Social Exclusion and Private Over-indebtedness in the EU*

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Using the most recent available sources, primarily Eurofound (2020), Francis-Devine (2021), Kurowski (2021), Ferretti, and Vandone, (2019), and the European Commission (2013a,b), this paper discusses and analyses the effects of social exclusion and private over-indebtedness in the European Union (EU) over approximately last 10 years. There is no official common definition of private over-indebtedness in the EU, but conditionally, an over-indebted household can be deemed as one whose existing and foreseeable resources are insufficient to meet financial commitments without lowering its living standards, which has both social and policy implications if this means reducing them below what is regarded as the minimum acceptable in the country concerned. Thus, it is difficult to assess the exact number of over-indebted people, but without a doubt, this phenomenon is not trivial and is on the rise. Private over-indebtedness is an important factor of social exclusion which causes serious private and social problems, and, therefore, attracts considerable public interest. Debt problems can be a contributing factor to household tensions and their possible disintegration. The consequences can be as complex and dangerous as divorce and/or homelessness, and almost always lead to the social isolation of the affected person and members of their household. This is mostly triggered by insufficient financial literacy of the population but also due to an increased demand for new products and services that often exceed the personal financial capabilities of most people. The paper explains the situation and encompasses the conditions at the EU level, underlying the differences between old and new EU member states. While the differences between them are larger than the similarities, in most countries, total household debt grew faster than disposable income. This raised concerns about the potential adverse impact of an increased debt burden on financial stability. The article also provides measures for the prevention of private over-indebtedness at the international and national level, which can, with relatively slight adjustments, be implemented in various countries. If we simplify the

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very complex analysis of the determinants of private over-indebtedness and the above-mentioned national differences, we can conclude that the majority of the over-indebted are women around 50 years of age as well as people with lower financial literacy, who are quite often of lower educational attainment. Cluster analysis conducted in this paper endorsed the notion that clusters that consist of more developed countries in the EU had higher levels of household debt, while clusters consisting of countries with the lowest real GDP per capita had the lowest levels of household debt as a percentage of GDP. Furthermore, the results of the research showed that financial freedom and income inequality were not exclusively linked to notably high or low household debt. The most obvious limitation of our paper is the complexity of the topic which required further scientific research, particularly regarding the conditions of COVID-19 and increased inflation rates around the world.

Key words: over-indebtedness, personal finance, financial literacy, EU Member States.

JEL classification: D22, G33, G51, G53

INTRODUCTION

According to the United Nations (2016), “social exclusion is a multidimensional phenomenon not limited to material deprivation; poverty is an important dimension of exclusion, albeit only one dimension”. Therefore, social inclusion processes involve more than improving access to economic resources. It is the process of improving the conditions of participation in society, principally for disadvantaged people, through enhancing opportunities and improving access to resources, voice, and respect for rights.

Causes of social exclusion are often related to low educational attainment and/or obsolete knowledge and skills, which cause low employability and limited employment opportunities. The numerous components of social exclusion are mutually interlinked and impact each other, creating a spiral of insecurity and penury that often generates long-term and various forms of deprivation. Personal over-indebtedness is, without doubt, a significant determinant that produces and exacerbates social exclusion, particularly in the form of financial exclusion from legal banking, saving, and insurance systems. Such forms of over-indebtedness and related financial exclusion have been a grave problem in the EU even before the COVID-19 pandemic, energy crisis, and current inflation, but they have seriously worsened after the occurrence of the mentioned events.

Over-indebtedness and financial exclusion threaten to a significant extent the overall well-being of the population (Russell, Maître, and Donnelly, 2011). Borrowing money in a formal banking system can enable the poor and marginalized population to start with entrepreneurial activities and thus depart from poverty and destitution. Taking a loan from a formal financial institution permits, for example, the cover of urgent healthcare costs which could be necessary for the preservation of life and health.

Several reasons have been identified for financial exclusion. Over time, banks have increased the sum required to open an account and have become more selective in their provision of credit. Financial services may not be available to some people due to changes in their family circumstances, such as illness or divorce, or just because they do not have the necessary identification to create an account, such as an identity card, a passport, or a driving license. Banks and insurance companies quite often use *predictable risk avoidance strategies* and are more willing to lend and provide additional services to 'low-risk' customers, thereby often excluding the most needed and vulnerable persons (Goodwin et al., 1999).

From the standpoint of social exclusion, special attention should be directed to the individual level of risk of over-indebted and financially excluded households. However, some research (European Commission, 2013b; Tisdell, 2020; Eurofound, 2020), has been more oriented on an examination of the possible risk of financial instability in the occasion of household over-indebtedness and financial exclusion. Such an approach is quite reasonable because over-indebtedness could cause an inability to repay debts, which could easily lead to a domino effect and generate a financial crisis and macroeconomic instability, which require an increase in interest rates and cause growing unemployment and poverty.

In our paper, more attention is directed to the situation and characteristics of over-indebtedness and financially excluded population in the EU. The authors are fully aware of the complexity of the observed subjects and therefore are not able to examine in detail the particular situation in each EU Member State but just to provide some general socio-demographic characteristics of over-indebted and financially excluded people. The goal of this paper is to inform readers, professionals, and decision-makers about the causes and traits of personal over-indebtedness and financial exclusion in the EU. The motivation of the study is to analyze and propose the best possible ways of over-indebtedness prevention, as well as to solve the existing literature gap dedicated to the observed topic.

Following this short introduction, the second section is dedicated to the definition of over-indebtedness and related financial exclusion in the EU. The third part deals with the general situation of over-indebted and financially excluded people in the EU, while the fourth section explains their social and demographic characteristics. A short review of the best preventive measures is given in the fifth section. The sixth section presents the data and methodology of the research, whereas the seventh section discusses the results. Conclusion remarks are presented in the final section.

THE DEFINITIONS OF OVER-INDEBTEDNESS AND FINANCIAL EXCLUSION

There are many methods to define and measure personal over-indebtedness and financial exclusion. This is mostly the consequence of the socio-economic and legislative framework of over-indebtedness in various countries. Surprisingly, in the EU, there is no usual common definition of over-indebtedness and no set of consistent statistical data on it (European Commission, 2008). Most authors (particularly Ntsalaze and Ikhide, 2016; Hira, 1997; Hyytinen and Putkuri, 2018) usually relate the causes and consequences of personal over-indebtedness to the financial systems of the observed country.

The European Commission (2008) outlines over-indebtedness as an incapability to pay repeated expenses and, thus, it is a permanent rather than a temporary event. Such an undesirable situation cannot be resolved only by borrowing more.

For a household to meet its obligations, it is required to increase substantially its disposable income or decrease significantly its expenditures. Consequently, an over-indebted household is demarcated "as one whose existing and foreseeable resources are insufficient to meet its financial commitments without lowering its living standards, which has both social and policy implications if this means reducing them below what is regarded as the minimum acceptable in the country concerned."

In France, a person is considered over-indebted when he or she is unable, although willing, to repay his or her monetary debt (D'Alessio and Lezzi, 2013). Art. L. 330-1 of the Consumer Code specifies over-indebtedness for a natural person as the situation which is "characterized by the manifest impossibility of the debtor meeting, in good faith, all his non-business debts due and falling due and the commitment that he gave to guarantee to pay off the debt of an individual entrepreneur or company where he was not, in law or de facto, a manager of that company" (Gloukoviezoff, 2006).

Personal over-indebtedness in Germany has been defined as a situation where household income "despite a reduction of the living standard, is insufficient to discharge all payment obligations over a long period" (Haas, 2006). According to Reifner and Knobloch (2009), in Germany, unemployment is the main trigger of over-indebtedness (in 29.6% of cases of unexpected problems), followed by divorce or separation (in 12.9%) and sickness or illness (7.0%). Avoidable behaviors are less present and it is the most pronounced by inadequate consumption behaviors (11.4%) and bad management of the household budget (2.8%). These authors deem that personal over-indebtedness is encircled by several myths that are endorsed to obscure the deficits of the adequate system of credit and debt support. They stress that over-indebtedness is more than a lack of money and therefore it cannot be resolved by providing money.

In Spain, Santander (2022) defines over-indebtedness as a situation "where a person accumulates debt that exceeds his or her current income." According to the same source, the warning signs of over-indebtedness are a) no cash on hand when a person needs to resort to a credit card or a loan because he or she doesn't have money on hand; b) the individual is forced on more debt to settle a debt; c) when someone should miss a payment on a debt (regardless of its size) or makes it late because he or she doesn't have money on the due date; and d) overspending, when one is not able to respect the "50-30-20" rule, which means to put 50% of available income for basic needs, like food, transport and mortgage, 30% towards non-basic outlays, everyday expenditures for leisure, clothing and similar, and 20% towards savings.

Due to the non-existence of a universally accepted definition, all possible direct evaluations of personal over-indebtedness in various countries can be quite confusing (European Commission, 2010). However, it is particularly interesting that according to an opinion by the European Commission (2013b), there is no need for a better definition of this term. The reason is that the differences between particular countries are bigger than the similarities, so it is impossible to analyze their situation with a single definition.

On the other side, Ahlström (2000) considers that acceptance of an explicit definition of the term itself would facilitate the understanding of this complex issue as well as its impacts on the well-being of families and society as a whole. There is a wide accord among policy decision-makers and experts that the nonexistence of a definition should not be a reason for not designing and implementing effective and efficient solutions to the personal over-indebtedness problem.

Betti et al. (2007) in a cross-country study used a subjective definition, which is based on the individual's assessment of a debt burden. This definition is quite subjective and prone to errors, because other people may have difficulties with disclosing their debt problems, and/or may suffer from various interpretations of what repayment problems are. This is particularly true having in mind that over-indebtedness as an absolute category *does not exist*. In other words, no level of over-indebtedness would be unsustainable for an individual if he or she can adjust the investment structure of his or her borrowed funds by maturity and profitability and the structure of his or her revenues. The over-indebtedness mostly happens when the creditor misapprehends the solvency of the beneficiary, or if there are abrupt changes in the debtor's living conditions (unemployment, illness, divorce, etc.).

The most commonly used indicator is debt ratio, defined as the percentage of debt about disposable revenues, which is calculated by dividing total liabilities by total assets. The higher the revenues, the easier it is to repay the overdue debt. However, the disadvantage of this approach is that the measurement of the amount of debt is compared with the revenues typically earned over some time, hoping that they will not decrease in the future. Changes in revenues are mostly unexpected, while relatively secure revenues can be expected only in a relatively small number of cases, such as public sector employees or pensioners.

Even though there is no common definition of over-indebted persons, probably the best estimation can be obtained by applying a composite indicator: the household is at least two months late with one payment of a housing loan, home utilities, or other overdue liabilities, if there is a permanent deficit on household members' current accounts and if they have more than four loan obligations.

No doubt that over-indebtedness and financial exclusion are closely related (Gloukoviezoff, 2007), but it is hard to assess what is the cause and what is the consequence. As mentioned, financial exclusion encompasses difficulties in obtaining a bank account or access to credit from formal financial institutions. It mostly relates to those who are out of work for a long period and/or who have particularly low levels of income. As financial systems develop, it is in the interest of financial institutions to offer their services to a broader proportion of the population since this is how they can enlarge deposits and, consequently, corporate income and profits. Competition among financial institutions should in theory – in the same way as for other services or goods – ensure that everyone in society who needs financial services and who can pay for them should be able to access them. Consequently, inability to pay due to over-indebtedness may be a cause of financial exclusion and related social exclusion. In any case, over-indebtedness and financial exclusion might well reinforce each other, bringing a significant part of the population into a dire situation.

Due to the lack of a generally accepted definition of over-indebtedness and financial exclusion, it is difficult to reliably estimate the actual number of persons who are financially vulnerable in the EU. Despite all definition problems, there have been some attempts to estimate the number of over-indebted and financially excluded persons in the EU, which is presented in the next chapter.

ESTIMATIONS OF THE NUMBER OF OVER-INDEBTED AND FINANCIALLY EXCLUDED IN THE EU

Fagan (1997) mentioned that in the mid-1990s it was appraised that 25-30 million people were over-indebted, while 70 million people were on the edge of personal over-indebtedness. Girouard, Kennedy, and André (2006) assess that the number of over-indebted people grew significantly in the period from the mid-1990s to the mid-2000s. The increase is particularly large in the context of the economic and financial crisis in 2008. According to the European National Public Health Institutes (2013), the adverse influence of the financial crisis on over-indebtedness is undoubtedly most obvious in the pressured middle class. These people in the conditions of economic prosperity relatively easily repaid loans and covered liabilities on time, and in new circumstances they were not able to do so and were not eligible for social assistance. Their situation suggestively differed from that of persons with low and/or irregular incomes, and therefore they had often not been able to use banking services and take loans, while they had been entitled to various forms of social assistance and benefits. Although unfavorable, the financial situation of these people has hardly deteriorated due to the crisis.

Regarding financial exclusion, Fondeville, Őzdemir, and Ward (2010), using EU-SILC 2008 data, state that in the EU-27 around 22.5% of the population live with revenues below 60% median income, which is the accepted definition of poverty. Of these people, 11.6% persons live in households with no bank account, with significant differences in the range from 0.1% in Sweden, 0.2% in Luxembourg and the Netherlands to 82.9% in Bulgaria, 75.5% in Romania and 70.1% in Greece. The most common reason for not having a bank account is their wish to deal in cash, expressed by 65.0% of Bulgarians, 60.6% of Greeks, and 55.2% of Romanians. The average for the EU27 is 9.4%. There are some other reasons, like charges being too high, there being no bank branch close to home/work, and account applications being turned down, but their share is very low. Only 5.2% of people in Bulgaria and 3.3% in Romania said that banks refuse accounts to people like us.

According to Eurostat (2015), the situation with personal over-indebtedness deteriorated between 2007 and 2011, increasing the percentage of people in Europe who were unable to pay their utilities and repay loans. Such difficulties are more common for tenants, but the number of homeowners who were unable to repay their long-term housing loans has also grown. Regarding the forms of personal over-indebtedness among tenants, there were more common delays in the payment of utilities than were present among people repaying their mortgages. In the period from 2007 to 2011, the share of persons who were late with the payment of utility bills increased among homeowners without long-term mortgages from 11% to 14%, while for those with long-term mortgages it increased from 10% to 13%. In the observed period, among those who rented apartments and houses in the private sector, there was no noteworthy worsening regarding personal over-indebtedness, and the share of those who were late with the payment of utility bills stayed around 18%, while among people living in social housing, it remained at 19%.

The European Commission (2013a) assesses that more than half of the eurozone population has no debts to financial institutions. Many of the remaining 44% of citizens who have debts do not have financial difficulties. Over-indebtedness mostly happens after an unanticipated change in the level of income caused by abrupt job loss, increased expenses related to healthcare costs, or unwarranted spending that is beyond the capabilities of the individual and his family. Over-indebtedness almost always increases in the circumstances of economic crisis, when there are limited employment possibilities and revenues are decreasing.

The Eurostat (2015) using the survey the EU-Statistics of Income and Living Conditions (EU-SILC), shows that in 2011, in the EU as a whole, 11.4% of households in the previous 12 months were in arrears with payments on mortgages and other loans and utilities. The average hides great differences in the level and characteristics of over-indebtedness in various EU member states. The worst situation was recorded in Bulgaria, Greece, and Romania, where more than a third of households lagged with the mentioned payments in the previous 12 months. Around a quarter of households had such difficulties in Cyprus, Latvia, Hungary, and Slovenia. On the other side, around 6% or less of households had such problems in Sweden, Germany, Luxembourg, and the Netherlands. At the EU level, most citizens (8.8%) are late with the payment of utility bills, particularly in the new member states that entered into the EU in 2004 and 2007.

A survey by Eurofound (2020) shows that in 2016, 14% of the population in EU28 had serious difficulties with on-time payments of rent or mortgages, consumer credit, debts on money borrowed from family or friends, and utility or telephone bills. From 2017 to 2018, there was an EU-wide strong increase in arrears among single parents at risk of poverty. Regarding the proportion of the adult population aged 18+ at risk of over-indebtedness, the worst situation is in Greece, followed by Croatia, Bulgaria, and Romania, where two-thirds and almost half of the population face this risk respectively. On the other side, such problems are very rare in Sweden and Luxembourg, where only 6% and 11% of the population face problems with over-indebtedness.

The health crisis caused by the COVID-19 pandemic has stressed the need for careful and effective personal finance management. The temporary stops of business activities by many business entities, increased unemployment as well as the reduction of the available income have confirmed the danger of personal over-indebtedness and how crucial it is to properly manage the household budget (Kurowski, 2021). There are still no available comprehensive studies with international comparisons and evaluations of the impact of the pandemic on personal finance, but according to various national research (for example, Spooner, 2021 for the United Kingdom), it looks like this impact was very adverse and had long-term somber consequences.

Not all social groups were equally struck by the pandemic. The most exposed ones were key workers, carers, and racial minorities, primarily black people. Much of the household debt in the EU Member States is now effectively unpayable, and many over-indebted citizens would need more than seven or eight years just to pay back a single debt owed. This is particularly adverse, having in mind the high levels of personal financial indebtedness present before the occurrence of the pandemic (Tisdell, 2020) and probably the end of the period of cheap loans that characterized the finance system in the last decade. Although the total outstanding debt to individuals in many countries is quite reasonable and characterized by not a dramatic increase (Francis-Devine, 2021), the situation for over-indebted persons significantly deteriorated due to the COVID-19 pandemic. Thus, the further text deals with the characteristics of vulnerable persons.

THE CHARACTERISTICS OF OVER-INDEBTED AND FINANCIALLY EXCLUDED IN THE EU

The characteristics of over-indebted and financially excluded persons can be analyzed from the gender and age perspective, as well as from the position of education attainment, employment, earning, and homeownership position.

The gender perspective - Women live longer, mostly until very recently they have had a shorter working life, lower income, and are more exposed to the risk of financial problems than men (Weir and Willis, 2000). Research has shown that women and men differ significantly in terms of attitudes, skills, self-perception, and the ability to cope with complex tasks. Several studies have shown that women, compared with men, are more risk averse (Byrnes, Miller, and Shafer, 1999), less secure in their financial capabilities, and less inclined to test them in challenging and complex situations (Dweck, 2000; Niederle and Westerlund, 2007; Niederle and Yestrumkas, 2008). Hira (1997) and Hira and Mugendo (1999a, 1999b, 2000) showed that gender can have a crucial impact on financial perception, financial behavior, and over-indebtedness problems. The studies conducted by Lusardi and Mitchell (2007, 2011) also found that low financial literacy is more prevalent among women than men. Results of research conducted by Cheng et al. (2011) suggest that there are significant differences regarding the gender in preferences for the use of the loan and that women on average pay higher costs of loans than men.

Although the empirical literature generally agrees that women have lower levels of financial literacy and awareness than men, less is known about the causes of these disparities. Many authors concentrated on the analysis of seeking personal financial advice about financial knowledge, contentment, and confidence, following the notion that women generally report lower levels of expertise with personal financial affairs and tend to have lower levels of confidence than men. Beyond the actual observed differences in risk tolerance, financial literacy, and financial satisfaction between the sexes, understanding gender differences in self-perceptions of risk tolerance, financial literacy, and financial satisfaction has important policy and research implications. The level of financial knowledge, even among highly educated and talented females, was at a lower level in comparison to men (Mahdavi and Horton, 2014). Hsu (2011) underlined that the aforementioned differences in financial literacy are caused by specialization within the household, so husbands specialize in the acquiring of financial knowledge and literacy, but women are forced to improve their attainment of financial literacy when it becomes pertinent, such as in case of their spouse's death.

Cheng et al. (2011) and later Fonseca et al. (2012) concluded that the majority of gender differences regarding financial literacy are determined by the way it has been "created". One of the explanations is the division of household obligations where men specialize in financial matters and women in other functions in the household. Roszkowski and Grable (2007) believed that sex stereotypes may be important and might influence women's self-estimate of their risk tolerance. The study conducted by Fonseca et al. (2012) concluded that the cause of lower levels of financial literacy of women and more serious indebtedness problems could be ascribed to a low level of confidence related to financial decisions. Gender differences in financial risk-taking behaviors may also be partly attributed to the fact that women and men perceive themselves. Such circumstances can lead women to believe that their risk tolerance is even lower than it is. Roszkowski and Grable (2007) deem that women generally tend to underestimate their risk tolerance, while men are more likely to overestimate their risk tolerance. According to the results, authors concluded that if all other factors were constant, women are more likely to underestimate their risk tolerance compared to men, nevertheless, the effect size ($f2 = 0.03$) was small. Briefly, gender leads to different financial outcomes, so it can be expected that women are less financially satisfied than men and more prone to have personal over-indebtedness problems.

The age perspective - People are not at all any smarter with age, but it looks like experience is crucial for adequate and responsible financing behavior. Many researchers - particularly Kempson et al. (2004) for the UK; and Eurofound (2020) for EU 28 - state that debt problems decline with age, while households headed by young adults in their twenties are much more exposed to serious financial difficulties. The level of arrears was significantly lower among those in their thirties but then fell only slightly among the forty-somethings. The Eurofound (2020) concludes that in the EU28 in 2016, there was a constant decline in the share of people with arrears according to age. While 64% of persons in the age group 18-24 years have arrears, the mentioned share constantly decreases by 4 or 6 percentage points in older age groups, so it is 53% of people aged 50-64 years and 47% in the age group 65+. However, the situation is quite reverse regarding the serious difficulties in payment of existing arrears, so 37% of people in the age group 65+ have grave problems with this payment, while the mentioned proportion by people in the age groups 50-64 and 16-24 years is significantly lower (23% and 15% respectively). Succinctly, in line with Atkinson et al. (2006), one can remember the general concord that age is a strong predictor of lower over-indebtedness, older people have better financial knowledge and behavior, but the seriousness of this problem also increases with age. According to Eurofound (2020), younger people in the age group 18–24 often have telephone bill arrears, but various forms of debt are quite common among persons aged 25-34. Consumer credit arrears are relatively usual among persons aged 50-64, while such a situation is less probable for people aged 65+. However, for the older population, the problem with personal over-indebtedness is very serious, particularly because they have limited possibilities for earning additional income.

Educational attainment - Interestingly, there are contrasting opinions on whether a household head's educational attainment influences problems with household over-indebtedness. Byrnes et al. (2010) deem that there is some evidence that education lessens the possibility of over-indebtedness. In Poland, percentages of over-indebted households across the level of education are mostly constant, but higher among households whose head has the lowest education attainment, while those with higher education are faced with a relatively low risk of over-indebtedness (Wałęga and Wałęga, 2021). Analyzing over-indebtedness in Irish households, Russell et al. (2011) suggest that households where the head has no qualifications or has a low educational attainment, are most likely vulnerable to over-indebtedness. A possible explanation could be related to the factor that higher educational attainment also means improved overall cognitive abilities. Of course, it can be expected that better educated have developed specific financial skills and that tertiary education also enables (or at least contributes to) better financial management. However, there are opinions, which strongly repudiate a belief that financial illiteracy causes over-indebtedness. For example, Guerin (2012) points to rapacious lending practices as the most important cause of the over-indebtedness problem among low-income groups.

Employment and income – Although employment is not a guarantee of secure financial resources because in all societies there are working poor, unemployment is an important determinant of poverty and serious financial problems. As would be predicted, the likelihood of arrears was substantially correlated with both work status and income. According to Kempson (2002) and Kempson et al. (2004), families where the head of home was unemployed had a double the likelihood of being in arrears than those who had a full-time employee (32% and 16%, respectively). Similar to this, homes where the head only worked part-time had a double risk of falling behind on their payments. The associations with household income were intriguing because, at 34% and 26%, respectively, the level of arrears was higher among families with relatively higher gross earnings (between £7,500 and £15,000 per year) than it was among very poor families (with yearly incomes below £7,500).

Such counter-intuitive result, where those with the lowest incomes have better living standards than those with somewhat higher incomes, has been found in some other studies (McKay and Collard 2004). It may be attributed to a degree of mis-measurement of incomes at the lowest part of the distribution, and perhaps to such low incomes being temporary. It might also be a reflection of variations in property prices. As incomes rise above £15,000, the amount of arrears diminishes, and by the time a family's gross annual income reaches £35,000 or more, 11% of them were in arrears. Utility arrears are a significant problem for the long-term unemployed; 31% of them report having them. Low wages can help to explain why long-term unemployed people have arrears, but also for instance by staying at home more often and therefore using more utilities (Eurofound, 2012).

Surveys of over-indebtedness in Europe (Korczak, 2004; Norder, 2005; European Commission, 2013b, Eurofound, 2020) highlighted some common features of over-indebted and financially excluded persons. They are mostly unemployed persons or persons earning very low income (working poor), recipients of social welfare assistance, persons with mental and physical disabilities, the homeless, and persons with a poor financial history in the banking services and similar registers. The exclusion of over-indebted people from financial and social life and partnerships is quite obvious. To allocate political action and implement measures in the best possible way, it is necessary to have not only empirical data but also to know the individual and social costs of over-indebtedness.

Diverse life events require different financial resources to cover everyday needs. Financial needs are bigger for young couples who are just starting to live together and have to buy or rent an apartment, for single-parent families, and/or for families with more children. Marketing activities without doubt have a strong manipulative power in generating demand, so advertising stimulates people to acquire products and services that they often do not need. Citizens are constantly confronted with the growing supply in the financial market created by private banks and other institutions that provide financial services.

Despite the increasing attractiveness of consumer credits and other financial nice-looking services, a sparing and attentive lifestyle focused on using one's available financial resources guarantees a debt-free life. Moreover, irrationality is a noteworthy determinant of misalignment of one's financial capabilities. Acquiring (particularly on a loan) is mostly impulsive behavior, in which customers are usually unaware of their financial possibilities and the obligation to long-term direct a significant part of their income for repayment of such lends. Therefore, there is an obvious need for various forms of preventive measures, which are explained below.

A SHORT OVERVIEW OF THE PREVENTIVE MEASURES

Financial education and training related to financial literacy - refer to all types of financial decisions for personal, family, or business needs. It includes information on financial decisions about money, inflation, savings, interest rates, investments, debt, credit and currency risk, and all other financial contracts and other financial instruments. As a special area of financial literacy, the development of individual responsibility in planning allocations for repayment of future loans and expenses is mentioned. Financial literacy is important because financially educated consumers contribute to the effective synergy of the financial and real sectors, which has a positive effect on overall economic growth and development. On the other hand, the importance of financial literacy also lies in the fact that it reduces the risks of individual wrong decisions, thereby lowering individual and overall poverty and social exclusion.

The sources of funding for national campaigns to spread financial literacy in the public sector are the competent ministries of finance and/or economy, financial services regulators, and central banks. Likewise, the public education system, as part of the public sector, from primary and secondary school to higher education, should also be involved in the process of spreading financial literacy through educational programs on a regular or occasional basis. Among other representatives of the public sector, various chambers of commerce and tradesmen or associations may have an interest in the financial and savings literacy of the population.

To improve the financial literacy of the population, the Organization for Economic Co-operation and Development (OECD) founded the International Network on Financial Education (INFE), which consists of about 150 institutions from 75 countries. Every other year, the network organizes conferences, exchanges of information and opinions, and discussions on programs, initiatives, data problems, and research on the topic of financial education. In addition, the network advocates for the recognition of international standards related to financial literacy and provides guidelines, instructions, and coordination for those who are new to financial education programs. The INFE conducted an analysis of the financial literacy of the population on four continents (in Europe: Austria, Bulgaria, Cyprus, France, Greece, Poland, and Portugal - more on https://www.oecd.org/financial/education/financial-literacy-policies-and-initiatives-in-the-european-union.htm).

To develop good practices and improve the state of financial literacy, the OECD states that governments and all stakeholders should promote impartial, fair, and equal financial education in which educational programs should be developed in a coordinated and efficient manner. Financial education must start in elementary school to provide residents with financial education as early and as quickly as possible. Such education should be part of good and systematically encouraged public management of financial institutions. Financial education programs and strategies should be particularly focused on important aspects of life planning, such as savings, debts, and insurance, as well as on building financial capacity, and where appropriate, they should target specific groups of residents/users and adapt education programs to their needs, as far as possible.

The European Commission also got involved in supporting financial education programs, so at the meeting of the expert group for financial education, special attention was paid to the importance of financial education and ways to increase awareness and bring this topic closer to the largest number of users. At the same time, representatives of the OECD, based on their experience, recommended a significant intensification of activities related to developing awareness of financial literacy and long-term education.

Responsible lending - primarily includes the obligation of the creditor to check the creditworthiness and financial condition of the debtor in a transparent and relatively inexpensive way. This is most often carried out using the credit register, that is the database on consumer credit obligations. The register has three main roles. The first is the collection of data, and the more complete the data, the greater its value will be because a complete picture of the indebtedness of each consumer is obtained. The second role is to maintain these data, which includes regularly updating when new records are available and correcting possible errors. The third role is the delivery of information in a way that enables users to make effective decisions. Usually, the register contains information from all users, with the balance of all credit accounts at the end of the month. In turn, users - banks and financial institutions such as savings banks and credit unions - have the right to receive information (credit reports) about consumers from the register. The register does not determine the creditworthiness of a potential debtor but only provides objective information about the previous execution of his credit obligations. The biggest advantages for consumers are that their financial partner knows them "better". In this way, by sensibly using credit privileges, they can buy better and more, achieving more favorable credit conditions. For those consumers who may not be able to properly assess their credit obligations themselves, thanks to the information that the register has, the bank, if it does not approve the credit request, will probably succeed in preventing the consumer from becoming over-indebted.

Early involvement of creditors has proven to be a very useful measure. It is good practice in many EU Member States for creditors to contact people they believe may be having trouble repaying their debt. In doing so, it is very useful to express a tone of understanding and sympathy and to inform about the offer of independent or institutional counseling services. In the Netherlands, as soon as problems arise with paying rent, a person is referred to a financial advice service.

DATA SET AND METHODOLOGY

After the theoretical overview of the over-indebtedness problem, in this research, we will conduct cluster analysis to check the connection between the following indicators in the EU: real GDP per capita (in euros), index of financial freedom, Gini coefficient, and household debt, consolidated including non-profit institutions serving households as a percentage of GDP. The index of financial freedom is measured on a scale between 0 and 100 where a higher number represents better banking efficiency and larger independence of the financial sector from government control. The Gini coefficient is used to measure income inequality, also on a scale between 0 and 100, where 0 means maximum equality and 100 means maximum inequality. The household debt indicator compiles debt securities and loans. Data for real GDP per capita, Gini coefficient, and household debt are collected from the Eurostat database, whereas data for the index of financial freedom is acquired from the Index of Economic Freedom database. All the data refer to the year 2021.

Cluster analysis is used for grouping similar research objects into homogenous clusters. Various methods can be used for this type of multivariate analysis and numerous distant measures, where Euclidean and squared Euclidean distances are mostly used. Before choosing the adequate method for the research, it is suggested to use different methods and distance measures and then compare the obtained results and choose the best clustering solution (Hair et al., 2018).

Firstly, hierarchical cluster analysis was performed to identify homogenous groups within the EU member states. For this purpose, Ward's method with squared Euclidean distances is used. Subsequently, the k-means method is used to conduct the non-hierarchical cluster analysis. In this part of the empirical research, members of each cluster are defined, and an analysis of variance and the graph of means are discussed. Lastly, discriminant analysis is performed to discuss the classification matrix, which suggests if the cluster analysis adequately grouped the cases, i.e. EU member states.

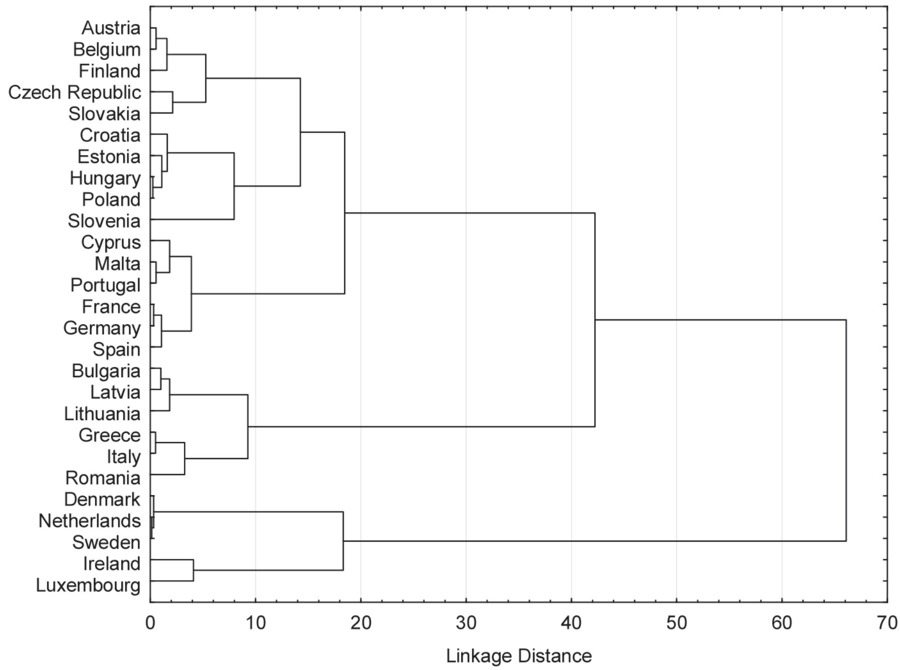
The variables used in this paper have different measurement units, which require standardization of the data because cluster analysis is based on distance measures. The standardized values for all the variables are used in further analysis.

RESULTS

It was required to test the presence of multicollinearity because cluster analysis cannot be conducted if there is any multicollinearity in the data. The indicator used for this purpose is the variance inflation factor (VIF). For the absence of multicollinearity, the VIF value should be smaller than 5 for all the variables (Hair et al., 2018). All the VIF values for the indicators used in this research are below 5, therefore there is no issue of multicollinearity.

Regarding hierarchical cluster analysis, Ward's method with squared Euclidian distances is chosen for this research. The dendrogram indicates a few possible clustering solutions: from two to five clusters. Based on the cluster structure, a solution with five clusters will be used to conduct a non-hierarchical cluster analysis.

Figure 1
Results of hierarchical cluster analysis – dendrogram



Source: the authors according to Eurostat (2023) and Index of Economic Freedom (2023).

Afterwards, the k-means method is used to perform the non-hierarchical cluster analysis, whereas the five clusters obtained by Ward's method are used as the initial number of clusters. The countries with their associated distances are shown in Table 1.

Table 1
Results of non-hierarchical cluster analysis using the k-means method – clusters and distances

Clusters	Countries	Distances
1st Cluster (4 countries) "Highly developed EU member states" cluster	Denmark	0.311401
	Luxembourg	0.970879
	The Netherlands	0.431184
	Sweden	0.297047
2nd Cluster (6 countries) "Western Europe and Finland" cluster	Austria	0.179895
	Belgium	0.428967
	Finland	0.527332
	France	0.409754
	Germany	0.460661
	Ireland	0.955670
3rd Cluster (6 countries) "Mediterranean" cluster	Cyprus	0.566671
	Greece	0.449258
	Italy	0.557928
	Malta	0.195797
	Portugal	0.226955
	Spain	0.600878
4th Cluster (4 countries) "Baltics-Eastern Balkans" cluster	Bulgaria	0.418623
	Latvia	0.088586
	Lithuania	0.527206
	Romania	0.563429
5th Cluster (7 countries) "Post-transition countries" cluster	Croatia	0.509614
	Czech Republic	0.668549
	Estonia	0.545140
	Hungary	0.345597
	Poland	0.175893
	Slovakia	0.690009
	Slovenia	0.958735

Source: the authors according to Eurostat (2023) and Index of Economic Freedom (2023).

Furthermore, Table 2 deepens the non-hierarchical cluster analysis with the analysis of variance, where the F value indicates which variables contribute the most to the separation among EU member states. The indicator *household debt* with an F value of 21.3689 contributes the most to the separation between the EU member states, followed by the *real GDP per capita* with an F value of 14.976.

Table 2
Results of non-hierarchical cluster analysis using the k-means method – analysis of variance

Indicator	Between SS	df	Within SS	df	F	Signif. p
rGDPpc	19.01627	4	6.98373	22	14.97616	0.000015
Financial freedom	14.74443	4	11.2555	22	7.20482	0.000724
Gini coefficient	18.70255	4	7.29745	22	14.09588	0.000008
Household debt	20.67786	4	5.32214	22	21.36891	0.000000

Source: the authors according to Eurostat (2023) and Index of Economic Freedom (2023)

The final component of the k-means method conducted in this research is the plot of means shown in Figure 2. The plot of means is used to portray the mean standardized values for all the indicators that are used in the model.

In the first, "highly developed EU member states", cluster, which consists of Denmark, Luxembourg, the Netherlands, and Sweden, it is visible that real GDP per capita, financial freedom as well and household debt are by far the highest in comparison to other clusters. Household debt is more than 1.5 standard deviations above average. On the other hand, the Gini coefficient is below average with -0.5 standard deviations, which is also intuitive considering the countries that form this cluster.

The second, "Western Europe and Finland", cluster, which includes Austria, Belgium, Finland, France, Germany, and Ireland, shows lower levels of real GDP per capita, financial freedom, and notably lower household debt, being only 0.2 standard deviations above average. The Gini coefficient is almost on the same level as in the first cluster.

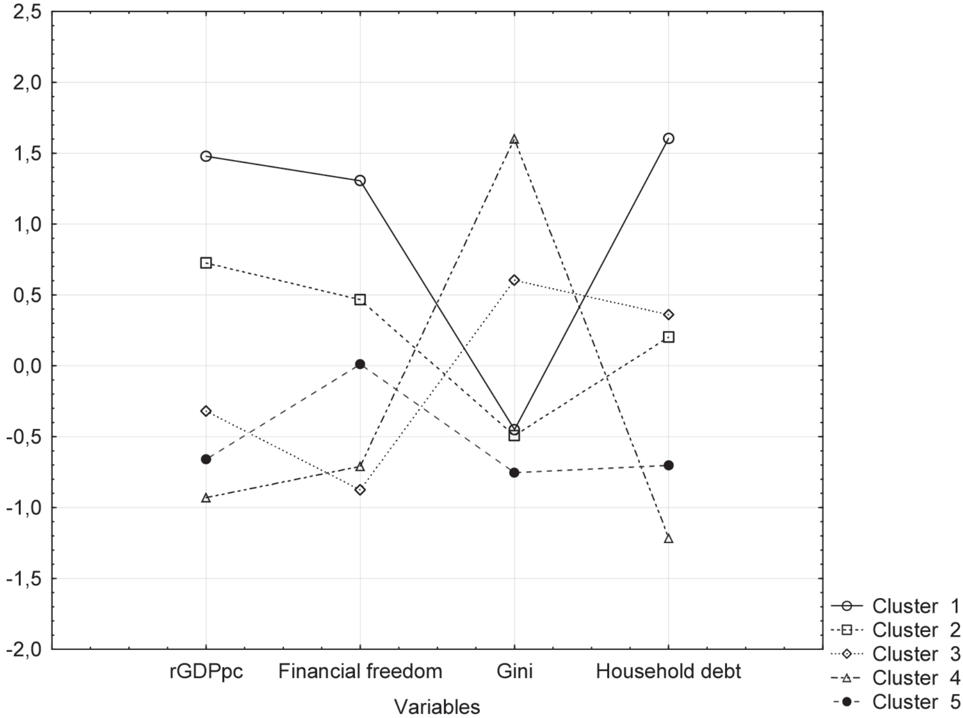
In the third, "Mediterranean", cluster, where Cyprus, Greece, Italy, Malta, Portugal, and Spain are, real GDP per capita is slightly below the average, and financial freedom is the lowest among all clusters with almost 1.0 standard deviations below average. Also, the Gini coefficient and household debt are on similar levels, around 0.5 standard deviations above average, with household debt being slightly lower.

The fourth, "Baltics-Eastern Balkans", cluster, consists of Bulgaria, Latvia, Lithuania, and Romania. This cluster has the lowest GDP per capita, being almost -1.0 standard deviations below average. Also, it is quite surprising to find that this cluster has the lowest level of household debt, -1.2 standard deviations below average. It was expected that the Gini coefficient would be very high, which shows the considerable problem of income inequality in these countries.

Lastly, the fifth cluster, named the "post-transition countries" cluster, includes Croatia, Czech Republic, Estonia, Hungary, Poland, Slovakia, and Slovenia. This cluster is characterized by the levels of real GDP per capita, Gini coefficient, and household debt which are slightly below average, and financial freedom which is exactly on the average level of all clusters.

Figure 2

Results of non-hierarchical cluster analysis using the k-means method – plot of means



Source: the authors according to Eurostat (2023) and Index of Economic Freedom (2023).

Finally, discriminant analysis was conducted to check and validate the results of the cluster analysis. The classification matrix shown in Table 3 presents the percentage of correctly classified objects, i.e. EU member states. It is visible that all the objects are classified adequately in the cluster analysis.

Table 3

Results of the discriminant analysis – classification matrix

Group	Percent correct	G_1:1 p=0.14815	G_2:2 p=0.22222	G_3:3 p=0.22222	G_4:4 p=0.14815	G_5:5 p=0.25926
G_1:1	100.00	4	0	0	0	0
G_2:2	100.00	0	6	0	0	0
G_3:3	100.00	0	0	6	0	0
G_4:4	100.00	0	0	0	4	0
G_5:5	100.00	0	0	0	0	7
Total	100.00	4	6	6	4	7

Source: the authors according to Eurostat (2023) and Index of Economic Freedom (2023)

DISCUSSION AND CONCLUSION

In conclusion, we can reiterate that over-indebtedness and financial exclusion are not a uniform problem. Among people working in lower-paid jobs and the long-term unemployed, over-indebtedness and financial exclusion usually result from accumulated unpaid utilities and/or repayment of loans and credit card debts. The crisis with many layoffs and reductions of social benefits has led to an increase in this group, which mostly makes up the majority of people affected by over-indebtedness and financial exclusion. However, a noteworthy part of the increase in the number of over-indebted people in Europe was caused by another group of citizens: people who worked at decently paid jobs, but due to losing their jobs, they have great difficulties with paying off their housing and other loans, and at the same time they do not see any significant improvement in their income situation.

Between and within these groups, there are large differences in the causes, seriousness, and consequences of over-indebtedness. However, there are also similarities because many users of financial services do not behave conscientiously and are exposed to excessive financial burdens and risks that they cannot bear. Over-indebted people and their families - who have difficulty in repaying mortgages and other bank loans, unpaid utility or telephone bills - may experience electricity cuts or foreclosures. To make ends meet, these families must save on the most important necessities of life and food for themselves and their children. In the current context of economic hardship, an increase in income for these households is quite improbable. Members of these households often experience health problems, suffer from stress and feel great insecurity in terms of precarious housing.

Regarding cluster analysis, in this paper, the EU member states are classified according to the differences in their real GDP per capita, financial freedom, income inequality, and household debt. The highest household debt in percentage of GDP was found in the first, "highly developed EU member states", cluster, and the lowest in the fourth, "Baltics-Eastern Balkans", cluster. From this result, it is evident that household debt is not linked to lower-income countries, especially because the two clusters which both have the lowest real GDP per capita also have the lowest household debt. Financial freedom, as it was expected, was greater in the first two clusters, as well as lower income inequality. However, those indicators were not exclusively linked to notably high or low household debt.

The social consequences of personal over-indebtedness are often underestimated, i.e. disruption of social cohesion and tearing of social tissue. Of crucial importance are suitable preventive and educational programs intended to teach citizens to conscientiously manage income and defend themselves against impulsive purchases beyond the personal abilities of financial expenditures. Enduring financial health requires long-term financial planning the development of financial analysis skills, and financially literate consumers. This also reduces the many social costs associated with the social welfare system, such as social assistance, reduces health care expenditures, and alleviates social exclusion. We can conclude that over-indebtedness and financial exclusion are serious personal and social problems that should be taken seriously, and organized help can be of great importance in their prevention and mitigation.

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Sažetak

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Koristeći najnovije dostupne izvore, prvenstveno Eurofound (2020.), Francis-Devine (2021.), Kurowski (2021.), Ferretti i Vandone, (2019.), te Europsku komisiju (2013.a,b), u ovom se radu raspravljaju i analiziraju učinci socijalne isključenosti i privatne prezaduženosti u Europskoj uniji (EU) u zadnjih desetak godina. U EU ne postoji službena zajednička definicija privatne prezaduženosti, no uvjetno se prezaduženim kućanstvom može smatrati ono čija su postojeća i predvidiva sredstva nedostatna za podmirenje financijskih obveza bez snižavanja životnog standarda, što ima i socijalne i političke implikacije ako to znači njihovo smanjenje ispod onoga što se smatra minimumom prihvatljivim u dotičnoj zemlji. Stoga je teško procijeniti točan broj prezaduženih osoba, ali nedvojbeno, ova pojava nije beznačajna i u porastu je. Privatna prezaduženost važan je čimbenik socijalne isključenosti koji uzrokuje ozbiljne privatne i društvene probleme, te stoga privlači velik interes javnosti. Problemi s dugovima mogu biti čimbenik koji pridonosi napetostima u kućanstvima i njihovom mogućem raspadu. Posljedice mogu biti složene i opasne poput razvoda i/ili beskućništva, a gotovo uvijek dovode do socijalne isključenosti pogođene osobe i članova njezinog kućanstva. To je ponajviše uzrokovano nedovoljnom financijskom pismenošću stanovništva, ali i povećanom potražnjom za novim proizvodima i uslugama koje često nadilaze osobne financijske mogućnosti većine ljudi. Rad pojašnjava stanje i obuhvaća uvjete na razini EU, naglašavajući razlike između starih i novih članica EU. Iako su razlike među njima veće nego sličnosti, u većini zemalja ukupni dug kućanstava rastao je brže od raspoloživog dohotka. To je izazvalo zabrinutost zbog mogućeg negativnog utjecaja povećanog tereta duga na financijsku stabilnost. U radu se donose i mjere za sprječavanje prezaduženosti privatnog sektora na međunarodnoj i nacionalnoj razini, koje se uz relativno male prilagodbe mogu provoditi u različitim zemljama. Ako pojednostavimo vrlo složenu analizu determinanti privatne prezaduženosti i gore navedene nacionalne razlike, možemo zaključiti da većinu prezaduženih osoba čine žene u dobi od oko 50 godina te osobe niže financijske pismenosti, koji su nerijetko nižeg obrazovanja. Klasterska analiza provedena u ovom radu potvrdila je ideju da klasteri koji se sastoje od razvijenijih zemalja u EU imaju više razine duga kućanstava, dok klasteri koji se sastoje od zemalja s najnižim realnim BDP-om po glavi stanovnika imaju najniže razine duga kućanstava kao postotak BDP. Nadalje, rezultati istraživanja pokazali su da financijska *sloboda i nejednakost u prihodima nisu isključivo povezani s izrazito visokim ili niskim dugom kućanstva. Najočiglednije ograničenje našeg rada je složenost teme koja zahtijeva daljnja znanstvena istraživanja, posebno u vezi s uvjetima COVID-19 i povećanim stopama inflacije diljem svijeta.*

Ključne riječi: prezaduženost, osobne financije, financijska pismenost, države članice EU.