Financial satisfaction over the life course: The influence of assets and liabilities

Anke C. Plagnol*
University of Cambridge

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Abstract

Various studies have shown that financial satisfaction is, among other domains, an important determinant of overall individual well-being. Contrary to the common belief that financial satisfaction mainly depends on an individual's income, evidence for the U.S. indicates that life course financial satisfaction steadily increases from the thirties onwards, whereas life course income shows an inverted U-pattern with a peak at midlife. To judge from other studies in the U.S. and Norway, this pattern for financial satisfaction is not unique. The aim of the present analysis is to explore the determinants of this life course financial satisfaction pattern, taking into account not only income but also the possible impact of assets and liabilities. The analysis suggests that while income has the expected positive relation, increasing financial satisfaction at older age can be partly explained by decreases in liabilities and increases in financial assets, and that assets and liabilities considered separately provide a better explanation than net wealth. In addition, reduction in the dependency burden at old age leads to increased financial satisfaction while the deterioration of health has a negative impact. The data are from the second and third waves of the U.S. National Survey of Families and Households.

Keywords: Financial satisfaction, life course, subjective well-being

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1 Introduction and background

Various studies have shown that financial satisfaction is, among other domains, an important determinant of overall individual well-being (van Praag and Ferrer-i-Carbonell, 2004; Layard, 2005; Easterlin, 2006). However, research on financial satisfaction and its changes over the life course is still sparse and the subject deserves further attention. The aim of the present study is to analyze the determinants of financial satisfaction and its changes with age. An important contribution of this analysis is the distinction between different types of debts and assets in addition to income. The results are based on U.S. panel data from the National Survey for Families and Households.

1.1 Changes in subjective well-being over the life course and associations with life events

Studies that account for age-related changes in life circumstances, such as marital status and income, usually find a U-shaped relationship between overall subjective well-being and age (e.g. Blanchflower and Oswald, 2004), whereas others have found this relationship to rather resemble an inverted-U when life circumstances are not controlled for (Easterlin, 2006; Mroczek and Spiro, 2005). These changes in life course well-being suggest that well-being should not be considered to be a stable trait, but may be affected by changes in life circumstances. Early studies in psychology posited that individuals are endowed with set levels of happiness (Kammann, 1983; Lykken and Tellegen, 1996). In this view, significant changes in life circumstances might temporarily increase or decrease a person's well-being, but eventually complete adaptation to one's previous level of well-being will occur. However, most researchers now agree that individual well-being is not fixed, but can be influenced by some life circumstances which change over the life course (Diener et al., 2006; Lucas, 2007a; Clark et al., 2008a). There is evidence that people adapt more slowly to negative life events (Frijters et al., 2008), and the effects of changes in life circumstances appear to vary between life domains (Ferrer-i-Carbonell and Van Praag, 2008; Angeles, 2009; Clark and Georgellis, 2010).

The most appropriate way to study changes in individual well-being is to employ longitudinal data, which allow one to observe individual levels of subjective well-being before and after a change in circumstances (for a recent overview in this journal of the economics literature on subjective well-being using large datasets, including panel data, see Dolan et al. (2008)). Various

longitudinal studies have shown to what extent short-term or long-term changes in well-being occur after important life events, including changes in marital status such as marriage (Lucas et al., 2003; Zimmermann and Easterlin, 2006), divorce (Lucas, 2005; Gardner and Oswald, 2006), and widowhood (Lucas et al., 2003). Studies of the effects of the birth of a child on well-being sometimes imply complete adaptation (Clark et al., 2008a; Clark and Georgellis, 2010).

Levels of life satisfaction are further often related to the well-being of significant others. Longitudinal studies have demonstrated to what extent one's life satisfaction is associated with that of one's spouse (Powdthavee, 2009), or the mental distress of one's parents (Powdthavee and Vignoles, 2008). Panel studies have further shown that an individual's well-being recovers after disability, though only partially (Lucas, 2007b; Oswald and Powdthavee, 2008).

People are less likely to adapt to unemployment (Clark, 2006; Winkelmann and Winkelmann, 1998), and the unemployed are less happy than others even after re-employment (Lucas et al., 2004).[1] In other domains, adaptation is more likely to be complete; for instance individuals have been found to adapt to increases in income (Di Tella et al., 2007), which may be related to changes in income aspirations (Easterlin, 2001).

These longitudinal studies mostly consider the effects of changes in life circumstances on measures of overall individual well-being, such as happiness and life satisfaction, but research on domain-specific well-being, such as financial satisfaction, is more limited. The domain satisfaction approach pioneered by psychologist Angus Campbell and collaborators (Campbell et al., 1976; Campbell, 1981) asserts that global well-being depends on the satisfaction experienced in various domains of life.[2] In studies of overall satisfaction with life, income usually shows a significant positive association with well-being (for a recent overview see Clark et al., 2008b), and it can be assumed that this positive effect of income is caused by its impact on financial satisfaction, which in turn is one of the domains that influence overall well-being (Campbell et al., 1976; Campbell, 1981). In a recent study, Ferrer-i-Carbonell and Van Praag (2008) found no evidence of adaptation to income for financial satisfaction using German panel data. This finding suggests that financial satisfaction over the life course may closely resemble the life course pattern of income. However, the evidence presented in the

[1] At the macro-level, Di Tella et al. (2001) found in a panel analysis of nations that unemployment has a negative impact on well-being, exceeding that of inflation.

[2] The theory that several domains of life determine overall happiness is often referred to as a 'bottom-up' approach.

following section indicates that this is not the case.

1.2 Life course financial satisfaction

In the U.S., one can observe increasing financial satisfaction with age in the General Social Survey, a repeated cross-sectional survey with observations from 1972 to 2004 (Plagnol and Easterlin, 2008, Figure 4). This pattern has also been observed by other researchers. Numerous studies in financial gerontology have shown that financial satisfaction is surprisingly high at old age despite low levels of income after retirement (see George 1992 for an overview). Most of the studies reviewed by George (1992) use – like the present analysis – U.S. data and one might argue that this is a peculiarity of Americans' sense of financial well-being. A recent study using Norwegian data, however, points to the same seemingly paradoxical observation (Hansen et al., 2008). The Norwegian study employs income reports from public registries and thus avoids problems with possible underreporting of financial means at older ages. Though the authors do not specifically point out the high levels of financial satisfaction at old ages, evidence of this pattern can also be found in studies from Spain (Vera-Toscano et al., 2006) and Ireland (Delaney et al., 2006) in the form of a significant and positive coefficient of age in regressions of financial satisfaction on a group of explanatory variables.

Some of these studies employ cross-sectional data, i.e. financial satisfaction is measured at one point in time; hence it is impossible to infer whether seemingly age-related differences in financial satisfaction are actually associated with age or in fact reflect differences between birth cohorts. The present analysis employs longitudinal data and confirms the financial satisfaction-age relationship that can be observed in cross-sectional studies, but before I turn to the empirical analysis of the data I first consider what might influence financial satisfaction over the life course.

The domain satisfaction approach postulates that satisfaction in each domain depends on the extent to which objective circumstances fulfill one's aspirations. Campbell and his collaborators (1976) note that aspirations are often formed on the basis of comparisons to relative standards. Satisfaction declines when the gap between aspirations and the individual's perception of his own situation increase. This approach can be described as a relative standards model, in which people evaluate their standing based on standards which are determined by comparisons to others, their own past and their desires. Similarly, Michalos' multiple discrepancy theory (Michalos, 1985, 1991) describes that satisfaction is determined by the discrepancy between

an individual's attainments and multiple standards. In his empirical analysis of the model, the strongest predictor of satisfaction was the discrepancy between what one wants and what one has.

Solberg et al. (2002) test the relative standards model in three experimental settings in which, among other things, they find that satisfaction with income depends to a large extent on an individual's ability to purchase desired items with that income. They also note that individuals seem to adjust their levels of desires and thus regulate satisfaction levels. Similarly, Campbell et al. (1976) point out that aspirations seem to be lower among the old than among the young and could thus explain high levels of satisfaction in old age.

Financial satisfaction is thus probably associated with objective financial circumstances – i.e. income and wealth – and an individual's perceived financial needs, which may be reflected in the level of debt one accumulates to fulfill those needs. Individuals who wish to fulfill their perceived needs accumulate debt if their current financial means do not match their aspirations. Moreover, debt might cause emotional strain and thus lower an individual's financial satisfaction considerably. If objective financial circumstances, not an individual's perception thereof, were mainly influencing satisfaction with one's finances, then an aggregate measure of net wealth, combining debts and assets, should adequately explain financial satisfaction. This will be tested later in the analysis.

Could a potential discrepancy between perceived needs and financial means explain the seemingly paradoxical pattern of increasing life course financial satisfaction? If in a life course model, aspirations are particularly high at young ages and cannot be satisfied with current income then individuals will incur debt especially early in life. Decreasing incomes after midlife likely have a negative impact on financial satisfaction but the upward-sloping pattern of financial satisfaction might be caused by decreases in debt and thus less emotional strain. Declining levels of debt allow for two explanations. On the one hand, it is possible that with rising incomes individuals do not have to incur debt in order to afford the things they want, say a new car. On the other hand, as people age they might lower their material aspirations and thus do not feel the need to spend more than they can afford. Moreover, the accumulation of financial and tangible assets with age provides security and possibly lowers emotional strain from debt because tangible assets, for instance a house, could be sold in times of financial hardship.

Others have studied the effect of social comparison on financial satisfaction (Hsieh, 2000; Burchardt, 2005) and find that social comparison significantly influences satisfaction with one's financial situation. I do not consider

the effects of social comparison (what relevant other's have; also referred to as relative deprivation) and hedonic adaptation (what the individual had in the past) separately because these two psychological mechanisms are the underlying process in the formation of aspirations and therefore are indirectly reflected in the level of debt.

My analysis suggests that there are other factors, economic and non-economic, besides income which lead to rising financial satisfaction in old age. In what follows I will look at changes in several measures of assets and liabilities over the life course. I find that income and assets both exert a positive impact on financial satisfaction while debt is associated with reduced satisfaction. The present study further takes into account changes in financial obligations represented by the dependency burden and medical costs in the form of self-rated health. To my knowledge, apart from a cross-sectional analysis by Hansen et al. (2008), the current analysis is the only study which specifically considers the influence of assets and liabilities on financial satisfaction. I further compare the effect of a composite measure of net wealth on satisfaction to that of separate measures of asset and liabilities.

2 Data and methods

2.1 Data

The data are from the National Survey of Families and Households (NSFH).[3] Interviews for the NSFH were conducted in three waves in 1987-1988, 1992-1994, and 2001-2002. For the first wave in 1987-88 (NSFH1; Sweet et al., 1988), one adult per household was randomly selected, whereby households with blacks, Puerto Ricans, Mexican Americans as well as single-parent families, families with step-children, cohabiting couples and recently married persons were oversampled (n = 13,007). A large portion of the interviews with the primary respondent were self-administered to allow the respondent more privacy. Shorter questionnaires were given to the spouse or cohabiting partner of the primary respondent. The second wave was conducted as a five year follow-up study from 1992-1994 (NSFH2; Sweet and Bumpass, 1996).

[3]The first wave of the National Survey of Families and Households was funded by a grant (HD21009) from the Center for Population Research of the National Institute of Child Health and Human Development; and the second and third waves were funded jointly by this grant and a grant (AG10266) from the National Institute on Aging. The survey was designed and carried out at the Center for Demography and Ecology at the University of Wisconsin-Madison under the direction of Larry Bumpass and James Sweet. The field work for the first two waves was done by the Institute for Survey Research at Temple University, and the third wave by the University of Wisconsin Survey Center.

This follow-up included 10,005 of the original wave 1 primary respondents, as well as their current spouses or cohabiting partners and, if relationships had ended between waves, also interviews with the NSFH1 spouses and partners. In addition, telephone interviews were conducted with some of the household's children. Data for the third wave from 2001-2002 (NSFH3; Sweet and Bumpass, 2002) were collected through telephone interviews with only primary respondents who were either above age 45 or had a child who was interviewed in wave 2, as well as with their spouses and their previously interviewed children. The sample size of the third wave survey is thus considerably lower than for the first two waves (n = 7,277).

The present study uses only the second and third wave of the NSFH because the main variable of interest, namely financial satisfaction, was not included in the first wave. The second wave of the survey includes survey weights to account for the oversampling of specific socio-demographic groups in the sample. However, these weights were not included in the third wave of the NSFH, and I therefore use two different samples for the analysis: a cross-sectional sample which includes only data from wave 2 and a longitudinal sample which includes responses from both waves 2 and 3. However, the second sample does not have survey weights and as described above, only a subset of wave 2 respondents were reinterviewed in the last wave, making this second sample less representative of the general U.S. population. Throughout the paper, I consider how sample attrition may affect the results.

The first sample consists of primary respondents in wave 2 who are householders – i.e. they or their spouses rent or own the place where they reside – and have non-missing values for the financial satisfaction measure. Only householders are selected for the sample because non-householders were not asked about the income of other household members; hence the household income measure for these respondents reflects only their personal incomes. In wave 2 of the NSFH, about 91% of respondents in the full sample are considered to be householders, and about 92% of those who answered the question on financial satisfaction. Non-householders mostly include children and other adult relatives of householders (Sweet, 1990). Not surprisingly, non-householders therefore, on average, report lower personal incomes than householders, they are on average younger and less likely to be married (Table 1). This necessary truncation of the data somewhat biases the sample towards people with higher incomes and assets as householders are by definition in a good enough financial situation to own or rent the place they reside in.

The second sample consists of householders who answered the question

Table 1: Sample characteristics, NSFH wave 2, householders and non-householders (income in $1993)

Characteristic	n	Mean	Std. dev.	Min	Max
Householders:					
Personal income	8,855	25,670	33,556	0	1,000,000
Married	8,852	0.700	0.458	0	1
Never married	8,852	0.093	0.290	0	1
Unemployed	8,855	0.014	0.116	0	1
Retired	8,855	0.171	0.376	0	1
Male	8,855	0.465	0.499	0	1
Education above high school	8,832	0.473	0.499	0	1
Age	8,852	48.48	15.99	23	97
Non-householders:					
Personal income	751	18,117	15,078	0	104,000
Married	751	0.087	0.281	0	1
Never married	751	0.545	0.498	0	1
Unemployed	751	0.062	0.240	0	1
Retired	751	0.082	0.275	0	1
Male	751	0.5489	0.498	0	1
Education above high school	749	0.444	0.497	0	1
Age	751	37.06	15.22	22	96

on financial satisfaction in both waves 2 and 3, thus creating a balanced panel. I also exclude individuals who are younger than 30 years or older than 80 years due to very small sample sizes at these ages. The follow-up interviews in the third wave were only conducted with individuals above age 45 and individuals who had focal children in wave 2. Thus, there are only a few individuals who were under age 30 in wave 2 and who were re-interviewed in wave 3.[4] As before the few observations which seemed to include misreported household income measures were also deleted. This yields a final sample of 3,751 individuals with observations in both waves.

The balanced panel differs from the weighted wave 2 sample in several distinct ways because of the limited number of observations in wave 3. The

[4]This further truncation of the sample may bias the sample because those under the age of 30 have, on average, lower incomes. Similarly, the selection of those with focal children – who may have increased financial needs - might bias the results. I address these issues of sample truncation later in the analysis where I compare results for the full and and a restricted wave 2 sample to assess whether this sample truncation substantially alters the results.

respondents in the balanced panel are, on average, more likely to be divorced, be black and have an education beyond highschool than the average individual in the weighted wave 2 sample. At the same time, they are less likely to never have married, be retired and be male. This shift in sociodemographic characteristics probably mostly occurred because the balanced panel does not use population weights due to the lack of weights in the third wave sample. The wave 2 respondents who remained in the balanced panel are also financially better off than the respondents in the whole wave 2 sample, which is reflected by, on average, higher household income, more financial and tangible assets as well as higher liabilities. The results could be affected by the selective nature of the balanced panel because several key characteristics, such as income, are overestimated. The higher average household income value stems from the overrepresentation of highly educated individuals in the sample, not from the overrepresentation of divorced and black individuals (Table 2). The undersampling of never married and retired individuals also contributes to this pattern. Throughout the analysis, I will therefore compare the results from calculations using the weighted wave 2 sample to those using the balanced panel.

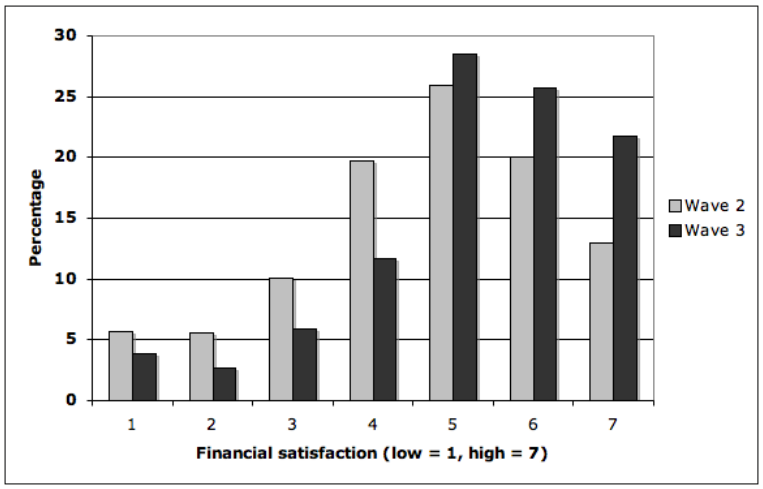
Table 2: Household income by sample characteristics, NSFH wave 2, full and restricted samples (income in $1993)

Characteristic	n	Mean	Std. dev.	Min	Max
All respondents in weighted, full wave 2 sample	8,854	50,461	48,010	0	999,995
All respondents in restricted wave 2 sample	3,751	55,965	53,818	0	999,995
Divorced	614	38,099	50,558	0	999,995
Black	503	38,616	32,955	0	230,000
Education above high school	1,942	70,477	65,635	0	999,995
Never married	231	32,795	28,318	0	203,000
Retired	380	36,820	35,895	0	310,000
Male	1,347	61,802	51,611	0	732,516

2.2 Key variables

All variables in this analysis are self-reported measures. Financial satisfaction is measured by a question which asks the respondents to rate on a scale from 1 to 7 how satisfied they are, overall, with their financial situation, where 1 denotes "very dissatisfied" and 7 denotes "very satisfied". The distribution of the responses to this financial satisfaction question is skewed towards higher valuations (Figure 1).

Figure 1: Financial satisfaction, NSFH, wave 2 and wave 3 (n = 3,751 in each wave)



Income is measured in the form of household income because the debt measures are also collected at the household level. The measure consists of the income of all household members from wages, salaries, self-employment, social security and any other source. The household income variable is a 'best measure' income variable based on a comparison of the main respondents' reports and their spouses' reports.[5] A few respondents report zero household income and only the cases in which the respondent owns substantial financial or tangible assets are kept.

[5]The household income variable for wave 2 is a 'best measure' variable provided by the survey institute. For wave 3, I constructed a best measure income variable based on the description provided by the survey institute about their construction of a best measure income variable (see Appendix J, NSFH. Available on the NSFH website at http://www.ssc.wisc.edu/nsfh/codedata2.htm (last accessed May 5, 2009)).

I distinguish between three different measures of debt instead of aggregating all into one measure because some types of debt can be considered to be better than others. Credit card debt is a measure of the credit card balance that is not paid off at the end of the month. Drentea observes a positive relation between anxiety and the ratio of credit card debt to income (Drentea, 2000). In contrast to mortgage debt, credit card debt is usually not associated with a big-ticket consumer item which might provide security in times of hardship. Indeed, Brown et al. (2005) find that unlike mortgage debt, credit card debt is associated with reduced psychological well-being. A second variable indicates the total amount that the respondent still owes on his house. A third debt measure aggregates other forms of debt such as loans on purchases, loans from friends and outstanding bills. Debt can be assessed in two different ways; either by its total amount or instead by the monthly payments an individual has to make to pay off this debt, and both forms of debt are considered in the analysis.

The assets that are considered in this analysis include financial assets, tangible assets and homeownership. Financial assets consist of savings and investments such as stocks and bonds. Tangible assets are indicated by the value of the respondent's home.

I further include various explanatory variables that account for financial stressors, such as large expenditures in the previous year – e.g. due to illness – which might have a negative effect on financial satisfaction (Joo and Grable, 2004). A measure of self-rated health proxies for the cost of health care and indicators of household size account for differences in expenditures. This list of measures of financial needs is certainly far from complete and is restricted due to data limitations.

Assets and liabilities are mainly analyzed separately instead of constructing a composite net wealth measure because the same amount of net wealth can be derived from substantially different compositions of the individual components. For instance, someone with $100,000 in financial assets, $0 debt and no tangible assets has a net worth of $100,000. On the other hand, a person who has $50,000 in financial assets and owns a home which is valued at $300,000, but on which he owes $250,000, has the same level of net worth. However, one can expect that the level of financial satisfaction differs between these two people. The person who owns the house has to make monthly mortgage payments and thus feels the pressure of paying his debt on time. On the other hand, he also benefits from owning this house because it could be sold in times of great financial need and thus provides security. Both separate measures of assets and liabilities as well as an aggregate measure of net wealth are considered in the analysis. All variables,

including composite measures such as net wealth are further described in Appendix A. Whenever log transformations of income, asset and liabilities variables are carried out for the analysis, a value of one is added to the original dollar amount as it is not possible to take the log of zero.

Tables 3 and 4 include descriptive statistics for the cross-sectional weighted wave 2 sample and balanced panel respectively. The few observations which seemed to include misreported household income measures are excluded[6].

[6] 52 out of 8,907 observations, i.e. less than 0.6% of the sample, were dropped in the full wave 2 sample (Table 3) due to reported incomes that seemed unreasonable. For the balanced sample (Table 4) 22 out of 3,773 observations, i.e. about 0.6% of the sample, had to be dropped for the same reason.

Table 3: Descriptive statistics, full sample, NSFH, wave 2 (income, liabilities and assets in $1993)

Variable	n	Mean	Std. dev.	Min	Max
Financial satisfaction	8,855	4.708	1.646	1	7
Household income[a]	8,854	5,0461	48,010	0	999,995
Assets					
Financial assets	8,197	33,936	49,738	0	205,994
Tangible assets: Value of home	8,855	8,2429	109,499	0	1,029,971
Homeownership	8,791	0.745	0.436	0	1
Absolute debt					
Credit card debt	8,597	1,212	3,068	0	68,253
Debt on home	8,477	29,272	52,750	0	746,730
Loans on purchases	8,711	202	1,137	0	70,000
Educational loans	8,760	576	4,191	0	99,999
Bank loans	8,735	678	4,735	0	102,996
Loans from friends	8,782	151	1881	0	99,999
Loans for home improvement	8,778	217	2,049	0	72,098
Bills	8,708	243	2,496	0	99,999
Other debt categories	8,735	205	2,659	0	99,999
Monthly debt payments on:					
Mortgage payments	8,728	350	550	0	8,254
Loans on purchases	8,686	17	185	0	8,000
Educational loans	8,754	11	113	0	8,000
Bank loans	8,716	25	274	0	10,299
Loans from friends	8,737	4	66	0	4,000
Loans for home improvement	8,774	4	33	0	600
Other debt categories	8,797	7	152	0	9749
Other independent variables					
Self-rated health (1 = low)	8746	3.9670	0.837	1	5
Children in household	8,855	0.835	1.193	0	7
Other adults in household	8,855	1.033	0.766	0	7
Married	8,852	0.700	0.458	0	1
Separated	8,852	0.026	0.160	0	1
Divorced	8,852	0.094	0.292	0	1
Widowed	8,852	0.087	0.281	0	1
Never married	8,852	0.093	0.290	0	1
Unemployed	8,855	0.014	0.116	0	1
Retired	8,855	0.171	0.376	0	1
Black	8,844	0.095	0.293	0	1
Male	8,855	0.465	0.499	0	1
Education above high school	8,832	0.473	0.499	0	1
Age	8,852	48.48	15.99	23	97

NSFH2 weights provided by the survey institute are used.

[a] The few people reporting zero household incomes own substantial assets.

Table 4: Descriptive statistics, waves 2 and 3, balanced panel (income, liabilities and assets in $1993)

	Wave 2			Wave 3		
Variable	n	Mean	Std. dev.	n	Mean	Std. dev.
Financial satisfaction	3,751	4.667	1.620	3,751	5.224	1.511
Household income[a]	3,751	55,965	53,818	3,668	61,503	70,210
Assets						
Financial assets	3,502	37,264	51,280	3,356	80,326	108,989
Tangible assets: Value of home	3,751	88,334	105,664	3,751	110,720	123,052
Homeownership	3,734	0.805	0.396	3,602	0.863	0.344
Absolute debt						
Credit card debt	3,647	1,405	3,291	3,304	746	1,533
Debt on home	3,580	32,512	52,190	2,939	39,304	58,488
Loans on purchases	3,694	245	1,177	3,682	247	1,756
Educational loans	3,719	425	3,113	3,704	752	4,599
Bank loans	3,706	781	5,081	3,680	769	5,016
Loans from friends	3,729	184	2,432	3,705	62	853
Loans for home improvement	3,726	300	2,499	3,706	286	2,220
Bills	3,698	308	3,080	3,652	273	2,342
Other debt categories	3,706	233	2,764	3,660	286	2,942
Monthly debt payments on:						
Mortgage payments	3,680	373	496	3,488	384	535
Loans on purchases	3,683	20	184	3,654	11	65
Educational loans	3,719	8	94	3,688	10	61
Bank loans	3,696	27	283	3,654	19	135
Loans from friends	3,715	4	75	3,693	1	22
Loans for home improvement	3,724	6	39	3,693	6	46
Other debt categories	3,725	7	167	3,624	6	52
Other controls						
Self-rated health (1 = low)	3,709	3.994	0.801	3,751	3.964	0.917
Children in household	3,751	0.881	1.202	3,751	0.398	0.829
Other adults in household	3,751	1.026	0.771	3,751	1.007	0.796
Married	3,751	0.677	0.468	3,751	0.625	0.484
Separated	3,751	0.027	0.162	3,751	0.026	0.160
Divorced	3,751	0.164	0.370	3,751	0.178	0.383
Widowed	3,751	0.071	0.257	3,751	0.117	0.321
Never married	3,751	0.062	0.240	3,751	0.054	0.226
Unemployed	3,751	0.015	0.120	3,751	0.016	0.125
Retired	3,751	0.101	0.302	3,751	0.146	0.353
Black	3,747	0.134	0.341	3,747	0.134	0.341
Male	3,751	0.360	0.480	3,751	0.359	0.480
Education above high school	3,748	0.518	0.500	n/a	n/a	n/a
Age	3,751	48.25	10.26	3,751	56.95	10.12

[a] The few people reporting zero household incomes own substantial assets.

2.3 Methods

The advantage of the panel data – the second sample – is that it is possible to follow individuals over time and thus derive life course profiles for the variables of interest. I first estimate nonparametrically the life course profiles of variables that one could reasonably consider to determine financial satisfaction. In particular, I look at changes over the life course of various measures of assets, liabilities and financial obligations.

A nonparametric approach has the advantage that it neither prescribes the functional form of the regression curve, nor the error distribution.[7] One might consider the following example to illustrate the advantage of a nonparametric approach for this analysis in which we assume that the true life course profile of financial satisfaction is a steady increase with age until age 60 followed by a constant level of satisfaction. If one fits a quadratic curve to life course financial satisfaction, this imposed functional form will probably yield a curve which shows an initial increase of financial satisfaction followed by a subsequent decrease. The quadratic functional form does not allow the curve to flatten out after a certain age. A cubic specification might approximate the true curve reasonably well, but if one starts with a quadratic specification the more appropriate cubic specification could easily be overlooked. A nonparametric approach does not impose a functional form and thus allows the fitted curve to take any shape.

To obtain nonparametric life course profiles, I first take the residuals from an individual fixed effects regression of the variable of interest. Wave dummy variables are included to account for period effects. The residuals thus neither include individual fixed effects nor period effects. The residuals are then used as the dependent variable in a kernel regression. I use locally weighted scatter plot smoothing (lowess), proposed by Cleveland (1979), to estimate life course curves when the residuals are plotted against age. This procedure is robust against outliers which might otherwise dominate the estimated statistics (see Härdle, 1990). The life course profiles that are obtained nonparametrically could be taken as the basis for postulating a parametric model for each variable of interest, but for my purposes the nonparametric profiles are sufficient. For the life course figures in this paper, the sample mean of the variable of interest was added to the resulting residual of the lowess estimation.

The second and third wave of the NSFH are spaced ten years apart and therefore do not allow me to follow one single cohort for fifty years from age 30 to 80. The life course profiles here have to be regarded as an approxima-

[7] See Härdle (1990) for an overview of nonparametric regressions.

tion of the life course profile of a single birth cohort because observations at young ages are mostly supplied by respondents of recent birth cohorts. Similarly, the part of the life course profiles at old ages is mostly determined by observations of respondents of older birth cohorts. Although these life course curves can therefore only be regarded as approximations to the actual experience of an individual, comparisons with the actual experience of single birth cohorts in the Current Population Surveys suggest that the present analysis provides a reasonably close fit.[8] Longitudinal studies on the life course income experience of individuals within cohorts also indicate that incomes usually increase early in the life course and decline after midlife (Duncan et al., 1987).

I then assess the relative influence of each explanatory variable on financial satisfaction in several regressions. The cross-sectional sample of the second NSFH wave is the most representative sample of the overall population, but it does not allow me to assess whether people change their valuation of their financial situation when their economic circumstances change or as they age.

The panel structure of the second sample allows the use of individual fixed effects analysis to account for unobserved, time-invariant individual characteristics. Given the ordinal nature of the measure of financial satisfaction, an ordered probit specification with random effects is also appropriate, and I use both specifications to ensure that the results are robust to methodology. Ferrer-i-Carbonell and Frijters (2004) show that ordinal and cardinal estimations, such as the fixed effects estimation used here, usually yield very similar results. The results of both the fixed-effects estimation and the ordered probit estimation with random effects indicate the relative importance of each explanatory variable for an individual's sense of financial satisfaction. Measures of the unemployment rate and inflation rate are included to account for macroeconomic period effects.

The potential endogeneity of explanatory variables like income in regressions of subjective well-being are often overlooked in the current literature (Powdthavee, 2010). For instance, unobserved individual characteristics, such as personality, may be associated with both income and financial satisfaction, which would bias the estimates up- or downwards depending on the direction of the association. The fixed-effects regressions account for unobserved individual characteristics that are stable across waves, e.g. personality and optimism, and therefore reduce such potential biases. Biases may not be completely eliminated if there are time-varying unobserved vari-

[8] Comparisons are not reported here, but are available from the author upon request

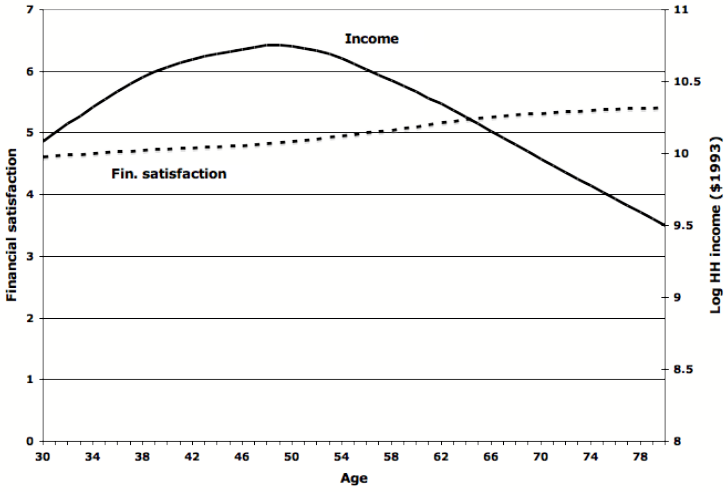
ables that are correlated with both income and financial satisfaction.

3 Findings

3.1 Life course patterns

The following life course curves are derived from the second sample, the balanced panel. Figure 2 indicates that considering only income is not sufficient for an analysis of financial satisfaction because satisfaction with one's finances increases steadily with age despite decreases in household income after midlife (Figure 2). It is impossible to reconcile these two life course profiles with the assumption that income is the primary determinant of financial satisfaction.

Figure 2: Financial satisfaction and log household income (Lowess estimation)



Further evidence in the NSFH suggests that people's perceptions of their financial situation change with age. When asked whether they think that their standard of living will get much worse when they retire, respondents in wave 3 of the NSFH – who are now about ten years older than in the previous wave – are substantially less worried about retirement than in wave 2. Only the responses of people who answered this question in both wave 2 and 3 are listed in table 5, yielding a sample size of 2,416 in each survey year. This

result is interesting because most of the respondents did probably not experience significant changes in their employment or their household situation over the 10-year period between the two surveys. Individuals who remain at the same place of employment should be able to estimate reasonably well the level of income they can expect when they retire.

Table 5: Responses to the question "My standard of living will get much worse when I retire" in %', NSFH, waves 2 and 3 (same respondents in both waves)

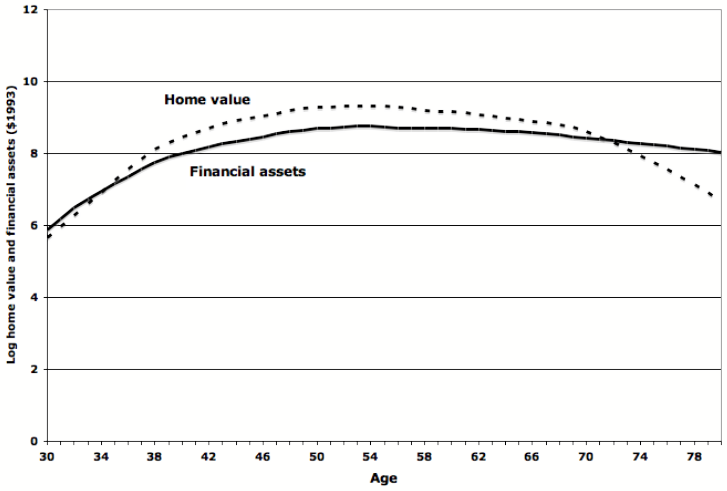
Response	Wave 2	Wave 3
Strongly agree	4.9	4.1
Agree	19.0	22.4
Neither agree nor disagree	38.7	10.9
Disagree	30.1	55.0
Strongly disagree	7.3	7.7

The NSFH data provide detailed information on several components of wealth, and perhaps assets are more important for an individual's satisfaction with finances. The value of the financial assets that an individual holds increases steeply until about age 50 and then levels off with a gradual decline at old age (Figure 3). Similarly, the average value of tangible assets – in the form of homes – increases until midlife and then remains mostly constant with a slight decline at old age (Figure 3).

This increase in the value of homes indicates that individuals do not remain satisfied with the first homes they purchase, but instead 'upgrade' their homes after a while. This can be seen as evidence of increasing material aspirations and 'conspicuous consumption' (Veblen, 1899) – i.e. individuals do not purchase homes solely for their practical value, but also see them as a means to position themselves in society.

Liabilities can be seen as an indicator of high material aspirations that exceed financial means and therefore likely have a negative impact on financial satisfaction. Total credit card debt increases in the early 30s and then continuously declines with age (Figure 4), which might contribute to higher levels of financial satisfaction at old age. In wave 2 of the NSFH about 44% of respondents reported having a credit card balance which they did not pay off at the end of the month. This percentage decreased to about 31% in the 10-year follow up study (Table 6). More than 50% of all respondents report owing money on their homes in both waves of the survey. The life course

Figure 3: Log financial assets and home value (Lowess estimation)



profile of mortgage debt shows that debt on homes increases until age 47 and then steadily declines (Figure 4). Some of this decline can be attributed to slight declines in homeownership, but most of it is probably due to the fact that respondents start paying off their mortgages completely. Mortgage payments take up a large part of disposable income, but homeownership is an important source of wealth for most households (Mishel et al., 2005). The level of other debts also steadily declines with age (Figure 4).

It has to be considered that the acquisition of debt depends to a large extent on the supply side of debt – namely credit card companies, mortgage companies and other lenders – and their willingness to provide the needed loan. Many individuals who would like to acquire a mortgage loan might not receive one due to a low credit rating, and it is difficult to assess in how far liabilities in the present study are limited because of restrictions from the supply side. In the cross-section, one can observe that higher income households also have higher liabilities, but over the life course increases in income are generally associated with declining levels of debt. The present analysis is mostly concerned with age related changes in assets and liabilities. Possible restrictions from the supply side of debt do not hinder the study considerably because even though the average respondent experiences increasing income with age, liabilities decrease over the life course despite

Table 6: Percentage of respondents who have certain types of debt

Type of debt	Wave 2 Percentage with debt	Wave 3 Percentage with debt
Any type of debt	78.41	78.01
Debt on homes	57.66	69.13
Credit card debt	44.04	30.96
Loan on purchases	12.32	8.72
Bills	10.49	9.53
Bank loans	10.79	7.83
Educational loans	6.94	6.83
Other debt	4.18	4.43
Loan for home improvement	3.22	3.43
Loan from friends, family	2.84	1.35

likely improvements in the access to loans.

I argued above that a detailed analysis of the components of net wealth probably provides a better explanation of financial satisfaction. In fact, it would only be appropriate to aggregate the various measures of assets and liabilities into a composite net wealth measure if the effects of all single components were the same on financial satisfaction. The regression analysis in the next section will provide this information, but does a descriptive analysis of the life course pattern of net wealth suggest that it might sufficiently explain financial satisfaction? Net wealth increases somewhat until midlife and then declines slightly at old age (Figure 5). Net wealth and income alone could barely explain the continuously increasing pattern of satisfaction in the financial domain.

Financial aspirations of course depend to a large extent on actual financial needs. The presence of other household members indicates higher living costs. As children leave the household or become older and are therefore no longer classified as children, the total number of children in the household steeply declines with age (Figure 6). Similarly, the number of adults in a household declines after midlife (Figure 6). These declines in the dependency burden possibly partly explain increases in financial satisfaction because of lower living expenses.

I expect that self-rated health will steadily decline with age leading to increased medical costs for the household and lower financial satisfaction. The analysis confirms this assumption (Figure 6). Self-rated health remains rather constant until later in life and then starts to decline. Together with

Figure 4: Three types of log debts (Lowess estimation)

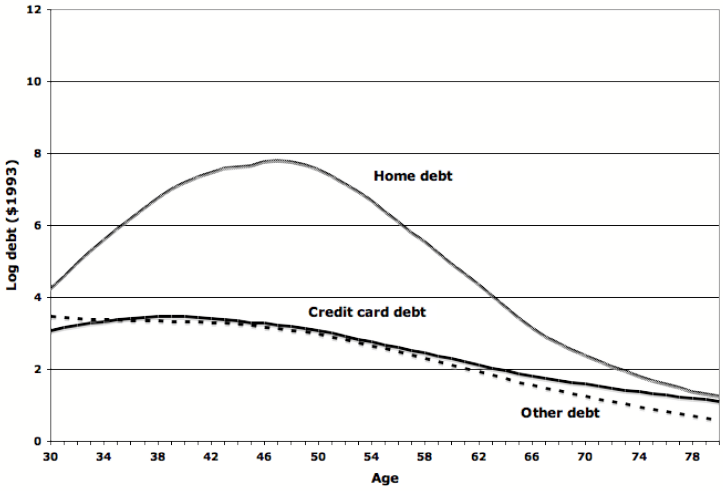
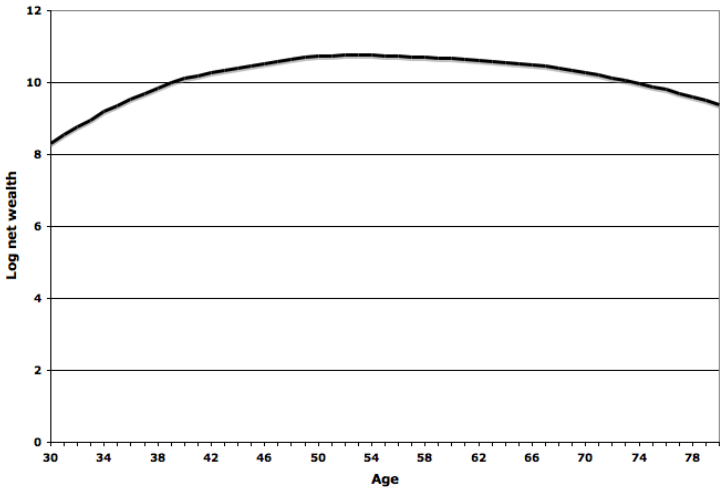
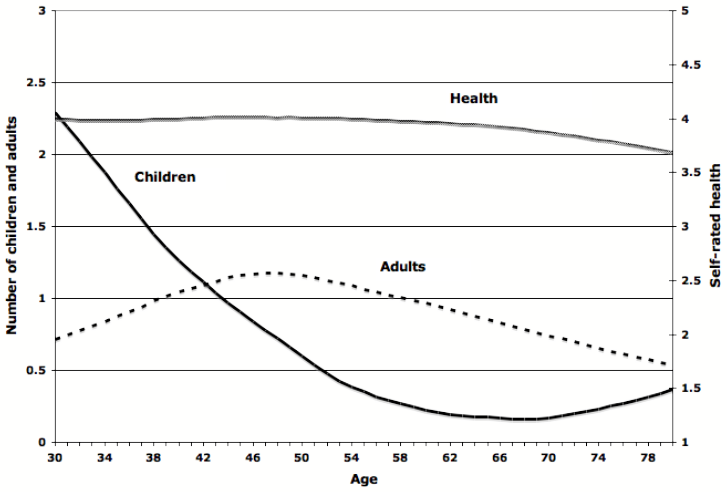


Figure 5: Log net wealth (Lowess estimation)



income, self-rated health is the only variable that would lead one to expect lower financial satisfaction at old age.

Figure 6: Dependency burden and self-rated health (Lowess estimation)



But do assets and liabilities, which in some way represent the balance of financial aspirations and means, have indeed a larger impact on financial satisfaction than income? Regression analysis estimates the relative weight of each explanatory variable, and I first present the results of ordered logit regressions, which do not assume cardinality of the dependent variable.[9] The initial regressions use only wave 2 data because this is the most representative sample of the overall population.

3.2 Regression analyses

3.2.1 Cross-sectional wave 2 sample

One of the goals of this study is to analyze whether income is the main determinant of financial satisfaction, as is often assumed. Not surprisingly income does indeed have a significant positive impact on an individual's sense of financial well-being, but financial assets and several forms of debt also display a large impact (Table 7, column 1). Ownership of financial assets increases financial satisfaction more than owning tangible assets in the form of a house, which is reflected by a coefficient about twice as large as the one for the latter variable. As expected, assets generally display a positive

[9]Weighted least squares and ordered probit regressions yield quite similar results and are thus not reported here.

impact on financial satisfaction while liabilities display a negative impact. It does not seem to matter whether one considers the absolute amount of debt that is owed or the monthly payments that have to be made to service that debt. The coefficients for both types of measures are fairly similar (Table 7, columns 1 and 2). Credit card debt, which can be regarded as a 'bad debt' compared to mortgage debt (Mishel et al., 2005), has a stronger negative impact on an individual's evaluation of his financial situation than debt on homes. Other forms of debt also display a strong negative impact.

An aggregate measure of net wealth displays a large impact on financial satisfaction (Table 7, column 3), but not surprisingly also reduces the percentage of the variance of the dependent variable that is explained by the model. A composite measure of net wealth is only appropriate if it does not lead to a large loss of information. This would be true if the coefficients of the separate variables that are aggregated in the composite measure were not statistically different from each other. An F-test reveals that the coefficients are all statistically different from each other; hence aggregating the asset and debt variables into one single measure of net wealth (or separate aggregate measures of assets and debts) leads to a considerable loss of information.[10]

The coefficients of the remaining explanatory variables are all quite similar in all three model specifications. Self-rated health, which can be seen as a proxy for the costs of health care, not surprisingly has a large positive impact on financial satisfaction, whereas the presence of additional household members indicates increased costs and thus displays a negative coefficient. The possibility that other household members might earn income is already reflected in the household income measure; hence more household members indicate greater expenditures. People who are unemployed have lower levels of financial satisfaction, all other things equal, than those who are employed or are not in the labor force. Taking into account that the regressions hold economic variables constant, this results suggests that unemployed individuals are less satisfied with their current financial situation because their income aspirations are higher than those of people who engage in paid employment and have the same level of income. These individuals likely know that their level of income will be higher once they find a new job and their income aspirations are formed relative to their potential income instead of their current income. Race only has a significant impact in the last specifi-

[10]For instance, an F-test testing the hypothesis that financial assets and tangible assets have equal coefficients and could thus be combined into one measure is rejected with F(1, 7496) = 32.37.

cation. Male respondents and those with an education beyond high school seem to have higher income aspirations; hence they are less satisfied with their financial situation, ceteris paribus. As reflected in the life course profiles, financial satisfaction continuously increases with age. The life course profiles only included controls for individual fixed effects and period effects, but the regression analysis – including measures of assets and liabilities – still shows a significant positive effect of age. The results suggest that individuals do not assess their financial situation objectively and solely based on economic circumstances. If they did, there should be no gender or educational differences in the evaluation of one's financial situation. The results are very similar for weighted least squares or ordered probit regressions, and are thus robust to methodology.

The wave 2 NSFH sample is most representative of the overall population and unlike the wave 3 sample includes sample weights. The results are remarkably similar when the same ordered logit regressions are run on the subset of observations in wave 2 that is included in the balanced panel described above (Table 7, cols. 4-6). Due to the considerably smaller sample size and therefore larger standard errors, the z-values are smaller in the second set of regressions employing the restricted sample, but the signs of the coefficients are the same and their magnitudes are largely similar. The substantial sample attrition that occurred between the two waves does therefore not affect the results substantially.

Table 7: Ordered logit regression on financial satisfaction. Wave 2, full sample and restricted sample with individuals who are also included in wave 3 (dollar amounts in $1993)

	Full wave 2 sample			Restricted sample		
	(1)	(2)	(3)	(4)	(5)	(6)
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.
Variable	(z-stat)	(z-stat)	(z-stat)	(z-stat)	(z-stat)	(z-stat)
Log(HH income+1)	0.419	0.410	0.069	0.545	0.528	0.145
	(12.53)	(12.38)	(4.43)	(10.09)	(9.91)	(5.10)
Log(financial assets+1)	0.079	0.082		0.093	0.093	
	(12.05)	(12.65)		(8.96)	(9.12)	
Log(home value+1)	0.032	0.031		0.025	0.022	
	(5.19)	(5.21)		(2.63)	(2.37)	
Log(credit card debt+1)	-0.047	-0.047		-0.057	-0.057	
	(-7.97)	(-7.94)		(-6.55)	(-6.62)	
Log(home debt+1)	-0.009			-0.020		

Continued on next page

Table 7 – continued from previous page

	Full wave 2 sample			Restricted sample		
	(1)	(2)	(3)	(4)	(5)	(6)
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.
Variable	(z-stat)	(z-stat)	(z-stat)	(z-stat)	(z-stat)	(z-stat)
	(-1.58)			(-2.30)		
Log(other debt+1)	-0.062			-0.050		
	(-10.84)			(-6.02)		
Log(mortgage payments+1)		-0.017			-0.025	
		(-1.76)			(-1.80)	
Log(other debt payments+1)		-0.061			-0.050	
		(-10.76)			(-6.07)	
Log(net wealth+1)			0.060			0.069
			(8.05)			(5.39)
Self-rated health	0.442	0.447	0.478	0.454	0.447	0.494
	(16.52)	(16.85)	(17.50)	(10.98)	(10.93)	(11.86)
Children in household	-0.096	-0.095	-0.115	-0.086	-0.078	-0.108
	(-4.69)	(-4.73)	(-5.42)	(-2.66)	(-2.47)	(-3.27)
Other adults in household	-0.163	-0.167	-0.125	-0.103	-0.098	-0.094
	(-4.95)	(-5.15)	(-3.89)	(-2.05)	(-1.96)	(-1.89)
Separated	-0.743	-0.762	-1.100	-0.595	-0.620	-1.084
	(-5.63)	(-5.82)	(-7.32)	(-3.04)	(-3.20)	(-4.94)
Divorced	-0.543	-0.550	-0.763	-0.620	-0.624	-0.868
	(-6.85)	(-6.98)	(-9.15)	(-6.05)	(-6.15)	(-8.25)
Widowed	-0.401	-0.417	-0.649	-0.506	-0.501	-0.819
	(-4.24)	(-4.46)	(-7.08)	(-3.48)	(-3.47)	(-5.70)
Never married	-0.230	-0.236	-0.275	-0.130	-0.143	-0.291
	(-2.79)	(-2.90)	(-3.08)	(-0.90)	(-0.99)	(-1.91)
Unemployed	-1.103	-1.129	-1.304	-0.871	-0.929	-1.242
	(-6.38)	(-6.58)	(-7.19)	(-3.08)	(-3.34)	(-4.34)
Retired	0.170	0.165	0.113	0.282	0.292	0.228
	(2.12)	(2.08)	(1.50)	(2.04)	(2.13)	(1.73)
Black	0.019	0.012	-0.349	0.010	0.034	-0.145
	(0.26)	(0.16)	(-4.35)	(0.10)	(0.35)	(-1.39)
Male	-0.152	-0.162	-0.103	-0.101	-0.124	-0.104
	(-3.56)	(-3.84)	(-2.41)	(-1.52)	(-1.88)	(-1.58)
More than HS education	-0.277	-0.271	-0.030	-0.290	-0.280	-0.047
	(-5.99)	(-5.91)	(-0.68)	(-4.17)	(-4.05)	(-0.71)
Age (centered)	0.013	0.013	0.019	0.010	0.010	0.017
	(5.75)	(5.95)	(8.71)	(2.01)	(2.20)	(3.52)
Age centered, squared	0.001	0.001	0.000	0.001	0.001	0.001
	(6.14)	(5.96)	(4.72)	(2.27)	(2.35)	(2.24)
cut1	3.004	2.930	-0.501	4.419	4.220	0.475
	(8.97)	(8.81)	(-2.50)	(8.10)	(7.82)	(1.38)

Continued on next page

Table 7 – continued from previous page

	Full wave 2 sample			Restricted sample		
	(1)	(2)	(3)	(4)	(5)	(6)
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.
Variable	(z-stat)	(z-stat)	(z-stat)	(z-stat)	(z-stat)	(z-stat)
cut2	3.838	3.763	0.334	5.271	5.067	1.309
	(11.46)	(11.31)	(1.69)	(9.64)	(9.37)	(3.83)
cut3	4.735	4.652	1.201	6.172	5.961	2.217
	(14.09)	(13.94)	(6.11)	(11.24)	(10.98)	(6.49)
cut4	5.814	5.741	2.252	7.302	7.102	3.289
	(17.20)	(17.11)	(11.41)	(13.21)	(12.99)	(9.56)
cut5	7.063	6.984	3.427	8.610	8.397	4.517
	(20.71)	(20.63)	(17.17)	(15.43)	(15.22)	(12.98)
cut6	8.417	8.345	4.713	9.961	9.751	5.844
	(24.42)	(24.40)	(23.25)	(17.66)	(17.50)	(16.56)
Pseudo R^2	0.0794	0.0791	0.0458	0.0836	0.0812	0.0472
Chi^2	2181	2209	1204	1005	995	550
Log likelihood	-12635	-12859	-12533	-5511	-5627	-5554
Observations	7518	7648	7378	3302	3367	3272

3.2.2 Balanced panel, waves 2 and 3

The cross-sectional analysis shows interesting results, but as all cross-sectional analyses suffers from a considerable shortcoming. The age differences in financial satisfaction that one observes in the cross-section might in fact be birth cohort differences, reflecting the upbringing and financial experiences of different generations. For instance, someone who experienced periods of economic depression might assess the same level of income, assets and debts more positively than someone who grew up in a period of relative affluence because his relative standards are considerably different. The cross-section results do not reveal whether the individuals who we observe at young ages now will eventually have higher levels of financial satisfaction as they become older. Similarly, the older respondents in the sample might already

have had high levels of financial satisfaction when they were younger.

I therefore now turn to an analysis of the second sample described above which is a balanced panel sample with 3,751 observations in each of the two survey waves (waves 2 and 3 of the NSFH). I use a balanced panel instead of an unbalanced panel including all available observations in both waves to avoid selection bias. If, for instance, people who are generally more satisfied live longer than other people one will most likely observe an increase in satisfaction in the data because the first wave included some individuals who are generally not satisfied and passed away before the second wave. The panel structure of the data allows for a fixed-effects regression specification in which individual time-invariant characteristics such as birth cohort, gender and race are controlled for.

The fixed-effects analyses suggest that within an individual higher income, financial assets and tangible assets are associated with increased financial satisfaction while credit card debt, mortgage debt and other types of debt have a negative impact. As in the cross-section, a model with separate measures for assets and liabilities works better than one with an aggregate measure of net worth (Table 8, cols. 1-3). The results for models with measures of absolute debt or debt payments are quite similar (Table 8, cols. 1 and 2). The coefficients for the remaining variables are similar to the coefficients in the cross-section. Age does not seem to have a significant impact on financial satisfaction, but as described above, the coefficient of age might be significant in a larger sample.

Table 8: Fixed-effects and ordered probit regressions on financial satisfaction (balanced panel, waves 2 and 3)

	fixed effects			ordered probit with random effects		
Variable	(t-stat)			(z-stat)		
Log(HH income+1)	0.158	0.188	0.032	0.234	0.236	0.264
	(3.89)	(5.29)	(1.70)	(9.94)	(9.91)	(10.98)
Log(financial assets+1)	0.071	0.065		0.064	0.064	
	(6.63)	(6.98)		(11.16)	(11.06)	
Log(home value+1)	0.025	0.011		0.025	0.025	
	(2.67)	(1.33)		(4.52)	(4.42)	
Log(credit card debt+1)	-0.028	-0.026		-0.037	-0.038	
	(-3.45)	(-3.39)		(-7.43)	(-7.45)	
Log(home debt+1)	-0.013			-0.021		
	(-1.90)			(-4.80)		
Log(other debt+1)	-0.024			-0.036		
	(-3.45)			(-7.94)		
Log(mortgage payments+1)		-0.013			-0.034	
		(-1.11)			(-4.63)	
Log(other debt payments+1)		-0.018			-0.037	
		(-2.70)			(-7.91)	
Log(net wealth+1)			0.018			0.065
			(1.80)			(6.84)
Self-rated health	0.115	0.155	0.137	0.279	0.281	0.303
	(3.00)	(4.44)	(4.14)	(12.47)	(12.45)	(12.85)
Children in household	0.007	-0.006	-0.015	-0.078	-0.078	-0.106
	(0.20)	(-0.17)	(-0.47)	(-3.98)	(-3.94)	(-4.98)
Other adults in household	-0.043	-0.062	-0.026	-0.065	-0.070	-0.121
	(-1.05)	(-1.60)	(-0.75)	(-2.43)	(-2.58)	(-4.31)
Separated	-0.916	-1.025	-0.845	-0.652	-0.662	-0.754
	(-4.47)	(-5.98)	(-4.88)	(-5.61)	(-5.67)	(-5.83)
Divorced	-0.229	-0.237	-0.259	-0.426	-0.441	-0.481
	(-1.91)	(-2.14)	(-2.50)	(-7.42)	(-7.61)	(-7.83)
Widowed	-0.042	0.028	-0.073	-0.222	-0.220	-0.277
	(-0.29)	(0.21)	(-0.56)	(-2.94)	(-2.89)	(-3.49)
Never married	-0.341	0.196	0.073	-0.234	-0.241	-0.146
	(-1.07)	(0.74)	(0.26)	(-2.64)	(-2.69)	(-1.51)
Unemployed	-0.729	-0.533	-0.728	-0.685	-0.664	-0.706
	(-3.52)	(-2.78)	(-4.01)	(-4.88)	(-4.64)	(-4.61)
Retired	0.135	0.065	0.043	0.160	0.164	0.218
	(1.51)	(0.77)	(0.58)	(2.53)	(2.56)	(3.37)
Age (centered)	0.027	0.013	0.029	0.006	0.006	0.010
	(1.23)	(0.66)	(1.60)	(1.89)	(2.00)	(3.05)

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Table 8 – continued from previous page

Variable	fixed effects (t-stat)			ordered probit with random effects (z-stat)		
Age centered, squared	0.000	0.000	0.000	0.000	0.000	0.001
	(0.48)	(1.20)	(0.68)	(3.29)	(3.30)	(4.22)
Unemployment	-0.064	-0.141	-0.102	-0.153	-0.158	-0.162
	(-0.89)	(-2.15)	(-1.65)	(-7.29)	(-7.42)	(-7.50)
Inflation	-0.145	-0.181	-0.110	-0.127	-0.131	-0.115
	(-1.49)	(-2.03)	(-1.30)	(-3.64)	(-3.72)	(-3.22)
Constant	2.967	3.239	4.825			
	(3.37)	(4.08)	(7.02)			
cut1				0.075	0.042	0.655
				(0.26)	(0.15)	(2.19)
cut2				0.587	0.559	1.157
				(2.06)	(1.94)	(3.88)
cut3				1.186	1.161	1.759
				(4.15)	(4.02)	(5.88)
cut4				1.971	1.954	2.532
				(6.88)	(6.75)	(8.43)
cut5				3.012	3.003	3.563
				(10.44)	(10.31)	(11.76)
cut6				4.032	4.031	4.582
				(13.84)	(13.69)	(14.95)
rho				0.362	0.370	0.376
				(16.74)	(17.04)	(16.70)
within-R^2	0.1966	0.1857	0.1191			
between-R^2	0.2726	0.2794	0.1224			
overall-R^2	0.2554	0.2556	0.1213			
LR Chi^2				1,750	1,752	1,208
Log likelihood	-5,617	-6,720	-7,628	-8,951	-8,860	-8,205
Observations	5,683	6,186	6,708	5,683	5,632	5,191
Number of groups	3,538	3,598	3,623			

Fixed-effects regressions are based on the assumption that the measure of financial satisfaction is cardinal – i.e. a satisfaction level of 4 is considered to be twice as good as a satisfaction level of 2. An ordered probit specification with random effects as suggested by Ferrer-i-Carbonell (2005) does not rely on this strong assumption. In this specification, the financial

satisfaction measure is assumed to be ordinal – i.e. an evaluation of 4 is better than an evaluation of 2, but no assumptions are being made about the magnitude of the difference between these two levels. The results of the ordered probit regressions are similar to the results of the fixed effects specification, with only a few exceptions, and the results are thus robust to methodology. Marginal effects for the binary outcomes that one is very dissatisfied (dummy variable for financial satisfaction = 1) or very satisfied (dummy variable for financial satisfaction = 7) with their financial situation are shown in the Appendix (Table 9).

All variables other than income and self-rated health help explain increases in satisfaction at older ages. The variables which display a negative effect on financial satisfaction, such as debt and household size all decrease with age. Except for income and health, the variables which have a positive impact, namely assets, increase over the life course. It is thus possible that changes in assets and liabilities as well as family circumstances account for the increase in financial satisfaction, but given the large size of the coefficient of income in the fixed-effects regression (Table 8) it seems unlikely that these variables are sufficient to fully explain the life course profile of financial satisfaction. Likely, there are other factors, such as decreases in aspirations, which are not captured in this model and are important determinants of financial satisfaction.

One of the two theories put forward by George (1993) to explain high financial satisfaction at old age suggests that older people perceive their compensation to be more equitable than younger people. In this view, the psychological mechanisms that influence one's evaluation of one's financial

situation work differently at old age (Liang et al., 1980). For the non-elderly relative economic status is an important determinant of financial satisfaction whereas the elderly are more concerned about income adequacy and distributive justice. The influence of social comparison seems to fade with age and diminishes financial aspirations. It is also likely that financial needs that are strongly tied in with family formation and dissolution are not adequately captured by the model.

4 Discussion

The purpose of the current analysis was to analyze the determinants of financial satisfaction and assess to what extent changes over the life course might be driven by factors other than income. If indeed other factors prove to be more important than income, this would offer an explanation for the seemingly paradoxical observation that people at old age have higher satisfaction levels than younger people despite lower household incomes. Traditional cross-section analysis usually shows the positive impact of age on financial satisfaction, but the cross-section results do not allow us to evaluate whether high levels of satisfaction at old age are only due to differences in the experience of birth cohorts or if indeed the same individuals experience higher levels of satisfaction as they age. The analysis of a 10-year panel shows that individuals indeed enjoy higher levels of financial satisfaction at old age. The life course pattern on income, with declining income after a peak in midlife, taken alone would suggest downward-sloping financial satisfaction with age, as would changes in self-rated health.

On the other hand, the life course profiles of assets and debts as well as the presence of other household members suggest an upward-sloping pattern of financial satisfaction, which one can indeed observe. I hypothesized that debt can be seen as an indicator of aspirations that exceed financial means. Although material aspirations seem to continue to increase with age for some assets, as indicated by the increasing values of tangible assets, financial means seem to increase at a steeper rate; hence the discrepancy between material aspirations and financial means possibly decreases and the individual does not have to incur more debt. The acquisition of debt is of course also regulated by the willingness of the supply side to grant a loan or issue a credit card, which is highly dependent on the individual's overall financial situation. Declining levels of debt could also suggest a downward adjustment of aspirations as observed by George (1992), but the life course analysis does not provide enough evidence for such an assessment, though the significant coefficient on age suggests that there are age-related economic or psychological changes that are not captured by my model.

The current analysis suggests that increases in assets and decreases in debt contribute substantially to the life course pattern of financial satisfaction. Declining debt levels suggest a decreasing discrepancy between financial aspirations and financial means which could either be caused by a downward adjustment of aspirations at old age or a steeper increase in financial means.[11] Decreases in the dependency burden also suggest fewer

[11] A study by Plagnol and Easterlin (2008), using different U.S. data indicates that aspirations for big-ticket consumer items increase over the life course. However, the shortfall between aspirations and attainments decreases somewhat for men with age and slightly increases for women at old age.

financial obligations, whereas declines in health status indicate increased health care costs. The distinction between financial aspirations and financial needs is not always clear because people's needs might change objectively – e.g. through the birth of a child or the enrollment of a child in school – as well as subjectively by ascending to a higher income class which comes with a new set of *perceived* needs, such as enrolling a child in a private school or paying for piano lessons. A more detailed analysis could explore the presence of threshold effects related to income classes, but goes beyond the scope of the present study. Although it could be argued that, for instance, the middle class' needs objectively increase, these increased needs are in fact often a result of social comparison. A clear distinction between actual needs and aspirations is difficult because needs are partly determined by life course processes, such as family formation and dissolution, but also by social processes which increase aspirations. In many cases, differentiating between actual and perceived needs is rather arbitrary.

A measure of net wealth proved to be inappropriate for the analysis because the influence of the separate measures of assets and liabilities differs substantially; hence an aggregation of these measures into one measure would lead to a significant loss of information. Moreover, the same amount of net wealth can represent substantially different compositions of assets and liabilities. For instance, an individual with high debt and many assets probably has a significantly different level of financial aspirations than an individual with low debt and few assets. This information would be ignored when using a net wealth measure. The present analysis emphasizes the need to employ measures of wealth in an analysis of financial satisfaction, instead

of relying on income as a proxy for wealth. The results further suggest that the direct impact of income on financial satisfaction is mediated by financial aspirations, which change due to psychological processes, such as social comparison and hedonic adaptation. In summary, one can conclude that financial satisfaction is not only a matter of income and the role of aspirations deserves further exploration.

Appendix A: Variables

Financial satisfaction
On a scale of 1 to 7, where 1 is very dissatisfied and 7 is very satisfied, overall, how satisfied are you with your financial situation?

Household income
Aggregate measure consisting of income of all household members from wages, salaries, commissions, and tips, self-employment, social security or railroad retirement income, retirement or pension income, public assistance, income from any other government program, such as veterans' benefits, unemployment compensation, worker's compensation, or supplemental security Income, child support, alimony, or family support, income from interest, dividends, rent, or other investments, and income from any other source.
The household income variable is a 'best measure' income variable based on a comparison of the main respondents' reports and their spouses' reports.

Financial assets, excluding checking accounts
Aggregate measure derived from answers to the following two questions:
1. What is the approximate total value of your (and your husband's/and your wife's) savings, including savings accounts, savings bonds, IRAs, money market funds, and CDs?
2. In addition to these savings, what is the approximate total value of your (and your husband's/and your wife's) other investments, including stocks, bonds, shares in mutual funds, or other investments?

Tangible assets: Home value
How much do you think your home would sell for now?

Homeownership
Homeownership is derived from the question:
Do you (and your husband/wife) own your own home or are you renting?

Home debt
How much, if anything, do you (or your wife/or your husband) owe on your home?

Credit card debt
Total outstanding credit card balance:
How much, if anything, do you (and your husband/wife) owe on credit cards or charge accounts that you are paying off gradually? If you almost always pay off your credit card balance each month, answer "0".

Mortgage payments
Aggregate measure which includes monthly mortgage payments plus property tax derived from the following questions:
How much is your monthly payment on your home loan? If you have a second mortgage on your home, include it in your answer.
Does this amount include property taxes?
What was the total property tax on your home last year?

Loans on purchases
How much, if anything, do you (and your husband/wife) owe on installment loans for major purchases, such as furniture or appliances, but other than auto loans?
How much are you supposed to pay each month on this debt?

Educational loans
How much, if anything, do you (and your husband/wife) owe on educational loans?
How much are you supposed to pay each month?

Bank loans
How much, if anything, do you (and your husband/wife) owe on personal loans from banks and other businesses, other than mortgage or auto loans or loans you have already told me about?
How much are you supposed to pay each month?

Loans from friends
How much, if anything, do you (and your husband/wife) owe on personal loans from friends or relatives, other than those you have already told me about?
How much are you supposed to pay each month?

Loans for home improvement
How much, if anything, do you (and your husband/wife) owe on home improvement loans, other than those you have already told me about?
How much are you supposed to pay each month?

Bills
How much, if anything, do you (and your husband/wife) owe on other bills you've owed for more than two months?

Other debt payments
How much, if anything, do you (and your husband/wife) owe on any other

debts that we have not mentioned?
How much are you supposed to pay each month?

Net worth
Financial and tangible assets minus total debt.

Self-rated health
Compared with other people your age, how would you describe your health?
Very poor (1), poor (2), fair (3), good (4), excellent (5)

Unemployed
Includes respondents who report that they are not currently working and were actively looking for paid work during the previous four weeks.
Have you looked for work during the last 4 weeks?

Standard of living during retirement
My standard of living will get much worse when I retire.
Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree

Appendix B: Tables

Table 9: Marginal effects of each covariate on the probabilities for each respondent to be in the lowest (1) and highest (7) categories of financial satisfaction (balanced panel, waves 2 and 3). For the purpose of estimating these marginal effects, I used a random effect probit model coding the outcome variables (financial satisfaction equal 1 or 7) as a binary outcome.

	Effect on probability (dummy variable for fin. satisfaction = 1)			Effect on probability (dummy variable for fin. satisfaction = 7)		
Variable	(z-stat)			(z-stat)		
Log (HH income+1)	-0.010	-0.010	-0.003	0.028	0.020	0.005
	(-4.60)	(-4.82)	(-2.46)	(4.34)	(3.34)	(1.40)
Log (financial assets+1)	-0.004	-0.005		0.003	0.004	
	(-6.02)	(-7.00)		(1.76)	(2.35)	
Log (home value+1)	-0.001	-0.001		0.002	0.002	
	(-2.20)	(-1.40)		(1.50)	(1.33)	
Log (credit card debt+1)	0.000	0.000		-0.009	-0.010	
	(0.80)	(0.49)		(-6.45)	(-7.15)	
Log (home debt+1)	0.000			-0.005		
	(0.90)			(-4.23)		
Log (other debt+1)	0.002			-0.006		
	(3.01)			(-4.81)		
Log (mortgage payments+1)		0.001			-0.007	
		(0.60)			(-3.81)	
Log (other debt payments+1)		0.002			-0.006	
		(3.33)			(-4.35)	
Log (net wealth+1)			-0.003			0.003
			(-4.48)			(1.72)
Self-rated health	-0.012	-0.014	-0.014	0.056	0.053	0.057
	(-4.89)	(-5.75)	(-5.13)	(8.43)	(8.68)	(9.33)
Children in household	0.004	0.005	0.006	-0.011	-0.006	-0.011
	(2.54)	(2.62)	(3.47)	(-1.80)	(-1.15)	(-1.88)
Other adults in household	0.002	0.003	0.001	-0.014	-0.012	-0.016
	(0.69)	(1.06)	(0.43)	(-1.83)	(-1.64)	(-2.27)
Separated	0.026	0.030	0.036	-0.059	-0.050	-0.098
	(3.03)	(3.46)	(4.03)	(-1.57)	(-1.52)	(-2.67)
Divorced	0.017	0.019	0.019	-0.068	-0.075	-0.092
	(3.07)	(3.26)	(3.53)	(-4.06)	(-4.77)	(-5.72)

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Table 9 – continued from previous page

Variable	Effect on probability (dummy variable for fin. satisfaction = 1) (z-stat)			Effect on probability (dummy variable for fin. satisfaction = 7) (z-stat)		
Widowed	0.005	0.008	0.018	-0.016	-0.013	-0.032
	(0.65)	(1.07)	(2.74)	(-0.81)	(-0.73)	(-1.81)
Never married	0.003	0.011	0.013	-0.050	-0.036	-0.062
	(0.35)	(1.40)	(1.73)	(-1.94)	(-1.54)	(-2.50)
Unemployed	0.026	0.029	0.033	-0.002	-0.012	-0.030
	(2.49)	(2.75)	(3.31)	(-0.04)	(-0.31)	(-0.71)
Retired	-0.003	-0.001	-0.005	0.022	0.012	0.024
	(-0.42)	(-0.07)	(-0.88)	(1.49)	(0.88)	(1.78)
Age (centered)	0.000	-0.000	0.000	0.002	0.003	0.004
	(0.28)	(-0.29)	(0.99)	(2.38)	(3.02)	(4.05)
Age centered, squared	-0.000	-0.000	-0.000	0.000	0.000	0.000
	(-2.60)	(-3.00)	(-2.25)	(0.65)	(0.42)	(1.05)
Unemployment	0.003	0.007	0.005	-0.020	-0.019	-0.022
	(1.19)	(2.34)	(2.26)	(-3.63)	(-3.86)	(-4.52)
Inflation	0.002	0.002	0.000	-0.017	-0.017	-0.011
	(0.55)	(0.55)	(0.11)	(-1.94)	(-2.10)	(-1.34)
Observations	5683	6186	6708	5683	6186	6708

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