Household Indebtedness Indicators - a Critical Review

Assoc. Prof. Dr. Dancho Petrov
University of Economics - Varna, Varna, Bulgaria
dpetrov@ue-varna.bg

Abstract

Increased levels of household indebtedness in the economic theory and practice are seen as a serious problem for macro-financial stability. The high growth rates of household financial liabilities serve as a warning signal of an impending economic crisis and pose a potential risk to financial stability. However, there is still a lack of consensus among experts and the academic community on the adoption and implementation of a generally accepted system of indicators for measuring the level of indebtedness. The lack of aggregated standard for indebtedness indicators makes it difficult to conduct stress tests on both the ability of households to absorb losses and the resilience of the financial system to economic shocks. The present study attempts to systematize the indicators of household indebtedness and to perform a critical analysis of their strengths and weaknesses. The objects of analysis are the financial liabilities of households to banks and other financial institutions. Budget commitments and other utility payments remain out of the focus of research. The findings of the study could be useful for the practice of experts in family finance management, policymakers, regulators and supervisors in activities to improve credit risk management in financial institutions and financial management at the macro and micro levels.

Keywords: household indebtedness, indebtedness indicators, debt market, financial institutions, over-indebtedness

JEL Code: G51

1. Introduction to the problem

The rise of household indebtedness is a phenomenon which, although having a different scale, has been observed in all countries across the world over the past two decades. The causes of this phenomenon are rooted in the manifestation of a series of interrelated events on the credit markets. The post-crisis accumulation of huge surpluses of liquidity on the global financial market turned out to be the driver of those changes. This resulted in the establishment of the lowest historical interest rates on the credit markets. The oversupply of free financial resources by the credit institution, combined with the simultaneous processes of deregulation and liberalisation of the financial markets led to the loosening of the credit policies and making access to loans for the households easier.

As early as in the middle of the past century the solid theoretical foundations of the problems with the rising debt of households were already laid. The so-called "permanent income" hypothesis explains the reasons for accumulation of debt by the household with the argument that the temporary falls in income are compensated by debt financing, which is repaid with the recovery or increase of income over a given future period (Friedman, 1957). In contrast to this concept, Modigliani (1966) offers a different perspective on the problem. According to him, the main reason for the use of loans by households is not rooted in the fluctuations of income, but rather in the changing levels of income over the different stages of the individuals' life cycle. According to the life cycle hypothesis, it is logical for younger households to accumulate more debt and start saving at an older age.

The imperfect financial markets are often identified as the main "culprits" for the accumulation of excessive levels of debt by the households. The existing information asymmetry of the credit markets in its two aspects of adverse selection and moral hazard is considered the main cause for the rise of problematic debts and the difficulties in the repayment of debt faced by the households during the 80s of the last century (Stiglitz & Weiss, 1981).

During the first two decades of the 21st century an increasing attention has been paid on the impact of certain behavioural factors on the level of indebtedness of households, such as financial imprudence, the level of financial literacy and the (in)ability to manage family finances. Results from studies carried out in the USA show that the low level of financial literacy is widely spread and correlates with the over-indebtedness (Lusardi & Tufano, 2015; Gerardi et al., 2010). Anderloni & Vandone (2010) emphasise on certain emotional factors, such as excessive trust, impulsiveness in consumer choice, copying or imitation of social status, financial short-sightedness, etc., which result in irrational credit decisions.

It is often argued in the neoclassical economic literature that the increase of debt, particularly during post-crisis periods, has a positive impact on economic growth because it encourages consumption. This thesis, however, lacks sufficiently persuasive argumentation and empirical validation. For example, after the global financial crisis came to an end, a large part of US households accumulated debt that was considerably higher than the value of their assets as a result of the sharp decline in the market prices of properties. In his analysis of the causal relationship, Dynan (2012) came to the conclusion that the presence of household debt overhang leads to higher spending for servicing the debt, which, on the other hand, suppresses consumption and has an overall negative impact on economic development. This opinion is also supported by Yoshino and Gupta (2019), who believe that the household debt overhang leads to a decline in consumption, investment and economic growth.

Household debt overhang is an economic problem not just from the perspective of its negative impact on consumption, GDP growth and economic development. The accumulation of excessive debt by the households could lead to problems with the servicing of liabilities. According to Drehmann and Juselius (2014) the domination of high levels of household indebtedness could serve as an instrument to foresee a forthcoming crisis in the banking system. Furthermore, household over-indebtedness constitutes a real threat for the macro financial stability and has turned into a predictor of a forthcoming financial crisis, whereas the quantitative indicators can serve as a basis for estimating the severity of the forthcoming recession (Schularick and Taylor, 2012).

The economic shock caused by the persisting global Covid-19 pandemic has also had an adverse effect on household indebtedness. The pandemic has acquired the dimensions of a form of a test both of the level of financial sustainability and of the level of vulnerability of households in the context of the pandemic (Petrov et al. 2021). The pandemic caused a sudden and sharp decline in economic activity, which, on the other hand, resulted in dramatic job cuts in many industries and considerable loss of income for a major share of households (Naydenov, 2021).

2. Systematization of the indebtedness indicators – overview of literature

Constructing an adequate system of indicators for measuring household indebtedness turned out to be a difficult task. Disney et al. (2008) formulated three problematic aspects of measuring financial indebtedness. The first thing that hinders the practical application of the indicators is that their scope needs to extend to family or household level, rather than individual level. Secondly, certain indicators, such as bankruptcies and other extreme circumstances, could distort the general trend, because they have different legal consequences. Thirdly, there is certain overlapping between the different indicators.

In general, the indicators for measuring the level of indebtedness can be categorized into two groups - continuous and dichotomous (Keese, 2009; Chotewattanakul et al., 2019). The first group includes indicators that measure the rations between the level of debt and the income/value of assets of households. Traditionally, the most common indicators from this group are different variations of the “debt to asset ratio” and the “ratio of income to debt” indicators.

As regards the second group of dichotomous indicators, they are used to identify the critical level of debt or the so-called condition of over-indebtedness. According to Haas (2006), this is a situation where, as a result of a reduction of the living standard, the household income turns out to be insufficient to meet the payment obligations over a long period of time. Such a definition could not be adopted without criticism. Greater specificity is needed with respect to the concept of "long period of time" and what should be understood by a reduction in the living standard. It is a known fact that putting the living standards in parameters cannot be generalised for the different countries or even the different region within a country. In an attempt to synchronise and summarise the different views of the national authorities in defining over-indebtedness, the following indicative criteria have been identified in a research performed by the European Commission (European Commission, 2010):

- The adopted unit of measurement is household income;
- Indicators should cover all financial aspects of households: borrowing for housing purposes, consumer loans, utility bills, lease and mortgage payments, etc.;
- Over-indebtedness implies lack of possibility/inability to meet recurring expenses and, therefore, it should be seen as a structural rather than a temporary problem;
- Lack of possibility to resolve the problem by additional borrowing;
- For a household to meet its commitments, it should significantly reduce its expenditure or find ways of increasing its income.

However, there continues to be a lack of a unified or generally accepted system of indicators measuring over-indebtedness (Chotewattanakul et al., 2019; Ntsalaze1 & Ikhide, 2016). The lack of consensus is the result of the fact that part of the indicators for over-indebtedness are of a subjective nature, while others claim greater objectiveness. On the one hand, subjective indicators are based on the households' individual perceptions on the severity of the debt paid (Anderloni & Vandone, 2008; D'Alessio & Iezzi, 2013). A research of household indebtedness in Chile came to the conclusion that the indicators for over-indebtedness based on the households' self-assessment of the severity of their debt are more informant than the indicators based on financial data (Cifuentes, & Martínez, 2020). However, some authors believe that indicators based on statistical data from households' financial statements and balance sheets are more reliable and objective metrics that can overcome the weaknesses of subjective approaches (Betti et al., 2007; Keese 2009; Gathergood, 2012).

One of the indicators that is most commonly applied – "debt service to income", measures the burden of the debt service payments and puts limits on repayments based on the total income, where exceeding those limits is considered to pose a significant burden on households. There are different opinions on the acceptable or limit values of this indicator. For instance the consultants from OXERA (2004) define a debt to income ratio of 50 %. Other studies recommend a benchmark of 30 % (D'Alessio and Lezzi, 2016). In the model suggested by Djoudad (2011), the DSR (debt-service ratio) indicator is used to identify the impact of changes in the macroeconomic conditions on households' vulnerability to shocks. The main idea is to use this indicator to evaluate how these changes influence the distribution of DSR over time. All things being equal, higher debt rates make households more vulnerable to any negative shock. In the discussed model, the impact of changes in the interest rates reflects on the repayment of interest and has no influence on the share of payments for the principal. This fact leads to the conclusion that when the actual burden of indebtedness is studied, the repayment of interest should be distinguished from the repayment of the principal.

Regarding debt in arrears, there is again no consensus on the specific acceptable limits and parameters. According to D'Alessio and Lezzi (2016), the values of this indicator shall be designed in a way that prevents them from covering accidental debt in arrears of up to 2 months. In addition to the duration of defaults, attention should be also paid to their frequency so that the accidental

defaults can be singled out from the systematic ones. Thus, the indicator for debt in arrears should only cover structural defaults related to debt service repayments on mortgages and consumer loans. At the same time, however, a different perspective for this indicator is suggested, based on which a default that happens more than once a year is an indication for problematic indebtedness (Davydoff et al., 2008; Russell et al., 2011).

Households where the expenditure for servicing debt are higher than the defined share of their monthly income can come to the condition described by Hood et al. (2018) as immediate servicing pressure. Difficulties in direct comparisons between the shares of loan servicing costs in the monthly income of households are explained by the specific characteristics and circumstances of different households. One of the most important circumstances of these is the presence of liquid assets in households, which could be used for repayment of the debt, if necessary (Del-Rio and Young, 2005). Considering these factors, the households that fall within the category with immediate servicing pressure are the ones that have had 2 or more cases of arrears on one or more loans, purchases on credit or utility bills (Hood et al., 2018). In certain rare cases, the default in repayment of debts could be a rational choice of the households, if it is related to a temporary benefit of deliberately holding on the payments or waiting for better conditions for refinancing the borrowings (Bridges and Disney, 2004). Even in such cases, however, arrears should be repaid over a relatively short period of time and there is no ground to reject the general assumption that there is immediate servicing pressure.

In contrast to the indicators that signal for the presence of temporary pressure in the repayment of debts, the concept of "repayment pressure" indicates medium-term or long-term perspective of the difficulties to repay the debt. For households who have immediate servicing pressure it is important to foresee whether these problems will persist in the future. The prospective analysis can be developed in different aspects. One of the possible aspects is related to the expected future increase in the household's current expenses. Another possible aspect for the analysis focuses on the structure of debt, for instance if the burden of payments is expected to decline over time. The second aspect is related to problems of social and psychological nature that could arise with the mental health of individuals that are mentally burdened and stressed by perceived or actual difficulties in repayment their debts, even if these debts could be properly managed and serviced (Gathergood and Guttman-Kenney, 2016).

An indicator for measurement of "repayment pressure" is the ratio between the amount of unpaid debt and current income. Whether repayment of debt will become a severe burden depends on the analysis of the ratio of future income and future service repayments. Future service repayments on loans are largely foreseeable, especially in the case of loans with a fixed interest rate, and also for loans with variable interest rate under normal market conditions. The identification of households' expected future income requires more complex calculations and involves diverse hypotheses and scenarios. These are more difficult to predict, since unexpected events are possible that could adversely impact the income generated. A more precise measurement unit of "repayment pressure" in the medium-term and long-term is the indicator, based on which there is "repayment pressure" if the total amount of future payments on the debt exceeds the value of the financial assets owned plus 20% of the average annual income for the next five years (Hood et al., 2018).

3. A critical review on the indebtedness indicators

3.1. The indebtedness indicators through the prism of the well-being of households

The practical applicability of the analysed indicators for indebtedness is faced with a number of issues of different nature. The group of indicators reflecting the ratio of current debt service payments to income received suggests a relatively simple and easily understandable method to measure indebtedness. At the same time, however, these indicators provide just a one-sided notion

of the level of indebtedness, which is only linked to the current income of households. In addition to income, the level of households' overall well-being – liquid financial assets, real estate properties and other assets owned also plays an important role in the process of evaluation of household indebtedness. There are, however, a number of drawbacks in the application of this approach. For example, it is not clear whether the increase of borrowed funds, which reflects on the payments/income indicator, is observed among households who actually can afford this. The debt could actually increase with respect to income without necessarily leading to exacerbation of the problems with the management of liabilities. Because the debt/income factor ignores households' assets, this turns out to be a barrier to determining the households' capability to repay their debts. In general, households that own financial assets could take higher levels of debt, if the market value of the assets they own significantly exceeds the amount of the debt. There are no relevant grounds to categorise such households to the problematic ones, although, if we blindly follow the values of this indicator, they would fall precisely in this category.

The hypotheses that households could use their financial assets to repay part of or all of their debts is completely realistic, because in this case there is an opportunity for proportional reduction of the costs associated with the servicing of debts. It can be assumed that households that own liquid financial assets will benefit from the possibility to liquidate them in order to repay their liabilities in the case of unforeseen events or force majeure circumstances. On the other hand, this allows us to identify a different version of the traditional indicator for debt burden by reducing the total payments on borrowings by the amount equivalent to the ratio between the outstanding debt and the value of financial assets. It also needs to be noted that when households sell their assets, they deprive themselves of the alternative to generate current income from those assets (such as interest, dividends, rent, etc.), which results in a decrease in their disposable income by the amount of the expected income generated from the assets sold.

Households that own real assets, such as real estate property, should be treated differently and their level of indebtedness needs to be evaluated by using a different approach. A critical aspect in this regard is the level of liquidity of this type of property, because real estate properties are far from the category of highly liquid assets. In general, the availability of assets could allow access to new borrowings for households burdened with severe indebtedness. Under normal conditions of the credit market, financing by new borrowing could help households manage their debt and successfully cope during periods of declines in income caused by crises.

Based on the critical analysis, indebtedness should not be presumably considered a sign for financial problems. The predominant parts of households that resort to borrowings actually have higher levels of income and well-being as compared to those with no credit liabilities. A possible explanation of this fact may be that indebted households have regular income and usually use loans for purchasing new housing, which serves as an asset that is suitable for securing the debt and, in some cases, it plays the role of a source of additional income. On the other hand, households under financial pressure apply for loans relatively less often, even if this is the result of the fact that banks carefully select their potential risk borrowers and therefore they have a small chance of receiving the financing they apply for. The most vulnerable households that do not have financial reserves or buffers to cope with unforeseen costs usually do not have liabilities towards banks. In these circumstances, a situation of more severe indebtedness is likely to occur among certain households, mainly buyers of first housing, who could have difficulties servicing their borrowings.

3.2. Disposable income and the burden of debt

The indicator that accounts for households' disposable income after payment of all debt has the considerable advantage of being comparable to a generally accepted metric, such as the poverty line. The interpretation of the terms "disposable income" and "poverty line", on the other hand,

depends on the definitions of poverty and the specifics of the legal framework in the different countries. A term taken from investment banking, such as "financial margin", could be used as a measure of the different capability of households to repay their debts. This is a measurement of the households' disposable buffer in absolute units after servicing the liabilities for debts and the costs of living. Households with a margin below zero could have difficulty surviving and therefore are threatened by the risk of not being able to service their borrowings. Focusing only on households that are currently unable to service their borrowings could leave out those that are still regularly servicing their borrowings, but are faced with difficulties and have become vulnerable to external shocks, such as increase in the market interest rates or temporary loss of income.

In order to define the value of the indicator that defines households as over-indebted when their income is below the poverty line, a certain adjustment is necessary. For this purpose, a modified version of the equivalence scale can be applied, when the total sum of the current liabilities of households place them below the poverty line. The application of this approach requires adjustment of the values of this indicator by different factors that reflect the differentiated "contribution" or, more precisely, "burden" of each individual member of the household.

The indicator based on the number of borrowings utilised also has a number of drawbacks, since it may fail to reliably account for conditions of debt burden or severe indebtedness. The number of liabilities does not always correctly reflect the level of indebtedness, particularly when there are more borrowings of smaller amount, which do not necessarily involve difficulties in their servicing. Moreover, defaults under borrowings of small amounts do not directly imply a state of over-indebtedness. Over the past decades the values of this indicator could not provide unequivocal results, since the technological progress and evolution of credit facilities in modern times have left their footprint. In particular, this is related to the expansion of credit facilities in the context of digitalisation and the increasing use of credit cards, contracts for overdrafts, purchasing goods and services based on instalment payment plans, etc., which could make any reference value of this indicator inapplicable. Regarding the connection of this indicator with the assessment of the borrower's risk profile and its creditworthiness, the solution of this problem has long been discovered. By the access to the Central Credit Register, financial institutions can find information about the presence or lack of risk behaviour of certain households immediately and in real time. The history of their liabilities to credit institutions can be traced back in time, which would help overcome unpleasant surprises and allows credit experts take the right decisions and, where necessary, adequate and timely measures.

3.3. Strengths and weaknesses of surveys

Considering the difficulties and limitations in the use of most quantitative indicators, the consumer direct survey method could prove to be an appropriate one. Surveys can be used to identify the level of indebtedness as a ratio between the total sum of current liabilities and the residual income of households. Such surveys could also cover the level of indebtedness based on the "number of current borrowings repaid" indicator. The research focus when surveying borrowers should emphasise on the subjective perceptions of individuals from the households of whether they face difficulties in servicing their liabilities. The relevance of such surveys is confirmed by the study performed by a cross-comparative analysis of over-indebtedness in EU member states, the results of which show that no significant variations are observed in the different countries with respect to a relatively considerable group of respondents (Betti et al., 2007). This approach also has certain shortcomings due to the inevitable presence of the subjective element in surveys, which is the result of the existing differences in the interpretations and perceptions of respondents on the presence of economic pressure or difficulties in the repayment of liabilities. A problem with surveying that deserves a more in-depth analysis is the ability of the indicators to identify over-

indebtedness. This predetermines the need to analyse how the indicators have been constructed, how their benchmark values have been selected and to what extent respondents are prone to covering difficulties in the repayment of their borrowings they have experienced. It should also be noted that the overall level of economic challenges could be identified as excessive indebtedness as a result of other factors. It is realistic to assume that over-indebted households would define themselves as being exposed to pressure. Such a hypothesis does not always reflect the actual level of indebtedness. In contrast to logic, households that declare being under economic pressure, may actually fall outside the group of over-indebted households. This means that over-indebtedness is not the only factor that predetermines the feeling of financial difficulties and pressure.

To continue the discussion about subjectivity in the respondents' self-assessment, it is reasonable to compare the predictive capability of over-indebtedness indicators to an empirically defined benchmark indicating the objective presence or lack of the analysed phenomenon or condition. In the presence of such a standard, the performance of each indicator is assessed based on its sensitivity and specifics. Using a subjective measurement of economic pressure, based on the discussed limitations, is a quite imperfect standard for assessing over-indebtedness. A popular example illustrating this hypothesis are the possible respondents' answers to the question "Are you healthy?" based on their actual health status. If the answer to that question is positive, there are two possibilities: first one – "corresponding to the actual condition" and second one – "not corresponding to the actual condition". If the answer to the question is negative, the same two possibilities are present: "corresponding to the actual condition" and "not corresponding to the actual condition" (D'Alessio and Iezzi, 2013). An analogical approach could be applied to the self-assessment in surveys about the feeling of credit burden and actual indebtedness.

Conclusion

Each individual indicator, to a greater or lesser extent, plays the role of a register of the level of indebtedness, rather than identifying the causes of problems with debt repayment and the resulting outcomes. On the other hand, the disparate indicators give light to different aspects of the "indebtedness" phenomenon, which is why each of them provides valuable information. However, none of them is superior to the others, nor is it perfect or self-sufficient. The variety of indicators and their heterogeneous nature cover the debt problems of different types of households at different stages of their life cycle. The challenge is to find an appropriate set of selected indicators that can accurately determine the share of households faced with difficulties in meeting their liabilities. Such a group of indicators should be capable of operating under objective limitations in the available data. The overview of literature and theoretical analysis of the strengths and weaknesses of the various indicators showed that probably the most appropriate method is the direct survey with questionnaire, which is relied upon to reveal whether the respondents are faced with difficulties in repaying their debts. Like any subjective metric, direct survey is not free of drawbacks from a methodological perspective. Certain deviations from the actual results can be expected, which are the result of the tendency to cover information about defaulting by the affected persons when direct surveys are used. The most serious weakness of surveys turns out to be the possible different interpretations and perceptions of the individuals with respect to concepts like "severe burden", which may vary both within a country (or individual economic regions in the country) and, to a greater extent, between households from different countries.

The presentation of objective indicators could be adjusted by changes in the reference values. The higher a given reference value, the higher the percentage of indebted households that declare being under economic pressure. This effect could also result in reduction of the percentage of households that fall within the category of over-indebted. This suggests that a common

intersection cross point should be searched for, which could maximise, to a certain extent, the statistical link between the indebtedness indicator and the shortcomings of the benchmark values.

Acknowledgement

The present scientific work is funded under Project NPI 38/2019

References

1. Anderloni, L. & Vandone, D. (2011) Risk of overindebtedness and behavioural factors, In: Risk tolerance in financial decision making, Palgrave Macmillan, London, pp. 113-132.
2. Betti G., N. Dourmashkin, M. Rossi, Y. P. Yin (2007) Consumer over-indebtedness in the EU: measurement and characteristics, Journal of Economic Studies, Vol. 34 Issue 2, pp. 136 - 156.
3. Bridges, S. and Disney, R. (2004) Use of credit and arrears on debt among low-income families in the United Kingdom, Fiscal Studies, 25, pp. 1–25.
4. Chotewattanakul, P., Sharpe, K., Chand, S. (2019) The Drivers of Household Indebtedness: Evidence from Thailand, Southeast Asian Journal of Economics 7(1), January-June, pp. 1-40.
5. Cifuentes, R. & Martínez, F. (2020) Over-indebtedness in Households: Measurement and Determinants, Working Papers of the Central Bank of Chile, N 869.
6. D'Alessio, G. and Iezzi, S. (2013) Household Over-indebtedness, Definition and Measurement with Italian Data, Bank of Italy Occasional Paper No. 149.
7. D'Alessio, G. and Iezzi, S. (2016) Over-indebtedness in Italy: how widespread and persistent is it? Bank of Italy Occasional Paper Questioni di Economia e Finanza, No. 319.
8. Davydoff, D., Naacke, G., Dessart, E., Jentzsch, N., Figueira, F. et al. (2008) Towards a Common Operational European Definition of Over-indebtedness. CEPSOEE-PFRC, Brussels.
9. Del-Rio, A. and Young, G. (2005) The impact of unsecured debt on financial distress among British households, Bank of England, Working Paper 262.
10. Disney, R., Bridges, S., Gathergood, J. (2008) Drivers of Over-Indebtedness, Report to the Department of Business, Enterprise and Regulatory Reform, Center for Policy Evaluation, University of Nottingham.
11. Djoudad, R. (2011) A Framework to Assess Vulnerabilities Arising from Household Indebtedness Using Microdata. IFC Bulletins chapters, in: Bank for International Settlements (ed.), Proceedings of the IFC Conference on "Initiatives to address data gaps revealed by the financial crisis", Basel, 25-26 August 2010, volume 34, 151-168.
12. Drehmann, M. and Juselius, M. (2014) Evaluating Early Warning Indicators of Banking Crises: Satisfying Policy Requirements. International Journal of Forecasting, 30(3), pp. 759–780.
13. Dynan, K. (2012) Is a Household Debt Overhang Holding Back Consumption, Brookings Papers on Economic Activity, Economic Studies Program, The Brookings Institution, vol. 43(1), pp. 299-362.
14. European Commission (2010) Over-indebtedness: New evidence from the EU-SILC special module, Research note 4/2010.
15. Friedman, M. (1957) The permanent income hypothesis. In A Theory of the Consumption Function, 20-37. Princeton University Press.
16. Gathergood, J. and Guttman-Kenney, B. (2016) Can We Predict which Consumer Credit Users Will Suffer Financial Distress?, Occasional Paper 20, Financial Conduct Authority.
17. Gerardi, K., Goette, L. & Meier, S. (2010) Financial Literacy and Subprime Mortgage Delinquency: Evidence from a Survey Matched to Administrative Data, Federal Reserve Bank of Atlanta Working Paper 2010-10.
18. Haas O. J. (2006) Over-indebtedness in Germany, Employment Section, Social Finance Program Working Paper No. 44, International Labour Office: Geneva.

19. Hood, A., Joyce, R. & Sturrock, D. (2018) Problem Debt and Low-income Households, The Institute for Fiscal Studies, London.
20. Keese, M. (2009) Triggers and Determinants of Severe Household Indebtedness in Germany, SOEP papers 239, DIW Berlin, The German Socio-Economic Panel (SOEP).
21. Lusardi, A. & Tufano, P. (2015) Debt literacy, financial experience and overindebtedness, Journal of Pension Economics and Finance, Cambridge University Press, vol. 14(04), 332-368
22. Modigliani, F. (1966) The life cycle hypothesis of saving, the demand for wealth and the supply of capital. Social Research, 33(2), 160-217.
23. Naydenov, L. (2021) Sastoiyanie, dinamika I tendentcii pri dohodite a domakinstvata v usloviyata na COVID-19, Electronno spisanie Dialog, volume 2, pp. 1-17.
24. Ntsalaze1, L. & Ikhide, S. (2016) Household Over-indebtedness: Understanding its Extent and Characteristics of those Affected, Journal of Social Sciences, 48(1, 2), pp. 79-93.
25. OXERA (2004) Are UK households over-indebted?, Commissioned by the Association for Payment Clearing Services, British Bankers Association, Consumer Credit Association and the Finance and Leasing Association.
26. Petrov, D., Tonkova, E., Todorova, S. (2021) EU Household Indebtedness Prior to the Covid - 19 Global Pandemic Crisis. New Challenges of Economic and Business Development – 2021: Post-Crisis Economy, 13th International Scientific Conference, Proceedings, May 13 - 15, 2021, Riga, University of Latvia, 2021, pp. 309-316.
27. Russell, H., Maitre, B., Donnelly, N. (2011) Financial Exclusion and Over-indebtedness in Irish Households. Social Inclusion Research Report No. 1, Dublin.
28. Schularick, M. and Taylor, A. M. (2012) Credit Booms Gone Bust: Monetary Policy, Leverage Cycles, and Financial Crises, 1870–2008. The American Economic Review, 102(2), pp. 1029–1061.
29. Stiglitz, J. E., & Weiss, A. (1981) Credit rationing in markets with imperfect information. American Economic Review, 71(3), 393-410.
30. Yoshino, N. and Gupta P. (2019) How to Avoid Household Debt Overhang? An Analytical Framework and Analysis for India. ADBI Working Paper Series, No. 975.