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HOUSEHOLD SAVING MOTIVES AND SOCIO-DEMOGRAPHIC FACTORS

OSZCZĘDZANIE A CECHY SPOŁECZNO-DEMOGRAFICZNE GOSPODARSTW DOMOWYCH

This research was inspired by broad discussions on the motives for saving. We examine the relationship between the motives for saving and the socio-economic characteristics of households in the eurozone, Croatia, Hungary and Poland, such as: the social type of the household, gender of the reference person (RP), their age, level of education, marital status, taking into account the differences in the value of these households' financial assets. For this purpose, we used data from the Household Finance and Consumption Survey. The logit model was used to analyse with maximum likelihood estimation the different saving motives and country groups. We also used a Poisson model for a count variable. The results demonstrate that the social type of households is crucial in determining their motives for saving, particularly for child education and leaving an inheritance. Additionally, we identify differences in the number and sets of saving motives between households from countries with both high and low levels of financial assets. In countries where households are less well-off, the motive for saving to purchase residential estate is of greater importance. Moreover, households with more financial assets – mainly from the countries of Western Europe – show more concern about saving for old age and investment.

Keywords: saving motives; household finance; socio-economic characteristics; household saving; EU; JEL codes: D14, E 21, Z13

Koncepcja niniejszego badania została zainspirowania szeroką dyskusją w literaturze przedmiotu odnoszącą się do motywów oszczędzania. W pracy zbadano związek między motywami oszczędzania a cechami społeczno-ekonomicznymi gospodarstw domowych w strefie euro, Chorwacji, na Węgrzech i w Polsce, takimi jak: typ społeczny gospodarstwa domowego, płeć osoby referencyjnej (RP), jej wiek, poziom wykształcenia, stan cywilny. Wzięto też pod uwagę różnice w wartości aktywów finansowych badanych gospodarstw domowych. W tym celu wykorzystano dane z Household Finance and Consumption Survey. Do analizy wykorzystano model logitowy z oszacowaniem największej wiarygodności dla różnych motywów oszczędzania i grup krajów. Użyto również modelu Poissona dla zmiennej liczącej. Wyniki analizy wskazują, że typ społeczny gospodarstw domo-

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wych ma kluczowe znaczenie dla określenia motywów oszczędzania, w szczególności gromadzenia środków przeznaczonych na edukację dzieci i pozostawienia spadku. Dodatkowo zidentyfikowano różnice w liczbie i zestawach motywów oszczędzania pomiędzy gospodarstwami domowymi z krajów o zarówno wysokim, jak i niskim poziomie aktywów finansowych. W krajach, w których gospodarstwa domowe są mniej zamożne, motyw oszczędzania na zakup mieszkania ma większe znaczenie. Ponadto gospodarstwa domowe z większymi zasobami finansowymi – głównie z krajów Europy Zachodniej – wykazują większą troskę o oszczędzanie na starość i inwestycje.

Słowa kluczowe: motywy oszczędzania; finanse gospodarstwa domowego; cechy społeczno-ekonomiczne; oszczędności gospodarstw domowych; JEL codes: D14, E 21, Z13

I. INTRODUCTION

The issue of saving motives has been repeatedly discussed in the scholarly literature, beginning with the works of Keynes[1] through the publications of Browning and Lusardi[2] Xiao and Anderson[3] and other contemporary authors.[4] Saving motives were also investigated in the literature on economic psychology[5] and behavioural finances.[6] These authors have attempted to identify and classify saving motives.

Given all the above, we aimed to investigate the relationship between the socio-economic characteristics of households in the eurozone and their saving motives, taking into consideration the differences in those households' financial assets. We hypothesised that a set of socio-demographic characteristics affecting the choice of households' saving motives is related to the value of the households' financial assets in particular countries.

Thus, the following questions arise:

1. Which socio-demographic factors lead households to be driven by specific saving motives?

2. Are there any differences between the examined countries in terms of the impact of socio-demographic characteristics on the saving motives?

3. Do socio-demographic characteristics affect the number of saving motives that drive households' saving decisions?

4. Do the examined countries differ in terms of the sets of socio-demographic characteristics that influence the average number of saving motives?

[1] Keynes (1936).
[2] Browning, Lusardi (1996): 1797–1855.
[3] Xiao, Anderson (1997): 333:355.
[4] Yao, et al. (2015): 224–238.
[5] Wärneryd (1989): 515–541.
[6] Canova et al. (2005): 21–34; Katona, Harris (1978): 14–18; Maison (2019): 105–141.

II. LITERATURE REVIEW

As mentioned above, the interest in the motives behind households' financial decisions began with the works of Keynes.[7] He pointed out that the household sector should not be treated as a set of homogeneous entities. Duesenberry[8] presented a similar approach in his research on consumption behaviours in the Relative Income Hypothesis. However, in modern theories of saving, such as the Permanent Income Hypothesis[9] and the Life-Cycle Hypothesis,[10] households are treated as sets of entities that share the same goals and standard behaviour. A return to Keynes's approach occurred under the influence of economic psychology and behavioural finances in, among others, the Behavioural Life-Cycle Hypothesis.[11] Any research into saving motives must recognize that households may behave in a variety of ways.

Although a number of studies describe different saving motives, their focus is on individual motives, such as saving for security or retirement.[12] Such research analyses saving motives in the context of their relationship with, among others, the propensity to save, the propensity to consume, and the assets held.[13] Other studies deal with other saving motives, such as saving for bequest[14] or for competitive reasons.[15]

Lindqvist and Canova et al. made unique contributions to the research on the motives of household financial behaviours, including those for saving.[16] They claim that the motives for financial behaviours may be grouped and ranked in a hierarchy of importance. Canova et al. argue that at the bottom of the hierarchy are more concrete goals ("Purchase", "Holidays" or "Money availability") while at the top are more abstract goals ("Self-esteem", "Self-gratification").

Research on the motives (or sets of motives) that lead households to save is limited. Most studies have aimed to identify the motives that influence households' decisions.[17] In contrast, not enough research has been done on the relationship between saving motives and the socio-demographic characteristics of households. However, published studies highlight that the main characteristics of households influencing saving and saving motives are education,

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[7] Keynes (1936).

[8] Duesenberry (1949).

[9] Friedman (1957): 20–37.

[10] Ando, Modigliani (1963): 55–84.

[11] Shefrin, Thaler (1988): 609–643.

[12] Aizenman et al. (2015): 911–936; Hubbard et al. (1994): 174–179; Hubbard et al. (1995): 360–399; Kennickell, Lusardi (2005); Lusardi (1998); Mody et al. (2012): 114–138.

[13] Carroll (2009): 780–790; Carroll et al. (2012); Carroll, Kimball (2008): 1–9; Carroll, Samwick (1997): 41–71.

[14] Laitner, Ohlsson (2001): 205–236; Tang, Zhang (2021).

[15] Wei, Zhang (2011); Wei, Zhang (2016): 355–366.

[16] Canova et al. (2005): 21–34; Lindqvist (1981): 39–57.

[17] Korzeniowska (2018): 284–291.

economic and social situation.[18] Also, households with low- and high-income are varied in their hierarchy of saving motives.[19]

For example, one of the assumptions of the Life-Cycle Hypothesis – repeated in the Buffer Stock Saving Hypothesis[20] and the Behavioural Life-Cycle Hypothesis[21] – states that after reaching retirement age, the value of household savings decreases, as households supplement lower income in order to maintain the desired consumption level. However, this phenomenon is not clearly supported by empirical data on EU households which is presented, for instance, in HFCS and Eurostat data on household finance.[22] Ocampo and Yuki present an interesting approach by investigating the relationship between saving motives and anticipated inter-generational transfers.[23] They analyse how wealth accumulation, social security policies, and factual and anticipated bequests influence decisions on saving and the effect of saving motives. Additionally, Le Blanc et al.[24] claim that 'Studying which motives drive households' savings within countries at different stages of their life cycle is fundamental for understanding household saving behaviour.' Another subject for research is the relationship between age and saving motives, as well as the change in saving motives with household ageing, as pointed out in the Life-Cycle Hypothesis.[25]

Some other publications examine the relationship between saving motives and other socio-economic characteristics of households. Haider[26] and others, for example Xiao and Noring,[27] claim that such dependencies occur, arguing that a household's hierarchy of saving motives changes when its socio-economic characteristics change. In addition, there is research on the differences in the saving motives by households in different countries.[28] Finally, there is also research on the importance of the co-occurrence of saving motives for the amount of savings gathered.[29]

We assume that, although all of the analysed countries are EU Member States, the research results will differ within the group of countries. This assumption follows the research presented by Niculescu-Aron and Mihaescu.[30] They point out national specificities and behavioural parameters of countries with regard to saving and advise differentiating between countries in terms of their particularities.

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[18] Bernardelli et al. (2022): 212–228.

[19] Haider et al. (2018): 35–52.

[20] Carroll (2004); Deaton (1991): 1221–1248.

[21] Shefrin, Thaler (1988): 609–643.

[22] This paper uses data from Eurosystem Household Finance and Consumption Survey. The results published and the related observations and analysis may not correspond to results and analysis of the data producers.

[23] Ocampo, Yuki (2006): 371–414.

[24] Le Blanc et al. (2014): 3.

[25] Yao et al. (2015): 224–238.

[26] Haider et al. (2018): 35–52.

[27] Xiao, Noring (1994): 25–45.

[28] Yao et al. (2011): 28–44.

[29] Schunk (2009): 467–491.

[30] Niculescu-Aron, Mihaescu (2014): 104–113.

III. DATA

This study draws on data from the Household Finance and Consumption Survey (HFCS)[31] concerning saving motives as well as the socio-demographic situations of households. The data covers 21 EU countries: Austria, Belgium, Croatia, Cyprus, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Lithuania, the Netherlands, Poland, Portugal, Slovakia, and Slovenia. The surveys within Wave 2017 in individual countries were carried out over different periods, from 18 March 2016, in Croatia to 12 January 2019, in Ireland. However, most of the data were collected in 2017. The particulars of the research methodology are presented in the methodological report.[32] The HFCS research was carried out among all adult members of the surveyed households. However, some questions were only presented to the reference person, and this is the case when asking the respondents about the saving motives of their households. To present the actual situation of households but not the opinions of their members, only the answers of the reference person (RP) were included.

The presentation of the socio-demographic characteristics of households covers the variables shown in Table 1.

Table 1

Socio-demographic variables

Variable	Type of variable	Codes
Gender of RP	dichotomous variable	0 – female (reference variable) 1 – male
Age group of RP	variable with many ordered categories	1 – 18–24 years old 2 – 25–34 3 – 35–44 4 – 45–54 5 – 55–64 6 – 65–74 7 – 75+
Education level of RP	variable with many ordered categories	1 – primary or lower education, 2 – lower secondary education, 3 – upper secondary education, 4 – tertiary education
Marital status of RP	variable with many ordered categories (for correlation) a set of dichotomous variables (zero–one) created based on the genuine variable of 'Marital status of RP' (for models)	1 – single (reference variable) 2 – married/partnered 3 – widowed 4 – divorced

[31] ECB (2020a) The household finance and consumption survey: Cross-country metadata information. Wave 3. Document Available Only for Users of the HFCS Data.

[32] HFCN (2020).

Social type of household	variable with many ordered categories (for correlation) or a set of dichotomous variables (zero–one) created based on the genuine variable of 'Social type of household'	51 – one adult younger than 64 years (reference variable), 52 – one adult older than 65 years, 6 – two adults younger than 64 years, 7 – two adults, at least one aged 65 years and over, 8 – three or more adults, 9 – single parent with dependent children, 10 – two adults with one dependent child, 11 – two adults with two dependent children, 12 – two adults with three or more dependent children, 13 – three or more adults with dependent children

Source: the authors' own analysis based on EBC (2020b).

Variables indicating the number of children and adults in households were not included in the analysis because they correlated strongly with variables of age and household type. In the case of dichotomous variables (zero–one), the reference variable is pointed out. The HFCS respondents provided information on the structure of their assets, indicating the share of financial and tangible assets within their total assets. As these variables add up to 100%, we adopted the former (share of financial assets) for our analysis. The respondents also indicated whether they were driven by a particular motive when they began saving. Thus, there was a total of 11 saving motives, namely: A) to purchase one's own house, B) to make other major purchases, C) to set up private business, D) investment in financial assets, E) provision for unexpected events, F) paying off debts, G) old-age provision H) travels/holiday I) education/support of children or relatives, J) bequests, K) taking advantage of state subsidies. Each one of them is a dichotomous variable.

In order to account for differences in the value of financial assets held by households in various countries while examining the relationship of saving motives with socio-demographic characteristics, the countries were divided into groups. This approach avoided the excessive complexity of considering each country separately, which would require building and analysing numerous models. For this purpose, we used information from Eurostat, based on the value and structure of financial assets held by households in 2016 (financial balance sheets code: NASA_10_F_BS[33]) and on the populations of particular countries (Population structure indicators at national level code: demo_pjanind[34]). This allowed us to calculate the value of assets per capita. The choice of the year 2016 resulted from the need to standardize the data

[33] Eurostat, Financial balance sheets – annual data. English, https://ec.europa.eu/eurostat/databrowser/bookmark/0008a872-0409-419a-9d82-dc0cca43b23c?lang=en.

[34] Eurostat, Population structure indicators at national level. English, https://ec.europa.eu/eurostat/databrowser/bookmark/1cc913fd-3fe1-47c2-a157-f65d7dc80f47?lang=en.

for conducting the analysis. This assumption was based on the finding that the value of a household's assets affects its saving decisions and motives, which is confirmed by the research (described above) dealing with the hierarchy of saving motives,[35] including the relation between the needs and motives of households' activity.[36]

IV. METHODOLOGY

First, an analysis of the relationships between the financial condition of households and their socio-demographic characteristics was carried out. For this purpose, a Kendall's Tau analysis of correlation and Pearson's χ^2 test with Cramér's V coefficient were used to show the relationship between variables and to measure the strength of these relationships[37] to classify households holding savings in terms of their socio-demographic characteristics. It was assumed that a household in a strong financial condition is the one which indicated financial surpluses at the time of the survey and declared a usual or higher than usual income within 12 months preceding the survey.

A household in poor financial condition is defined as one that a) does not have any financial surpluses, regardless of its income, or b) has financial surpluses but declared a fall in its income compared to the previous period. According to this classification, 51,224 (60.38%) households were in poor financial condition and 22,633 (26.68%) had a strong financial condition; due to the lack of data, it was impossible to determine the financial condition for 10,972 (12.93%) households.

To divide the countries into three groups, we used Ward's hierarchical cluster analysis, where Euclidean space was adopted as a measure of variation. The analysis was carried out for the total value of financial assets and in the following asset sub-categories: deposits, cash, debt instruments, private insurance, pension schemes, capital shares and mutual funds and the sum of deposits, private insurance and capital shares. This last sub-category was created based on the significance analysis for predictors (C&RT model). The final division of countries into groups resulted from comparing the results of clustering for the financial assets in total, and for two sub-categories: a) deposits, and b) the sum of deposits, private insurance and capital shares. All of them met the assumptions of ANOVA, which confirms significant group diversity. The choice of final categories was also based on the significance analysis for predictors (C&RT model).

The analysis of the relationship between saving motives and the socio-demographic characteristics of households and the share of households' financial assets was carried out using the logit model estimated with maximum likelihood estimation (MLE). Stepwise backward regression was applied with the en-

[35] Lindqvist (1981): 39–57.
[36] Xiao, Anderson (1997): 333–355; Xiao, Noring (1994): 25–45; Xiao, Olson (1993): 92–109.
[37] Breiman (2001).

try parameter p = 0.05 and the removal parameter p = 0.01. This method allows for the automated selection of variables for the model. The method removes statistically insignificant variables in steps, beginning from the full model (with all the exogenous variables) and reducing the set of variables to those that are statistically significant. Additionally, this method also reduces the risk of collinearity of the exogenous variables. Cox-Snell R-squared, Nagelkerke R-squared and p-value for the Hosmer-Lemeshow test were given as measures of fit for the logit models. It is worth noting, however, that this test does not necessarily test the commonly understood fit, but the level of calibration. In addition, a Wald test was established for testing the significance of the model as a whole.

To analyse the relationship between a households' number of saving motives with the socio-demographic factors, a Poisson regression model was used:

$$\lambda_i = e^{x_i'\beta}, \tag{1}$$

where: λ – expected value in the Poisson distribution; x_i – vector of explanatory variables (characteristics); β – estimates of the model parameters.

MLE was applied to estimate the model. Using the above link function, a Poisson regression model may be presented as follows:

$$lnE(y_i|x_i) = ln\lambda_i = x_i'\beta \tag{2}$$

To eliminate overdispersion, we adjusted the estimates of standard errors. The analyses were carried out using STATISTICA and MS Excel.

V. RESEARCH

The research into the relationship between the financial condition of households and their socio-demographic characteristics was conducted with the use of methods adjusted to the data (Table 1). Kendall's Tau coefficient was used to examine the relationship of economic conditions with the level of education and RP age. The relationships between the marital status of RP, RP's age, a household's social type and its financial condition were examined with Pearson's x^2 test, while the strength of these relationships was measured with Cramér's V coefficient.

The analysis shows weak but statistically significant relationships between households' socio-demographic characteristics and their financial condition. For many respondents, the relationship between the socio-demographic variables and the financial condition of their households proved to be insignificant in the whole research sample, although in 14 individual countries the relationship was significant at the level $\alpha = 0.05$ (Table 2). In terms of the analyses for individual countries, the correlation between the level of education with the financial condition is statistically significant for all the countries. The correlations are positive for all countries except France, where the coefficient is –0.078; this low

value is statistically significant at the level α = 0.05. Similarly, the relationship of civil status with the financial condition proved to be statistically significant, although for Cyprus the significance was only at the level α = 0.1. Unfortunately, the strength of the association (as measured by Cramér's V coefficient) is very weak and fluctuates from 0.05 in France to 0.155 in Belgium. This is also true for household type. No statistically significant relationship between this variable and the financial condition was observed in Hungary; Greek and Latvia exhibited significant relationships at α = 0.1. In the other countries, the reliance is weak but statistically significant with α = 0.05. The weakest relationship was indicated between the financial condition and RP gender.

Table 2

Relationship between the financial conditions and socio-demographic characteristics of households (p < 0.05)

Country	Education	Age groups	Marital status		Gender		Household type	
	Kendall's Tau	Kendall's Tau	χ^2 df = 3	Cramér's V	χ^2 df = 1	Cramér's V	χ^2 df = 9	Cramér's V
All	0.127	–0.003 (x)	245.41	0.057	177.64	0.049	259.38	0.059
AT	0.036	0.042	9.18	0.054	6.68	0.095	49.13	0.126
BE	0.178	–0.015 (x)	63.25	0.155	20.96	0.113	57.54	0.158
CY	0.142	0.046	6.20 (*)	0.069	16.65	0.084	29.06	0.149
DE	0.151	0.040	46.17	0.097	34.71	0.007	70.35	0.119
EE	0.118	–0.039	11.05	0.064	0.12 (x)	0.013	26.35	0.099
FR	–0.078	–0.019	33.99	0.050	2.21 (x)	0.051	46.11	0.058
GR	0.157	0.004 (x)	12.15	0.064	7.95	0.035	15.60 (*)	0.072
HR	0.080	–0.020 (x)	14.37	0.103	1.65 (x)	0.074	11.11 (x)	0.091
HU	0.213	–0.019	44.57	0.087	32.01	0.061	32.51	0.075
IE	0.155	–	–	–	–	–	–	–
IT	0.183	0.033	20.76	0.053	26.99	0.129	78.88	0.104
LT	0.230	–0.165	32.14	0.142	26.49	0.048	71.59	0.212
LU	0.088	0.089	7.99	0.070	3.71 (*)	0.065	55.53	0.185
LV	0.168	–0.040	18.55	0.122	5.25	0.090	16.66 (*)	0.116
MT	0.145	–	–	–	–	–	–	–
NL	0.152	0.010 (x)	34.62	0.121	19.00	0.050	46.31	0.140
PL	0.157	–0.023	27.66	0.069	14.46	0.063	25.96	0.067
PT	0.178	–0.023	21.46	0.060	23.86	0.015	38.67	0.081
SI	0.261	–0.036	9.38	0.068	0.46(x)	0.049	21.08	0.102
SK	0.120	0.057	24.89	0.109	5.00	0.095	27.93	0.115

* Finland was excluded due to the lack of responses.
(*) indicates statistical significance with *p*-value < = 0.1, (x) indicates *p*-value > = 0.1

Source: the authors' own calculations based on EBC (2020b).

In the next stage, the structure of the respondents indicating strong and weak financial condition in terms of socio-demographic characteristics was examined. Then, the groups created in this way were compared with Pearson's χ^2 test. The test revealed that in the case of all the analysed socio-demographic characteristics, the structures of households with strong and weak financial condition vary considerably. Not surprisingly, better financial conditions were indicated by people in relationships because they can share their expenses and pool their incomes with a spouse or life partner. People with more education and who were in the productive age range also reported better financial condition.

Our research demonstrates that the financial condition of households is affected by socio-demographic factors. Household savings are one component of this relationship. The literature often refers to the fact that the ability to save frequently does not correspond to the propensity to save. Some households with high incomes do not save, while those with low incomes make efforts to put money aside, even in very low amounts. Households that choose to save are driven by various motives.

In the HFCS survey, only respondents indicating that they held financial surpluses were asked about saving motives. Answers were given for each saving motive separately. Within this group, 57.87% of respondents reported that they saved for unexpected events, and 43.5% responded that they saved to maintain their level of consumption when they reach their old age. Respondents reported the least interest in saving to set up private businesses, make use of government subsidies or invest in financial assets (Table 3).

Table 3

Percentage of households declaring motives of saving

Motive		Countries Total	Countries A	Countries B	Countries C
Code	**Specification**				
A	Purchasing one's own house	12.13	11.13	14.82	13.18
B	Other major purchases	20.77	16.67	34.73	23.54
C	Set up private business	2.49	1.59	2.17	4.75
D	Investment in financial assets	4.59	3.53	4.55	7.07
E	Provision for unexpected events	57.87	50.28	74.10	67.75
F	Paying off debts	8.59	8.39	9.85	8.41
G	Old-age provision	43.50	39.66	45.63	51.44
H	Travels/holiday	29.95	23.30	44.31	38.56
I	Education/support of children or relatives	26.91	22.51	33.70	33.90
J	Bequests	10.49	8.62	20.00	10.25
K	Taking advantage of state subsidies	3.17	2.03	6.48	4.25

Source: the authors' own calculations based on EBC (2020b).

The countries were assigned to groups according to the described methodology: group A: Austria, Cyprus, Finland, Ireland, Malta, Germany, Portugal, Italy and France; group B: Netherlands, Belgium and Luxembourg; group C: Croatia, Estonia, Greece, Latvia, Lithuania, Poland, Slovakia, Slovenia and Hungary. As can be observed, Group A consists mostly of the countries of the so-called old EU. They include countries with liberal tax policies which attract rich people to settle in them. Group B represents The Benelux Union, and group C consists of Baltic and CEE countries, and included Greece, where citizens suffered a decrease in the value of their financial assets after the crisis of 2010.

To answer the above research questions, a logit model was used with maximum likelihood estimation for different saving motives and country groups. First, we conducted the analysis for all the countries together, taking each saving motive as a dependent variable. Motives to save in order to set up private business, invest in financial assets and take advantage of state subsidies were excluded due to the small number of positive answers.

The results are presented in Table 4. This table (and the following 3 tables) present an evaluation of statistically significant parameters with the significance level not greater than 0.1. The test likelihoods range from 0.051 to 0.1 and are marked with asterisks (*). In the case of the constant (the intercept), the insignificance of the parameter was marked as 'NI'.

It must be noted that pseudo-R^2 measures tend to be low even for very successful models. Also the results of goodness-of-fit measures may be biased[38] and that is why they are often omitted in analysis. It should be noted that the level of fit of the presented models is not high, but the Wald test in each case strongly rejected the hypothesis of the lack of statistical significance of individual models considered as a whole. In addition, it should be noted that the purpose of modelling in these studies was not to predict, but to identify the determinants and their impact on saving decisions. Therefore, the level of model fit – which in the case of logit models estimated on real, unbalanced and large data sets is usually not high – is not a key issue in their use, unlike the significance of the impact of a given factor on the decision to save.

Considering the Wald test, we can state that the analysis showed a weak influence of gender and age on saving motives. It was observed that male RPs have the greatest stimulating influence (parameter estimation = 0.2267) on the bequest saving model. Age has the most stimulating effect on provisions for old age (0.3338) but makes saving to purchase a house less likely (–0.3894). Education significantly affects all the analysed saving motives. For motives to save for old-age provision and to leave a bequest, it shows a very weak inhibitory effect, while it is a stimulant for the other motives. Education has the greatest influence on decisions regarding saving for investment in financial assets and for the purchase of valuable tangible goods.

[38] Hosmer et al. (1991): 1630–1635; Hosmer et al. (1997): 965–980.

Table 4

Results of modelling (logit model estimated with (MLE) for the countries as a whole

Variable		Saving motive							
		A	**B**	**E**	**F**	**G**	**H**	**I**	**J**
Const.		–0.1217 (NI)	–1.6208	0.5051	–2.2877	–1.3886	–1.3364	–3.2486	–4.2797
Gender		–	–	–0.0522	0.1907	0.0419*	–0.1203	0.1144	0.2267
Age		–0.3894	–0.2011	–	–0.1701	0.3338	–0.2336	0.1110	0.2166
Education		0.1207	0.4447	0.0346	0.0560	–0.0743	0.4808	0.1095	–0.0283*
Marital status	Single (1)	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
	Married (2)	–0.1595	0.2443	–	0.2781	0.1311	0.1986	0.7649	0.7851
	Widowed (3)	–	–	–	0.2681	–	–	0.7441	1.0604
	Divorced (4)	–0.1581	0.0905*	0.0740*	0.4143	–0.0971	0.1697	0.6965	0.5708
Has financial assets		–0.8785	–0.4833	–	1.1236	–0.0984	–0.2987	–	–
Social type of household	1A<65 (51)	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
	1A 65+ (52)	–0.3044	–0.5068	–0.0873	–0.6528	–0.5223	–0.2042	–0.2570	0.3950
	2A<65 (6)	0.1607	0.1438	–0.0567*	–	–	–	–	–
	2A_1> 65 (7)	–0.1967	–0.2220	–	–0.5946	–0.4405	–	–	0.3983
	3+A (8)	0.3299	0.0939*	0.1605	–	–	–0.2456	0.2806	0.5940
	1P_DCh (9)	–	–0.2762	0.1250*	–0.1993*	–0.2060	–0.4854	2.0162	0.7966
	2A_1DCh (10)	0.3513	–0.1284	–	0.2714	–0.1272	–0.2416	1.5034	0.5510
	2A_2DCh (11)	–	–0.1438	0.0736*	0.2915	–0.2065	–0.2217	1.7853	0.4950
	2A_3+DCh (12)	–	–0.2018	–	0.3073	–0.2269	–0.4624	1.6452	0.4511
	3A_DCh (13)	0.1480*	–	–	0.2506	–0.1470	–0.2705	1.5754	0.5559
Country group A		Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Country group B		0.2846	0.8062	0.5007	–	0.1391	0.8712	0.4375	0.7986
Country group C		0.2336	0.2810	0.2708	–0.2825	0.4603	0.6993	0.4943	–
R^2 Cox–Snell		0.104	0.051	0.008	0.039	0.056	0.091	0.119	0.038
R^2 Nagelkerke		0.200	0.080	0.012	0.082	0.075	0.132	0.172	0.072
p-value H-L		0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.005

*) Significance level 0.051–0.1.

Source: the authors' own calculations.

Marital status and dependent children have a high impact on saving decisions aimed at providing financial support to children or other family members – in particular, to finance education and save for bequests. The estimates of parameters of the variable set 'Marital status' compared with a single person range from 0.57 to 1.06 for saving for a bequest, and from 0.6965 to 0.7649 for saving to support children or relatives or their education. Having children is negatively associated with saving to purchase one's own house, providing for old-age and saving for travels and holidays, while holding financial assets is negatively associated with saving to purchase one's own house. The latter relationship is common-sense, as people who possess resources are secured against unexpected events and do not have to gather additional resources for

this purpose. This variable also has a highly stimulating impact on paying off debts. It suggests that households with financial assets are more willing to take out loans, and they use resources gathered earlier as reserves in case of problems with debt repayment.

Nevertheless, *p*-value for the Hosmer-Lemeshow test for the models calculated for all the analysed countries, presented in Table 4, is in each case lower than 0.05, which calls the robustness of these models into question. Thus, we were encouraged, following numerous studies, to divide the analysed countries into groups and analyse the results separately for each group.

A household's country of residence has an impact on its saving motives. Among countries in group A, p-value > 0.05 occurred for three saving motives: provision for unexpected events, paying off debts, and saving for a bequest. For countries in group B, all models have p-value > 0.05, while in group C motives of saving for other major purchases, providing for old age and the education/support of children or relatives have p-value < 0.05. It needs to be highlighted that the Wald test in each case strongly rejected the hypothesis of the lack of statistical significance of individual models considered as a whole.

Among households living in the countries of group B, the likelihood of saving to purchase valuable things, finance holidays, travel or make bequests is higher, *ceteris paribus*, compared to the countries from group A. Living in the countries from group B stimulates every saving motive except gathering resources for debt repayment. For the inhabitants in the countries from group C, the motive of bequests is insignificant compared with the inhabitants of the countries from group A. Moreover, households in group C countries are less likely to save for debt repayment. In other countries, the place of residence has a stimulating effect on the paying off debts motive.

The results obtained indicate the need to analyse factors influencing the selection of motives, including the respondents' countries of residence. Thus, Tables 5–7 present the results of modelling with the division into countries from groups A, B and C. Our analysis shows that the sets of socio-demographic factors that affect saving motives differ between groups. Most factors that significantly influence the selection of saving motives are observed in the countries from group A, although the parameter estimates for these factors are generally low. The strongest negative associations were observed between holding financial assets and saving for provision and the purchase of valuable tangible assets; between households made up of two adult persons and saving for debt repayment and between households made up of a single parent with children and saving for holidays and travels. Holding financial assets has a stimulating influence on saving to repay debt. As for saving to support the education of family members and for bequests, being in a relationship and having children were both highly stimulating compared to single respondents and childless households, respectively.

Table 5

Results of modelling (logit model estimated with (MLE) for the countries in group A

Variable		Saving motive							
		A	**B**	**E**	**F**	**G**	**H**	**I**	**J**
Const.		–0.1586 (NI)	–1.6611	0.6372	–2.9952	–1.2063	–1.1791	–3.1184	–4.2794
Gender		–	–0.1290	–0.0931	0.1791	0.0618	–0.1595	0.1501	0.2087
Age		–0.3733	–0.2054	–	–0.1151	0.3120	–0.2299	0.1116	0.1963
Education		0.0932	0.5185	0.0436	0.0513	–0.1259	0.4753	0.0730	–0.0691
Marital status	Single (1)	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
	Married (2)	–	0.3359	–0.0939	0.3168	0.0997	0.2106	0.7965	0.9745
	Widowed (3)	–	–	–0.1090	0.2902	–0.1293	–0.2105	0.7915	1.1873
	Divorced (4)	–0.2473	0.1422	–	0.3566	–	0.1758	0.6981	0.7124
Has financial assets		–0.7071	–0.7490	–0.0858*	1.0738	–	–0.4256	–0.1419	–
Social type of household	1A<65 (51)	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
	1A 65+ (52)	–0.2793	–0.4209	–0.0871*	–	–0.5034	–	–0.3705	0.4750
	2A<65 (6)	–	–	–0.0713*	–0.7619	–	–	–	–
	2A_1>65 (7)	–0.3080	–0.1753	–	–0.6757	–0.4201	–	–	0.4393
	3+A (8)	–	–	0.1603	–	–	–0.4264	0.3767	0.6986
	1P_DCh (9)	–	–0.4434	0.1562	0.2201*	–0.2110	–0.6213	2.1789	0.9529
	2A_1DCh (10)	0.1616	–0.2211	–	0.2511	–0.1342	–0.3543	1.5784	0.6985
	2A_2DCh (11)	–0.2835	–0.2690	0.1633	0.2654	–0.2542	–0.3517	1.8432	0.5557
	2A_3+DCh (12)	–	–0.2821	–	0.2976	–0.3048	–0.5218	1.6357	–
	3A_DCh (13)	–	–0.1618*	–	0.3300	–0.1499	–0.5212	1.7025	0.6902
R^2 Cox–Snell		0.082	0.039	0.004	0.038	0.053	0.059	0.114	0.032
R^2 Nagelkerke		0.162	0.066	0.005	0.080	0.071	0.090	0.169	0.063
p-value H-L		0.000	0.000	0.246	0.145	0.000	0.000	0.000	0.201

*) Significance level 0.051–0.1.

Source: the authors' own calculations.

For the households in group B – the Netherlands, Belgium and Luxembourg – many socio-demographic characteristics had no significant impact on the saving motives. There are no significant differences due to marital status in the motivation to save in order to purchase one's own house or to make other major purchases, or to save for unexpected events and for old-age. Likewise, no differences were observed in the influence of household type on providing for unexpected events and saving for travels and holidays. The studies demonstrate that holding financial assets is of particular significance for the choice of saving motives. It is stimulating for purchasing one's own house and for

providing for old-age but also inhibitory for saving for other major purchases, to provide for unexpected events and for paying off debts. Additionally, the age of the household's head has a strong negative effect on saving to purchase a residential estate.

Table 6

Results of modelling (logit model estimated with (MLE) for the countries in group B

Variable		Saving motive							
		A	**B**	**E**	**F**	**G**	**H**	**I**	**J**
Const.		1.7459	–0.5423	1.0148	–2.0247	–1.7419	–0.1654 (NI)	–3.1923	–4.2484
Gender		0.2836	–0.1719	–	0.2589	–	–0.2566	–	–
Age		–0.7245	–0.1896	–	–0.3740	0.3478	–0.1430	0.1460	0.3618
Education		–	0.1578	–0.0914*	–	0.1143	0.1747	0.1480	0.1105
Marital status	Single (1)	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
	Married (2)	–	–	–	–	–	–	0.5764	0.4067
	Widowed (3)	–	–	–	–	–	–0.2912	0.4601	0.7621
	Divorced (4)	–	–	–	0.6948	–	–0.1949*	0.5477	0.5142
Has financial assets		–1.2477	0.5333	0.5427	1.2696	–0.5313	0.3203	0.3043	–
Social type of household	1A<65 (51)	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
	1A 65+ (52)	–	–0.3729	–	–	–0.7820	–	–	–
	2A<65 (6)	–	–	–	–	0.4395	–	–	–
	2A_1>65 (7)	–	–	–	–	–0.5560	–	–	0.4619
	3+A (8)	0.5719	–	–	–	0.3405	–	0.4616	0.5612
	1P_DCh (9)	–	–	–	–	–	–	1.9241	0.4391*
	2A_1DCh (10)	0.4944	–	–	0.4868	0.4916	–	1.6288	0.7122
	2A_2DCh (11)	–	–	–	0.4395	0.5849	–	1.9426	0.8960
	2A_3+DCh (12)	–	–	–	0.6662	0.5176	–	2.1595	0.7817
	3A_DCh (13)	–	0.3418*	–	–	0.5136	–	1.6478	0.8267
R^2 Cox-Snell		0.169	0.043	0.007	0.033	0.043	0.034	0.152	0.042
R^2 Nagelkerke		0.295	0.059	0.011	0.069	0,058	0.045	0.210	0.066
p-value H-L		0.382	0.930	0.518	0.551	0.223	0.966	0.412	0.348

*) Significance level 0.051–0.1.

Source: the authors' own calculations.

For households of two or more people from group C, saving to purchase a residential estate is of high significance. A one-member household with an elderly person is less likely than a one-member household with a person under 65 to save in order to purchase an apartment or a house, and much less likely to save for high-value tangible goods. Two-person households and households with three or more children are less likely to save for travels and

holidays. Additionally, a high number of children is negatively associated with saving for bequests. Similarly to other country groups, households with children are more willing than others to put aside money to finance their children's education. Also, people in relationships and those who are widowed or divorced are more likely than single people to save for their children's education.

Table 7

Modelling results for the countries in group C (logit model estimated with (MLE)

Variable		Saving motive							
		A	**B**	**E**	**F**	**G**	**H**	**I**	**J**
Const.		–0.3332 (NI)	–1.2537	0.3752	–2.7790	–2.4073	–2.1147	–3.1889	–4.1630
Gender		–0.1441*	–	0.1581	0.1554*	–	0.1094*	–	0.3170
Age		–0.3497	–0.1949	–	–0.3631	0.3623	–0.1722	0.0874	0.1900
Education		0.3272	0.3124	–	0.1623	0.2416	0.7609	0.3174	0.1748
Marital status	Single (1)	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
	Married (2)	–0.4886	–	0.4236	0.3328	0.2653	0.1112*	0.8037	0.4873
	Widowed (3)	–	–	0.4950	–	–	–	0.7350	0.7770
	Divorced (4)	–	–	0.3492	0.5673	–	–	0.7494	–
Has financial assets		–1.5102	–	0.2351	1.2108	–	–	–	–
Social type of household	1A<65 (51)	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
	1A 65+ (52)	–0.3709*	–1.0558	–0.2884	–	–	–	–	–
	2A<65 (6)	0.5514	–	–0.1626	–	–	–0.7770	–	0.3377
	2A_1>65 (7)	–	–0.4800	–	–0.4650	–	–0.5374	–	–0.2508
	3+A (8)	0.8120	0.2845	–	–	0.2736	–0.1567*	–	–
	1P_DCh (9)	0.5151	–	–	–	–	–	1.3462	–
	2A_1DCh (10)	0.7899	–	–0.2020		–0.2141	–	1.1983	–0.4617
	2A_2DCh (11)	0.5931	0.1561*	–0.4278	0.2310*	–0.3036	–	1.5288	–0.3917
	2A_3+DCh (12)	0.7110	–	–0.3977	–	–0.2651*	–0.5182	1.4287	–0.5749*
	3A_DCh (13)	0.4647	0.2288	–	–	–	–	1.2563	–
R^2 Cox-Snell		0.108	0.074	0.013	0.064	0.094	0.129	0.110	0.034
R^2 Nagelkerke		0.195	0.110	0.019	0.142	0.125	0.174	0.152	0.064
p-value H-L		0.488	0.032	0.060	0.492	0.000	0.074	0.000	0.358

*) Significance level 0.051–0.1.

Source: the authors' own calculations.

In general, households are driven by more than one saving motive. Therefore, we investigated the relationship between socio-demographic characteristics and the number of saving motives that might guide the households of the respondents (Table 8). The analysis used a Poisson model for a count variable. A new variable (counting semaphore) counting the number of saving motives

indicated by a household was included. Since there are 11 motives, this variable covers 12 categories. The additional category is 0 (zero), which occurs when no saving motive was indicated by a household.

Table 8

Results of modelling for a count variable (number of motives) – Poisson model

Variable		Countries			
		Total	**Group A**	**Group B**	**Group C**
Const.		0.5578	0.6184	0.8086	0.4850
Gender		–	–0.0256	–	0.0607
Age		–0.0279	–0.0207	–0.0159	–0.0299
Education		0.0597	0.0424	0.0707	0.1649
Marital status	Single	Ref	Ref	Ref	Ref
	Married	0.1447	0.1605	–	0.1302
	Widowed	0.1482	0.1531	–	0.1426
	Divorced	0.0961	0.0901	–	0.1116
Has financial assets		–0.1529	–0.2107	–	–0.0576*
Social type of household	1A<65	Ref	Ref	Ref	Ref
	1A 65+	–0.0821	–0.0868	–0.0715*	–0.1154
	2A<65	0.0350	0.0470	0.0806	–
	2A_1>65	–	–	–	–0.0710
	3+A	0.1244	0.1443	0.1668	0.0536
	1P_DCh	–	–	0.1665	0.1106
	2A_1DCh	0.1287	0.1410	0.2510	0.0587
	2A_2DCh	0.1231	0.1174	0.2836	0.0881
	2A_3+DCh	–	–	0.2848	–
	3A_DCh	0.1647	0.1790	0.3000	0.1000
Country group A		Ref	X	X	X
Country group B		0.4124	X	X	X
Country group C		0.3348	X	X	X
R^2 Coxa-Snella		0.131	0.044	0.086	0.082
R^2 Nagelkerka		0.134	0.045	0.089	0.084

*) Significance level 0.051–0.1.

Source: the authors' own calculations.

The analysis of the relationship of the number of saving motives with socio-demographic variables also demonstrates the differences between the clusters of countries. In all the groups of countries, age is not stimulating, while

the level of education stimulates the number of motives that direct households to save. This is in line with a number of publications indicating the role of education, specifically financial literacy (which is more than education) in managing households finance, including the works of Lusardi.[39] Moreover, the indication of male gender by RP is inhibitory in the countries from group A and stimulating in the countries from group C (there is a lack of any significant relationship in the countries from group B). The decisions of households from group B are not significantly related to either the RP's civil status of the reference category (single) or to holding financial assets. Both gender and civil status are presented as determinants of financial literacy in the literature[40] which can explain these results.

VI. CONCLUSION

The purpose of this study was to determine if there are similarities or differences between countries in terms of the impact of socio-demographic characteristics on saving motives. Also we wanted to identify (not to predict) the determinants of saving decisions among sets of countries. Our research findings confirm the existence of a significant relationship between socio-economic factors and households' motives for saving. We demonstrated that civil status and household structure are of major importance for the choice of saving motives. For example, having dependent children affects the saving motive to provide resources for their education. It also stimulates saving to leave an inheritance. Moreover, being married or in domestic partnerships encourages saving compared with single persons, except for the motive of saving for security (motive A). Gender is of minor importance in the choice of saving motives, while age influences motives in a way that tracks the life cycle. The significance of saving diminishes for older people, while the willingness to save for old age increases. Our study contributes to the recognition of the importance of socio-demographic determinants influencing households' saving motives. However, other researchers take into consideration a wider set of determinants, including place of living or the sector in which the RP is employed.[41]

Despite many years of co-operation in efforts to reach the same level of economic development and standards of living, the EU countries still differ in many ways. Our research findings reveal clear discrepancies in the impact of socio-demographic factors on saving motives between groups of the analysed countries. This confirms the research hypothesis set out in this study. One can speculate about the reasons for the identified differences. The unequal level of wealth of households in individual countries may represent one such difference. The discrepancies may also result, in part, from historical reasons.

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[39] Lusardi (2008); Mejía et al. (2022): 40–55.

[40] Fonseca et al. (2012): 90–106.

[41] Buric et al. (2021): 1–23.

As this study proves, households are directed simultaneously by several saving motives in their saving decisions. Such motives are usually correlated with one another. Therefore, it is necessary to extend the literature by analysing sets of motives rather than individual motives. This would allow a better understanding of household behaviours.

The knowledge of household preferences for saving motives may be applied when creating social policies that consider the structure of households and their needs at various stages of the life cycle. But services provided by the state in the form of social policies, such as those that concern the healthcare system, free education and pension systems, must be considered, as they influence saving motives.[42] It may also help financial institutions to offer short- and long-term financial instruments that enable households to save.

The study considered only one run (wave) of HFCS. It is worth conducting further research that analyses the data from different points in time using all runs (waves) and comparing the results for specific households to identify changes in their situation and saving preferences.

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