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Comparative Analysis of Household Debt Levels and Structures in European Countries: Trends and Implications

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Abstract

Aim: The aim of the article was to analyse the level and structure of household indebtedness in selected European countries over two periods: 2018–2019 and 2020–2022. The research focused on two key objectives: (1) a comparative analysis of the forms of indebtedness among households in different European countries, and (2) a comparative analysis of the euro area and non-euro area EU Member States with respect to the level and structure of household debt.

Methodology: The study is based on secondary data from Eurostat concerning the financial resources and debt levels of European households. The analysis covered two distinct time periods (2018–2019 and 2020–2022) and compared the prevalence and structure of different debt instruments. The research included descriptive and comparative methods, examining household behaviour in euro area and non-euro area countries.

Results: The analysis showed that there were no statistically significant differences between euro area and non-euro area households in terms of asset and debt categories. In the euro area, households more frequently used short-term and long-term loans, while they were less likely to invest in quoted shares and bonds. In non-euro area countries, short-term loans dominated, suggesting a stronger

tendency to use quick access financing tools. Debt securities and long-term loans were less prevalent in these countries.

Implications and recommendations: The findings suggest that household debt preferences were relatively stable across Europe, with minor regional differences. Policymakers should consider these patterns when designing financial literacy programmes and credit regulations. Future research could focus on the behavioural factors influencing household debt decisions and investigate the impact of macroeconomic changes on these trends.

Originality/value: This study contributes to the literature by offering a comparative perspective on household indebtedness in euro area and non-euro area countries, using up-to-date Eurostat data across two relevant time frames. It provides insights into the structure of household liabilities and the regional differences in debt preferences.

Keywords: household debt, euro area, financial structure, comparative analysis, consumer credit

1. Introduction

Household debt serves as a vital economic metric that reveals the financial well-being and stability of families, as well as its broader implications for the overall economy. It includes various types of personal liabilities, such as mortgages, consumer loans, credit card balances, and educational debt. Examining the scale and structure of household debt across different European nations offers valuable insights into economic behaviour, financial risks, and potential policy measures. This study focused on conducting a statistical analysis to compare household debt across selected European countries, highlighting notable differences and exploring the underlying factors driving these variations as household debt can be regarded as a crucial indicator of both individual financial stability and the economic health of society as a whole (Muthitacharoen et al., 2015; Leclaire, 2023; Kask, 2003; Samad et al., 2022; Filardo, 2009; Byrialsen & Raza, 2022; Grzywińska-Rąpca, 2021a). Within the broader economic framework, household debt serves as a significant measure of financial well-being, reflecting both the creditworthiness and spending habits of individuals. The household debt ratio provides insights into consumer financial behaviour, where an elevated debt level may suggest optimism regarding future financial prospects (Grzywińska-Rąpca & Markowski, 2023). However, it can equally signal insufficient savings or constrained current income levels (Gritten, 2011; Keese, 2012; Hintermaier & Koeniger, 2018; Van Raaij & Gianotten, 1990; Vanlaer et al., 2020; Białowolski et al., 2020; Greenberg, Mogilner, 2021; Grzywińska-Rąpca, 2021b). When the level of debt surpasses the ability to repay, the risk of over-indebtedness arises, potentially leading to financial challenges such as insolvency, bankruptcy, or the necessity for debt restructuring. The household debt ratio functions as a key metric for assessing economic stability. At the macroeconomic scale, household debt exerts a direct influence on a nation's financial stability. High levels of household indebtedness can result in reduced consumer spending, which, in turn, negatively affects overall economic growth (Vanlaer et al., 2020; Hampson et al., 2021; Yazdanparast & Alhenawi, 2022; de Almeida et al., 2021). In contrast, access to credit has the potential to boost consumer spending, thereby stimulating economic growth. However, excessive household indebtedness can have severe repercussions for the overall economy, including the risk of creating a credit bubble that may eventually collapse, as witnessed during the financial crisis of 2008, whereas increasing interest rates elevate the cost of debt servicing, which may result in higher default rates and a subsequent decline in consumer spending (Flodén et al., 2021; Cherry et al., 2021; Mehrotra & Sergeyev, 2021). Governments and central banks closely observe levels of household indebtedness to fine-tune fiscal and monetary policies, and implement various support measures for indebted households, such as tax incentives, subsidies, or debt restructuring initiatives, aimed at mitigating the risk of widespread bankruptcies. Additionally, central banks may reduce interest rates during periods of economic crisis to encourage growth or increase them to prevent excessive economic expansion and overheating (Cloyne et al., 2020; Foote et al., 2021; Kose et al., 2021; Schembri, 2024; Grzywińska-Rąpca & Olejarz, 2021).

Therefore, household debt represents a multifaceted indicator that carries significant implications for both financial health and economic stability. Regular monitoring and in-depth analysis of debt levels facilitate a deeper understanding of consumption patterns, potential risks to financial stability, and the efficacy of economic policies. From a macroeconomic perspective, effective household debt management is essential for fostering long-term stability and promoting sustainable economic growth.

The first section presents the theoretical background to household debt, reviewing theoretical models of household debt, with a particular focus on its relative importance and structure. This is followed by an analysis of European household debt. The final section provides a summary and concluding remarks.

2. Literature Review

Household debt is a multifaceted issue shaped by a variety of economic and social determinants. The financial behaviour of households, including budget management strategies, is influenced by factors such as education, income, and the age of household members. Among non-economic factors, education plays a particularly significant role in determining the level and structure of household debt. Therefore, initiatives aimed at improving financial literacy are essential as insufficient financial literacy among the population can hinder the development of financial markets and impede economic growth at national level. Domestic financial policies also play a critical role in shaping household debt levels. Central banks, through their regulation of interest rates, significantly influence the accessibility of credit. Lower interest rates reduce borrowing costs, thereby incentivising households to assume financial obligations, whether in the form of short-term or long-term debt (Xie et al., 2024; Martín--Legendre & Sánchez-Santos, 2024). An additional benefit of low interest rates is that they can cause the prices of various assets to rise (Bloise & Vailakis, 2024). When discussing selected factors that determine the level of household debt, it is important to take into account the debt culture of a given country or region and the life cycle in which the household finds itself (Grzywińska-Rąpca & Grzybowska-Brzezińska, 2023; Jappelli & Pagano, 2002; Gumy, 2010).

In countries where borrowing is socially accepted, households exhibit a greater propensity to incur debt. The social norms and beliefs held by household members often serve as mechanisms for achieving objectives such as pursuing education, making investments, or funding consumption. In societies that embrace a pro-debt culture, credit is frequently perceived as a legitimate and effective means of enhancing the quality of life and investing in future opportunities. Consequently, debt is not only deemed acceptable but is often regarded as a preferred financial strategy for achieving personal and economic goals. Household budgeting encompasses a variety of models and approaches that help households control and optimise their spending, saving, and investment (Table 1).

Table 1. Selected budget management models

No.	Name of the debt model	Description	Advantages	Disadvantages
1	Zero-Based Budgeting (Grace, 2024).	Each payment unit is allocated to a specific category of expenditure and the budget starts from zero each month. All expenditure must be justified.	Precise control of expenditure, avoiding unnecessary costs.	Requires a lot of discipline and time.
2	Proportional budgeting (50/30/20 Rule) (Blackorby & Russell, 1993)	Income is split into three categories: 50% for necessities, 30% for whims, 20% for savings and debt repayment.	Simplicity and ease of implementation.	This approach may not be very flexible for people with different income levels.
3	Envelope System (Zinman, 2015; Bertola & Hochguertel, 2007)	Physical envelopes (or their digital equivalents) are used to allocate money to different spending categories. Once the money in an envelope runs out, no more money can be spent in that category.	Using this budgeting model helps control impulse spending.	The application of this budgeting model is of little practical use in an era of digital transactions.

4	Goal-Based Budgeting (Blanchett, 2015)	A budget is created based on specific financial goals, such as saving for a holiday, buying a car or paying off a loan.	Using this approach motivates savings and spending planning.	This approach can overlook the day-to-day costs that are just as important.
5	Historical Budgeting (Viale et al., 2018)	Analyse past expenditure and income to anticipate future budget needs.	Based on real data, making it easier to budget and avoid debt.	Requires accurate tracking of historical spend.
6	Cash-Flow Budgeting (Flodén et al., 2021)	Focuses on monitoring cash flow to ensure that income exceeds expenditure.	Focuses on helping people avoid debt.	Not always effective in reducing long-term debt.
7	Minimalist Budgeting (Grace, 2024; Blanchett, 2015)	Focuses on reducing expenditure to the minimum necessary and maximising savings.	Rapid debt reduction.	Can lead to feelings of deprivation and difficulty in maintaining it in the long term.
8	Needs-Based Budgeting (Flodén et al., 2021)	Prioritise basic needs such as housing, food and health care, and use the rest of the money for other expenses.	Applying this budget management model can provide financial security for the household.	The use of this budget management model can be inflexible in the event of unexpected expenditure.

Source: authors' own study.

Selecting an appropriate budgeting model is influenced by a household's unique needs, lifestyle, and financial objectives. In many cases the most effective approach involves combining different models to suit the specific financial circumstances of the household. The capacity to optimise cash flows throughout the life cycle has long been acknowledged as a crucial factor in shaping future household spending patterns and overall financial growth (Ando & Modigliani, 1963; Turinetti & Hong, 2011). Debt, despite its negative connotations (Barba & Pivetti, 2008), allows households to increase demand in the short term and can at the same time act as an obstacle to long-term consumption if short-term spending and suboptimal interest rates threaten future demand. Households with higher debt-to-income ratios exhibit greater vulnerability to fluctuations in interest rates and variations in anticipated income. The relationship between household debt and the broader economy is complex and multifaceted, with its causes and economic implications deeply intertwined with the overarching macroeconomic environment. Over the past decade, European households have faced substantial economic shocks – notably, unprecedented income growth has contributed to a significant rise in borrowing levels (Christen & Morgan, 2005; Canner et al., 1995). The current circumstances offer a valuable opportunity to reflect on the trajectory of household debt up to this point, analysing the factors that contributed to its rapid growth. This assessment includes examining whether the surge in household debt was warranted and considering how the accumulated liabilities are likely to evolve during the subsequent phases of the ongoing debt cycle (Baker, 2015). Many EU Member States have experienced changes in debt ratios (Barbaglia et al., 2024; Perraton, 2019; Chmelar, 2013). In the period leading up to the financial crisis, several European nations, particularly in Southern and Eastern Europe, experienced a notable rise in household debt. The varying trends observed across these countries largely mirrored differences in macroeconomic conditions during the analysed period, as well as structural disparities in household debt levels. Elevated household debt can hinder long-term consumption when short-term spending, coupled with suboptimal interest rates, jeopardises future demand. Moreover, higher debt-to-income ratios may represent a household's adaptive response to fluctuations in interest rates and anticipated income changes. The relationship between household debt and the broader economy remains complex and lacks a definitive explanation (Park et al., 2022). The causes and economic consequences are inextricably linked to the broader macroeconomic context.

3. Methodology

3.1. Data Sources

Source data were extracted from the Eurostat dataset[1]. The data collected by Eurostat derived from various sources, including administrative records, population censuses, and household surveys. According to Eurostat's methodology, households are defined as natural persons who either consume or produce goods and services for their final use. A household may consist of individuals or groups functioning as consumers, entrepreneurs engaged in the production of market goods, or providers of non-financial and financial services for the market. Moreover, households may act as producers of non-financial goods and services intended solely for their consumption.

3.2. Data Analysis Methods

The analysis of household debt in European countries covered two periods: 2018–2019 and 2020–2022. The division reflected differing economic contexts, i.e. 2018–2019 marked stability, while 2020–2022 was shaped by the COVID-19 pandemic and its economic aftermath. Comparing these periods allows for an assessment of the pandemic's impact on household finances, including credit conditions and access to loans. This dual-perspective approach supports a deeper understanding of the factors influencing household debt and informs effective economic policy. The data were obtained from Eurostat and analysed using Weber's standardisation, which enhances comparability and accuracy in statistical research.

First, Weber's standardisation enables the comparison of variables measured in different units, as it converts them to a common scale, which facilitates the assessment of the impact of individual variables on the phenomenon under investigation. A key benefit of this approach is its ability to transform raw data into units of standard deviation, enhancing the interpretability of results. By doing so, it becomes possible to evaluate how much a specific value deviates from the mean, aiding in the identification of outliers or anomalies.

In analyses that encompass diverse datasets, variations in units of measurement often complicate result interpretation. Weber's standardisation mitigates this challenge by eliminating the influence of differing measurement units, thereby enabling a more objective and reliable evaluation of the data. (Walesiak, 2004; Zawadzka & Grzywińska-Rąpca, 2023). In many statistical models, such as regression, different scales of variables can affect the results of the model (Dębkowska & Jarocka, 2013). Weber's standardisation helps to scale variables, which can improve model stability and quality of results, especially in multivariate models (Łuczak & Wysocki, 2013; Kukuła & Luty, 2015). Additional support for the appropriateness of employing Weber's standardization in comparative analyses of household debt across European countries lies in its ability to ensure that all variables exert a comparable influence on the analytical outcomes. This approach enhances the reliability and consistency of the results.

Weber's standardisation improves clarity of analysis with data on different scales, enabling more accurate results and deeper understanding of studied phenomena. The following formula was used to standardise the data:

$$z_{ij} = \frac{x_{ij} - \widetilde{med}(X_j)}{1.4826 * \widetilde{mad}(X_j)}, \quad (1)$$

where:

$\widetilde{med}(X_j)$– Weber's median *j*-th characteristics,

$\widetilde{mad}(X_j)$ – is the median of the absolute deviation of the *j*-th characteristic, where the distance of the characteristic from the Weber vector, i.e. $\widetilde{med}(X_j) = med_{i=1,\dots,n}\left|\widetilde{med}(X_j)\right|$

[1] Source of data: Financial balance sheets – quarterly data [NASQ_10_F_BS__custom_5074003].

The vector obtained, which minimises the sum of the Euclidean distances from the given points representing the objects of interest located slightly in the centre, is also robust to the presence of outliers (Młodak 2006; Lira et al., 2002; Młodak, 2009).

PROFIT analysis enabled the identification of key household debt components (loans, credits, shares) and grouped European households by debt level and characteristics, supporting region-specific policy insights.

4. Results

4.1. Descriptive Statistics on Forms of Indebtedness of European Households

The interpretation of the data presented in Table 2 on the forms of household debt in the euro area and other European countries suggested that there was a slight asymmetry in the distribution of the data to the left, i.e. more households had below-average deposits, which was indicated by a skewness value of -0.48 (there was a slight asymmetry in the distribution of the data). The arithmetic mean and Weber's median were very close (0.20 and 0.22, respectively), indicating an even distribution of currency and deposits.

Table 2. Descriptive statistics for financial instruments (debt) in 2018–2019

Specification	Currency and deposits	Loans	Short-term loans	Long-term loans	Listed Stocks	Debt securities
Eurozone (percentage of households)						
Arithmetic mean	0.20	0.20	0.04	0.16	0.05	0.13
Weber’s median	0.22	0.20	0.04	0.16	0.04	0.12
Standard deviation	0.06	0.03	0.02	0.03	0.03	0.04
Median standard deviation	0.04	0.03	0.01	0.02	0.02	0.03
Skewness	-0.48	0.23	0.79	-0.19	1.17	0.29
Other countries (percentage of households)						
Arithmetic mean	0.21	0.19	0.04	0.15	0.05	0.12
Weber’s median	0.22	0.19	0.04	0.15	0.04	0.12
Standard deviation	0.08	0.03	0.02	0.02	0.03	0.02
Median standard deviation	0.06	0.03	0.01	0.02	0.01	0.01
Skewness	-0.1	-0.2	0.1	-0.2	1.4	-0.3

Source: authors’ own study.

For non-euro area countries, the mean and Weber’s median for currency and deposits are similar (0.21 and 0.22), with near-symmetrical distribution (skewness -0.1). Loans showed symmetry (mean and median 0.20), with slight right skewness (0.23), suggesting more households with above-average debt. In non-euro countries loan skewness was -0.2, indicating most households have below-average loan values. Short-term loans were rare in both regions (mean and median 0.04), but the Eurozone showed strong right skewness (0.79), reflecting a few households with high loans. Long-term loans were symmetrically distributed (skewness near zero), with similar values in both areas (0.16 in the Eurozone, 0.15 elsewhere). Listed stocks were held by few households, with a strong right skew (1.17 Eurozone, 1.4 others), whilst debt securities showed moderate popularity (mean ~0.12–0.13), with a slight left skewness (-0.3) indicating that most households held below-average amounts.

To sum up, the data showed similar patterns in both groups of countries, with some differences in the distributions and averages. The Eurozone demonstrated a slightly higher dispersion of financial assets, especially listed stocks and debt securities, which may indicate a higher degree of inequality in

household financial wealth. The skewness in many cases suggests that the averages may not fully reflect the true distribution, which should be taken into account in further analysis. The data presented in Table 3 covered household debt and wealth in the Eurozone and the rest of Europe for the period 2020-2022.

Table 3. Descriptive statistics for financial instruments (debt) 2020–2022

Specification	Currency and deposits	Loans	Short-term loans	Long-term loans	Listed Stocks	Debt securities
Eurozone (percentage of households)						
Arithmetic mean	0.23	0.19	0.04	0.14	0.05	0.13
Weber's median	0.24	0.19	0.04	0.15	0.04	0.12
Standard deviation	0.07	0.03	0.02	0.03	0.04	0.05
Median standard deviation	0.04	0.03	0.01	0.02	0.01	0.03
Skewness	-0.6	0.8	0.9	0.2	1.3	0.5
Other countries (percentage of households)						
Arithmetic mean	0.21	0.19	0.04	0.15	0.05	0.11
Weber's median	0.23	0.18	0.03	0.14	0.04	0.12
Standard deviation	0.08	0.04	0.01	0.03	0.04	0.03
Median standard deviation	0.08	0.03	0.01	0.02	0.02	0.02
Skewness	-0.3	1.0	0.2	1.5	1.4	0.6

Source: authors' own study.

In the Eurozone, 0.23% of households had debts in the form of currency and deposits, with Weber's median of 0.24 and left-skewness (-0.6), indicating more households with above-average deposit values. In other countries, skewness was also negative (-0.3), but less pronounced. For loans, the Eurozone showed a mean and median of 0.19 with a right-skewness of 0.8, suggesting a concentration of households with higher loan values. In non-euro countries, the mean was 0.19 and the median 0.18, with greater asymmetry (skewness 1.0). Short-term loans were low in both regions (mean 0.04), though skewness was higher in the Eurozone (0.9), indicating a few households with relatively high debt, whereas in other countries skewness was lower (0.2) and the median slightly lower (0.03), showing a more even distribution. For all countries, the percentage of households holding such debts was generally low and similarly distributed.

In the Eurozone, long-term loans showed near-symmetry (skewness 0.2), while in other countries skewness was higher (1.5), indicating fewer households with high debt. Listed shares and debt securities were less common, with slight right-skewness in both regions and few households holding large amounts.

The data presented in Table 3 indicated certain discrepancies between the Eurozone and other European countries, particularly in their debt structure, showing greater stability and lesser differentiation within the Eurozone with regard to loans, whereas in other countries, greater inequality was evident, particularly with regard to long-term loans and investments in listed stocks. The skewness observed in both regions suggests that, although the mean values may be similar, the actual distributions may differ significantly, indicating the need for further, more detailed analysis.

Some of the analysed diagnostic features exhibited pronounced asymmetry, and to achieve equilibrium the calculations were balanced using the effect of offsets and median Weber's[2] standardisation.

The polarisation of variable distributions indicates that regarding the form of indebtedness represented by listed shares, there was a lack of normal distribution and all the characteristics exhibited

[2] The application of Weber's media standardisation allows for the overcoming of the distorting effect of inverse values, with each research phase treating the set of diagnostic characteristics as a unified entity.

homogeneity of variance, precluding the possibility of applying a one-way ANOVA analysis. Therefore, the Friedman ANOVA test (a non-parametric equivalent of one-way analysis of variance with repeated measures) was conducted on the data from the period 2018–2019. This enabled the identification of significant differences between the analysed forms of debt in European households (Table 4). The following hypotheses were verified: H0 – there are no significant differences between households in terms of their debt financing of European households, and H1 – there are significant differences between households in terms of their debt financing of European households.

Table 4. Friedman ANOVA test results (2018–2019)

Dependent variables	Friedman ANOVA		
	Dependent variable (grouping): % of households		
	Chi square ANOVA (N = 20, df = 5) = .8857143 p = .97125		
	Code	Total ranks	Average rank
Eurozone countries			
Currency and deposits	1	70	3.50
Loan	2	69	3.45
Short-term loans	3	74	3.70
Long-term loans	4	74	3.70
Listed stocks	5	68	3.40
Debt securities	6	65	3.25
Other countries			
Dependent variables	Friedman ANOVA		
	Dependent variable (grouping): % of households		
	Chi square ANOVA (N = 7, df = 5) = 1.204082 p = .94448		
	Code	Total ranks	Average rank
Currency and deposits	1	24	3.45
Loan	2	24	3.45
Short-term loans	3	29	4.14
Long-term loans	4	23	3.28
Listed stocks	5	25	3.57
Debt securities	6	22	3.14

Source: authors' own study.

The Friedman ANOVA analysis showed no statistically significant differences in the medians of asset and liability categories (e.g. currency, loans) between Eurozone and non-Eurozone households in 2018–2019. In the Eurozone, short and long-term loans received the highest average ranks (3.70), indicating their greater prevalence. Currency, deposits, and loans had similar ranks, while listed stocks and debt securities ranked lowest. Outside the Eurozone, short-term loans ranked highest (4.14), while debt securities and long-term loans ranked lowest. The results suggest minimal differences in household financial preferences across regions.

Analysis of European household debt (2020–2022) showed no normal distribution, but confirmed variance homogeneity, excluding the use of one-way ANOVA. The Friedman ANOVA test was applied to assess differences in debt forms across countries. Two hypotheses were tested: H0 (no significant differences) and H1 (differences exist). The test identified significant variation in debt forms. The results are shown in Table 5.

The Friedman ANOVA results for Eurozone households (2020–2022) show that the null hypothesis could not be rejected (p = 0.81670 > 0.05), indicating no significant differences in medians across debt and asset categories. Short-term loans had the highest mean rank (3.95), suggesting greater popularity. Loans and debt securities ranked equally (3.60), while long-term loans were least preferred (3.15). Currency, deposits, and listed shares had equal ranking (3.35), indicating moderate prevalence.

Table 5. Friedman ANOVA test results (Eurozone 2020–2022)

Dependent variables	Friedman ANOVA		
	Dependent variable (grouping): % of households		
	Chi Square ANOVA (*N* = 20, *df* = 5) = 2,228571 *p* = ,81670		
	Code	Total ranks	Average rank
Currency and deposits	1	67	3.35
Loan	2	72	3.60
Short-term loans	3	79	3.95
Long-term loans	4	63	3.15
Listed stocks	5	67	3.35
Debt securities	6	72	3.60

Source: authors' own study.

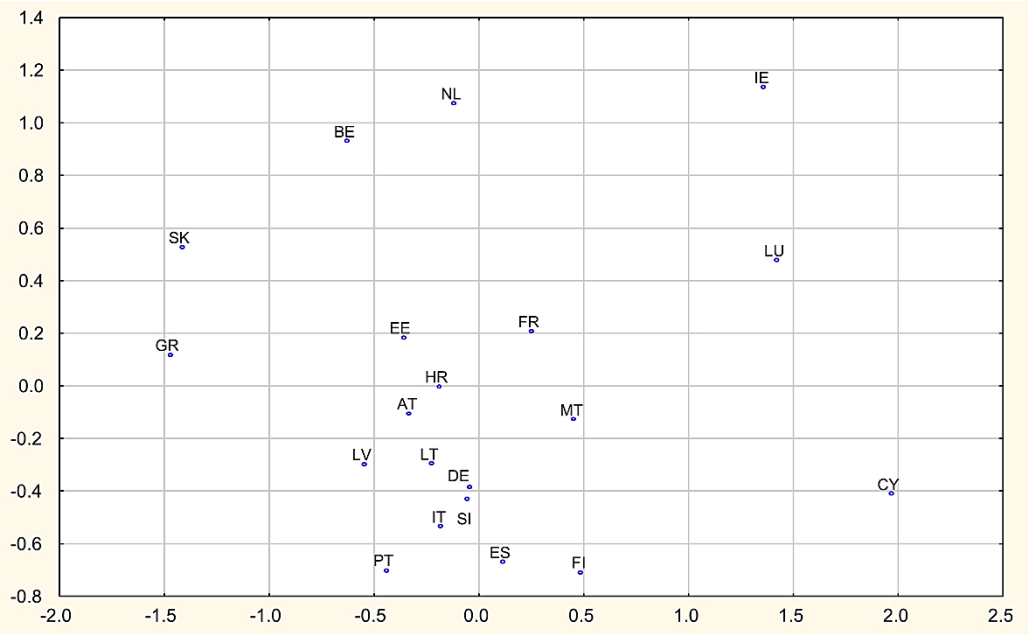
In the case of non-Eurozone countries (data for the period 2020-2022), after analysing the distributions of variables, it was found that all characteristics exhibited a normal distribution and homogeneity of variance. An analysis of variance (ANOVA) was conducted using a one-way approach to determine whether significant differences existed between the analysed forms of debt incurred by households. At the outset of the data analysis, two hypotheses were posited: H0 – which states that there are no significant differences in the forms of debt taken by households, and H1 – which asserts that there are indeed such differences. The *p*-value was found to be 0.8906 (and thus $p > 0.05$), indicating that there were no significant differences between the analysed forms of debt.

4.2. A Comparative Analysis of the Forms of Debt Assumed by Households in Various European Countries

In order to demonstrate similarities in the area of debt financing among European households in different countries, an analysis was conducted using the PROFIT method to determine the degree of similarity between countries. The PROFIT analysis is a procedure that combines two analytical techniques: scaling multidimensional and multiple regression. The objective of multidimensional scaling is to present the structure of similarity between countries in the Eurozone with regard to forms of debt among European households (Figure 1). It is assumed that the smaller the distance between countries, the greater the similarity in terms of the analysed forms of debt among European households.

The values attributed to each country were based on their coordinates on the map. The PROFIT analysis algorithm employs information on coordinates (independent variables) and values of objects with respect to each form of European household debt (share of total household debt), performing a multiple regression analysis. Six regression analyses were conducted. The normalised coefficients of the regression equations indicated the direction and the sense of a vector of each form of debt of European households, and also allowed for the positioning of countries in relation to the intensity of these forms of debt. It should be noted that the distance between objects (countries) and a line containing a vector was not a significant factor in the interpretation of results, whilst the crucial aspect was the location of the objects' orthogonal projections along this line. The order of these projections was then interpreted.

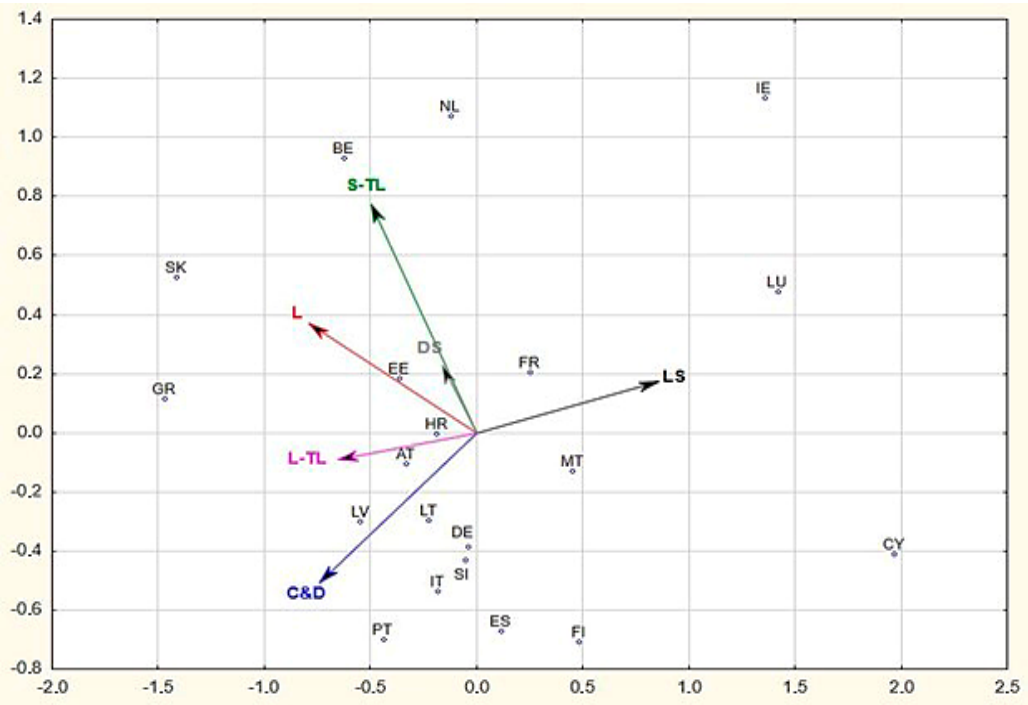
The presented vectors of each analysed form of debt of European households on the map of perceptions (Figure 2) indicate that, for example, countries located in the first quadrant were characterised by the greatest intensity of listed shares. In the second quadrant of the coordinate system, the highest levels of short-term loans, loans, and debt securities were observed, whilst in the third quadrant, long-term loans and currency along with deposits were the most prevalent.



Austria (AU), Belgium (BE), Croatia (HR), Cyprus (CY), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (GR), Ireland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), the Netherlands (NL), Portugal (PT), Slovakia (SK), Slovenia (SI), Spain (ES).

Fig. 1. Map of perception (Eurozone) 2018–2019

Source: authors' own study.



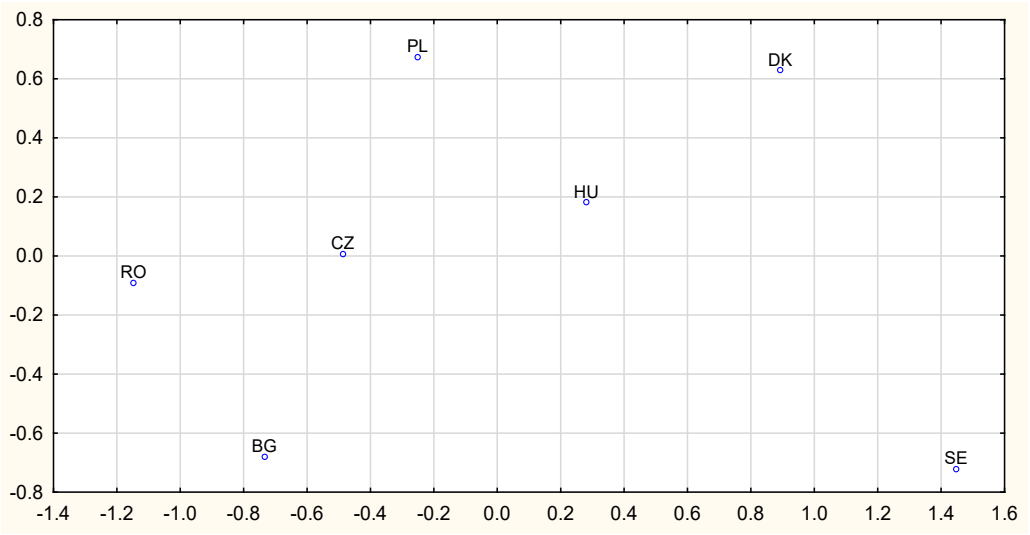
European countries associated in the Eurozone: Austria (AU), Belgium (BE), Croatia (HR), Cyprus (CY), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (GR), Ireland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), the Netherlands (NL), Portugal (PT), Slovakia (SK), Slovenia (SI), Spain (ES).

Currency and deposits (C&D), Loan (L), Short-term loans (S-TL), Long-term loans (L-TL), Listed Stocks (LS), Debt securities (DS)

Fig. 2. Map of perception (Eurozone) 2018–2019

Source: authors' own study.

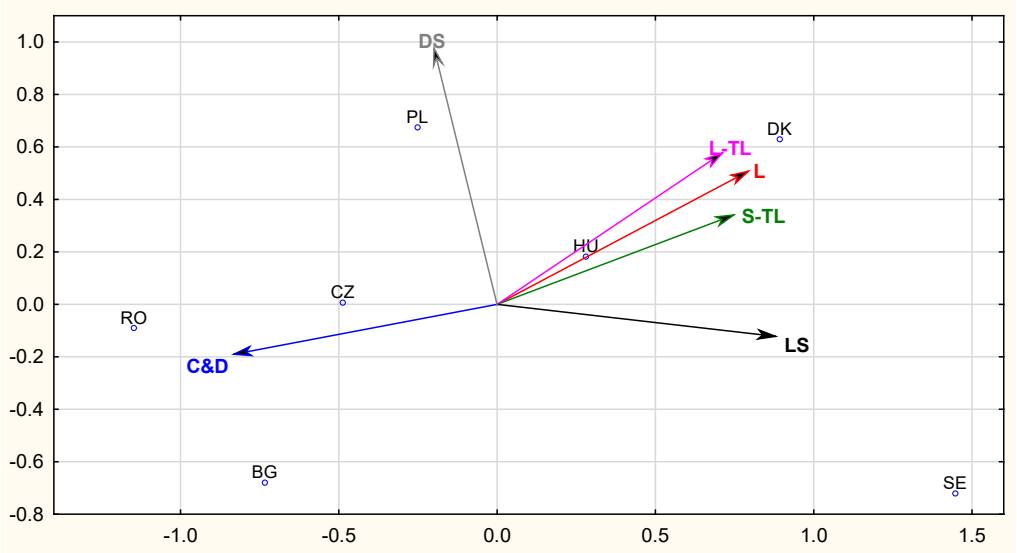
A similar map of perception was created for non-Eurozone countries (Figure 3).



European countries not affiliated with the EURO zone: Bulgaria (BG), Czech Republic (CZ), Denmark (DK), Hungary (HU), Poland (PL), Romania (RO), Sweden (SE).

Fig. 3. Map of perception (non-Eurozone) 2018–2019

Source: authors' own study.



European countries not affiliated with the EURO zone: Bulgaria (BG), Czech Republic (CZ), Denmark (DK), Hungary (HU), Poland (PL), Romania (RO), Sweden (SE).

Forms of debt: Currency and deposits (C&D), Loan (L), Short-term loans (S-TL), Long-term loans (L-TL), Listed Stocks (LS),

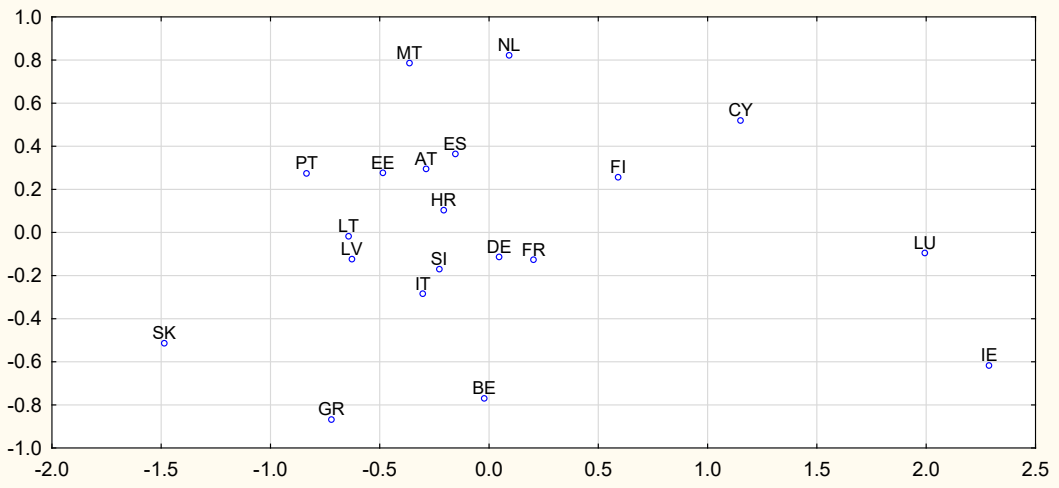
Fig. 4. Map of perception (non-Eurozone) 2018–2019

Source: authors' own study.

The first quadrant of the coordinate system is characterised by the highest intensity of long-term loans, short-term loans, and loans in general compared to the other European countries included in the study. The second quadrant of the coordinate system demonstrates the greatest intensity of debt securities, while the third quadrant represents currency and deposits, and the fourth – listed shares.

Similarly, an analysis of PROFIT was conducted in order to determine the degree of similarity between the Eurozone countries and those outside the Eurozone in the period between 2020 and 2022.

The objective of multidimensional scaling for Eurozone countries in 2020–2022 is presented in Figure 5.

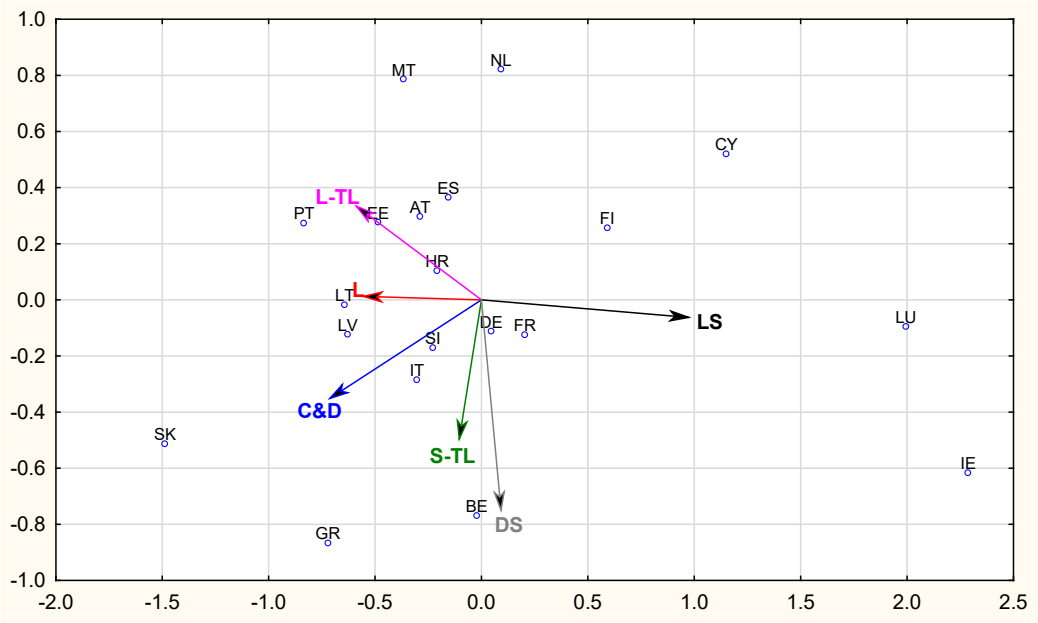


European countries associated in the Eurozone: Austria (AU), Belgium (BE), Croatia (HR), Cyprus (CY), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (GR), Ireland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), the Netherlands (NL), Portugal (PT), Slovakia (SK), Slovenia (SI), Spain (ES).

Fig. 5. Map of perception (Eurozone) 2020–2022

Source: authors' own study.

Six further regression analyses were conducted. The normalised coefficients of the regression equations defined the direction and sense of a vector of each form of indebtedness of European households in the Eurozone countries between 2020 and 2022, and also enabled the positioning of countries in terms of the intensity of these forms of indebtedness of European households. The results of this analysis are presented in Figure 6.



European countries associated in the Eurozone: Austria (AU), Belgium (BE), Croatia (HR), Cyprus (CY), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (GR), Ireland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), the Netherlands (NL), Portugal (PT), Slovakia (SK), Slovenia (SI), Spain (ES).

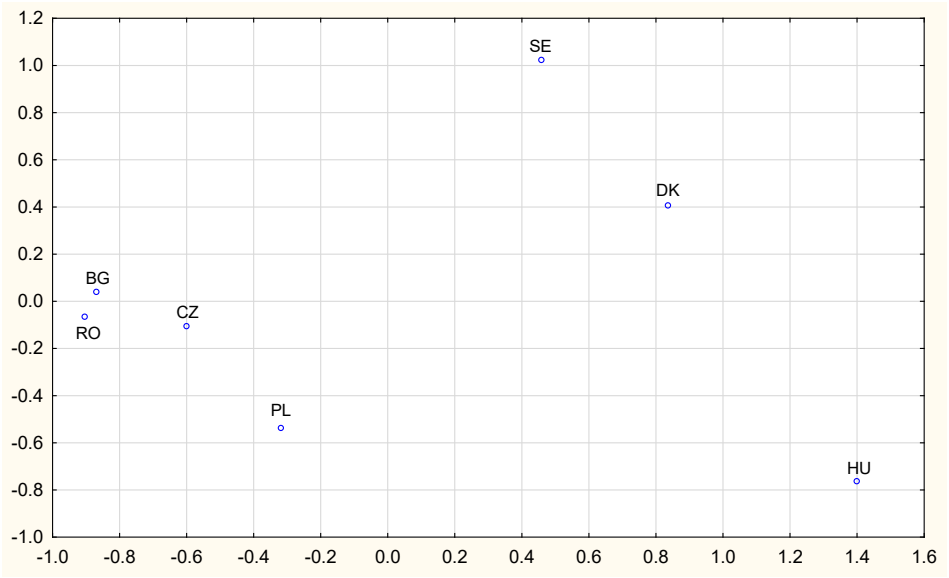
Forms of debt: Currency and deposits (C&D), Loan (L), Short-term loans (S-TL), Long-term loans (L-TL), Listed Stocks (LS), Debt securities (DS)

Fig. 6. Map of perception (Eurozone) 2020–2022

Source: authors' own study.

From the vector presentation illustrated in Figure 6, it can be discerned that countries situated in the second quadrant of the coordinate system exhibit the highest degree of long-term loans intensity. The highest level of currency and deposit intensity distinguished the countries situated in the third quarter of the coordinate system, whilst the highest levels of listed shares activity characterised the fourth quadrant (comprising IE and LU), and further along the vector indicating the form of indebtedness among European households, the intensity of that indebtedness increased.

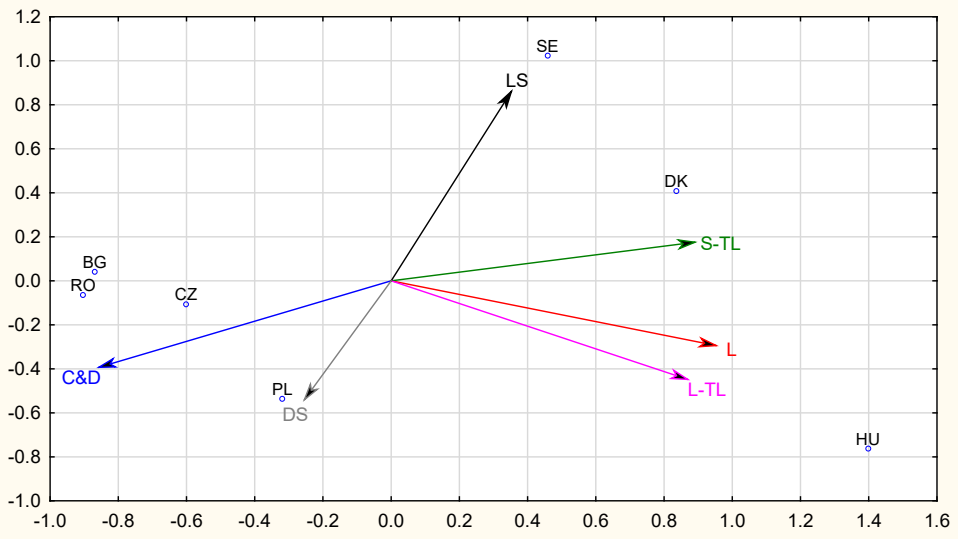
Similarly, a PROFIT analysis was carried out for countries outside the Eurozone during the 2020–2022 period, with the results presented in Figures 7 and 8.



European countries not affiliated with the Eurozone: Bulgaria (BG), Czech Republic (CZ), Denmark (DK), Hungary (HU), Poland (PL), Romania (RO), Sweden (SE).

Fig. 7. Map of perception (non-Eurozone) 2020–2022

Source: authors' own study.



European countries not affiliated with the Eurozone: Bulgaria (BG), Czech Republic (CZ), Denmark (DK), Hungary (HU), Poland (PL), Romania (RO), Sweden (SE).

Forms of debt: Currency and deposits (C&D), Loan (L), Short-term loans (S-TL), Long-term loans (L-TL), Listed Stocks (LS), Debt securities (DS)

Fig. 8. Map of perception (non-Eurozone) 2020–2022

Source: authors' own study.

The countries positioned in the first quadrant exhibited the most significant levels of the listed shares, whereas those situated in the third quadrant demonstrated the highest levels of debt securities and currency and deposits. The highest levels of loans and long-term loans were observed in Hungary, located in the fourth quadrant. In contrast, the Czech Republic in the second quadrant, displayed a similar profile to those countries in the third quadrant.

4.3. A Comparative Analysis of Eurozone Member States and Non-Eurozone States

A comparative analysis was conducted between two groups of countries: those belonging to the Eurozone and those outside the Eurozone. The analysis comprised 27 European countries, classified into two main groups based on contrastive coefficients:

1. Group 1 (the coefficient of contrast is 7): Austria (AU), Belgium (BE), Croatia (HR), Cyprus (CY), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (GR), Irland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), the Netherlands (NL), Portugal (PT), Slovakia (SK), Slovenia (SI), Spain (ES).
2. Group 2 (the coefficient of contrast is -20): Bulgaria (BG), Czechia (CZ), Denmark (DK), Hungary (HU), Poland (PL), Romania (RO), Sweden (SE).

The objective of the study was to test the following hypothesis:

$$H0: K=7AU+7BE+7HR+7CY+7EE+7FI+7FR+7DE+7GR+7IE+7IT+7LV+7LT+7LU+7MT+ +7NL+ 7PT+7SK+7SI+7ES-20BG-20CZ-20DK-20HU-20PL-20RO-20SE = 0$$

The specified contrast coefficients are presented in Table 9.

Table 9. Coefficients of contrasts and evaluation for the comparisons between groups (2018–2019).

Number of subclass	European countries	Contrast ratios for the subclass	Number of subclass	European countries	Contrast ratios for the subclass
1	AU	7	15	MT	7
2	BE	7	16	NL	7
3	HR	7	17	PT	7
4	CY	7	18	SK	7
5	EE	7	19	SI	7
6	FI	7	20	ES	7
7	FR	7	21	BG	-20
8	DE	7	22	CZ	-20
9	GR	7	23	DK	-20
10	IE	7	24	HU	-20
11	IT	7	25	PL	-20
12	LV	7	26	RO	-20
13	LT	7	27	SE	-20
14	LU	7			
One-dimensional significance tests for comparisons					
		Effect	Error		
Sum of squares		1,2598	161.9867		
Degrees of freedom		1	135		
Average squares		1.2598	1.1999		
F		1.0499			
P		0.3073			

Source: authors' own study.

Given that the *p*-value was greater than the conventional level of significance (0.05), there was no justification for rejecting the null hypothesis. This signifies that the differences in the evaluated characteristics between the two country groups were not statistically significant.

Additionally, an inter-group comparison was conducted for the period 2020–2022.

Thus hypothesis K0 was tested:

$$K=7AU+7BE+7HR+7CY+7EE+7FI+7FR+7DE+7GR+7IE+7IT+7LV+7LT+7LU+7MT+$$
$$+7NL+ 7PT+7SK+7SI+7ES-20BG-20CZ-20DK-20HU-20PL-20RO-20SE = 0$$

The specified contrast coefficients are presented in Table 10.

Table 10. Coefficients of contrasts and evaluation for the comparisons between groups (2020–2022)

Number of subclass	European countries	Contrast ratios for the subclass	Number of subclass	European countries	Contrast ratios for the subclass
1	AU	7	15	MT	7
2	BE	7	16	NL	7
3	HR	7	17	PT	7
4	CY	7	18	SK	7
5	EE	7	19	SI	7
6	FI	7	20	ES	7
7	FR	7	21	BG	-20
8	DE	7	22	CZ	-20
9	GR	7	23	DK	-20
10	IE	7	24	HU	-20
11	IT	7	25	PL	-20
12	LV	7	26	RO	-20
13	LT	7	27	SE	-20
14	LU	7			
One-dimensional significance tests for comparisons					
		Effect	Error		
Sum of squares		0.4002	194.2596		
Degrees of freedom		1	135		
Average squares		0.4002	1.4389		
F		0.2781			
P		05988			

Source: authors' own study.

The results of the contrast analysis between the European countries (Table 10) indicated the absence of statistically significant differences between the analysed groups of countries (*F*-statistic equal to 0.2781) and a *p*-value equal to 0.5988. Given that the *p*-value is considerably higher than the conventional level of significance (0.05), there was no justification for rejecting the null hypothesis. Consequently, one may conclude that the contrast was equal to zero, which implies that the differences in the characteristics evaluated using the contrast coefficients between these two groups of countries were not statistically significant.

5. Conclusion

In the literature on household indebtedness, the most frequently cited determinants are household income and interest rates on financial instruments. The analysis indicated significant variations in household debt levels across European countries, where Northern European ones typically reported higher debt levels, which may be attributed to higher income levels, more developed financial markets, and cultural attitudes that are more accepting of credit. Conversely, in countries such as Germany, Poland, and Czechia, borrowing is approached with greater caution. In these societies, avoiding debt is valued, purchases are often financed through savings, and financial independence and stability are emphasised, whilst loans, when taken, tend to be conservative and investment-oriented; older

generations, shaped by past economic instability, are particularly debt-averse. High interest rates further limit household borrowing capacity, reinforcing these tendencies. An analysis of the share of indebted households by debt type in two periods (2018–2019 and 2020–2022), divided into Eurozone and non-Eurozone countries, revealed no statistically significant differences in the structure of assets and liabilities. Short and long-term loans were slightly more common in the Eurozone, while equities and bonds were less prevalent. In non-Eurozone countries, short-term loans dominated, suggesting a stronger inclination toward rapid financing.

The aim of the analysis was to examine the level and structure of household debt in Europe and to identify differences in financial preferences relevant to policy-making and financial decision-making. However, the division into two regional groups did not yield statistically significant results, suggesting that the differences between them may be less pronounced than initially assumed. This may also point to the need for more refined models and additional variables, such as housing conditions and welfare policies, to better capture the determinants of household debt across Europe.

The results of the conducted analysis revealed that, despite formal differences stemming from Eurozone membership or its absence, the level and structure of household indebtedness in the examined periods were very similar. The lack of statistically significant differences may indicate an ongoing homogenisation of financial behaviour among households in Europe, resulting not only from financial globalisation but also harmonisation of legal regulations within the European Union and similar macroeconomic experiences, such as the COVID-19 pandemic.

In particular, it was observed that in non-Eurozone countries, short-term loans dominate, which may indicate limited access to more advanced financial instruments and/or a lower level of financial stability,, whereas in Eurozone countries, both short-term and long-term forms of debt were more commonly utilised. The observed patterns have important public policy implications, highlighting the need to tailor financial education programmes to specific debt structures and to promote the conscious use of financial instruments.

The obtained results are consistent with the observations of Grzywińska-Rąpca and Grzybowska-Brzezińska (2023), who indicated a decline in differences in household financial behaviour across Europe. Similarly, Barbaglia et al. (2024) observed that the common institutional frameworks within the EU contribute to the convergence of debt patterns. However, it is worth noting that these results partly differ from the findings of Perraton (2019), who stressed the pronounced differences between Northern and Southern European countries. In light of this analysis, it appears that these differences may have diminished in recent years, possibly due to shared economic shocks and crisis policies. This analysis was also corroborated by Park et al. (2022), who highlighted the complex interrelationships between household debt and changes in the macroeconomic environment.

Despite the development of the literature on household indebtedness, the study revealed significant research gaps. First, behavioural factors influencing the choice of debt type, such as the level of financial literacy, social norms or changing consumer expectations, remain insufficiently explored. Second, the impact of modern financial technologies, such as fintechs, BNPL services, or peer-to-peer lending platforms, on the structure and level of household debt in Europe after 2020 has not been adequately investigated. Recent studies by Xie et al. (2024) and Bloise & Vailakis (2024) suggested that these changes may have groundbreaking significance for future debt trends.

This study makes a significant contribution to the literature in several key aspects. Firstly, it offers a rare comparative analysis covering two distinct economic periods, namely of stability and of the crisis associated with the COVID-19 pandemic. This approach allowed for capturing the adaptive behaviour of households under conditions of macroeconomic volatility. Secondly, the application of Weber's standardisation and PROFIT analysis enabled a precise assessment of the similarities and differences in debt structures between European countries, offering a new methodological approach in research on household finances. Thirdly, the study provided evidence of the ongoing homogenisation of debt structures in Europe, constituting an important contribution to the debate on the effects of European

economic and financial integration. These findings may serve as a basis for further, more in-depth research on the new determinants of indebtedness under conditions of dynamic technological and social changes.

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Analiza porównawcza poziomu i struktury zadłużenia gospodarstw domowych w krajach europejskich: trendy i implikacje

Streszczenie

Cel: Celem artykułu jest analiza poziomu i struktury zadłużenia gospodarstw domowych w wybranych krajach europejskich w dwóch okresach: 2018–2019 i 2020–2022. Badania koncentrują się na dwóch kluczowych celach: (1) analizie porównawczej form zadłużenia gospodarstw domowych w różnych krajach europejskich oraz (2) analizie porównawczej państw członkowskich strefy euro i spoza strefy euro pod kątem poziomu i struktury zadłużenia gospodarstw domowych.

Metodyka: Badanie opiera się na danych wtórnych Eurostatu dotyczących zasobów finansowych i poziomów zadłużenia europejskich gospodarstw domowych. Analiza obejmuje dwa odrębne okresy (2018–2019 i 2020–2022) i porównuje rozpowszechnienie i strukturę różnych instrumentów dłużnych. Badania obejmują zarówno metody opisowe, jak i porównawcze, badając zachowania gospodarstw domowych w krajach strefy euro i spoza strefy euro.

Wyniki: Analiza pokazuje, że nie ma statystycznie istotnych różnic między gospodarstwami domowymi ze strefy euro i spoza strefy euro pod względem kategorii aktywów i zadłużenia. W strefie euro gospodarstwa domowe częściej korzystają z pożyczek krótkoterminowych i długoterminowych, podczas gdy rzadziej inwestują w akcje notowane na giełdzie i obligacje. W krajach spoza strefy euro dominują pożyczki krótkoterminowe, co sugeruje silniejszą tendencję do korzystania z narzędzi finansowania o szybkim dostępie. Papiery dłużne i pożyczki długoterminowe są mniej rozpowszechnione w tych krajach.

Implikacje i rekomendacje: Wyniki sugerują, że preferencje gospodarstw domowych dotyczące zadłużenia są stosunkowo stabilne w całej Europie, z niewielkimi różnicami regionalnymi. Decydenci powinni wziąć pod uwagę te wzorce przy projektowaniu programów edukacji finansowej lub regulacji kredytowych. Przyszłe badania mogą skupić się na czynnikach behawioralnych wpływających na decyzje gospodarstw domowych dotyczące zadłużenia i zbadać wpływ zmian makroekonomicznych na te trendy.

Oryginalność/wartość: Niniejsze badanie przyczynia się do literatury, oferując porównawczą perspektywę zadłużenia gospodarstw domowych w krajach strefy euro i spoza strefy euro, wykorzystując aktualne dane Eurostatu w dwóch odpowiednich ramach czasowych. Zapewnia wgląd w strukturę zobowiązań gospodarstw domowych i regionalne różnice w preferencjach dotyczących zadłużenia.

Słowa kluczowe: zadłużenie gospodarstw domowych, strefa euro, struktura finansowa, analiza porównawcza, kredyt konsumencki