Financial Literacy, Economic Development and Financial Development: A Cross-Country Analysis

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Abstract: *An adequate level of basic financial knowledge of the population contributes to achieving individual well-being, ensuring the stability of financial markets, and proper functioning of the economy. This paper aims to identify Romania's position on financial literacy indicators, compared to other European countries, and to investigate the link between financial literacy, economic development, and financial development at a cross-country level. The findings reveal that Romania has the lowest level of financial literacy, although its income per capita is not the lowest in the European Union (EU). The low financial inclusion in Romania is strongly linked to inadequate financial education. Moreover, the population underestimates the benefits of long-term savings. These results challenge Romanian policymakers to develop effective financial education tools and programs, aimed at increasing financial awareness and financial literacy of population.*

Keywords: *financial literacy, economic development, financial development, Romania, European Union.*

JEL classification: *G50, G53, I28.*

Introduction

In recent decades, the international financial markets have grown exponentially. Similarly, the access of population to financial products and services has significantly increased. In these conditions, the level of financial literacy of the population has become a concept of interest for the government strategies, policies, and individuals. The ability to understand financial information in everyday life and to draft financial plans for the future is indispensable for achieving an adequate level of individual well-being. It is also important for ensuring a proper functioning of financial markets and the economy as a whole. A proper understanding of basic financial concepts increases the ability of investing personal money and making financial choices regarding financial services, i.e.,

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Acknowledgement: This paper is the result of research supported by a grant by the Romanian Ministry of Education and Research, CNCS - UEFISCDI, project number PN-III-P1-1.1-TE-2019-0415, within the PNCDI III. This article is part of a research working paper on financial literacy, financial well-being, and financial inclusion in Romania.

savings, investments, loans and more.

In the literature, there are many definitions for financial literacy. In the first instance, it has been defined as the ability to use individual knowledge and skills for an efficient management of financial resources so that financial well-being is ensured (Knoll and Houts, 2012). Subsequently, more comprehensive definitions were developed. Buch (2018) defined financial literacy as an individual trait that reflects the ability of people to understand financial concepts, make sound financial decisions, and balance the risks and benefits of this decision-making process. The World Bank has extended the concept of financial literacy to financial capability. This includes the financial knowledge, but also the attitudes, skills, and behaviours of consumers regarding the understanding, selection, and use of financial services that suit their needs (World Bank, 2014).

In general, the costs and benefits associated with a low and, respectively, high level of financial literacy are well defined. Previous studies have revealed that inadequate financial knowledge generates significant costs for both individuals and financial markets. A detailed description of the benefits of financial literacy can be found in Lusardi and Mitchell (2014) and Hastings et al. (2013). Specifically, people who fail to understand the concept of interest compounding are inclined to spend more on bank charges and fees, get over-indebted, bear higher interest on loans, and face difficulties in repaying loans. In addition, poor knowledge leads to an underestimation of saving benefits, so that these people end up saving less money. Moreover, irrational exuberance could disrupt the stability of financial markets by accumulating excessive risks.

At the same time, financial literacy creates many opportunities. People with developed financial skills are able to make better financial plans for the future and to save for retirement. Investors with a greater level of financial knowledge are also more likely to diversify their risks and actively participate in the capital market. Financial literacy contributes to increased financial inclusion, as more literate consumers are more prone to access financial services. Moreover, existing studies have shown that understanding of financial concepts have a positive effect on the performance of national economies.

Considering the costs and benefits of financial literacy, measuring tools have become increasingly significant. Financial decision-making is based on the following key competencies: (i) numeracy skills (addition, subtraction, and multiplication) and compound interest rate literacy; (ii) understanding inflation and, implicitly, the difference between nominal and real values; and (iii) knowledge of the importance of risk diversification. Based on these hypotheses, Lusardi and Mitchell (2006) designed a standard set of questions, which are known in the literature as the "big three". Although Lusardi and Mitchell (2009) proposed an extended set of questions, those three became the standard for measuring financial literacy, being fielded in many financial literacy surveys.

In view of the importance of financial literacy, in this study we will analyse the level of understanding of the financial concepts in Romania, compared to other EU member states, but also with countries from Central, Eastern, and Southeastern Europe (CESEE). We will also investigate the relationship between financial literacy, economic development, and financial development in Romania, compared to other EU member states.

Literature review on financial literacy

The major role of financial literacy in everyday financial decisions have spurred an important body of research. Studies investigating financial literacy can be divided into two main groups. On the one hand, there are studies providing a comparative analysis of the financial literacy at the international level. On the other hand, there is vast research assessing the determinants of the basic financial knowledge level and its impact on distinct social and economic variables within selected economies.

The first group of studies refers to the financial literacy surveys conducted internationally (OeNB, 2021; OECD, 2020; Klapper et al., 2015). These studies highlight significant disparities in understanding of the basic financial concepts at the international level, but also within economies. According to the most extensive sample survey (Klapper et al., 2015), only one in three adults are financially literate worldwide. At the same time, both in developing economies and in countries with developed financial markets, women, the poor and insufficient educated respondents have less financial knowledge. Moreover, adults with bank accounts and/ or credit cards generally have greater financial knowledge, regardless of their income. These results suggest that the correlation between financial literacy and financial inclusion can work in two directions: high levels of financial understanding can increase financial inclusion, while having an account or using a credit card can deepen consumers' financial skills.

The OECD results (2020) are worrisome as well, revealing that individuals across the surveyed countries on average achieved under 61% of the maximum financial literacy score. Another important finding is that despite relatively high product awareness, less than half of the respondents used a financial service. The situation is also worrying in CESEE, with only one in five adults being considered financially literate (OeNB, 2021). The results also show that the low level of financial knowledge is characteristic for women, older, and lower educated people in these countries.

The second group of research focuses either on variables that influence the level of financial literacy, e.g., the level of economic development, the borrowing and saving behaviour of individuals, education, gender etc., or on the impact of financial literacy on social inclusion, inequality, poverty, well-being, and broader economic growth (Batsaikhan and Demertzis, 2018; Askar et al., 2020; Philippas and Avdoulas, 2019; Grohmann, 2017; Beckmann, 2013; Nițoi et al., 2022). The findings of Batsaikhan and Demertzis (2018) show a stronger link between financial literacy and the level of GDP per capita in developed economies than in developing ones. Additionally, more active interaction with financial institutions determines greater level of financial literacy. On the other hand, the study finds that higher financial literacy performance contributes to lower inequality, reduces poverty rate and social exclusion. The important role of understanding the financial concepts in reducing poverty is also revealed by Askar et al. (2020).

Philippas and Avdoulas (2019) investigate the effect of a series of demographic, socioeconomic, and financial variables on financial literacy and find that financial behaviour characteristics, namely, keeping a record of expenses, is associated with larger possibility of being financially literate. The positive link between financial literacy and borrowing or saving behaviour is also revealed in a number of other studies.

According to Grohmann (2017), financially literate people take improved financial decisions and are more likely to use a wider range of financial services. In the same vein, Beckmann (2013) shows that financially literate individuals, especially with regard to inflation, are more likely to save using more than one interest-bearing saving instrument. Landerretche and Martinez (2013) also confirm that better financial literacy is positively related to higher voluntary savings, while Klapper et al. (2013) shows how it leads to greater use of formal sources of borrowing. Moreover, lower levels of financial literacy are associated with higher-cost of borrowing (Disney and Gathergood, 2013; Lusardi and Tufano, 2015), reduced debt-to-income ratios, and household net worth (French and McKillop, 2016). Another important aspect investigated by Balasubramnian and Springer Sargent (2020) is the gap between objective financial literacy and self-reported (perceived) financial literacy, which predict financial behaviours better than other variables. According to their findings, inflated perceptions of financial knowledge are associated with poor banking behaviour.

The contribution of this paper to the literature is twofold. Firstly, we provide an analysis of Romania's position on financial literacy indicators, compared to other European countries. Secondly, we extend the literature by looking at the relationship between financial literacy, economic development, and financial inclusion in Romania. As we have seen, previous studies did not undertake such comprehensive approach with regard to the financial literacy in Romania. This provides valuable information for policy-makers regarding the development of financial education programs.

Methodology and data

In order to depict the nexus between financial literacy, on one side, and economic development and financial development, on the other side, we will use a simple regression model. Specifically, the model assumes a linear relationship between the variables and takes the following form:

$$Y=\alpha+\beta X+\varepsilon$$

where Y is the dependent variable, X includes the explanatory variable, and ε is the error term.

Given our objectives, the dependent variable is the level of financial literacy in EU member states. To capture the level of economic and financial development, we use several proxies. Specifically, we use income per capita at purchasing power parities (PPP) in order to assess the level of economic development. We use income per capita at PPP instead of GDP per capita, because the former capture better overall households' wealth, while GDP per capita is a better proxy for overall economic strength. For the level of financial development, we resort to several proxies. Firstly, we use the financial assets share to GDP ratio, as a measure for the depth of the financial sector. Secondly, we use the share of persons that have a bank account and persons who have a savings deposit in total population as proxies for financial inclusion. Finally, we also add to our analysis the average historical inflation rates over the last decades, in order to link the inflation persistence with inflation literacy.

Our data set includes country-level data for EU member states. Financial literacy level was extracted from Klapper et al. (2015). Income per capita and inflation rate are sourced from Eurostat database. The share of persons that have a bank account in total population and the share of persons who have a saving deposit in total population are taken from Demirgüç-Kunt et al. (2018) financial inclusion database.

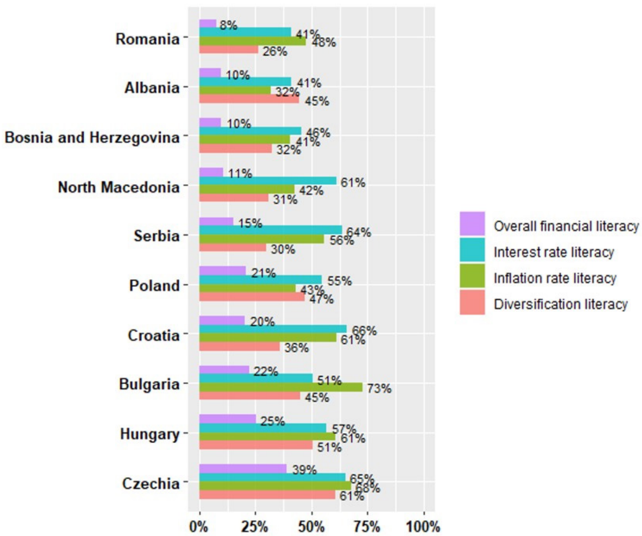
Results and discussions

Financial literacy in Romania: Comparisons with European countries

For achieving the objectives of our study, i.e., to analyse the level of financial literacy in Romania, compared to other EU member states, we approach the most relevant surveys conducted internationally (OeNB, 2021; OECD, 2020; Klapper et al., 2015). The financial literacy survey conducted by OeNB is robust. In this survey, data were collected biannually or annually in the states of CESEE, for the period from 2007 to 2020 (OeNB, 2021)[3]. The OeNB measures the level of financial literacy based on three basic concepts, i.e., interest rate, inflation rate, and risk diversification.

According to the survey, Romania has the lowest percentage of the financially literate population, i.e., only 8% of respondents answered correctly to all three basic concepts (Figure 1). By comparison, the other EU member states, Poland, Croatia, Bulgaria, and Hungary accounted for about three times as much, while Czechia reached a five times higher level. The analysis of the three basic financial knowledge components reveals that Romania's population is more literate in terms of inflation rate, compared to Albania, Bosnia and Herzegovina, North Macedonia, and Poland, recording a level of 48% of the population that answered this question correctly. At the same time, the level of understanding the interest rates and risk diversification remains the lowest in the case of Romania, at 41% and 26%, respectively.

Figure 1. Financial literacy level in CESEE - average for the period 2012-2019 (% of respondents answering questions correctly)



Source: authors' representation based on OeNB data (2021)

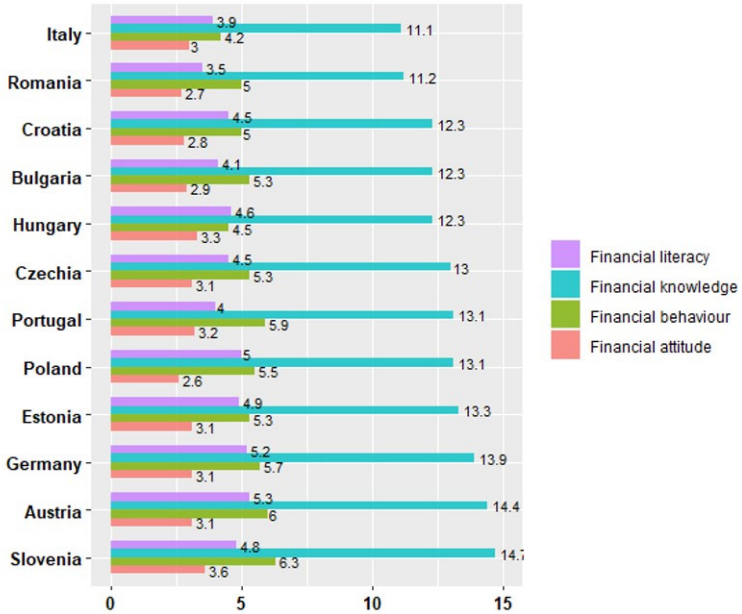
Another conclusive study was conducted by the OECD (2020), which measures the level of financial literacy based on three basic elements: financial attitude, financial

[3] The OeNB survey is currently conducted in six EU member states (Bulgaria, Czechia, Croatia, Hungary, Poland, Romania) and 4 non-EU countries (Albania, Bosnia and Herzegovina, North Macedonia, Serbia). In the period 2007-2014, the survey was conducted biannually. Since 2015, it is held annually.

behaviour, and financial knowledge . According to this survey, achieving the maximum level of 21 means that the individual has acquired a basic level of understanding the financial concepts and has known how to apply prudent principles in financial transactions. From the survey data, we can see that Romania achieved a total score of financial knowledge of only 11.2, ahead only of Italy (Figure 2).

At the same time, other member states in CESEE, such as Croatia, Bulgaria and Hungary, scored 12.3, while Czechia scored 13 points. Romania has the lowest score in terms of financial literacy, being the last country in the list of EU member states included in the survey. However, the data reveal a more favourable position of Romania both in terms of financial behaviour, where Italy and Hungary outperformed, and in terms of financial attitude, outperforming Poland.

Figure 2. Financial literacy and its basic elements in European countries



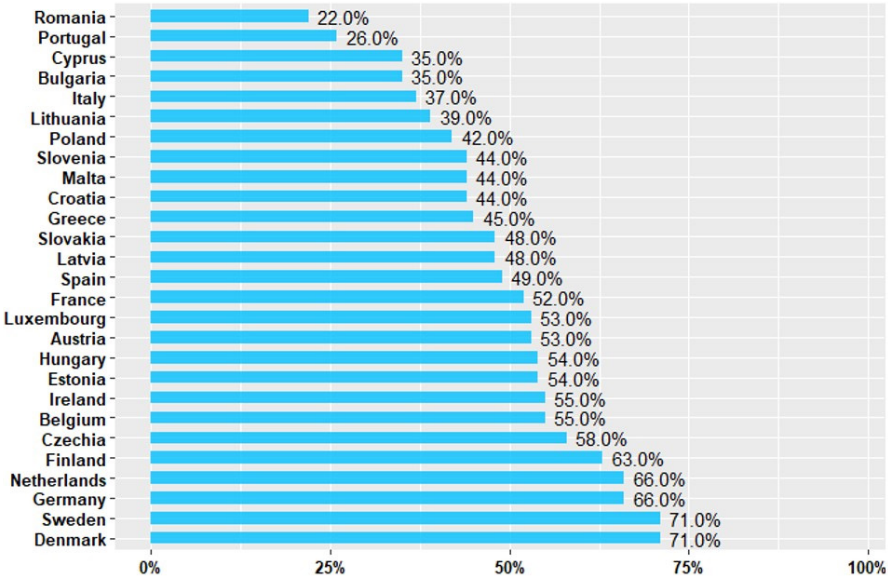
Note: The financial literacy score ranges between 1 and 21 and consists of the sum of three elements: 1. The score of financial knowledge (takes values in the range 0-7), 2. The score of financial behaviour (takes values in the range 0-9), 3 Financial attitude score (takes values in the range 1-5).

Source: authors' representation based on OECD data (2020)

At the sample level, the most extensive survey was conducted by Klapper et al. (2015). The report provides an analysis of financial literacy data for 143 countries around the world, including the 27 EU member states. It measures the level of financial literacy, using questions about four fundamental concepts in financial decision-making: risk diversification, inflation, numeracy, and compound interest. According to the report, a person is financially literate when he or she has correctly answered at least three of the four financial concepts mentioned.

The results reveal deep disparities in the financial literacy within the EU. The highest level is observed in Denmark and Sweden, of 71%, while Romania is on the last position out of the 27 member states, with only 22% of adults who are financially literate (Figure 3).

Figure 3. Financial literacy level in the EU in 2014 (% of adults who are financially literate)



Source: authors' representation based on Klapper et al. (2015)

The results of the financial literacy surveys are convincing, due to the fact that in all three studies Romania ranks last. We can notice a more favourable position of Romania in the OECD study, in terms of financial behaviour and financial attitude of the population, outperforming Italy, Hungary, and Poland. However, regarding basic financial knowledge, Romania ranks the last in this research. Such low financial literacy scores in Romania can be related to a poor performance of its education system. Specifically, Romania is far from having a top position in the ranking of international evaluations related to education. The most eloquent examples are international university rankings and the Programme for International Student Assessment (PISA)[4]. In the QS World University Rankings 2022, no Romanian university is included in the top 1,000 out of a total of 1,300. In the Times Higher Education 2021 ranking, only one university from Romania ranks in the range 601-800, while according to other performance indicators the institution is included in the 801+ category. At the same time, according to PISA results (OECD, 2019), Romania scored the third lowest on reading among EU countries, the lowest on mathematics and the second lowest on science. The important role of education in financial literacy, particularly the numeracy skill, is largely emphasized in the literature (Batsaikhan and Demertzis, 2018).

[4] The Programme for International Student Assessment (PISA) is a triennial survey of 15-year-old students that assesses the extent to which they have acquired the key knowledge and skills essential for full participation in society.

The relationship between financial literacy, economic development and financial inclusion

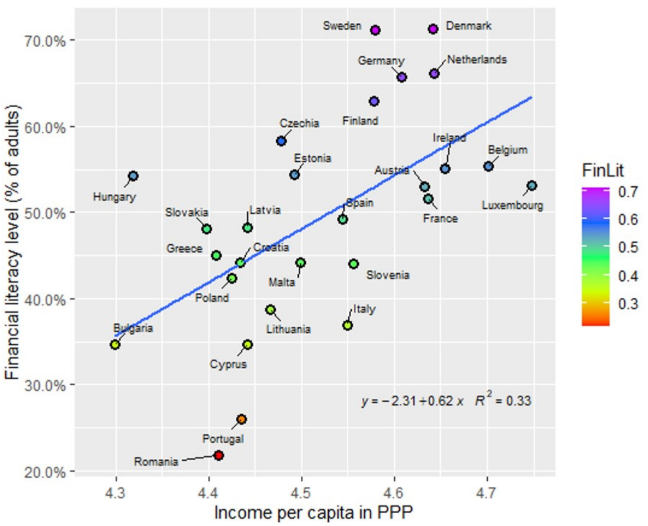
This sub-section analyses the nexus between financial literacy, on the one side, and economic development and financial development, on the other side. The findings will allow us to see whether the latter variables have an effect on the financial literacy level.

Figure 4 investigates the relationship between the level of economic development of EU member states and the percentage of individuals who are financially literate. We can see significant differences between individual EU member states, both in terms of income per capita and of financial literacy. At the same time, we notice a moderate positive relationship between the two variables, as countries with higher level of income generally have a bigger percentage of population with basic financial knowledge.

However, compared to the regression slope, some EU countries have better results in terms of financial literacy, while others are behind. Sweden, Denmark, Netherlands, Germany, Finland, and Czechia have the most financially literate population. Furthermore, these countries are placed well-above the regression slope. At the same time, Romania recorded the lowest percentage, of 22%, although it does not have the lowest level of income per capita at PPP in the EU. For example, Bulgaria, Hungary, and Slovakia have a lower income per capita at PPP compared to Romania, but the population in these countries is more financially literate.

Moreover, Poland, Greece, Croatia, and Latvia have an income per capita at PPP almost similar with Romania, but the level of financial literacy is just about twice higher. Furthermore, Romania is placed well below the regression slope, showing a poor connection between the two variables. These findings suggest that the level of basic financial knowledge of the population is determined not only by the degree of economic development, but also by the efficiency of financial education programs, the existence of a financial education strategy or the extent to which institutions get involved in promoting financial information.

Figure 4. The relationship between financial literacy and economic development



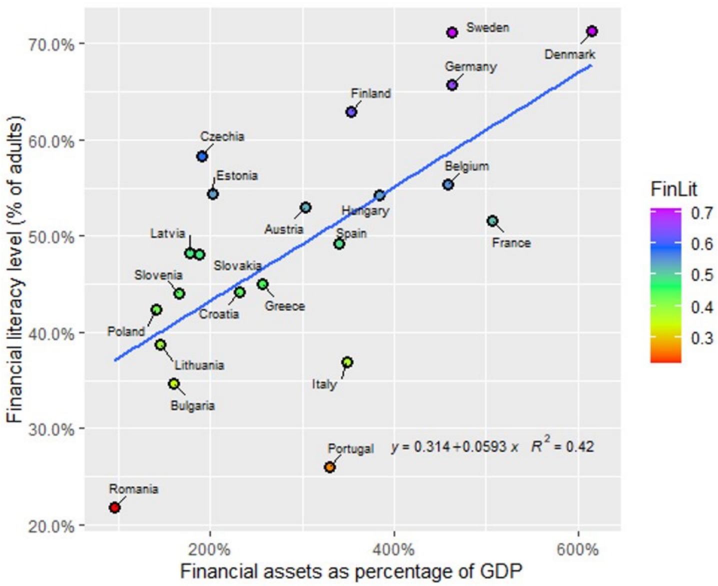
Source: authors' representation based on Klapper et al. (2015) and Eurostat (2021b)

A developed financial system contributes to increasing access to financial services and basic financial knowledge. In this context, we analysed the relationship between the development of the financial system in the EU countries and the percentage of the literate population (Figure 5). The findings reveal a positive correlation, implying that an increase in the financial sector depth leads to a higher financial literacy rate. With some exceptions, most of the countries are close to the regression slope. Positively, Denmark, Sweden, Germany, Finland, Czechia, and Estonia are well-above the slope, while, negatively, Bulgaria, Italy, Portugal, and Romania are well-below.

The results reveal major differences in the degree of financial intermediation and financial literacy in the EU member states. The most financially developed countries with the most literate population are Denmark, Sweden, and Germany. Romania stands out with the lowest level of financial development in the EU, but also of the financial literacy.

This situation is determined, in our view, largely by distrust in financial institutions, preference of the population and companies for cash, high level of poverty, and informal economy, but also by a higher percentage of rural population than the EU average. According to OeNB (2021), only 27% of adults in Romania reported full or partial confidence in banks. At the same time, 42% of Romanians prefer to hold cash rather than keep money in a savings account, which is the highest level in the whole region. In addition, in Romania, the risk of poverty is 31.2% of the population, being outweighed by Bulgaria alone (Eurostat, 2021c). The position is amplified by the high share of the shadow economy which accounts for almost 28% of GDP in Romania (European Commission, 2017). Moreover, the percentage of population in rural areas is the biggest in the EU, 46% of total population (World Bank, 2020). These factors highlight the low interest of the Romanian population in basic financial information.

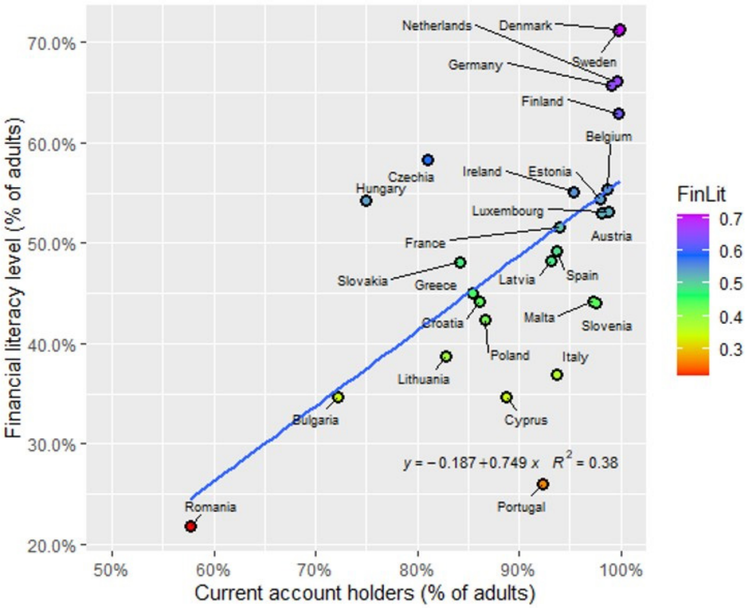
Figure 5. The relationship between financial literacy and financial development



Source: authors' representation based on Klapper et al. (2015) and Eurostat (2021a)

The benefits of financial inclusion are widely recognized in the literature, and holding a current bank account represents the key indicator used to assess the access to financial services. The results on the link between financial literacy and financial inclusion reflect a stronger interdependence between these two variables (Figure 6). Thus, Denmark, Sweden, the Netherlands, and Germany have recorded the largest shares of bank account holders and financial literacy within the EU. Romania is situated at the end of the ranking in both cases. Despite the transposition into national law of the European Directive on access to basic payment accounts in Romania, access to financial services remains scarce due to a lack of effective communication between financial institutions and individuals.

Figure 6. The relationship between financial literacy and current account holders

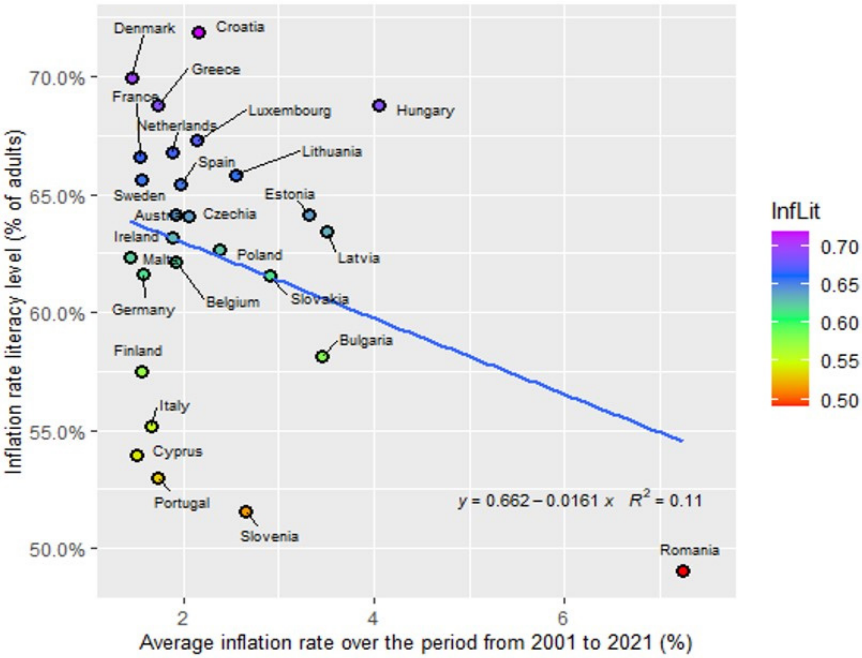


Source: authors' representation based on Klapper et al. (2015) and Demirgüç-Kunt et al. (2018)

Understanding the concept of inflation is also crucial in making individual savings and investment decisions because inflation erodes the purchasing power of nominal income in the long run and can diminish the return on personal investment. In addition, evaluating the difference between nominal and real income is essential to avoiding monetary illusion.

Against this background, we investigate the relationship between historical inflation rates and inflation literacy (Figure 7). The findings reveal a negative slope between the variables, implying that higher inflation leads to lower literacy. However, the slope coefficient is quite low, revealing the weakness of the nexus. We can explain this result by having in view that inflation knowledge is related more to common education, and less to economic environment. The visual analysis of the plot reveals that both developed EU countries and emerging EU countries, e.g., Denmark, the Netherlands, France, Greece, Croatia, Hungary, have the most literate population in terms of inflation, reaching values between 60% and 70%. At the same time, Romania has the lowest level of literacy, of approximately 25%. The results for Romania are quite surprising. Having in mind that Romania experienced two episodes of hyperinflation period in the 1990s, the knowledge regarding the preservation of purchasing power should have been higher than the present situation. Moreover, the inflation rate fell well below 10% in 2005, for the first time since 1989. In our view, this result emphasizes the need for adequate financial education programs in Romania. More details regarding financial literacy, its determinants, and a series of institutional and policy recommendations aimed at improving financial education initiatives in Romania can be found in Nițoi et al. (2022).

Figure 7. The relationship between inflation literacy and historical inflation rates

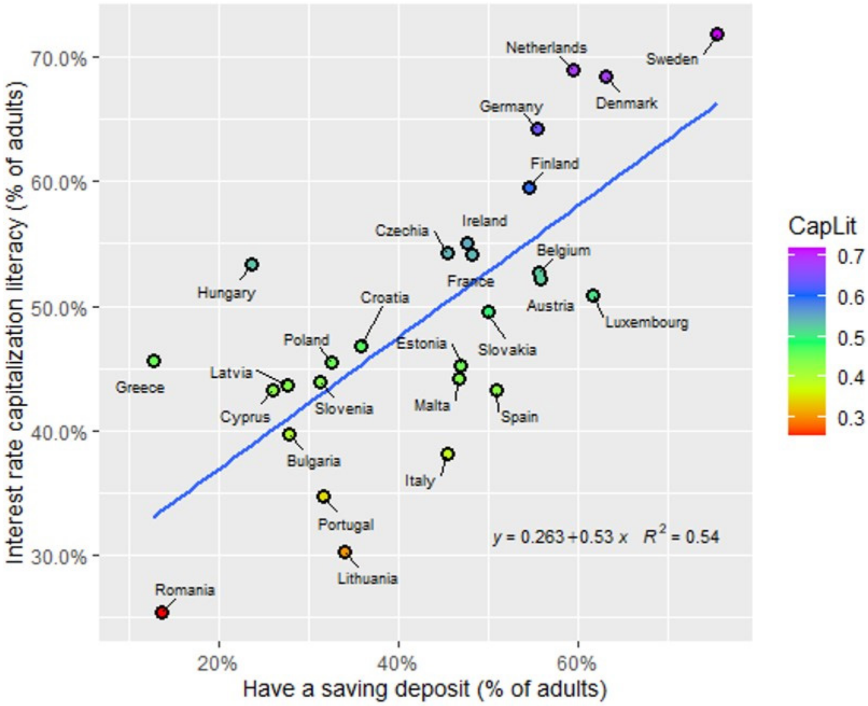


Source: authors' representation based on Klapper et al. (2015) and Eurostat (2021b)

Another important indicator of financial inclusion is the level of bank deposits. Savings help to create safety nets for emergencies, avoid excessive indebtedness, reduce financial stress, but also increase the feeling of financial freedom. Lack of financial knowledge undermines the benefits of long-term savings and causes a lower level of savings (Stango and Zinman, 2009). Furthermore, it is widely acknowledged that people who do not understand the concept of interest compounding spend more on fees, bear higher interest rates and finally find themselves over-indebted (Lusardi and de Bassa Scheresberg, 2013).

In this context, we analysed the link between the level of knowledge about interest compounding and bank deposits (Figure 8). The findings reveal a positive relationship between the two variables, i.e., an increase in the number of persons that have a bank deposit leads to a greater interest rate literacy.

Figure 8. The relationship between knowledge of interest compounding and individuals who have saved at a financial institution



Source: authors' representation based on Klapper et al. (2015) and Demirgüç-Kunt et al. (2018)

Moreover, Sweden, the Netherlands, Denmark, Germany, and Finland are the European countries having over 60% of the population's savings kept in bank deposits, which is the highest percentage in the EU. The population in these countries has the highest share of people who know the effects of inflation rate on the real income. Instead, the Central and Eastern European countries are characterized by a lower extent of savings, which arrays between 20% and 40% of total adults, and also by a reduced level of knowledge, which ranges between 35% and 55% (Figure 8). Romania has registered a percentage of 13% of savings and a degree of only 16% of financial knowledge. These results are determined by the preference of Romanians to keep cash rather than make bank savings (OeNB, 2021).

Conclusions

Our analysis reveals some important aspects. It has unveiled sharp gaps between EU member states, in terms of financial literacy of the population, financial development and financial inclusion. The most developed countries from a financial point of view have the most literate population, while Romania is characterized by the lowest level of financial intermediation and financial literacy.

Romania has the lowest level of financial literacy and understanding of inflation, although its income per capita is not the smallest in the EU. The population of Romania underestimates the benefits of long-term savings, recording the lowest level of savings at financial institutions and of knowledge regarding the interest compounding. This means that basic financial knowledge of the population is not determined only by the level of economic development. It is mainly influenced by the inefficiency of the financial education policies promoted so far, the lack of a strategy on financial education, but also the persistent problems of the Romanian education system, which are reflected by particularly bad results on PISA tests. Additionally, higher percentage of rural population than the EU average maintains the low level of financial literacy in Romania. Individuals living in rural areas have poor access both to financial services and financial education programs. Moreover, if we take into account the two episodes of hyperinflation recorded in Romania in the 1990s, the knowledge of the population regarding the inflation should have been higher. Romania is also characterized by the lowest percentage of the population with a current banking account. This phenomenon is caused by the lack of knowledge about the benefits of having an account, the lack of trust in financial institutions, the preference for cash, but also by the high proportion of the poor population, and the high level of shadow economy.

Our findings have multiple policy implications. Firstly, our study empirically highlights the importance of developing financial education tools and programs in Romania. Secondly, the paper emphasizes the significance of developing and monitoring a financial education national strategy based on realistic and attainable outcome indicators. Specifically, in our view, the level of basic financial knowledge could be improved significantly when financial education is integrated in the general education curriculum. Thirdly, promoting financial access is essential in increasing the financial literacy in Romania, as bank account holders are more inclined to be financially informed and use proper financial services. In this context, specific actions are needed to promote and encourage the opening and use of bank accounts by all categories of individuals.

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