

THE INFLUENCE OF OBJECTIVE FINANCIAL WELL-BEING ON LIFE SATISFACTION

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Abstract: *In recent years, the importance of financial well-being as the ultimate goal of financial education is still increasing throughout the world. Financial well-being refers to the ability to maintain the current and desired standard of living in the present and in the future together with financial freedom. We examine the relationship between the objective well-being (as captured by the liquidity ratio, the debt-to-asset ratio, the debt-to-income ratio) and self-assessment life satisfaction using Household Financial and Consumption Survey's data (HFCS) from Slovakia in 2017 and 2021. We found a positive relationship for the liquid ratio and a negative relationship for the debt-to-asset ratio with the life satisfaction across the entire observation period. The negative debt-to-income ratio was confirmed only in 2021. Gender, age, education, financial literacy and employment status also had a significant impact on household's life satisfaction.*

Keywords: *financial well-being, financial satisfaction, financial ratios*

JEL Classification: G51, G53, I31

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1 Introduction

The phenomenon of financial well-being, its causes and consequences for an individual and society is on the rise in recent years. Recently the research of financial well-being suggested new definition of it, which refers to the ability to maintain the current and desired standard of living in the present and in the future together with financial freedom (Brüggen et al., 2017).

Financial well-being is a multidimensional concept that includes a number of definitions, such as financial health as a component of life satisfaction and general wellbeing – its preparedness to face and manage financial shocks in the short term and in the long-term achieving a level beyond the bare minimum (Rhyne et al., 2020).

Financial well-being is the ultimate goal of financial education, which has been the focus of social attention for several years (OECD/INFE, 2022). Financial education focuses on increasing financial literacy, which tends to focus on the area of knowledge, skills, attitudes and behavior (Zottel et al., 2013). The recent long-lasting period of low interest rates, fast rates of household indebtedness, low or declining savings levels and poor retirement income planning discipline add to the rationale and importance of focusing on financial well-being scores.

Previous related literature has examined the level of financial well-being through subjective and objective assessment. Subjective assessment of financial well-being can be described as perceived financial well-being, objectively assessed financial well-being can be referred to as observable financial well-being. The perceived and observable financial well-being of an individual may not always be at the same level (Comerton-Forde et al., 2018). Due to the availability of suitable data (from HFCS), in this paper we will work with the components of objective well-being such as net liquid assets, net wealth, debt-to-asset ratio, debt-to-income ratio, and liquidity ratio. We examine the relationship between objective well-being and self-assessment life satisfaction using HFCS data from Slovakia.

In this paper, we examine the impact of financial ratios as an objective financial well-being on household's life satisfaction. Individuals with higher life satisfaction feel less alone, happier, less depressed, which has a positive effect on the individual's mental health and overall well-being (Kim et al.,

2021). The aim of this paper is to contribute to the current research in the field of life satisfaction and how the objective characteristics of financial well-being expressed through financial ratios affect life satisfaction and thus contribute to overall well-being.

The article is organized as follows: The following chapter presents an outline of the relevant literature. Part 3 contains a description of the data, variables and the methodology. In part 4, the results of the descriptive, graphic, and regression analysis are described. The last, 5th section is the conclusion.

2 Literature review

Life satisfaction is studied by many authors while several terms are used to describe it, such as happiness, subjective well-being, satisfaction with life. It is positively influenced by the following factors: income, health, education, gender (specifically for women); and negative effects are induced by income inequality, unemployment, divorce (Degutis & Urbonavicius, 2013; Dolan et al., 2011; Flèche et al., 2012; Mackerron, 2011; Ngamaba et al., 2020).

The positive impact of net wealth, whether financial or real assets, on life satisfaction has been shown in several studies (Brown & Gray, 2016; D'Ambrosio et al., 2009; Headey & Wooden, 2004). Household's income is most often cited as a financial limitation or constrain, which significantly affects financial well-being (Dolan et al., 2009; Ferrer-i-Carbonell, 2005). As previous studies have shown, having different types of debt or facing debt-management problems may have negative influence on mental health and then on overall life satisfaction (Brown et al., 2005; Dackehag et al., 2019; Gray, 2014; Keese & Schmitz, 2010).

Objective well-being can be measured by liquidity ratio, debt-to-asset ratio, and investment ratio (Tenney & Kalenkoski, 2019). These ratios involve three main areas: liquidity (the quickness and the easiness of turning assets into cash), solvency (the ability to liquidate assets to pay off debt), and investments (the portion of assets in investment products), which provide a good view of the objective measurement of an individual's financial situation (Baek & De Vaney, 2004; Garrett & James III, 2013). Financial ratios can be used to identify weaknesses (Prather, 1990) and are closely related to financial well-being (Garrett & James III, 2013).

Both objectively and subjectively measured financial well-being has an impact on financial behavior (Robb & Woodyard, 2011), which appears to be positively associated with life satisfaction (Xiao et al., 2014).

Most research uses control variables such as demographics or personal attributes of consumer, for example, the position on the labor market affects life satisfaction – the unemployed show a lower level of life satisfaction (Degutis & Urbonavicius, 2013; Dolan et al., 2011; Flèche et al., 2012; Mackerron, 2011), different marital status or self-assessment of health status (Degutis & Urbonavicius, 2013; Flèche et al., 2012; Ngamaba et al., 2020).

The main consequence during unemployment is the loss of a certain amount of financial resources. For most people, income from employment or self-employment is the key source of money. Also, money resources enable access to other resources: food, housing, ensuring safety, leisure time activities, social life. The feeling of not being able to achieve the desired standard of living due to insufficient financial resources can lead to feelings of shame and reduce overall satisfaction (Ervasti & Venetoklis, 2010).

3 Data and Methodology

3.1 Data

We use the data from Household Finance and Consumption Survey (HFCS). HFCS collects micro-data on the distribution of the portfolio of assets and financial liabilities of households and their consumption decisions. The HFCS survey is initiated by the European Central Bank in cooperation with other eurozone central banks. In Slovakia, the survey is covered by the National Bank of Slovakia. The survey has been carried out since 2010 with approximately three-year periods and is harmonized across the eurozone countries.

In the analysis, we use Slovak data from 2017 and 2021, since only in these years respondents were questioned about their overall life satisfaction. We use descriptive analysis, graphical analysis, and regression analysis (OLS) to test the results.

Table 1: Description of household structure

| Description of household structure | | | Description of household structure | | |
|------------------------------------|-----------|-----------|------------------------------------|-----------|-----------|
| | 2017 % | 2021 % | | 2017 % | 2021 % |
| <i>Age range</i> | | | <i>Gender</i> | | |
| 16 – 34 | 16,59 | 17,18 | Man | 70,20 | 70,09 |
| 35 – 44 | 36,33 | 40,83 | Woman | 29,80 | 29,91 |
| 45 – 54 | 24,91 | 25,20 | <i>Employment status</i> | | |
| 55 – 64 | 13,94 | 11,31 | Employee | 66,71 | 74,96 |
| 65 + | 8,23 | 5,49 | self-employed | 14,07 | 16,60 |
| <i>Education</i> | | | <i>Region</i> | | |
| Primary or no education | 6,68 | 5,20 | BA | 15,57 | 18,53 |
| Secondary | 70,17 | 63,29 | TT | 11,35 | 10,50 |
| Tertiary | 23,15 | 31,50 | TN | 10,85 | 10,85 |
| <i>Income quintile</i> | | | NR | 12,92 | 12,96 |
| income 1q | 9,40 | 8,68 | ZA | 11,26 | 7,91 |
| income 2q | 15,69 | 13,75 | BB | 11,86 | 14,47 |
| income 3q | 23,78 | 25,53 | PO | 11,71 | 9,98 |
| income 4q | 25,59 | 24,14 | KE | 14,49 | 14,70 |
| income 5q | 25,54 | 27,89 | | | |

Note: The data is obtained from the survey and assigned individual weights that are considered in the calculations. The table shows the percentage of households according to the given demographic characteristic.

Source: HFCS 2017/2021 NBS, own calculations

Since we work with data on household assets and debt, we only have to keep households from the sample that have some debt and thus we can calculate debt-to-income ratio and debt-to-asset ratio. After the appropriate adjustments, we will have 620 households left in 2017 and 576 households in 2021. Table 1 shows the percentage distribution of households by age, gender, education, employment status, income quintile, and region.

3.2 Variables

Dependent variable in our model is self-reported life satisfaction. The question of life satisfaction is answered using a Likert scale where 0 is completely dissatisfied and 10 is completely satisfied. The question is: “How would you express your overall satisfaction with your life on a scale from 0 to 10?”

Independent variables are financial ratios (debt-to-asset ratio, debt-to-income ratio, liquidity ratio). We chose the variables based on the previous literature, where the authors Tenney & Kalenkoski (2019) also used financial ratios to measure objective financial well-being. Slovak society is characterized by high indebtedness, possession of real assets and subsequently liquid assets in risk-free accounts or savings accounts with low returns. Only a few households own investment-based financial assets (Cupak et al., 2023). The selected independent variables represent a good objective measure of the households' financial situation ((Baek & De Vaney, 2004; Garrett & James III, 2013) and can identify weaknesses (Prather, 1990).

Debt-to-asset ratio is computed as a total outstanding balance of household's liabilities (debt) divided by total assets (financial and real assets).

$$\text{debt} - \text{to} - \text{asset ratio} = \frac{\text{debt}}{\text{total assets}}$$

Debt-to-income ratio is computed as a total outstanding balance of household's liabilities (debt) divided by total household's gross income (employee income, self-employment income, rental income, income from financial assets, income from pensions, regular social transfers, regular private transfers, and income from other sources).

$$\text{debt} - \text{to} - \text{income} = \frac{\text{debt}}{\text{total gross income}}$$

Liquidity ratio is computed as net liquid assets divided by annual gross income.

$$\text{liquidity ratio} = \frac{\text{net liquid assets}}{\text{annual gross income}}$$

Net liquid assets are computed as a sum of deposits (D), savings (S), mutual funds (MF), bonds (B), value of non-self-employment private business (PB), shares (SH), and managed account (MA); minus sum of outstanding balance

of credit line/overdraft (overdraft) and outstanding balance of credit card debt (credit card).

As control demographic variables and personal attributes, we decided to include age, gender, education and financial literacy.

4 Results

Table 2 shows the results of the descriptive analysis. The average household life satisfaction increased from 6.82 to 7.46 in the period 2017 – 2021. We can see an increase in average life satisfaction compared to 2017 even in the case of differentiation into individual categories, except elderly people over 55-year, people with primary or no education, retired or unemployed people and people living in Nitra region).

The results show a decrease in life satisfaction with increasing age (except for the age group 35 – 44 in 2021). Also in the monitored period, men show higher life satisfaction than women: in 2017 it is 6.98 for men and 6.46 for women, in 2021 it is 7.54 for men and 7.27 for women.

People with higher education seem to be more satisfied than people with less education. The most satisfied are people with tertiary education (7.64 in 2017 and 8.05 in 2021) and the least satisfied are people with primary or no education (5.36 in 2017 and 5.28 in 2021).

It is not surprising that the results show an increase in life satisfaction with an increase in income in both time periods. The least satisfied individuals are in the first income quintile (value 5.46 in both 2017 and 2021) and the most satisfied in the fifth income quintile (in 2017 the value was 7.32 and in 2021 it is 8.08).

According to the regional distribution, the happiest households are in western Slovakia (BA, TT and TN regions have an average life satisfaction value of 7.02 in 2017 and in 2021 it is 7.61), followed by eastern Slovakia (KE and PO have an average life satisfaction value of 6.92 in 2017 and 7.57 in 2021) and the least satisfied are households in central Slovakia (ZA, BB and NR region) with a life satisfaction value of 6.51 in 2017 and in 2021 it is 7.26.

Retired and unemployed people are less satisfied than employed and self-employed individuals during both periods, they even recorded a decrease in life satisfaction in 2021 compared to 2017.

Table 2: Descriptive statistics

| | 2017 | | | 2021 | | | Min | Max |
|--------------------------|----------------|------|----------------|----------------|------|----------------|-----|-----|
| | Number of obs. | Mean | Lin. Std. Err. | Number of obs. | Mean | Lin. Std. Err. | | |
| Life satisfaction | 3096 | 6,82 | 0,09 | 2880 | 7,46 | 0,10 | 0 | 10 |
| AGE | | | | | | | | |
| 16 – 34 | 402 | 7,05 | 0,22 | 392 | 7,55 | 0,20 | 0 | 10 |
| 35 – 44 | 848 | 7,28 | 0,15 | 884 | 7,87 | 0,15 | 0 | 10 |
| 45 – 54 | 848 | 6,72 | 0,16 | 875 | 7,33 | 0,18 | 0 | 10 |
| 55 – 64 | 663 | 6,12 | 0,23 | 423 | 6,97 | 0,30 | 0 | 10 |
| 65 + | 335 | 5,84 | 0,28 | 306 | 5,74 | 0,29 | 0 | 10 |
| GENDER | | | | | | | | |
| Man | 2094 | 6,98 | 0,10 | 1791 | 7,54 | 0,12 | 0 | 10 |
| Woman | 1002 | 6,46 | 0,18 | 1089 | 7,27 | 0,16 | 0 | 10 |
| EDUCATION | | | | | | | | |
| primary or non-education | 300 | 5,36 | 0,33 | 165 | 5,28 | 0,49 | 0 | 10 |
| Secondary | 2061 | 6,69 | 0,11 | 1819 | 7,35 | 0,12 | 0 | 10 |
| Tertiary | 735 | 7,64 | 0,15 | 896 | 8,05 | 0,12 | 0 | 10 |
| INCOME QUINTILE | | | | | | | | |
| income 1q | 535 | 5,46 | 0,22 | 482 | 5,46 | 0,29 | 0 | 10 |
| income 2q | 577 | 6,41 | 0,20 | 596 | 7,12 | 0,21 | 0 | 10 |
| income 3q | 739 | 6,77 | 0,16 | 743 | 7,20 | 0,17 | 0 | 10 |
| income 4q | 661 | 7,13 | 0,17 | 553 | 7,93 | 0,17 | 0 | 10 |
| income 5q | 584 | 7,32 | 0,19 | 506 | 8,08 | 0,15 | 0 | 10 |
| REGION | | | | | | | | |
| BA | 550 | 7,43 | 0,25 | 695 | 7,49 | 0,20 | 0 | 10 |
| TT | 305 | 6,69 | 0,32 | 220 | 7,95 | 0,33 | 0 | 10 |
| TN | 370 | 6,95 | 0,24 | 335 | 7,37 | 0,25 | 0 | 10 |
| NR | 342 | 6,83 | 0,24 | 320 | 6,86 | 0,32 | 0 | 10 |
| ZA | 343 | 6,57 | 0,26 | 225 | 7,34 | 0,34 | 0 | 10 |
| BB | 400 | 6,13 | 0,24 | 425 | 7,57 | 0,37 | 0 | 10 |
| PO | 350 | 7,16 | 0,17 | 280 | 7,66 | 0,28 | 0 | 10 |
| KE | 436 | 6,67 | 0,23 | 380 | 7,49 | 0,23 | 0 | 10 |
| EMPLOYMENT STATUS | | | | | | | | |
| Employee | 1825 | 7,09 | 0,11 | 2051 | 7,63 | 0,11 | 0 | 10 |
| self-employed | 370 | 7,43 | 0,23 | 413 | 7,46 | 0,21 | 0 | 10 |

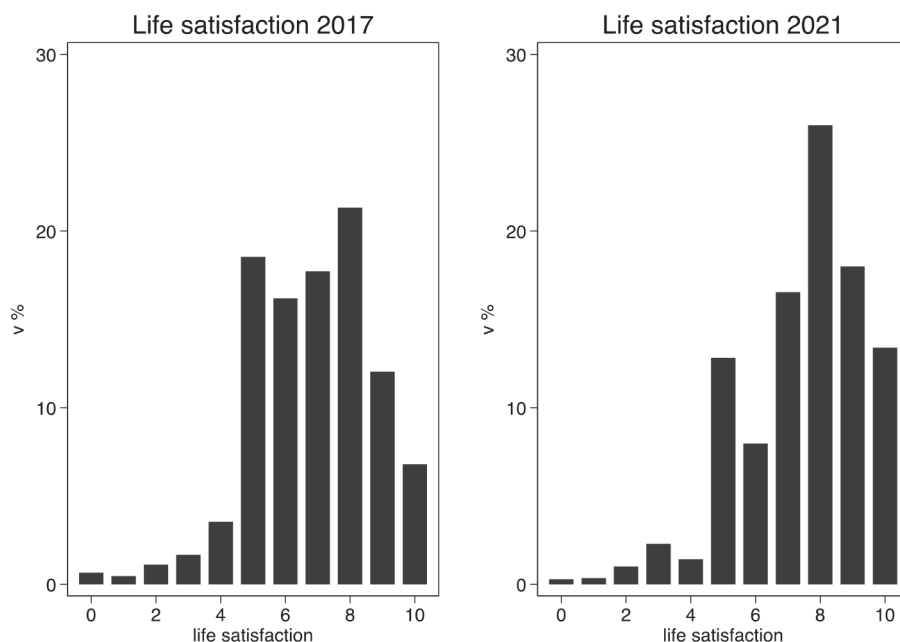
| | | | | | | | | |
|------------|-----|------|------|-----|------|------|---|----|
| Retired | 580 | 5,69 | 0,23 | 316 | 6,21 | 0,39 | 0 | 10 |
| Unemployed | 186 | 5,93 | 0,38 | 75 | 6,45 | 0,74 | 0 | 10 |

Note: The data are obtained from the survey and are assigned individual weights that are considered in the calculations. The table presents the number of all observations that include the relevant variable, average life satisfaction and linearized standard error according to the relevant year. Life satisfaction is evaluated on a scale from 0 to 10.

Source: HFCS 2017/2021 NBS, own calculations

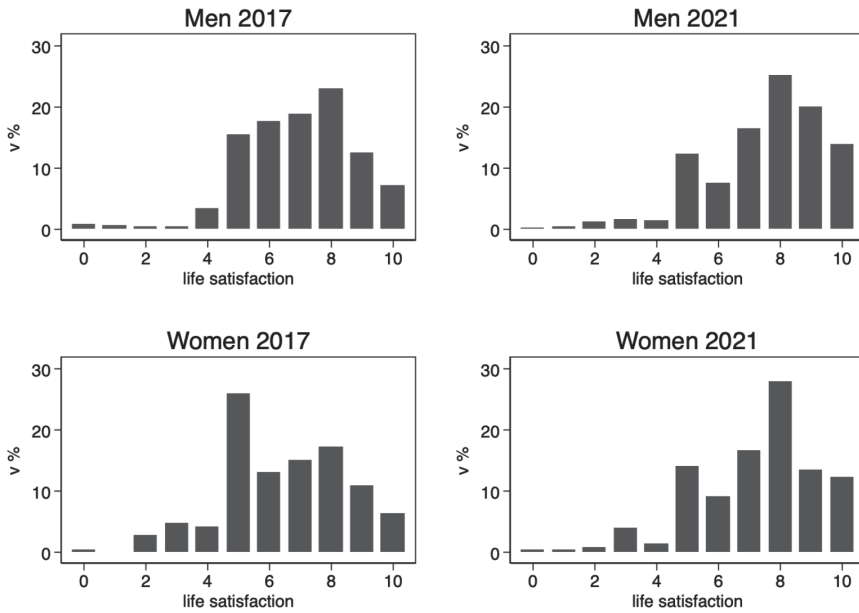
The distribution of overall life satisfaction values can be seen on Graph 1. Graphical analysis coincides with descriptive results: and thus more households showed higher satisfaction values in 2021 than in 2017; men seem to be more satisfied than women (especially in 2017); higher educational attainment is associated with higher satisfaction (Degutis & Urbonavicius, 2013; Flèche et al., 2012) as well as with an increase in income (Degutis & Urbonavicius, 2013; Dolan et al., 2011; Flèche et al., 2012; Mackerron, 2011; Ngamaba et al., 2020) and retired people with the unemployed (Degutis & Urbonavicius, 2013; Dolan et al., 2011; Ervasti & Venetoklis, 2010; Flèche et al., 2012; Mackerron, 2011) are less satisfied than the employed and self-employed.

Graph 1: Life satisfaction



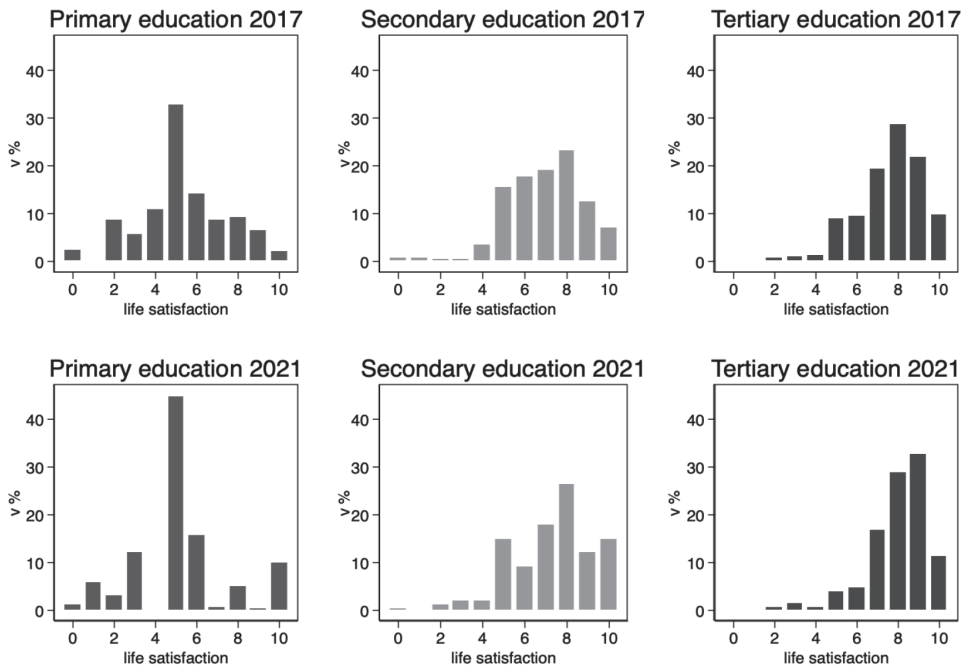
Source: HFCS 2017/2021 NBS

Graph 2: Life satisfaction by gender



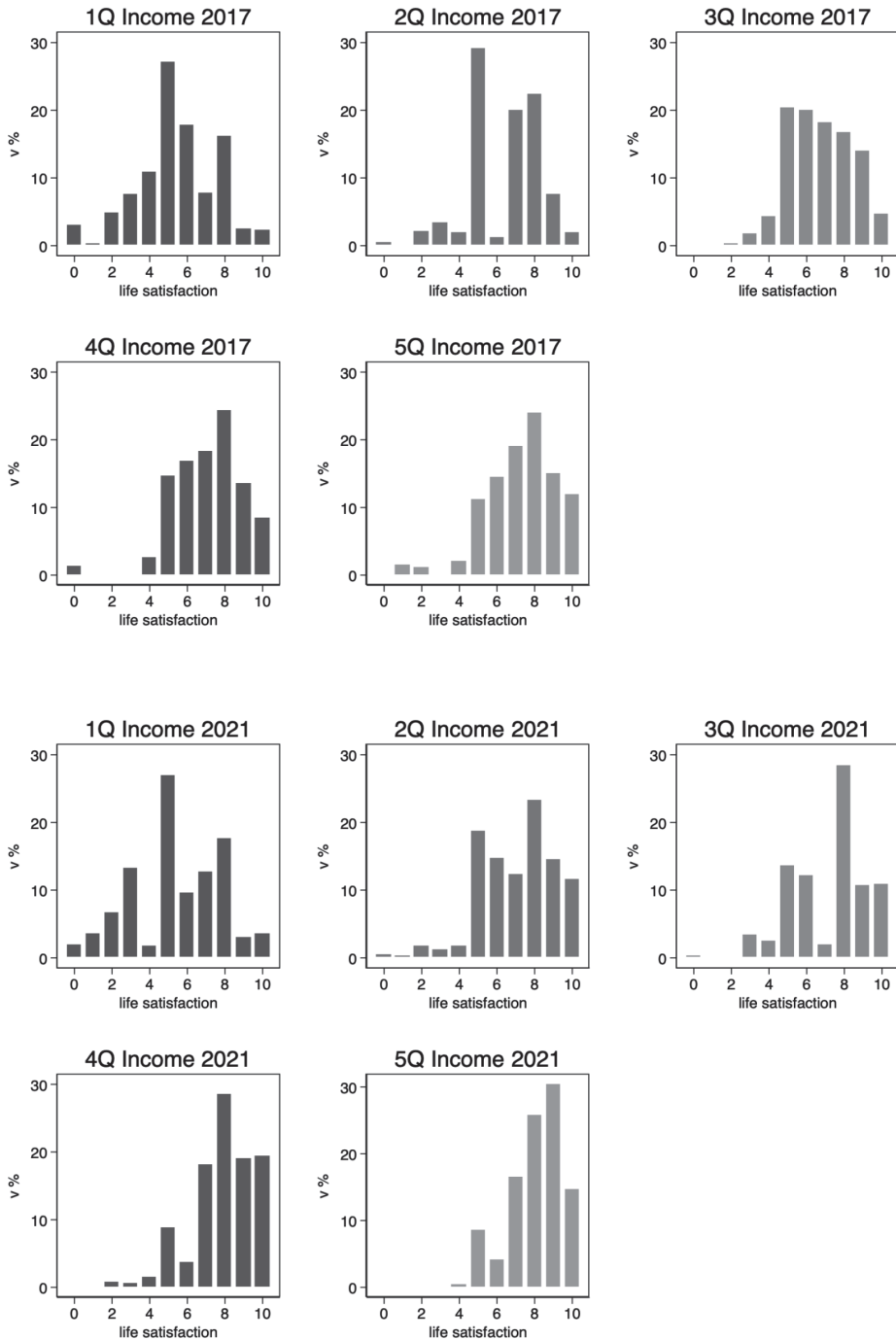
Source: HFCS 2017/2021 NBS

Graph 3: Life satisfaction by education



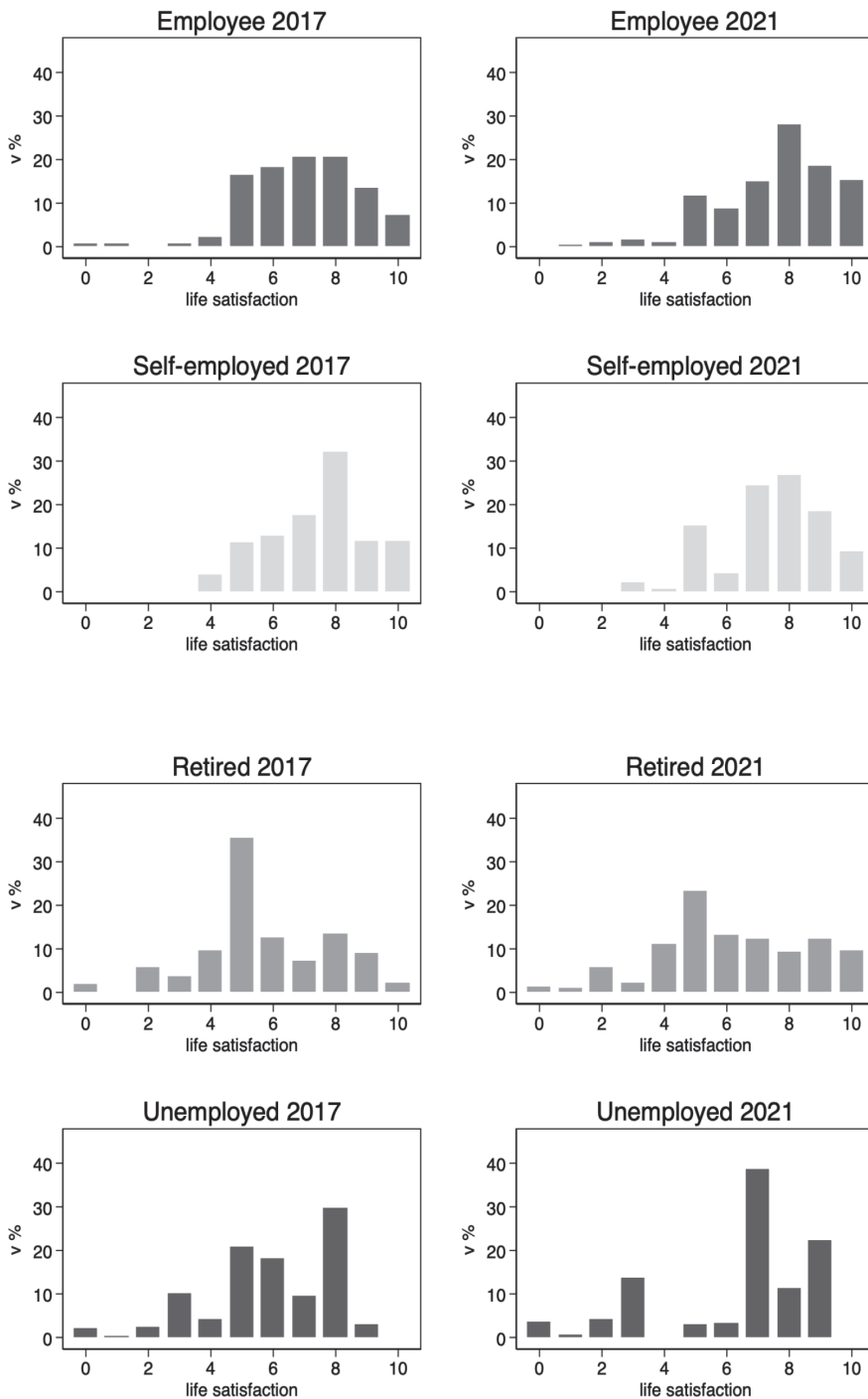
Source: HFCS 2017/2021 NBS

Graph 4: Life satisfaction by income quintile



Source: HFCS 2017/2021 NBS

Graph 5: Life satisfaction by employment status



Source: HFCS 2017/2021 NBS

Regression results are presented in Table 3 and Table 4. Model 1 and Model 2 are without control variables and includes all observations across years. In Model 2, a dummy variable for the year 2021 is included, to detect significant differences in life satisfaction between two periods, which was confirmed as statistically significant. Model 3 and Model 4 are with control variables and include all observations across years. *The Debt-to-income ratio* is not statistically significant in all four models, without control variables the relationship is positive and with control variables it is negative. *The Debt-to-asset ratio* is statistically significant in all four models, and it is a negative relationship, so households with a higher ratio of debt to assets express a lower level of life satisfaction. The Liquidity ratio is also statistically significant in all four models and is a positive relationship. The results show that the amount of our income in relation to the debt does not statistically significantly affect the reported life satisfaction, but the total own assets compared to the debt are already a statistically significant variable and have an impact on the life satisfaction. The results agree with the previous research (Brown et al., 2005; Dackehag et al., 2019; Gray, 2014; Keese & Schmitz, 2010) that debt has a negative effect on life satisfaction, even if we compare debt to total household assets. Households with lower debt are more satisfied with life, they feel less of a financial burden. Households with an increase in the liquid ratio achieve a higher level of life satisfaction as well in Tenney & Kalenkoski (2019). The results also confirmed the positive effect of education on life satisfaction, either through higher education (University degree) or higher financial literacy scores resulting from financial education (Degutis & Urbonavicius, 2013; Flèche et al., 2012).

Table 3: Life satisfaction regression models

| | (1) | (2) | (3) | (4) |
|--------------------------|-------------|-------------|--------------|--------------|
| Debt-to-income ratio | 0.000130 | 1.54e-05 | -5.77e-05 | -0.000132 |
| | (0.000144) | (0.000239) | (0.000286) | (0.000351) |
| Debt-to-asset ratio | -0.00136*** | -0.00122*** | -0.000962*** | -0.000878*** |
| | (0.000353) | (0.000348) | (0.000259) | (0.000257) |
| Liquidity ratio | 6.50e-05*** | 5.67e-05*** | 4.38e-05*** | 3.93e-05*** |
| | (7.12e-06) | (7.99e-06) | (8.56e-06) | (9.41e-06) |
| Age | | | 0.0483 | 0.0490 |
| | | | (0.0398) | (0.0402) |
| Age squared | | | -0.000816** | -0.000813** |
| | | | (0.000404) | (0.000409) |
| Year 2021 | | 0.619*** | | 0.443*** |
| | | (0.130) | | (0.123) |
| Man | | | 0.286** | 0.290** |
| | | | (0.136) | (0.134) |
| University degree | | | 0.737*** | 0.703*** |
| | | | (0.129) | (0.127) |
| Financial literacy score | | | 0.330*** | 0.316*** |
| | | | (0.0539) | (0.0551) |
| Constant | 7.163*** | 6.843*** | 5.583*** | 5.353*** |
| | (0.0674) | (0.0890) | (0.953) | (0.963) |
| Obs, | 5.976 | 5.976 | 5.976 | 5.976 |
| R-sq. | 0.008 | 0.034 | 0.159 | 0.172 |

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Note: The data are obtained from the survey and are assigned individual weights that are considered in the calculations.

Source: HFCS 2017/2021 NBS, own calculations

Previous Models 1-4 confirmed the statistical significance of differences in time periods, therefore we test the robustness of our results with models divided by years (Table 4). Model 5 and Model 6 are without control variables. All

ratios were statistically significant. The debt-to-asset ratio negatively affects life satisfaction at the 0.01 significance level, on the other hand, the liquidity ratio affects life satisfaction positively. The debt-to-income ratio results were different in 2017 (positive) than in 2021 (negative), so households with a higher debt-to-income ratio felt less satisfied than households with a lower ratio. Testing the impact of debt on income by individual years confirmed the significant impact of income on life satisfaction, especially in 2021, which means that differences in household income played an important role and significantly influenced household satisfaction. This effect can be influenced, among other things, by the tightening of the macroprudential policy of the NBS (in 2018) or the recent COVID crisis, which negatively affected household incomes and their ability to repay debts. After the inclusion of control variables in the models, we observe a decrease in the values of the coefficients), but the positivity, or the negativity of the relationship and statistical significance were maintained as we can see in Model 7 and Model 8. The effect of the other variables is the same as in Models 1-4.

Table 4: Life satisfaction models by year

| | (5) Wave 2017 | (6) Wave 2021 | (7) Wave 2017 | (8) Wave 2021 |
|----------------------|---------------------------|----------------------------|----------------------------|----------------------------|
| Debt-to-income ratio | 0.00316* (0.00171) | -0.000339*** (9.71e-05) | 0.00205** (0.000875) | -0.000568*** (0.000195) |
| Debt-to-asset ratio | -0.00112*** (0.000290) | -0.00469*** (0.00166) | -0.000846*** (0.000231) | -0.00284** (0.00114) |
| Liquidity ratio | 0.00353* (0.00203) | 5.72e-05*** (2.23e-06) | 0.00204* (0.00107) | 4.36e-05*** (8.90e-06) |
| Age | | | -0.00482 (0.0630) | 0.103** (0.0455) |
| Age squared | | | -0.000241 (0.000644) | -0.00139*** (0.000445) |
| Year 2021 | | | 0.367* (0.190) | 0.254 (0.186) |
| Man | | | 0.824*** (0.189) | 0.595*** (0.170) |
| University degree | | | 0.306*** (0.0696) | 0.325*** (0.0842) |

| | | | | |
|--------------------------|----------------------|----------------------|---------------------|---------------------|
| Financial literacy score | 6.836*** (0.0891) | 7.469*** (0.0960) | 6.475*** (1.487) | 4.657*** (1.135) |
| Obs, | 3.096 | 2.880 | 3.096 | 2.880 |
| R-squared | 0.013 | 0.005 | 0.158 | 0.150 |

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Note: The data are obtained from the survey and are assigned individual weights that are considered in the calculations.

Source: HFCS 2017/2021 NBS, own calculations

5 Conclusion

Life satisfaction as a measure of an individual's satisfaction with his/her life, wealth, meaning of life and its quality is a widely researched issue. The aim of this paper was to examine the financial side of the household, which represents the objective part of financial well-being and its impact on life satisfaction. We measured objective financial well-being through debt-to-asset ratio, debt-to-income ratio, and liquidity ratio as Tenney & Kalenkoski, 2019.

As previous literature has suggested, there is a relationship between objective financial well-being and life satisfaction. Households that have a smaller debt-to-assets ratio report higher values of life satisfaction compared to households with a higher debt-to-assets ratio. Households with a higher share of liquid assets in relation to annual gross income (the liquidity ratio) are more satisfied than those with a lower.

Individual types of results also showed a significant influence of demographic and other control variables on life satisfaction, which cannot be neglected. Younger, more educated, higher-income men seem to be happier than others. Likewise, employment status plays a role in life satisfaction, where retired and unemployed people are unhappier than others.

The limitations of our results are the measurement of only the objective situation of the household, thus part of their objective financial well-being. Future research could focus on the subjective part of financial well-being, where it would be possible to more appropriately examine individual

differentiations of the household that can influence its life satisfaction, as the financial situation does not always correctly reflect self-reported life satisfaction. It is also necessary to examine the impact of external factors such as policy changes, economic and other crises that households faced during the monitored period.

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