM_r) > 0$ and "Negative" refers to $Ln(FM_r) - Ln(FM) > 0$, where FM_r is the average of the financial measure in the reference group and FM is the households own financial measure.

Table 2: Dependent Variable: Overall Life Satisfaction

	Specification			
	1	2	3	4
Ln(Household Income)	0.124***	0.109***	0.109***	0.111***
	(0.0409)	(0.0411)	(0.0417)	(0.0417)
Ln(Net Wealth)		0.0204***		
		(0.00528)		
Ln(Total Assets)			0.0592***	0.0523***
			(0.0197)	(0.0203)
Ln(Total Debt)			-0.0133**	
			(0.00552)	
Ln(Unsecured Debt)				-0.0167***
				(0.00486)
Ln(Secured Debt)				-0.000477
				(0.00453)
Age 25-34 years	-0.123	-0.126	-0.118	-0.129
	(0.0974)	(0.0972)	(0.0976)	(0.0976)
Age 35-44 years	-0.160	-0.163	-0.156	-0.171
	(0.137)	(0.137)	(0.137)	(0.137)
Age 45-54 years	0.0127	0.00676	0.0126	0.00762
	(0.173)	(0.172)	(0.173)	(0.173)
Age 55-64 years	0.197	0.184	0.177	0.177
	(0.214)	(0.214)	(0.214)	(0.214)
Age 65-74 years	0.243	0.229	0.218	0.219
	(0.260)	(0.260)	(0.260)	(0.260)
Age 75 and above years	0.0766	0.0715	0.0653	0.0652
	(0.312)	(0.312)	(0.313)	(0.313)
Degree	-0.604***	-0.577***	-0.574***	-0.552***
	(0.173)	(0.174)	(0.173)	(0.174)
Vocational Degree	-0.212	-0.204	-0.192	-0.181
	(0.130)	(0.129)	(0.130)	(0.130)
High School	-0.490***	-0.480***	-0.462***	-0.446***
	(0.129)	(0.129)	(0.130)	(0.131)
ln(Household Size)	-0.0647	-0.106	-0.113*	-0.0970
	(0.0654)	(0.0659)	(0.0686)	(0.0689)
Never Married	-0.313***	-0.330***	-0.334***	-0.331***
	(0.0935)	(0.0931)	(0.0933)	(0.0934)
Divorced	-0.960***	-0.973***	-0.970***	-0.964***
	(0.113)	(0.112)	(0.114)	(0.114)
Widow	-0.676***	-0.693***	-0.692***	-0.684***
	(0.179)	(0.179)	(0.180)	(0.181)
Not in Labour Force	-0.101	-0.0950	-0.100	-0.101
	(0.0708)	(0.0705)	(0.0709)	(0.0710)
Unemployed	-0.407***	-0.404***	-0.403***	-0.401***
	(0.109)	(0.109)	(0.110)	(0.110)
Retired	0.298***	0.296***	0.287***	0.286***
	(0.101)	(0.101)	(0.101)	(0.101)
Excellent Health	2.883***	2.886***	2.881***	2.883***
	(0.147)	(0.147)	(0.147)	(0.147)
Very Good Health	2.260***	2.259***	2.261***	2.261***
	(0.132)	(0.132)	(0.133)	(0.133)
Good Health	1.665***	1.667***	1.666***	1.667***
	(0.126)	(0.126)	(0.127)	(0.127)
Fair Health	0.904***	0.907***	0.909***	0.910***
	(0.121)	(0.121)	(0.121)	(0.121)
Observations	37,245	37,245	37,245	37,245
Number of Individuals	7,848	7,848	7,848	7,848
Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1				

The analysis also includes region and years dummies.

Table 3: Dependent Variable: Financial Satisfaction

	Specification			
	1	2	3	4
Ln(Household Income)	0.380***	0.341***	0.318***	0.318***
	(0.0434)	(0.0432)	(0.0440)	(0.0439)
Ln(Net Wealth)		0.0384***		
		(0.00495)		
Ln(Total Assets)			0.212***	0.211***
			(0.0211)	(0.0224)
Ln(Total Debt)			-0.0503***	
			(0.00519)	
Ln(Unsecured Debt)				-0.0393***
				(0.00453)
Ln(Secured Debt)				-0.0206***
				(0.00439)
Age 25-34 years	-0.138	-0.153*	-0.131	-0.134
	(0.0922)	(0.0928)	(0.0927)	(0.0931)
Age 35-44 years	-0.221*	-0.241*	-0.231*	-0.244*
	(0.129)	(0.129)	(0.129)	(0.129)
Age 45-54 years	-0.192	-0.214	-0.222	-0.222
	(0.162)	(0.162)	(0.163)	(0.163)
Age 55-64 years	-0.0795	-0.117	-0.173	-0.166
	(0.199)	(0.200)	(0.201)	(0.200)
Age 65-74 years	0.0691	0.0347	-0.0313	-0.0205
	(0.242)	(0.242)	(0.243)	(0.243)
Age 75 and above years	-0.0296	-0.0509	-0.108	-0.0860
	(0.286)	(0.286)	(0.288)	(0.287)
Degree	-0.168	-0.120	-0.0872	-0.0522
	(0.165)	(0.166)	(0.165)	(0.167)
Vocational Degree	-0.152	-0.122	-0.0949	-0.0796
	(0.118)	(0.119)	(0.120)	(0.120)
High School	-0.443***	-0.399***	-0.343***	-0.322***
	(0.117)	(0.118)	(0.119)	(0.120)
ln(Household Size)	-0.371***	-0.445***	-0.536***	-0.514***
	(0.0612)	(0.0620)	(0.0650)	(0.0654)
Never Married	-0.157*	-0.198**	-0.252***	-0.232***
	(0.0859)	(0.0863)	(0.0865)	(0.0866)
Divorced	-0.852***	-0.870***	-0.880***	-0.876***
	(0.105)	(0.105)	(0.109)	(0.108)
Widow	-0.336**	-0.366**	-0.366**	-0.366**
	(0.170)	(0.168)	(0.168)	(0.168)
Not in Labour Force	-0.480***	-0.473***	-0.496***	-0.496***
	(0.0666)	(0.0670)	(0.0672)	(0.0672)
Unemployed	-1.312***	-1.316***	-1.309***	-1.314***
	(0.106)	(0.108)	(0.109)	(0.109)
Retired	-0.00158	-0.00920	-0.0442	-0.0431
	(0.0939)	(0.0933)	(0.0930)	(0.0927)
Excellent Health	0.934***	0.926***	0.928***	0.949***
	(0.137)	(0.137)	(0.136)	(0.136)
Very Good Health	0.588***	0.572***	0.585***	0.597***
	(0.123)	(0.123)	(0.123)	(0.123)
Good Health	0.392***	0.386***	0.397***	0.409***
	(0.119)	(0.119)	(0.119)	(0.119)
Fair Health	0.0881	0.0837	0.0974	0.109
	(0.113)	(0.113)	(0.114)	(0.113)
Observations	62,020	62,020	62,020	62,020
Number of Individuals	9,103	9,103	9,103	9,103
Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1				

The analysis also includes region and years dummies.

Table 4: Dependent Variable: Subjective Prosperity

	Specification			
	1	2	3	4
Ln(Household Income)	0.707***	0.665***	0.600***	0.602***
	(0.0612)	(0.0613)	(0.0618)	(0.0617)
Ln(Net Wealth)		0.0481***		
		(0.00602)		
Ln(Total Assets)			0.292***	0.293***
			(0.0261)	(0.0277)
Ln(Total Debt)			-0.0438***	
			(0.00619)	
Ln(Unsecured Debt)				-0.0320***
				(0.00524)
Ln(Secured Debt)				-0.0205***
				(0.00501)
Age 25-34 years	-0.255**	-0.274***	-0.265**	-0.267**
	(0.104)	(0.105)	(0.108)	(0.108)
Age 35-44 years	-0.383**	-0.399***	-0.412***	-0.421***
	(0.149)	(0.150)	(0.152)	(0.152)
Age 45-54 years	-0.295	-0.313*	-0.352*	-0.350*
	(0.189)	(0.190)	(0.192)	(0.192)
Age 55-64 years	-0.162	-0.189	-0.280	-0.269
	(0.235)	(0.235)	(0.237)	(0.237)
Age 65-74 years	-0.0979	-0.116	-0.222	-0.201
	(0.289)	(0.289)	(0.292)	(0.292)
Age 75 and above years	-0.0841	-0.0759	-0.136	-0.103
	(0.348)	(0.348)	(0.352)	(0.351)
Degree	-0.481**	-0.430**	-0.354*	-0.342*
	(0.188)	(0.191)	(0.191)	(0.193)
Vocational Degree	-0.411***	-0.370***	-0.340**	-0.331**
	(0.139)	(0.141)	(0.139)	(0.140)
High School	-0.727***	-0.676***	-0.614***	-0.602***
	(0.131)	(0.134)	(0.141)	(0.142)
ln(Household Size)	-0.268***	-0.353***	-0.508***	-0.489***
	(0.0727)	(0.0734)	(0.0761)	(0.0762)
Never Married	0.157*	0.123	0.0586	0.0735
	(0.0948)	(0.0963)	(0.0982)	(0.0979)
Divorced	-0.845***	-0.873***	-0.868***	-0.863***
	(0.125)	(0.125)	(0.127)	(0.127)
Widow	-0.274	-0.333	-0.373*	-0.374*
	(0.208)	(0.204)	(0.205)	(0.207)
Not in Labour Force	-0.307***	-0.297***	-0.308***	-0.308***
	(0.0745)	(0.0754)	(0.0755)	(0.0757)
Unemployed	-0.743***	-0.724***	-0.713***	-0.718***
	(0.125)	(0.128)	(0.129)	(0.130)
Retired	0.0357	0.0288	0.00935	0.00603
	(0.110)	(0.108)	(0.108)	(0.108)
Excellent Health	1.372***	1.356***	1.349***	1.375***
	(0.163)	(0.161)	(0.165)	(0.165)
Very Good Health	1.101***	1.072***	1.066***	1.085***
	(0.148)	(0.147)	(0.150)	(0.151)
Good Health	0.780***	0.765***	0.759***	0.774***
	(0.143)	(0.142)	(0.145)	(0.145)
Fair Health	0.476***	0.468***	0.478***	0.488***
	(0.138)	(0.136)	(0.139)	(0.140)
Observations	16,852	16,852	16,852	16,852
Number of Individuals	5,542	5,542	5,542	5,542
Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1				

The analysis also includes region and years dummies.

Table 5: Determinants of Overall Life Satisfaction - Relative Financial Position

	Overall Life Satisfaction				Financial satisfaction				Subjective Prosperity			
	Specification				Specification				Specification			
	1	2	3	4	1	2	3	4	1	2	3	4
Ln(Household Income	0.124***	0.117***	0.117***	0.119***	0.383***	0.349***	0.324***	0.324***	0.704***	0.669***	0.602***	0.605***
	(0.0410)	(0.0413)	(0.0418)	(0.0419)	(0.0437)	(0.0436)	(0.0444)	(0.0443)	(0.0615)	(0.0616)	(0.0622)	(0.0621)
Ln(Avg. Household Income Comparison Group)	-0.0358	-0.416*	-0.480**	-0.490**	-0.153	-0.459**	-0.315	-0.312	0.183	-0.175	-0.0161	-0.0805
	(0.183)	(0.214)	(0.221)	(0.220)	(0.174)	(0.203)	(0.211)	(0.212)	(0.207)	(0.242)	(0.255)	(0.254)
Ln(Net Wealth)		0.0198***				0.0379***				0.0475***		
		(0.00527)				(0.00495)				(0.00603)		
Ln(Avg. Net Wealth Comparison Group)		0.310***				0.224***				0.253**		
		(0.0913)				(0.0833)				(0.0998)		
Ln(Total Assets)			0.0555***	0.0485**			0.210***	0.209***			0.289***	0.291***
			(0.0196)	(0.0202)			(0.0212)	(0.0225)			(0.0261)	(0.0276)
Ln(Avg. Total Assets Comparison Group)			0.353***	0.338***			0.184*	0.197**			0.245**	0.262**
			(0.109)	(0.109)			(0.0979)	(0.0983)			(0.120)	(0.120)
Ln(Total Debt)			-0.0128**				-0.0497***				-0.0427***	
			(0.00554)				(0.00521)				(0.00620)	
Ln(Avg. Total Debt Comparison Group)			0.0261				-0.0182				-0.0742**	
			(0.0264)				(0.0245)				(0.0310)	
Ln(Unsecured Debt)				-0.0161***				-0.0389***				-0.0319***
				(0.00487)				(0.00454)				(0.00525)
Ln(Avg. Unsecured Debt Comparison Group)				0.00510				-0.0296				0.0200
				(0.0231)				(0.0226)				(0.0296)
Ln(Secured Debt)				-0.000482				-0.0204***				-0.0195***
				(0.00454)				(0.00440)				(0.00502)
Ln(Avg. Secured Debt Comparison Group)				0.0285*				0.000142				-0.0726***
				(0.0168)				(0.0160)				(0.0207)
Observations	37,245	37,245	37,245	37,245	62,020	62,020	62,020	62,020	16,852	16,852	16,852	16,852
Number of Individuals		7,848	7,848	7,848	9,103	9,103	9,103	9,103	5,542	5,542	5,542	5,542

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

Analysis also controls for respondents age, education, household size, health status, employment status, relationship status, year and region dummies.

Table 6: Determinants of Overall Life Satisfaction - Asymmetric Relative Financial Position

	Overall Life Satisfaction				Financial Satisfaction				Subjective Prosperity			
	Specification				Specification				Specification			
	1	2	3	4	1	2	3	4	1	2	3	4
Ln(Household Income)	0.0876	-0.301	-0.365*	-0.372*	0.240	-0.101	0.0110	0.0103	0.878***	0.497**	0.584**	0.522**
	(0.185)	(0.214)	(0.222)	(0.221)	(0.175)	(0.203)	(0.209)	(0.211)	(0.210)	(0.247)	(0.256)	(0.257)
Positive Income	0.0199	0.399*	0.480**	0.489**	0.532***	0.751***	0.674***	0.697***	0.119	0.334	0.250	0.319
	(0.201)	(0.229)	(0.236)	(0.235)	(0.190)	(0.217)	(0.223)	(0.224)	(0.231)	(0.266)	(0.275)	(0.275)
Negative Income	-0.0409	-0.420*	-0.483**	-0.492**	-0.0280	-0.335	-0.204	-0.202	0.295	-0.0661	0.0787	0.0142
	(0.185)	(0.216)	(0.223)	(0.223)	(0.177)	(0.205)	(0.212)	(0.214)	(0.212)	(0.248)	(0.259)	(0.259)
Ln(Net Wealth)		0.340***				0.347***				0.419***		
		(0.0926)				(0.0849)				(0.103)		
Positive Net Wealth		-0.262**				0.125				0.263**		
		(0.103)				(0.0999)				(0.120)		
Negative Net Wealth		0.321***				0.314***				0.381***		
		(0.0927)				(0.0850)				(0.103)		
Ln(Total Assets)			0.410***	0.385***			0.442***	0.451***			0.608***	0.625***
			(0.111)	(0.111)			(0.0989)	(0.0996)			(0.123)	(0.123)
Positive Total Assets			-0.345***	-0.327***			0.0442	0.0441			0.113	0.0966
			(0.123)	(0.123)			(0.116)	(0.116)			(0.142)	(0.142)
Negative Total Assets			0.353***	0.335***			0.255**	0.268***			0.369***	0.385***
			(0.111)	(0.111)			(0.0997)	(0.100)			(0.124)	(0.124)
Ln(Total Debt)			0.0143				-0.0717***				-0.125***	
			(0.0267)				(0.0248)				(0.0314)	
Positive Total Debt			-0.0581				-0.0316				0.0726	
			(0.0554)				(0.0519)				(0.0628)	
Negative Total Debt			0.0257				-0.0236				-0.0819***	
			(0.0264)				(0.0245)				(0.0311)	
Ln(Unsecured Debt)				-0.00955				-0.0737***				-0.0173
				(0.0235)				(0.0229)				(0.0302)
Positive Unsecured Debt				-0.0533				0.0759*				0.0336
				(0.0471)				(0.0438)				(0.0530)
Negative Unsecured Debt				0.00392				-0.0317				0.0178
				(0.0231)				(0.0226)				(0.0300)
Ln(Secured Debt)				0.0285				-0.0144				-0.0926***
				(0.0174)				(0.0167)				(0.0213)
Positive Secured Debt				-0.0366				-0.154***				0.0201
				(0.0553)				(0.0508)				(0.0618)
Negative Secured Debt				0.0285*				-0.00156				-0.0755***
				(0.0168)				(0.0160)				(0.0208)
Observations	37,245	37,245	37,245	37,245	62,020	62,020	62,020	62,020	16,852	16,852	16,852	16,852
Number of Individuals		7,848	7,848	7,848	9,103	9,103	9,103	9,103	5,542	5,542	5,542	5,542

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

Analysis also controls for respondents age, education, household size, health status, employment status, relationship status, year dummies and region dummies. "Positive" refers to if the own financial measure is above the average of the comparison group, that is, $Ln(FM) - Ln(FM_r) > 0$ and "Negative" refers to if the own financial position is below the average of the comparison group, that is, $Ln(FM_r) - Ln(FM) > 0$, where FM_r is the average of the financial measure in the reference group and FM is the households own financial measure.