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HOW DO SAVINGS AND PERSONAL BUDGETING MATTER ON FINANCIAL LITERACY AND WELL-BEING

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Abstract. *Purpose* – the well-being of individuals plays a vital role in fostering sustainable economic development. The differentiation between subjective and objective well-being in selected EU and selected non-EU countries, with a particular focus on financial literacy, as individuals' assessments of their own well-being can significantly differ from objective economic indicators, emphasizing the subjective nature of well-being. The research objective is to investigate how savings and personal budgeting indicators affect both objective and subjective well-being and to examine the role of these indicators in promoting financial literacy.

Research methodology – the research investigates the impact of savings and personal budgeting indicators on financial literacy (FLI), financial well-being (FWB), and gross domestic product at purchasing power parity per capita (GDP PPP per capita). We applied Pearson's pairwise correlation between nine indicators of personal budgeting and savings and the method of principal components to identify the reasonable factors according to their statistical significance based on data from 22 countries included in the Organisation for Economic Cooperation and Development/International Network on Financial Education (OECD/INFE) survey data, Global Findex Database. The application of the Varimax procedure made it possible to identify factor groups of indicators.

Findings – we identify two factors for the whole sample and a sample of selected EU-countries; for non-EU-countries were identified three factors. Our research reveals that subjective FWB across all countries and non-EU countries is under the significant influence of factor group 1 mainly represented by savings indicators, with no significance for EU countries. FLI also significantly depends on factor group 1 for the entire sample of countries and across EU and non-EU countries. GDP PPP per capita is under the significant influence of all factors both in the sample of countries and across EU and non-EU countries.

Research limitations – FLI databases started to be gathered relatively recently and are not regularly updated. This can cause a situation when data for different countries are provided with time gaps. Moreover, due to the high cost involved, not all countries conduct such research, which hinders the creation of large datasets for more accurate country comparisons.

Practical implications – the results of this study may have interest for policymakers since they focus on improvement of the financial literacy and FWB of individuals, that results in a higher level of financial stability.

Originality/Value – this research is to address existing gaps in understanding of the interplay between subjective and objective FWB. Also, it proposes a novel approach that views savings as a factor that enhances financial literacy, in contrast to the conventional approach that considers savings as a consequence of improved FWB.

Introduction

The well-being of individuals is intricately interconnected with the overall health of the economy (OECD, 2016). Concurrently, individual well-being can be assessed from both subjective and objective perspectives (Taibot, 2020; Voukelatou et al., 2021). While the subjective dimension of well-being is currently defined by the standardized OECD/INFE methodology, which considers financial well-being, there are ongoing debates regarding suitable proxies for measuring objective well-being (Dĕdeček & Dudzich, 2022; Núñez, 2016).

Presently, there is a growing importance placed on studying these indicators, making it a subject of considerable interest and discussion among scholars and practitioners. This is particularly true when examining the various factors that can influence both objective and subjective well-being (Lambert et al., 2023; Kaur et al., 2023; Kumar et al., 2023).

When considering individual well-being, the level of financial literacy assumes critical significance, as research has consistently shown a positive link between higher financial literacy levels and greater individuals well-being (Sekita et al., 2022; Zhang & Chatterjee, 2023).

The main objective is to determine the impact of savings and personal budgeting indicators from the perspective of the percentage of individuals who report saving on FWB, financial literacy, and GDP PPP per capita for two groups of selected countries – EU and non-EU countries.

The conceptual framework employed in this research draws upon the principal components method as outlined by Abdi and Williams (2010). Additionally, the Varimax algorithm is applied to enhance the identification process. The findings of this study will contribute to the acquisition of novel insights and a deeper understanding of the key factors influencing financial well-being (FWB), financial literacy (FLI), and GDP PPP per capita.

1. Literature review

Well-being can be considered as objective and subjective. In our research, gross domestic product at purchasing power parity per capita (GDP PPP per capita) is used as a proxy for objective well-being. GDP per capita has been commonly utilized as a proxy for objective well-being in previous studies (England, 1998; Osberg & Sharpe, 2001; Núñez, 2016; Fyliuk et al., 2019). The choice of GDP PPP as the indicator is justified by its ability to provide a comprehensive reflection of economic reality in monetary terms, which is supported by the work of Kwarciński and Ulman (2020). Simultaneously, a pertinent inquiry arises concerning the extent to which individuals perceive the augmentation of GDP PPP per capita as reflective of a commensurate improvement in their overall well-being. That is precisely why the last studies demonstrate the need to assess subjective well-being based on comprehensive surveys of individuals (Dynan & Sheiner, 2018; OECD, 2020a, 2020b). So, according to the OECD/INFE methodology financial well-being is defined as a composite indicator of agreeing/disagreeing with the following statements: "Because of my money situation, I feel like I will never have the things I want in life; I am just getting by financially; I am concerned that my money will not last; I have money left over at the end of the month; My finances control my life" (OECD, 2020b, p. 53).

Headey and Wooden (2004) distinguish two factors of financial well-being: income and savings. Brüggen et al. (2017) indicate that financial well-being is a situation where an individual has sufficient financial conditions and financial freedom. Netemeyer et al. (2017) distinguish a whole composition of indicators: late and minimum payments, lack of self-control, materialism, perceived financial self-efficacy, perceived financial self-efficacy, positive financial behaviors, willingness to take investment risks, and plan for money long-term. Iramani and Lutfi (2021) consider the financial experience, knowledge, financial status, and marital status collectively influencing an individual's financial well-being. Kempson et al. (2017) highlight three drivers of financial well-being: "active saving", "spending restraints" and "not borrowing for daily expenses" (p. 46). It is not a surprise since we can consider the individual`s financial well-being based on financial indicators.

Nevertheless, in the classical research (Solow, 1956; Swan, 1956) as well as in empirical studies (Aghion et al., 2016; Girma, 2017; Ma & Yi, 2010; Misztal, 2011; Turan & Gjergji, 2014), savings are identified as a key determinant of objective well-being. Savings refer to either gross savings (Mohan, 2016; Odhiambo, 2008; Ribaj & Mexhuani, 2021) or the ratio of gross savings to GDP (Hassan et al., 2011). In this research, we will consider savings from another perspective using the Findex database indicators: "saved for old age – the percentage of respondents who report saving or setting aside any money in the past 12 months for old age", "saved at a financial institution – the percentage of respondents who report saving or setting aside any money at a bank or another type of financial institution in the past 12 months", and "saved any money in the past year – the percentage of respondents who report personally saving or setting aside any money for any reason and using any mode of saving in the past 12 months" (Demirgüç-Kunt et al., 2018), and also "main source of emergency funds – among respondents reporting that in case of an emergency it is possible for them to come up with 1/20 of gross national income (GNI) per capita in local currency, the percentage who cite savings as their main source of this money" (Demirgüç-Kunt et al., 2018) can be taken into account but with the remark, because it can also characterize personal budgeting.

As key indicators of personal budgeting, the following metrics are derived from the Findex database: "coming up with emergency funds: possible (% age 15+) – the percentage of respondents who report that in case of an emergency it is possible for them to come up with 1/20 of gross national income (GNI) per capita in local currency within the next month", "coming up with emergency funds: not possible, income, poorest 40% (% age 15+) – The percentage of respondents who report that in case of an emergency it is not possible for them to come up with 1/20 of gross national income (GNI) per capita in local currency within the next month, income, poorest 40% (% age 15+)", "coming up with emergency funds: not possible, income, richest 60% (% age 15+) – the percentage of respondents who report that in case of an emergency it is not possible for them to come up with 1/20 of gross national income (GNI) per capita in local currency within the next month, income, richest 50% (% age 15+)", "paid utility bills in the past year – the percentage of respondents who report personally making regular payments for water, electricity, or trash collection in the past 12 months", "received wages in the past year – the percentage of respondents who report receiving any money from an employer in the past 12 months in the form of a salary or wages for doing work. This does not include any money received directly from clients or customers" (Demirgüç-Kunt et al., 2018).

The influence of these indicators on financial literacy will also be examined. The relationship between savings and financial literacy represents a relatively novel perspective, wherein individuals with higher levels of savings require a greater set of skills to effectively manage their finances (Versal et al., 2022). Chu et al. (2017) show that higher financial literacy contributes to more prudential investment, especially with financial intermediaries. Stated differently, the presence of savings serves as a motivating factor for individuals to enhance their financial literacy and develop their personal financial management abilities. The opposite view is presented in Beckmann (2013) and Namate (2020) showing that financial literacy positively impacts savings. With Brazilian students as a focus group, Bruhn et al. (2016) showed that financial knowledge shift led to 1.4 percentage point increase in savings. Babiarz and Robb (2014) showed that individuals with a higher level of financial literacy are more likely to have some emergency funds. However, the authors highlighted that research results should not be considered concerning such interrelationships as knowledge improvement – emergency funds growth.

In conclusion, the literature review reveals the importance of considering both objective and subjective dimensions of well-being in research and the factors that shaped them. The role of financial literacy in savings increase has been highlighted. However, contrasting perspectives on the interplay between financial literacy and savings indicate the need for further research to understand the underlying mechanisms and potential feedback loops. These insights provide a foundation for the present study.

2. Data and methodology

The scope of our study encompasses an in-depth examination of the correlations existing between various indicators gauging the proportion of individuals who disclose their financial status, with a particular focus on personal budgeting and savings. We aim to investigate the implications of these indicators on three pivotal aspects: financial literacy, individual financial well-being, and GDP PPP per capita.

For the study, we have chosen such databases. These are OECD/INFE survey data reflected in the 2020 report, data for Ukraine for 2021 collected according to the OECD/INFE methodology, Global Findex Database (Findex) of the World Bank for 2017.

OECD/INFE 2020 International Survey of Adult Financial Literacy presents only the data about countries that held financial literacy evaluation according to the developed methodology (data are available for 22 countries). The countries presented in the report are heterogeneous in terms of geography and economic development level; therefore, it was inappropriate to consider these countries as a distinct group for the conclusions since the nature of the statistical regularities' manifestation may differ among countries. Among the essential features that can lead to differences in research results by country, a key one – membership in the EU – was identified. We assume that the countries' membership in the same economic union should unify the norms and rules of the individuals' financial functioning, leading to relatively similar estimates. The first group – 12 EU countries: Austria, Bulgaria, Croatia, Czech Republic, Estonia, Germany, Hungary, Italy, Poland, Portugal, Romania, Slovenia. The second group consists of countries (regions) that do not belong to a single economic union and, therefore,

should have different results – 10 Non-EU countries: Colombia, Georgia, Hong Kong (China), Indonesia, Korea, Moldova, Montenegro, Peru, North Macedonia, Ukraine. Research results distinctiveness between these two countries' groups should demonstrate the peculiarities of the linkages patterns of savings and personal finance with financial literacy, well-being, and GDP PPP per capita. The financial well-being (FWB) indicator is a mostly subjective indicator that is determined according to the OECD/INFE methodology by agreeing/disagreeing with the following statements. This indicator is mostly subjective, because tense "I have money left over at the end of the month" is objective and can be measured. The financial literacy index (FLI) was also taken from the OECD/INFE database. The savings level is gained from the Findex database and includes three indices, that represent the percentage of respondents who report: 1) "saved for old age", 2) "saved at a financial institution", 3) "saved any money in the past year" (Demirgüç-Kunt et al., 2018).

Also, personal budgeting indicators were obtained from the Findex database as the percentage of respondents who report: 4) "coming up with emergency funds: possible (% age 15+)", 5) "coming up with emergency funds: not possible, income, poorest 40% (% age 15+)", 6) "coming up with emergency funds: not possible, income, richest 60% (% age 15+)", 7) "paid utility bills in the past year", and 8) "received wages in the past year". The indicator of 9) "main source of emergency funds" is on the intersection of personal budgeting and savings indicators. These nine indicators are treated as independent variables in our model.

An empirical study was carried out in the following steps.

Stage 1. Evaluation of existing correlations between personal budgeting and savings indicators with FLI, FWB, and GDP PPP per capita across all countries. Pearson's pairwise correlation coefficients were used for this purpose. The results show a large number of interconnected features, which indicates a certain redundancy of information. This situation is caused by the complex structure of the model, where personal budgeting and savings indicators, by showing the simultaneous influence on FLI and FWB and GDP PPP per capita, may act not as influencing factors but only be symptoms (external manifestation) of the latent factors influence.

Stage 2. Identification of informative factors. The principal components method (Abdi & Williams, 2010) was used for the research results specification: to identify the actual number of latent factors and their evaluation. With this method application, it became possible to reduce the number of indicators of the personal budgeting multidimensional space with minimal information loss. It was determined that only two factors could be used to assess the impact on FLI, FWB, and GDP PPP per capita instead of nine indicators of savings and financial budgeting, that according to the authors, are only symptoms. These two latent factors accumulated 83.12% of the influence variability of all nine indicators. Model simplification to two factors made it possible to improve its interpretation and the understanding of causal relationships in the model.

Stage 3. Simplification of the factor structure. For a meaningful identification of the two factors, it was necessary to redistribute their load, so the Varimax algorithm was applied. It is an effective tool for identifying differences in the essence of both factors. This method application made it possible to identify both factors: personal budgeting and savings indicators of individuals.

Stage 4. Assessment of the influence of selected factors. The next step in the model evaluation was to establish the relationship and estimate the impact of selected factors on FLI, FWB, and GDP PPP per capita using multivariate linear regression:

$$Y_{FLB,FWB,GDP} = a + b_1 \cdot FACTOR_1 + ... + b_n \cdot FACTOR_n, \tag{1}$$

where: b is the effect of the corresponding factor, which allowed us to provide a generalized estimate.

The next step in the model evaluation was to establish the relationship and estimate the impact of selected factors on FLI, FWB, and GDP PPP per capita using multivariate linear regression, which allowed us to provide a generalized estimate.

Stage 5. Comparative analysis of results. The last step of the research was to identify the specificity of our model in each of the two countries groups. Following the steps described, we conducted the research for each group separately and found a difference in personal budgeting patterns.

3. Results

To meet research objectives, we constructed the paired correlations. Correlation coefficients in Table 1 indicate a significant relationship between many pairs of indicators selected for the study, making it difficult to explain the cause-and-effect relationships of the personal budgeting and savings indicators. Our research considers FWB, FLI, and GDP PPP per capita indicators as dependent values. Savings and personal budgeting indicators as the percentage of respondents who report their presence are considered as independent variables, respectively.

To provide a more accurate assessment of the influence of the independent variables on FLI, FWB, and GDP PPP per capita, the principal components method was used, which involves identifying the actual number of factors and their statistical significance of influence.

Table 1. Pairwise correlation coefficients between savings, personal budgeting indicators and FWB, FLI, GDP PPP per capita (source: authors' calculations, based on Demirgüç-Kunt et al., 2018; OECD, 2020b; Info Sapiens, 2021; The World Bank, 2022)

The percentage of respondents	FWB	FLI	GDP PPP per capita
Saved for old age (% age 15+)	*0.6953*	*0.7190*	*0.8499*
Saved at a financial institution (% age 15+)	*0.6482*	*0.6186*	*0.9030*
Saved any money in the past year (% age 15+)	*0.5557*	*0.7065*	*0.7052*
Coming up with emergency funds: possible (% age 15+)	*0.4406*	0.3178	*0.5249*
Coming up with emergency funds: not possible, income, poorest 40% (% age 15+)	–0.3489	–0.2688	–0.4094
Coming up with emergency funds: not possible, income, richest 60% (% age 15+)	–0.3111	–0.2820	*–0.4321*
Main source of emergency funds: savings (% able to raise funds, age 15+)	*0.6436*	*0.6785*	*0.8586*
Paid utility bills in the past year (% age 15+)	0.3148	0.2636	0.4001
Received wages in the past year (% age 15+)	*0.6031*	*0.6275*	*0.7926*

Note: *italic – significant relationship, $p < 0.05$.

According to the results presented in Table 2, to assess the impact of savings and personal budgeting indicators, it is enough to use only two factors, which in general explain 83.11% of the variation; so, they will be considered in the future as factors influencing FLI, FWB and GDP PPP per capita.

Table 2. Optimal quantity of factors (source: authors' calculations)

Value	Eigenvalues (all 31.08.2022) Extraction: Principal components			
	Eigenvalue	% Total variance	Cumulative Eigenvalue	Cumulative %
1	5.6245	62.4945	5.6245	62.4945
2	1.8561	20.6230	7.4805	83.1175

The loadings of the two factors savings and personal budgeting indicators were determined (see Table 3), and the Varimax procedure was applied for unloading, since Factor group 1 had a high loading.

Table 3. Factor loadings of savings and personal budgeting indicators for all countries (N = 22) before and after Varimax apply (source: authors' calculations based on Demirgüç-Kunt et al., 2018)

The percentage of respondents	Factor Loadings (Unrotated)		Factor Loadings (Varimax raw)	
	FG 1	FG 2	FG 1	FG 2
Saved for old age (% age 15+)	*−0.8967**	−0.2807	*0.8883*	0.3062
Saved at a financial institution (% age 15+)	*−0.8747*	−0.3418	*0.9068*	0.2440
Saved any money in the past year (% age 15+)	*−0.8642*	−0.3349	*0.8943*	0.2432
Coming up with emergency funds: possible (% age 15+)	−0.7712	0.5947	0.2678	*0.9363*
Coming up with emergency funds: not possible, income, poorest 40% (% age 15+)	0.6926	−0.6386	−0.1785	*−0.9250*
Coming up with emergency funds: not possible, income, richest 60% (% age 15+)	*0.6898*	−0.6701	−0.1576	*−0.9487*
Main source of emergency funds: savings (% able to raise funds, age 15+)	*−0.7381*	−0.5221	*0.9039*	0.0178
Paid utility bills in the past year (% age 15+)	−0.6905	0.0951	0.4993	0.4863
Received wages in the past year (% age 15+)	*−0.8584*	−0.2369	*0.8315*	0.3187

Note: *indicators in italic – significant relationship, $p < 0.05$, included in FG 1 and FG 2.

According to the Varimax procedure results, the profile of both factors was determined. The Factor group 1 (FG 1) includes indicators that show the percentage of respondents who report their savings state: savings indicators (saved for old age (% age 15+), saved at a financial institution (% age 15+), saved any money in the past year (% age 15+), main source of emergency funds: savings (% able to raise funds, age 15+)) and received wages in the past year (% age 15+). It is a financial cushion, in fact.

The Factor group 2 (FG 2) includes indicators that show the percentage of respondents who report financial stress: coming up with emergency funds: possible (% age 15+), coming up with emergency funds: not possible, income, poorest 40% (% age 15+), coming up with emergency funds: not possible, income, richest 60% (% age 15+).

The indicator that represents the percentage of respondents who had the paid utility bills in the past year (% age 15+) did not show itself as a significant component of any factor in the context of the study throughout the countries sample, but it also has a moderate value.

We observe differences according to the results provided in Tables 4 and 5.

Table 4. Factor loadings of savings and personal budgeting indicators for EU countries (N = 12) before and after Varimax apply (source: authors' calculations based on Demirgüç-Kunt et al., 2018)

The percentage of respondents	Factor Loadings (Unrotated)		Factor Loadings (Varimax)	
	FG 1	FG 2	FG 1	FG 2
Saved for old age (% age 15+)	–0.9039	–0.1777	0.7084	0.5890
Saved at a financial institution (% age 15+)	–0.8085	–0.4087	0.8273	0.3691
Saved any money in the past year (% age 15+)	–0.8898	–0.3970	0.8696	0.4396
Coming up with emergency funds: possible (% age 15+)	–0.8660	0.4816	0.1731	0.9757
Coming up with emergency funds: not possible, income, poorest 40% (% age 15+)	0.8628	–0.3293	–0.2892	–0.8771
Coming up with emergency funds: not possible, income, richest 60% (% age 15+)	0.8149	–0.5189	–0.1119	–0.9596
Main source of emergency funds: savings (% able to raise funds, age 15+)	–0.3486	–0.8259	0.8606	–0.2509
Paid utility bills in the past year (% age 15+)	–0.7027	0.3893	0.1416	0.7908
Received wages in the past year (% age 15+)	–0.6016	–0.4412	0.7220	0.1882

Note: *indicators in italic – significant relationship, $p < 0.05$, included in FG 1 and FG 2.

The financial cushion factor in the EU countries is the same in terms of structure and importance as in the country's samples. At the same time, the indicator "paid utility bills in the past year (% age 15+)", which was not significant before, began to play an important role.

The unexpected situation arose with non-EU countries when there was a need to single out not two but three factors, and the Factor group 3 (FG 3) included the indicator "paid utility bills in the past year (% age 15+)" (see Table 5). The specificity of identifying the third factor based on only one essential feature can be explained by the fact that the manifestation of this feature (the impact of payments for utilities) increases only among countries with a low level of the financial well-being of the population and does not manifest itself among the group of countries with high financial well-being.

Regression models were built to assess the impact of certain factors on FLI, FWB, and GDP PPP per capita (Tables 6–8).

Examining the FG 1 influence on FWB on the entire set of countries, it was established that 46.46% of the financial well-being level variation could be explained by the variation of this factor ($p < 0.05$). However, there is a complete absence of a significant relationship with FG 2 ($p > 0.05$), which is most likely explained by the fact that individuals do not separately create

Table 5. Factor loadings of savings and personal budgeting indicators for non-EU countries (N = 10) before and after Varimax apply (source: authors' calculations based on Demirgüç-Kunt et al., 2018)

The percentage of respondents	Factor Loadings (Unrotated)			Factor Loadings (Varimax)		
	FG 1	FG 2	FG 3	FG 1	FG 2	FG 3
Saved for old age (% age 15+)	−0.8478	−0.4997	0.0100	0.9475	0.1039	0.2449
Saved at a financial institution (% age 15+)	−0.8720	−0.3461	−0.2028	0.9208	0.2679	0.0403
Saved any money in the past year (% age 15+)	−0.7879	−0.4875	0.3305	0.8223	0.0365	0.5385
Coming up with emergency funds: possible (% age 15+)	−0.8186	0.5387	−0.0935	0.3197	0.9255	0.1017
Coming up with emergency funds: not possible, income, poorest 40% (% age 15+)	0.6543	−0.7392	−0.0875	−0.0321	−0.9641	−0.2274
Coming up with emergency funds: not possible, income, richest 60% (% age 15+)	0.7558	−0.6109	0.1488	−0.2405	−0.9529	−0.0296
Main source of emergency funds: savings (% able to raise funds, age 15+)	−0.8356	−0.3501	−0.3444	0.9273	0.2614	−0.1057
Paid utility bills in the past year (% age 15+)	−0.4739	0.0584	0.8691	0.1310	0.2147	0.9592
Received wages in the past year (% age 15+)	−0.9440	−0.0127	−0.0894	0.7484	0.5609	0.1569

Note: *indicators in italic – significant relationship, $p < 0.05$, included in FG 1, FG 2 and FG 3.

savings in case of unforeseen situations. FG 1 does not influence FWB in EU countries since $R^2 = .15843606$ and $p > 0.05$. On the other hand, in non-EU countries, the financial cushion factor (FG 1) is significant with $R^2 = .78212136$ and $p < 0.05$. Other factors are not significant because $p > 0.05$. Thus, we observe a situation where in non-EU countries, the financial cushion, the main components of which are savings, determines financial well-being, while in EU countries, it does not. In EU countries, other factors determine financial well-being, except for savings. Therefore, there is a need for further research in the EU countries to focus on other indicators: real estate ownership, investments, and pension provision (see Table 6).

Table 6. Regression models for FWB for selected EU and non-EU countries (source: authors' calculations, based on Demirgüç-Kunt et al., 2018; OECD, 2020b; Info Sapiens, 2021)

Regression Summary for Dependent Variable: **FWB**	Factors	b*	Std.Err. of b*	b	Std.Err. of b	t(9)	p-value
(Factor Loadings, all countries, N = 22) R = .68165543 R^2 = .46465412 F(2.19) = 8.2455 p < .00264 Std. Error of estimate: .94079	Intercept			9.4182	0.2006	46.9554	0.0000
	FG 1	0.6408	0.1679	0.7837	0.2053	3.8175	0.0012
	FG 2	0.2325	0.1679	0.2843	0.2053	1.3849	0.1821
(Factor Loadings EU countries, N = 12) R = .39804027 R^2 = .15843606 F(2.9) = .84719 p < .46014 Std. Error of estimate: 1.0793	Intercept			9.8167	0.3116	31.5088	0.0000
	FG 1	0.2108	0.3058	0.2243	0.3254	0.6894	0.5080
	FG 2	0.3376	0.3058	0.3593	0.3254	1.1041	0.2982
(Factor Loadings non-EU countries, N = 10) R = .88437626 R^2 = .78212136 F(3.6) =7.1794 p < .02069 Std. Error of estimate: .73221	Intercept			8.9400	0.2315	38.6103	0.0000
	FG 1	0.8481	0.1906	1.0862	0.2441	4.4504	0.0043
	FG 2	0.2336	0.1906	0.2992	0.2441	1.2258	0.2662
	FG 3	−0.0914	0.1906	−0.1170	0.2441	−0.4795	0.6485

Note: *italic – significant relationship, $p < 0.05$.

During the research on the relationship between FLI and FG 1, it was established that 51.66% of the FLI level variation could be explained by the variation in FG 1 ($p < 0.05$) and, just like above, there is no significant relationship with FG 2 ($p > 0.05$) on the entire set of countries. Thus, having savings can be an influential factor in a higher financial literacy level and vice versa. Non-EU countries demonstrate a high dependence of financial literacy from available savings: $R^2 = .68633842$, $p < 0.05$ (see Table 7).

Table 7. Regression models for FLI for selected EU and non-EU countries (source: authors' calculations based on Demirgüç-Kunt et al., 2018; OECD, 2020b; Info Sapiens, 2021)

Regression Summary for Dependent Variable: **FLI**	Factors	b*	Std.Err. of b*	b	Std.Err. of b	t(9)	p-value
(Factor Loadings, all countries, N = 22) R = .71878593 R² = .51665322 F(2.19) = 10.155 p < .00100 Std.Error of estimate: .79172	Intercept			12.7000	0.1688	75.2388	0.0000
	FG 1	*0.7062*	*0.1595*	*0.7650*	*0.1728*	*4.4279*	*0.0003*
	FG 2	0.1338	0.1595	0.1449	0.1728	0.8385	0.4122
(Factor Loadings EU countries, N = 12) R = .71880696 R² = .51668345 F(2.9) = 4.8107 p < .03794 Std.Error of estimate: .86550	Intercept			12.8917	0.2498	51.5978	0.0000
	FG 1	*0.6897*	*0.2317*	*0.7767*	*0.2610*	*2.9763*	*0.0155*
	FG 2	0.2024	0.2317	0.2280	0.2610	0.8735	0.4051
(Factor Loadings non-EU countries, N = 10) R = .82845544 R² = .68633842 F(3.6) = 4,3763 p < .05899 Std.Error of estimate: .71287	Intercept			12.470	0.2254	55.3167	0.0000
	FG 1	*0.8178*	*0.2286*	*0.8500*	*0.2376*	*3.5770*	*0.0117*
	FG 2	0.1321	0.2286	0.1373	0.2376	0.5777	0.5845
	FG 3	0.0046	0.2286	0.0048	0.2376	0.0201	0.9846

Note: *italic – significant relationship, $p < 0.05$.

GDP PPP per capita and FG 1 relationship investigating helped to establish that 78.76% of the GDP PPP per capita level variation is explained by the variation of FG 1 and FG 2 ($p < 0.05$) both for the entire sample of countries and in the EU and non-EU countries samples (Table 8). Thus, the influence of factors on subjective well-being varies because they are perceived differently by individuals; from the point of view of objective well-being, both factors are significantly influential. The negative impact of the third factor "paid utility bills in the past year (% age 15+)", on GDP PPP per capita, which turned out to be significant for non-EU countries, can be explained by the fact that the growth of such costs automatically leads to a decline in savings, and therefore is an entirely expected result.

Table 8. Regression models for GDP PPP per capita for selected EU and non-EU countries (source: authors' calculations based on Demirgüç-Kunt et al., 2018; The World Bank, 2022)

Regression Summary for Dependent Variable: **GDP PPP per capita**	Factors	b*	Std.Err. of b*	b	Std.Err. of b	t(9)	p-value
(Factor Loadings, all countries, N = 22) R = .88746664 R² = .78759704 F(2.19) = 35.226 p < .00000 Std.Error of estimate: 7237.3	Intercept			30741.50	1542.996	19.9233	0.0000
	FG 1	0.8437	0.1057	12602.68	1579.306	7.9799	0.0000
	FG 2	0.2752	0.1057	4110.46	1579.306	2.6027	0.0175

End of Table 8

Regression Summary for Dependent Variable: **GDP PPP per capita**	Factors	b*	Std.Err. of b*	b	Std.Err. of b	t(9)	p-value
(Factor Loadings EU countries, N = 12) R = .90500035 R² = .81902563 F(2.9) = 20.365 p < .00046 Std.Error of estimate: 4331.4	Intercept			*38084.83*	*1250.37*	*30.4588*	*0.0000*
	FG 1	*0.7147*	*0.1418*	*6582.49*	*1305.970*	*5.0403*	*0.0007*
	FG 2	*0.5551*	*0.1418*	*5112.69*	*1305.970*	*3.9149*	*0.0035*
(Factor Loadings non-EU countries, N = 10) R = .97883956 R² = .95812689 F(3.6) = 45.763 p < .00016 Std.Error of estimate: 4031.4	Intercept			*21929.50*	*1274.838*	*17.2018*	*0.00002*
	FG 1	*0.8659*	*0.0835*	*13928.57*	*1343.798*	*10.3651*	*0.00005*
	FG 2	*0.3327*	*0.0835*	*5351.97*	*1343.798*	*3.9827*	*0.0073*
	FG 3	*−0.3125*	*0.0835*	*−5026.80*	*1343.798*	*−3.7407*	*0.0096*

Note: *italic – significant relationship, *p* < 0.05.

Conclusions

Research of financial literacy, subjective and objective FWB is becoming increasingly relevant, considering the growth of individual's savings and the increasing instability of economies. The literature review showed that, as a rule, the impact of financial literacy on both financial well-being and savings growth is observed. Nevertheless, it is essential to understand that the relationship can also be reversed, as shown in this study, by assessing the impact of savings and personal budgeting indicators on financial literacy, FWB, and gross domestic product at purchasing power parity per capita.

The application of the Varimax procedure made it possible to determine the number of factors. As a result, it was found that FG 1, both in all selected countries, as well as selected EU-countries and selected non-EU-countries, consists of the following indicators that represent the percentage of respondents: "saved for old age (% age 15+)", "saved at a financial institution (% age 15+)", "saved any money in the past year (% age 15+)", "main source of emergency funds: savings (% able to raise funds, age 15+)", "received wages in the past year (% age 15+)". As for FG 2, its composition varies depending on which countries we consider. If we take the entire set of countries and selected non-EU countries, then FG 2 includes three indicators that show the percentage of respondents: "coming up with emergency funds: possible (% age 15+)", "coming up with emergency funds: not possible, income, poorest 40% (% age 15+)", "coming up with emergency funds: not possible, income, richest 60% (% age 15+)". In selected EU countries, FG 2 also includes the "paid utility bills in the past year (% age 15+)" indicator. In selected non-EU countries, the "paid utility bills in the past year (% age 15+)" indicator is generally allocated to a separate factor – FG 3.

In all countries and selected non-EU countries, FWB shows dependence on FG 1 ("saved for old age (% age 15+)", "saved at a financial institution (% age 15+)", "saved any money in the past year (% age 15+)", "main source of emergency funds: savings (% able to raise funds, age 15+)", "received wages in the past year (% age 15+)"). Peculiarities appeared only when

they affected subjective FWB in selected EU countries: individuals do not associate the presence of savings with financial well-being. In turn, GDP PPP per capita shows the dependence in all countries and the selected EU and selected non-EU countries by all factors. In this case, we see that subjective FWB really differs from objective well-being.

As for financial literacy, the influence of only FG 1 is shown both in all countries and in selected EU and selected non-EU countries. As a result, FG 2 showed no significance for financial literacy and subjective financial well-being.

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