Household Indebtedness and Life Satisfaction in Slovakia

Martin Cesnak[1]

[1] University of Economics in Bratislava, Faculty of Economics and Finances, Department of Banking and International Finance, Dolnozemská cesta 1, Bratislava, 852 35, Slovak Republic;
National Bank of Slovakia, Research Department, Imricha Karvaša 1, Bratislava, 811 07, Slovak Republic

martin.cesnak@euba.sk
martin.cesnak@nbs.sk

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Abstract. One of the central findings of the economics of happiness literature is that an individual's subjective well-being (SWB) depends not only on economic resources such as income, but also on other dimensions such as wealth including liabilities. While the direct effects of wealth, income and debt have been studied extensively, there is scarce evidence on the effects of debt burden and credit constraints on SWB. The goal of this paper is to analyze the impact of debt burden on life satisfaction of Slovak households, using the Household Finance and Consumption Survey (HFCS) microdata. We show that life satisfaction has generally improved between 2017 and 2021, mainly driven by the indebted households. In general, holding debt is associated with higher life satisfaction, as it goes hand in hand with the wealth accumulation. Importantly, we also analyze the impact of indebtedness at the intensive margin using the debt service-to-income (DSTI) indicator, as an objective measure of debt burden. There are clear hints of a negative relationship between one’s life satisfaction and the intensity of debt. This suggests that the burden is also perceived subjectively and may have an implication for individual happiness. A more comprehensive regression analysis is the subject of further research.

Keywords: Subjective Well-Being, Life Satisfaction, Indebted Households, Survey Data.

JEL classification: *D19, G40, G51.*

1 Introduction

The literature on determinants of subjective well-being (SWB) has been around for nearly five decades and the results are vast (see Clark, 2018, for a detailed overview). Most common findings, *inter alia*, have been the following: SWB (and its components such as life satisfaction) rise with income and wealth (to some point), there is a U shape relationship between age and SWB, and especially that one's life satisfaction does not only depends on individual's economic resources, but also on the resources (income or wealth) of the reference groups (e.g., neighbors, colleagues, etc.).

Recent empirical literature particularly highlights the importance of wealth for one's SWB (e.g., D'Ambrosio et al., 2020; Brokešová et al., 2021). However, wealth does not only capture household assets, but also liabilities that are taken out to serve for assets' accumulation, which might have an impact on one's SWB.

Indeed, several papers have analyzed the effect of indebtedness at the extensive margin (having/not having debt) on individual SWB and happiness. Tay et al. (2017) review a large set of empirical studies and show that vast majority of them point to at least one negative link between debt and SWB. The critical moderators of this linkage are debt levels, sources of debt as well as overall financial resources. Turunen and Hiilamo (2014) demonstrate that serious health effects can be related to indebtedness – especially in case of unmet loan payments. Coste et al. (2020) arrive to a similar conclusion. Moreover, they found that the effect also depends on belonging into a certain social sub-group (effect of "social norms and comparisons" as explained by Gathergood, 2012).

More recently, literature analyzing the relationship between student debt and well-being has emerged (see Nissen et al., 2019 for critical review of the related literature). In general, studies show that beside the future benefits of the student loan debt (such as higher achieved education and employment opportunities) it has also negative effect on the well-being of individuals and households (Martin, 2016; Kim and Chatterjee, 2019; Korankye and Kalenkoski, 2021).

However, not all studies conclude that indebtedness per se necessarily has a negative effect on well-being. The effect is in fact heterogenous when considering different types of debt. Bialowolski and Weziak-Bialowolska (2021) have used propensity score difference-in-differences approach to study the effect of five different types of loans on SWB. They conclude that credit cards and student loans negatively impact life satisfaction in short term, while mortgages and leasings tend to increase SWB. This phenomenon is associated with the balance between a purchase-related positive and a repayment-related negative effect of credit uptake. On the contrary, Liu et al. (2020) show that housing debt has a negative effect on happiness in China, however strongly depending on the source of debt. In general, there is robust evidence agreeing that in the context of well-being, the type of financing matters (e.g., Will and Renz, 2022).

The aim of this paper is to analyze the impact of debt burden on life satisfaction of Slovak households. For this purpose, we use microdata from the Household Finance and Consumption Survey (HFCS). We show that having debt is associated with higher life satisfaction as it is closely related to accumulation of wealth. We supplement this information by revealing that being credit constrained is linked with lower life satisfaction, which is the first main contribution of the paper. Accounting for the type of loan could capture the effect of the intensity of debt in a certain way. However, it is not sufficient to fully understand the impact of the debt repayment burden. The second main contribution of the paper is the deeper analysis of the intensive margin of debt measured by the debt service-to-income (DSTI) ratio and its effect on individual SWB. Psychological literature (Greenberg, 1980 or Keese, 2012) suggest that the negative impact of objective debt burden on overall well-being is transmitted via subjective debt burden channel. We support this finding by showing negative relationship between DSTI and life satisfaction.

2 Empirical analysis

This paper uses the last two waves of Household Finance and Consumption Survey (HFCS) conducted in Slovakia in 2017 and 2021, respectively. The microdata contains detailed information on household assets, debts, income, and consumption as well as an exhaustive set socio-demographic characteristics on household and individual level.[1] Our variable of interest is the self-assessed overall life satisfaction of the household representative as a proxy of household subjective well-being. The life satisfaction score takes values between 0 = totally dissatisfied, and 10 = entirely satisfied.

The happiness of Slovak households has generally improved between 2017 and 2021. The distribution of life satisfaction score has shifted to the right during the studied period (Figure 1), increasing by 0.4 points on average.

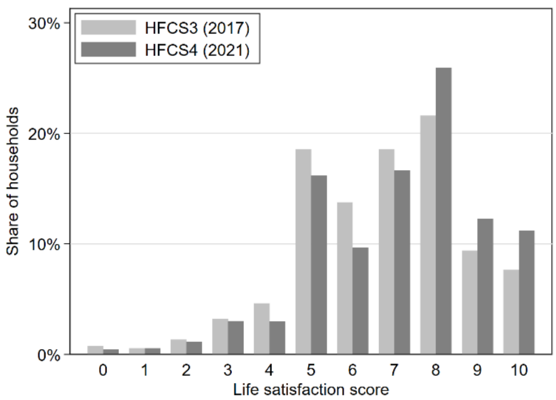

Fig. 1. Distribution of life satisfaction among Slovak households. (Note: Descriptive statistics computed by using survey weights. Source: HFCS 2017 and 2021, NBS, own processing)

[1] More information about the survey can be found at Household Finance and Consumption Survey homepage:
https://www.ecb.europa.eu/stats/ecb_surveys/hfcs/html/index.en.html

However, this shift is asymmetric when comparing indebted and non-indebted households. We observe that the gap between the two widened in favor of the indebted ones. While the happiness of the households without any debt improved only slightly, by 0.2 points on average, it increased significantly among those holding debt[2], by almost 0.8 points on average (Figure 2).

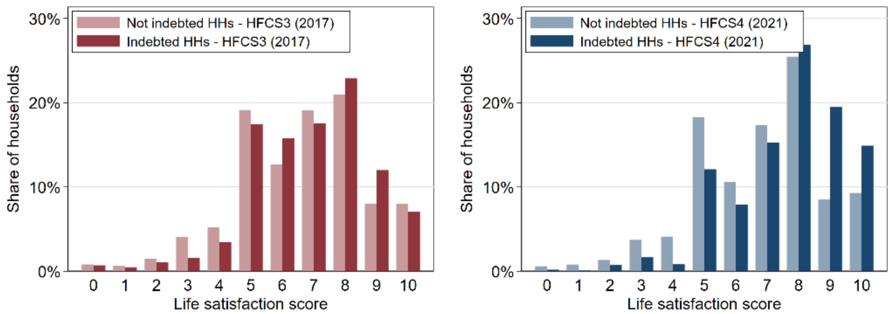

Fig. 2. Distribution of life satisfaction among non-indebted and indebted households. Note: Descriptive statistics computed by using survey weights. (Note: The abbreviation “HHs” stands for households. Source: HFCS 2017 and 2021, NBS, own processing)

We also investigate the importance of other financial and socio-demographic characteristics that have an impact on SWB (Table 1). There are significant differences when comparing households with and without debt. Indebted households are the younger ones, with higher education and higher economic activity, which result in higher monthly net income. There are also significant differences in the household structure and net wealth.

However, if we look at changes between 2017 and 2021 within each subgroup of households separately, not that much has happened. The only noticeable changes are the upward shift in education level and economic activity among the indebted households. That is naturally accompanied by the higher increase in income of those households compared to the non-indebted ones. Thus, there seems to be the selection process playing a role, associated with the reducing of loan affordability between 2017 and 2021. The widening life satisfaction gap between non-indebted and indebted households could be therefore the result of the economic environment at that time. Historically low market interest rates, increasing prices of the real estates at the fast pace and the Covid-19 pandemic causing income shocks and uncertainty about the future economic development. All these factors were accompanied by the increasing demand for credit as well as decreasing affordability of housing. Households that had been considering taking a debt in the near future, especially those that had planned to use it for housing purchase, could suddenly find themselves under pressure. If they managed to seize the opportunity in time, they could experience a “relief effect”

[2] We account for any kind of debt that involves regular payments (i.e., housing loans, consumer loans or leasing).

resulting in increased happiness. On the contrary, those households that missed their chance might feel less happy. Especially when they saw the house prices continue to grow rapidly and the chances of having desired housing receding.

Table 1. Descriptive statistics of non-indebted and indebted households.

	2017		2021	
	Non-indebted	Indebted	Non-indebted	Indebted
Respondent				
Life satisfaction score	6.61	6.87	6.81	7.65
Age	56.8	44.2	57.5	43.6
University education	23.2 %	24.0 %	24.0 %	31.8 %
Employed	45.1 %	71.1 %	44.5 %	77.5 %
Self-employed	10.8 %	17.7 %	10.7 %	15.8 %
Unemployed	2.5 %	1.9 %	3.4 %	0.8 %
Retired	39.7 %	7.9 %	39.5 %	5.1 %
Single	10.8 %	13.8 %	12.0 %	14.8 %
Married	59.5 %	66.7 %	60.7 %	69.2 %
Female	40.6 %	28.4 %	39.2 %	29.2 %
Household				
Number of children (<18 years)	0.47	1.02	0.50	1.12
Number of adults	2.10	2.32	2.22	2.17
Mean outstanding debt (EUR)	-	27,590.7	-	37,697.3
Mean monthly installments (EUR)	-	249.9	-	263.65
Mean monthly net income (EUR)	1,214.9	1,539.0	1,332.5	1,830.5
Mean net wealth (EUR)	110,304.2	90,517.4	132,836.8	114,045.5
Urban	57.2 %	56.8 %	53.3 %	57.1 %
Number of observations	1,606	573	1,684	490

Note: Descriptive statistics are calculated by using survey weights. Source: HFCS 2017 and 2021, NBS, own processing.

We focus more closely on households that had applied for loan or credit in the last three years. If they were turned down and the later re-application was not successful either, or if they were not given as much credit as applied for, we consider them to be credit constrained. Figure 3 shows significantly higher gap in life satisfaction between credit constrained and not constrained households in 2021 compared to 2017. This result could be partly explained by the findings of Bialowolski and Weziak-Bialowolska (2021). In short term purchase-related positive effect of housing debt prevails over the repayment-related negative effect. Holding debt may therefore improve SWB situation, as it is closely associates with wealth leveraging.

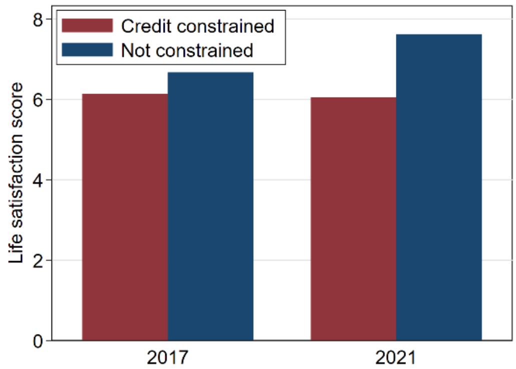

Fig. 3. Average life satisfaction score of credit constrained and not constrained households. (Note: descriptive statistics computed by using survey weights. Source: HFCS 2017 and 2021, NBS, own processing)

However, an important factor that should be also accounted for is the intensity of debt, or the ability to serve debt payments. We calculate the debt burden of the i-th household as:

$$DSTI_i = \frac{Monthly\_installments_i}{Monthly\_net\_income_i - subsistence\_minimum_i}.^{3} \quad (1)$$

Subsistence minimum is calculated based on the household composition and applicable legislative framework at the time. Higher value of DSTI indicates higher debt burden. If the household income is not sufficient to cover monthly installments, the value of DSTI is higher than 1. However, if the income of a household cannot cover even the basic needs, DSTI indicator reaches a negative value. Therefore, we transform DSTI indicator by an arctangent function to scale down some very large values and stack originally negative values next:

$$arctan\_DSTI_i = \begin{cases} arctan(DSTI_i); & if\ DSTI_i > 0 \\ \pi + arctan(DSTI_i); & if\ DSTI_i \leq 0 \end{cases}.^{4} \quad (2)$$

The transformed values are bounded on (0, π) and the most frequent DSTI values up to 60% are mapped almost linearly.

Finally, to examine the relationship between debt burden and SWB, we correlate the two within a simple bivariate regression framework. Figure 4 shows that the relationship between the debt burden and life satisfaction of households is indeed negative and statistically significant, especially for 2017 year. The higher the burden, the lower the individual's life satisfaction.

[3] This is an official formula used by National Bank of Slovakia to calculate DSTI ratio: https://nbs.sk/en/financial-stability/fs-instruments/dsti/.
[4] The arctangent transformation is taken from Cupák et al. (2021).

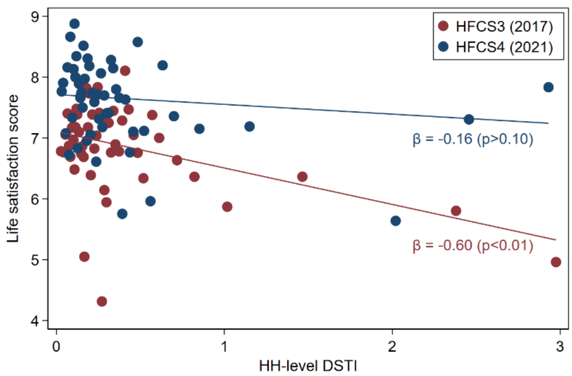

Fig. 4. Relationship between household debt burden and life satisfaction. Note: binned scatter plot created by using survey weights. (Note: The abbreviation "HH" stands for household. Source: HFCS 2017 and 2021, NBS, own processing)

3 Conclusion

Exploring determinants of happiness has been a central theme in the well-being literature. While a lot of research has been done on the impacts of income and assets on one's SWB, substantially less has been done on the impacts of liabilities on individual's happiness. Using the last two waves (2017 and 2021) of HFCS microdata we analyzed the relationship between the well-being of Slovak households and their indebtedness. The analysis has focused not only on the extensive margin of debt, but also on the intensive margin, which is the main contribution of this paper.

We showed that debt as such, does not necessarily have a negative impact on one's life satisfaction. Quite the opposite: it improves the happiness as it is associated with accumulation of wealth. In addition, households that were refused or reduced the amount of credit/loan were less happy than households who were granted the full requested amount. However, the intensity of debt is the key factor making a difference in how the debt is actually perceived. Simple correlation analysis suggests a negative (and in 2017) statistically significant relationship between household happiness and debt burden.

Descriptive findings of this paper should serve as a base stone for a deeper and more sophisticated future research. We propose further extensions of this work using regression analysis to account for multiple factors affecting household well-being situation.

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