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Understanding the Role of Financial Literacy in Enhancing Economic Stability and Resilience in Montenegro: A Data-Driven Approach

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Abstract: Financial literacy has emerged as a crucial factor in promoting economic stability and resilience, particularly in Montenegro. With the increasing complexity of financial products and the growing need for individuals to make sound financial decisions, the importance of financial literacy cannot be overstated. This study employs a quantitative, survey-based approach to explore the association between financial literacy levels and measures of economic stability, including savings rates, active debt management, and access to financial products. Data were collected through a representative, two-stage stratified sample of 1000 Montenegrin adults aged 18–79, ensuring comprehensive geographic coverage across all Montenegrin municipalities and balanced representation by gender and age. This stratification enables a detailed analysis of financial literacy trends across the population. Correlation analysis reveals that higher levels of financial literacy are associated with better financial practices, such as increased savings and responsible credit use, thereby enhancing economic resilience at the household level. Moreover, improved financial literacy contributes to sustainability by fostering long-term financial stability, reducing inequalities, and promoting inclusive economic growth. The findings suggest that financial literacy can mitigate the impact of economic shocks, emphasizing the need for policies that promote financial education as a tool for sustainable development. This study contributes to the literature on financial literacy in emerging economies and offers actionable insights for policymakers in Montenegro and similar contexts, highlighting financial education as a pathway to individual and national economic resilience.

Keywords: financial literacy; economic stability; emerging economies; financial behavior; household savings; sustainable development

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1. Introduction

Financial literacy, broadly defined as the understanding and effective use of financial concepts and products, has become a cornerstone of personal and economic stability worldwide. It empowers individuals to manage resources effectively, make informed decisions about financial products, and adapt to economic changes [1,2]. Globally, higher financial literacy has been consistently associated with positive financial behaviors, such as increased savings, better debt management, and prudent investment choices, which contribute to economic resilience and stability at individual and societal levels [3,4].

In emerging economies, where financial vulnerabilities are more pronounced, the significance of financial literacy becomes even more evident. Many households in these regions face heightened exposure to economic shocks due to informal financial practices and limited access to financial services. Enhancing financial literacy in these contexts can serve as a stabilizing force, mitigating the impact of external economic fluctuations and fostering sustainable growth.

Montenegro, a small emerging economy heavily reliant on tourism and services, provides a compelling case study for exploring the role of financial literacy. The country's economic reliance on vulnerable sectors makes it susceptible to external shocks, as demonstrated during the COVID-19 pandemic. Households in Montenegro, characterized by diverse demographic and socioeconomic conditions, often navigate economic uncertainty with limited financial education [5–7]. This underscores the critical need to understand how financial literacy contributes to economic resilience in such a context [8].

Despite extensive global research on the benefits of financial literacy, there is a dearth of studies examining its impact in Montenegro. Previous studies in neighboring Balkan countries highlight that financially literate individuals are better equipped to handle economic uncertainty, demonstrating behaviors such as increased savings, responsible borrowing, and effective financial planning. These behaviors create buffers against financial instability, fostering long-term resilience [9–11].

This study addresses this research gap by investigating the role of financial literacy in promoting economic resilience among Montenegrin households [12]. Using a data-driven approach, the study examines the correlation between financial literacy and key indicators of economic stability—savings behavior, debt management, and financial planning practices. By situating the analysis within Montenegro's unique socioeconomic landscape, this research provides valuable insights into how financial literacy can support sustainable development in emerging economies. It also offers actionable recommendations for policymakers and financial educators to strengthen Montenegro's financial stability through targeted education and resource accessibility.

Despite extensive global research on financial literacy's impact on economic resilience, Montenegro remains underexplored in this context. Reports by the OECD and World Bank have consistently underscored the importance of financial literacy in developing economies, where vulnerabilities like high indebtedness, low savings, and limited access to formal financial systems are prevalent. However, a lack of localized data prevents effective policymaking in Montenegro. This research aims to fill that gap by examining how financial literacy correlates with economic resilience indicators such as savings, debt management, and financial planning, offering practical insights for targeted educational initiatives.

Therefore, this paper seeks to address the following research questions:

1. How does financial literacy impact economic resilience among Montenegrin households, particularly in savings behavior, debt management, and financial planning?
2. What are the key demographic and socioeconomic factors influencing financial literacy levels in Montenegro?
3. To what extent can targeted financial education initiatives mitigate the economic vulnerabilities faced by Montenegrin households?
4. How do Montenegrin households perceive financial concepts such as inflation, debt, and investment, and how does this perception affect their financial behaviors?

This paper is structured as follows: Section 2 presents literature review that includes the theoretical framework. Section 3 explains the research methodology, while Section 4 provides the key findings. Section 5 discusses the implications of these findings, followed by Section 6, which concludes the study and outlines recommendations for future research.

2. Literature Review and Theoretical Framework

Literature review covers three important topics: relation between financial literacy and economic stability, importance of financial literacy in emerging economies and economic stability indicators.

2.1. Financial Literacy and Economic Stability

Financial literacy is increasingly viewed as a key component of economic resilience, particularly in times of economic uncertainty. Research has shown that financially literate individuals are more likely to engage in behaviors that support economic stability, such as regular saving, prudent debt management, and effective financial planning. For instance, Lusardi and Mitchell (2014) emphasize that financial literacy enhances individuals' ability to make informed financial decisions, which is associated with increased savings rates, reduced debt, and more stable financial well-being over time [1]. Financial literacy also contributes to better financial risk management. In a study by Klapper, Lusardi, and van Oudheusden (2015), individuals with higher financial literacy were more likely to engage in behaviors that minimize financial risk, such as diversifying investments and avoiding high-cost borrowing practices, helping them to better withstand financial shocks [3]. Additionally, evidence suggests that financially literate individuals are more capable of aligning their personal financial goals with sustainable economic practices, such as environmentally conscious spending and investing [13].

Empirical research highlights a strong correlation between financial literacy and economic resilience. Financially literate individuals tend to experience fewer economic hardships due to their proactive financial behaviors, which contribute to individual and collective economic stability (Atkinson and Messy, 2012) [2]. The ability to make informed financial decisions enhances households' preparedness for economic downturns, underscoring the importance of financial education in building economic resilience at a societal level (OECD, 2020) [11].

Financial literacy plays a crucial role in shaping economic resilience across different parts of the world, from highly developed countries with advanced financial systems to underdeveloped regions facing significant economic challenges. In developed countries like the United States and many European nations, research highlights how financial literacy contributes to financial stability at both the individual and national levels. For example, Lusardi and Mitchell (2014) found that in these economies, higher financial literacy is closely linked to better retirement planning, increased household savings, and reduced reliance on debt [1]. These behaviors collectively strengthen economic security and resilience over the long term.

On the other hand, in underdeveloped regions such as sub-Saharan Africa and South Asia, financial literacy often serves as a critical tool for addressing poverty and improving economic opportunities. Studies like those by Cole, Sampson, and Zia (2011) demonstrate how even basic financial education can help individuals adopt better saving habits and gain access to formal financial services, fostering greater financial inclusion [10]. Other authors showed that targeted financial interventions in low-income areas can significantly enhance people's ability to withstand economic shocks and improve their overall financial well-being.

By including research from both developed and underdeveloped countries, this expanded perspective enriches the understanding of financial literacy's impact. It also situates Montenegro and the Western Balkans within a global framework, highlighting the universal importance of financial education while acknowledging the unique challenges and opportunities faced by different regions. This broader context allows for a deeper appreciation of how financial literacy shapes economic resilience worldwide.

2.2. The Role of Financial Literacy in Emerging Economies

In emerging and transition economies, financial literacy plays a particularly significant role in enhancing economic resilience and stability. Studies in these regions have shown that limited financial knowledge often corresponds to high levels of indebtedness, low savings rates, and limited access to financial products, all of which hinder economic growth and stability. In the context of the Western Balkans, a region with varying degrees of economic development, financial literacy is relatively low compared to EU standards, which poses challenges for economic resilience. According to a study by the World Bank (2021), the Western Balkans, including Montenegro, show a consistent need for improved financial literacy to support economic stability amid regional vulnerabilities [14]. For instance, in Montenegro, financial literacy is crucial for reducing reliance on informal financial services and promoting the use of formal financial institutions, which offer more reliable mechanisms for savings and investment (Fabris and Luburic, 2016) [5].

Emerging economies are generally more susceptible to financial shocks, which can exacerbate socioeconomic inequalities. Studies across various developing countries have illustrated that when individuals possess financial knowledge, they tend to save more consistently, use credit wisely, and participate more actively in the formal economy, reducing their financial vulnerability (Cole, Sampson, and Zia, 2011) [10]. In the Western Balkans, financial literacy has been linked to positive economic behaviors, such as higher rates of savings and responsible credit usage, which are critical to individual and regional economic stability in the face of global economic challenges [15].

2.3. Indicators of Economic Stability

Economic stability is often assessed using indicators that reflect financial health and resilience at the individual and household levels. Common indicators include income stability, savings rates, access to financial services, and the degree of reliance on debt. Income stability reflects regularity in income flows and is a fundamental aspect of financial security. Households with stable incomes are better equipped to manage financial shocks and maintain consistent consumption patterns. Savings rate, another critical indicator, reflects a household's ability to build financial reserves and prepare for future expenses. Regular saving behavior is widely regarded as a key outcome of financial literacy, as it reflects individuals' ability to delay consumption and plan for the future (Beck and de la Torre, 2007) [16].

Access to financial services is also essential, as it enables individuals to participate fully in the formal economy, which is often associated with better financial outcomes and reduced poverty rates. Studies have shown that limited access to banking services in emerging markets can constrain economic resilience by restricting individuals' ability to save securely, borrow prudently, and invest in growth opportunities (OECD, 2016) [4]. Finally, reduced reliance on debt, especially high-interest or informal debt, is an indicator of financial health, as lower debt burdens are associated with more stable financial outcomes. Financial literacy has been linked to lower levels of unmanageable debt, as financially knowledgeable individuals tend to be more cautious with borrowing and better at managing credit, reducing their financial vulnerability over time [2].

In developing and transition economies, where economic systems are often undergoing significant changes, financial literacy can play a transformative role in stabilizing household finances and contributing to overall economic growth [17]. Financial education initiatives in countries like India, South Africa, and China have demonstrated measurable improvements in financial decision-making among low-income individuals, leading to enhanced savings rates, lower reliance on debt, and a higher likelihood of engaging with formal financial institutions (Cole, Sampson, and Zia, 2011; Karlan, Ratan, and Zinman, 2014) [10,18]. The positive impact of financial literacy on economic resilience is particularly evident in rural or underbanked areas, where financial literacy enables individuals to diversify income sources and adopt prudent financial practices that reduce vulnerability to income variability (Banerjee, Karlan, Zinman, 2015) [19].

While the Western Balkans region has historically faced financial literacy challenges, there is a growing awareness among policymakers of the role financial education can play in promoting financial inclusion and stability (OECD, 2020) [20]. Studies in neighboring Western Balkan countries reveal similar trends. In Serbia, for example, low levels of financial literacy have been associated with high levels of debt and limited savings (Spiranec, Zorica, and Simoncici, 2012), which has led policymakers to promote financial education as a means of supporting sustainable economic growth [21]. Financial literacy initiatives in these regions focus not only on knowledge dissemination but also on behavior change, encouraging responsible financial habits that support long-term economic security.

Montenegro, like many emerging economies, faces unique economic challenges that amplify the importance of financial literacy for economic stability. Its small economy is highly susceptible to external shocks, such as global market fluctuations and crises affecting its tourism and service sectors (World Bank, 2021) [22]. Financial literacy could thus play a vital role in enhancing resilience among Montenegrin households by promoting responsible financial behaviors and reducing over-reliance on high-interest credit sources. Research shows that in countries with similar economic profiles, financially literate populations tend to be more resilient to such external shocks, as they are better equipped to manage their finances during crises (Kempson, Finney, and Poppe, 2017) [23].

Despite its potential benefits, financial literacy remains limited among certain Montenegrin demographic groups, particularly those with lower education levels and limited access to financial services (EBRD, 2018) [24]. Surveys reveal that many individuals struggle with fundamental financial concepts, such as budgeting, saving, and managing debt, which hinders their ability to make effective financial decisions. Consequently, these populations are more vulnerable to economic instability, as they lack the knowledge necessary to buffer against financial shocks (Katnic, Katnic, Jaksic-Stojanovic, 2023) [25]. Financial literacy in Montenegro therefore not only represents a means of individual empowerment but also serves as a critical component of the country's broader economic stability framework.

Access to financial services is another essential element linked to financial literacy and economic resilience. In many emerging economies, financial literacy improves individuals' ability to understand and utilize financial services, leading to increased use of savings accounts, insurance products, and pension funds (Beck and de la Torre, 2007; Demirgüç-Kunt, Klapper, and Singer, 2017) [26,27]. Financially literate individuals are more likely to use these services effectively, which in turn supports their ability to manage risks, accumulate savings, and achieve long-term financial goals (Klapper et al., 2015) [28]. Enhanced financial literacy thus contributes to sustainable economic development by increasing individuals' access to resources that can stabilize their finances over time, reducing the need for unsustainable debt and fostering more stable economic growth.

In Montenegro, increasing financial literacy could significantly enhance access to and utilization of financial services, particularly among underbanked and rural populations. According to surveys, many Montenegrins still rely on informal borrowing methods due to limited awareness or understanding of formal financial products (OECD, 2020) [13]. This reliance on informal lending can lead to debt cycles that diminish economic resilience. By improving financial literacy, individuals in Montenegro may be more likely to engage with formal financial institutions, access affordable credit, and build emergency savings, which can increase their economic resilience and contribute to sustainable development.

The literature on financial literacy provides robust evidence of its role in promoting economic stability, resilience, and sustainable development, particularly in emerging and transition economies [29–32]. Financial literacy enables individuals to manage finances effectively, reduce vulnerability to economic shocks, and make informed decisions about financial products [33–36]. In the context of Montenegro, where economic challenges persist, improving financial literacy could empower individuals to contribute to the country's economic resilience and sustainable growth. By addressing these gaps, this study seeks to explore the specific impacts of financial literacy on economic stability in Montenegro, contributing to the broader body of knowledge on sustainable development in emerging economies.

2.4. Theoretical Framework

This study builds on two complementary theories: the behavioral life cycle hypothesis (BLC) and the theory of planned behavior (TPB). Together, these frameworks provide a comprehensive understanding of how financial literacy connects to economic resilience by exploring both psychological and societal influences on financial decision-making.

The behavioral life cycle hypothesis highlights how psychological factors, such as self-control, mental accounting, and framing, shape financial behaviors like saving, spending, and debt management. Self-control plays a crucial role in helping individuals resist impulsive purchases and focus on achieving long-term financial goals, such as building savings or reducing debt. This is particularly relevant in Montenegro, where economic uncertainty often challenges people's financial discipline. Mental accounting refers to the way individuals organize and manage their money by assigning specific purposes to their income and expenses. When individuals have a better understanding of financial concepts, they can create more effective budgets and prioritize essential expenses, contributing to their economic stability. Framing focuses on how the presentation of financial information influences decision-making. For instance, presenting saving as a step toward financial security rather than as a restrictive measure can encourage more positive financial behaviors. Financial education initiatives can play a critical role in shaping these perceptions and helping individuals make better choices.

The theory of planned behavior complements this by emphasizing how attitudes, societal norms, and perceived behavioral control shape financial behaviors. Financial literacy positively influences attitudes by encouraging individuals to view budgeting, saving, and investing as beneficial and empowering actions rather than burdensome obligations. Societal and cultural expectations also play a significant role in financial decision-making. In Montenegro, informal borrowing remains a common practice, but financial literacy programs can promote a cultural shift toward formal financial systems, offering greater stability and reliability. Additionally, perceived behavioral control—the confidence individuals have in managing their finances—can be significantly enhanced through financial education, enabling people to adopt responsible habits such as regular saving or prudent investing.

Together, these theories provide a rich framework for understanding how financial literacy can empower individuals. The behavioral life cycle hypothesis explains the psychological processes that influence financial behaviors, while the theory of planned behavior addresses the societal and contextual factors that shape these actions. By integrating these perspectives, this study explores how financial literacy can enhance economic resilience for individuals and households in Montenegro. It aims to offer practical insights into how education programs and policy changes can address both the psychological and cultural barriers to sound financial practices, ultimately contributing to the country's economic stability.

3. Research Methodology

This literature review frames financial literacy as important to economic resilience, particularly in Montenegro, where household stability could greatly benefit from better financial knowledge and behaviors. Additional data or recent studies specific to Montenegro could further enhance this section, adding depth to local financial literacy challenges and trends.

This study investigates the relationship between financial literacy and economic resilience in Montenegro, focusing on how financial literacy influences financial behaviors that contribute to household-level economic stability. To ensure clarity and structure, the methodology is divided into several key sections.

3.1. Research Design and Measures of the Study

The study employs a cross-sectional survey design, which allows for the collection of data at a single point in time to explore the relationship between financial literacy and economic resilience. This design is appropriate for examining correlations between variables, such as financial literacy levels, financial behaviors, and demographic factors. The structured survey design ensures that the results can be compared with similar studies in different contexts or replicated in future research.

To comprehensively assess financial literacy and economic resilience, the study uses a structured questionnaire divided into the following sections:

- Financial Literacy Assessment: This section evaluates respondents' knowledge of core financial concepts, including interest rates, inflation, budgeting, debt management, and investment principles. Questions were adapted from established instruments like the OECD/INFE Toolkit for Measuring Financial Literacy to align with global standards.
- Financial Behaviors Assessment: This section examines financial habits such as saving practices, bill payment timeliness, budgeting, and attitudes toward financial risk. Both short-term and long-term financial practices are measured using Likert-scale items.

- Demographic Information: Data on respondents' age, gender, education level, employment status, marital status, and geographic location were collected to enable stratified analysis of financial literacy and behaviors across demographic groups.

The questionnaire includes both multiple-choice questions and Likert-scale items, enabling respondents to express familiarity and agreement levels with financial terms and behaviors.

3.2. Respondents of the Study and Sampling Approach

The respondents of this study comprise 1000 adult residents of Montenegro. The target population includes individuals aged 18 and above who are actively engaged in financial decision-making within their households. Participants were selected to represent the demographic and socioeconomic diversity of the Montenegrin population, ensuring the inclusion of urban, rural, and socioeconomically diverse groups.

A stratified random sampling method was used to ensure the sample accurately reflects Montenegro's demographic and socioeconomic diversity. Stratification was based on key variables such as age, gender, education level, and geographic location. This approach minimizes sampling bias and ensures representation from both urban and rural areas.

3.3. Data Collection and Data Analysis Tools

Data collection was conducted during spring and summer 2024 using in-person and online survey methods administered by the Center for Finance, a scientific research organization in Montenegro. To ensure ethical compliance:

- Participants provided informed consent before participating.
- Respondents were assured of their right to withdraw at any time.
- All personal data were anonymized to protect confidentiality.

The survey comprised sections measuring demographic variables (age, gender, education level, employment status), financial literacy (knowledge of interest rates, inflation, budgeting, and saving practices), financial behaviors (savings rates, debt management, investment activities), and resilience to financial stressors (ability to handle economic fluctuations and emergencies).

The financial literacy component of the survey was adapted from established scales, such as the OECD/INFE Financial Literacy and Financial Inclusion Survey [2,20]. This instrument includes questions to assess core financial concepts and practical skills, enabling an evaluation of respondents' understanding of interest rates, inflation, and financial planning.

Data were analyzed using IBM SPSS Statistics software (version 25). Descriptive statistics analysis was performed in order to provide an overview of the demographic characteristics of the sample and general financial literacy levels. Pearson correlation coefficients were calculated to assess the strength and direction of relationships between financial literacy and specific financial behaviors, such as savings rates, debt management, and resilience to economic shocks.

These tools provided a comprehensive understanding of the data and enabled the study to explore the extent to which financial literacy is associated with behaviors that contribute to economic stability.

All procedures followed ethical guidelines for research involving human participants. Participants provided informed consent and were assured of their right to withdraw from the study at any time. Personal data were anonymized to protect confidentiality, and only aggregated data were analyzed and reported. The study was conducted in accordance with the Declaration of Helsinki.

Therefore, based on the relevant literature and data obtained from the empirical research, the general hypothesis of the paper is defined as: Financial literacy, shaped by demographic factors such as age, education level, marital status, and income, significantly influences household budgeting behavior, saving methods, and financial stability. Higher levels of financial literacy are associated with better financial management practices, including the likelihood of maintaining a budget and utilizing formal saving methods.

Several limitations may affect the interpretation and generalizability of the findings, such as sample bias, question interpretation and cross-sectional design. While the sample was designed to be representative, certain demographic groups may have been underrepresented, particularly individuals in rural areas or lower-income brackets who may have limited access to digital survey tools. This could skew results, especially in areas where financial literacy may be lower or where financial behaviors differ from urban populations. Additionally, the survey relied on self-reported responses, which can introduce biases such as social desirability bias, where participants may answer questions in a way that they believe is more socially acceptable rather than truthful. This limitation is particularly relevant in questions related to responsible financial behavior, such as saving and budgeting. Given that financial literacy involves complex terminology, there is a possibility that some respondents may have misunderstood certain questions, particularly those involving technical financial terms. Although questions were simplified, variations in interpretation could still impact accuracy, especially among respondents with lower educational backgrounds. The survey's cross-sectional nature captures data at a single point in time, which limits insights into how financial literacy and behaviors may evolve. OECD survey conducted in 2020 was used for some comparison. Future studies could benefit from a longitudinal approach to track changes over time, particularly as financial literacy initiatives and economic conditions evolve in Montenegro.

4. Results

In the contemporary economic landscape, marked by rapid market fluctuations, increasingly complex financial instruments, heightened consumer expectations, and escalating levels of private and public debt, personal financial management has gained critical importance [37–40]. Individuals equipped with foundational knowledge in financial concepts—such as savings, investments, credit assessment, and debt management—demonstrate a greater capacity to make informed financial choices that sustainably improve their living standards over time. Consequently, a society composed of financially literate individuals is inherently more resilient and better positioned for sustainable economic growth [41–45].

Reflecting the necessity of financial education, the Center for Finance, a certified research institution, conducted the comprehensive Financial Literacy Survey of Adults in Montenegro (hereafter referred to as "the Survey"). The methodology of this survey is aligned with globally recognized standards set by the International Network on Financial Education (INFE) of the OECD, ensuring rigor and comparability across international benchmarks. The Survey's data and subsequent analysis provide policymakers and the general public with critical insights to:

- Establish a foundational measure of national financial literacy levels;
- Offer essential data to inform the development of national strategies and targeted financial literacy programs;
- Determine financial literacy levels across key socio-demographic groups, aiding policymakers in identifying underserved populations and specific educational gaps;
- Enable longitudinal research to identify trends and changes in financial literacy over time;
- Generate data that is compatible with global standards for cross-country comparisons.

To measure financial literacy, the Survey applies the OECD's definition: "a combination of awareness, knowledge, skills, attitudes, and behaviors necessary to make sound financial decisions and ultimately achieve individual financial well-being".

Conducted on a representative, two-stage stratified sample of 1000 Montenegrin adults aged 18–79, the study design ensured comprehensive geographic coverage (encompassing all Montenegrin municipalities) and balanced representation across primary demographic variables, including gender and age. This stratification allows for a nuanced analysis of financial literacy across the population, providing a robust dataset for policy development and educational interventions in Montenegro.

4.1. Assessing Financial Literacy, Attitudes and Inclusion in Montenegro: Insights into Economic Behavior and Stability Indicators

Results obtained about financial knowledge, attitudes, resilience, and access to financial services in Montenegro will be shortly presented bellow. Financial knowledge is a crucial component of financial literacy, enabling individuals to understand financial products, compare options, and make informed decisions. Studies in this area show that financial knowledge is positively associated with proactive behaviors, such as saving and retirement planning, and inversely related to debt levels [46–48]. Greater financial knowledge contributes to overall financial stability, enhancing quality of life, particularly in later years. Individuals with higher financial knowledge tend to exhibit greater resilience to financial shocks and make better decisions related to saving, debt management, and investments.

4.1.1. Understanding Inflation: Accuracy of Responses on Inflation-Related Questions

Learning from personal experience appears to be particularly impactful, especially regarding inflation awareness in Montenegro. With historical periods of hyperinflation and recent high inflation rates, Montenegrins seem well-acquainted with the concept. Approximately 85% of respondents correctly acknowledged that with 5% inflation, they could afford less over time, and 82.4% correctly identified inflation itself. Around 7% of respondents were unsure on both questions, suggesting a broad understanding but also highlighting a minority who remain uncertain about inflation's effects.

In recent years, inflation has become a prominent topic in Montenegro, affecting nearly every household due to significant price increases. Research data from 2024 show that a greater percentage of Montenegrins now understand inflation compared to four years prior. In a 2020 study, only 69% of respondents recognized that inflation means they could buy less with the same amount of money over time. As could be seen on Figure 1, by 2024, that percentage had risen by 16 points to 85%, reflecting heightened public awareness due to lived experiences with inflation.

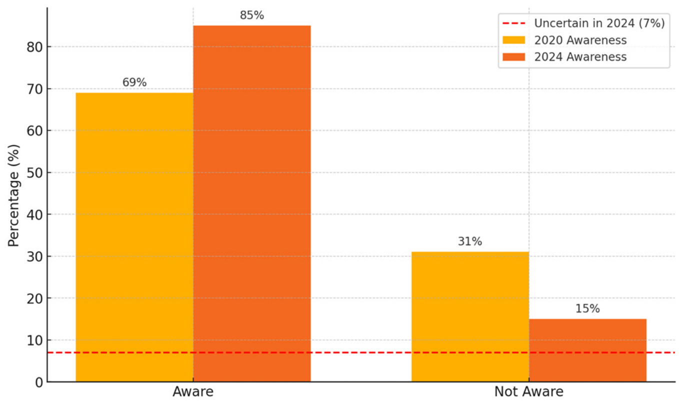

Figure 1. Inflation awareness in Montenegro (2020 vs. 2024). Results from the Financial Literacy Survey of Adults in Montenegro, authors' calculations.

4.1.2. Financial Concepts and Calculation Comprehension

In Montenegro, the vast majority of individuals exhibit a basic understanding of interest concepts, with 92.76% of respondents recognizing the meaning of interest on loans or credit. However, comprehension declines as questions become more mathematically complex. For instance, 17.47% of participants incorrectly answered a question about simple interest calculation, and 6.08% reported uncertainty with the concept. The understanding of compound interest proved even lower; only one-third of respondents correctly answered a question on calculating compound interest over five years, while 67.76% either answered incorrectly or selected "don't know". This highlights the gap in financial literacy concerning more advanced interest concepts and the results are presented in Figure 2.

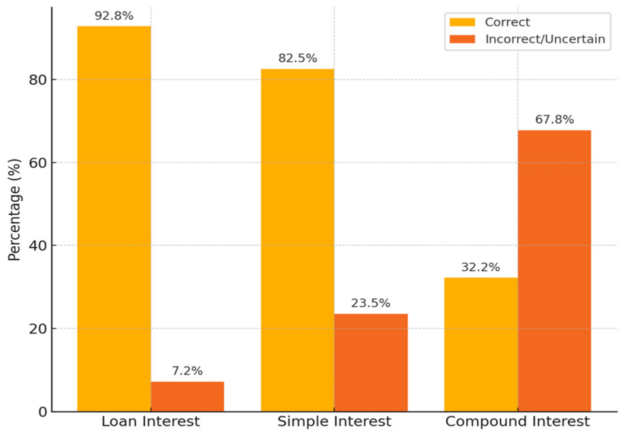

Figure 2. Understanding of interest concepts by complexity in 2024 in Montenegro. Results from the Financial Literacy Survey of Adults in Montenegro, authors' calculations.

A comparative analysis of data regarding respondents' correct answers to questions on interest calculation over a five-year period indicates a notable improvement in financial literacy in Montenegro. Specifically, the percentage of individuals correctly calculating interest increased from 24% in 2020, according to OECD research, to 32.24% in 2024. This four-year progress suggests a significant enhancement in understanding interest calculations among the population. Contributing factors may include the heightened relevance of the topic due to substantial increases in interest rates over recent years, alongside rising levels of household indebtedness to commercial banks. This trend underscores the potential impact of economic conditions on financial literacy outcomes.

4.1.3. Financial Knowledge and Beliefs Across Montenegro

The research indicates that a significant proportion of adults in Montenegro lack a comprehensive understanding of key financial concepts, specifically risk, return, and investment. As presented in Figure 3. approximately one-third of respondents incorrectly identified the relationship between high expected returns and high risk. Furthermore, over two-thirds demonstrated a lack of understanding regarding diversification, with 69.5% incorrectly responding that it is not possible to reduce risk in the stock market by purchasing multiple stocks. Only 29.15% correctly acknowledged this concept.

Figure 3. Understanding of key financial concepts in 2024 in Montenegro. Results from the Financial Literacy Survey of Adults in Montenegro, authors' calculations.

These findings align closely with results from the OECD study conducted in 2020, which reported that only 35% of respondents provided correct answers regarding these financial concepts. This consistency suggests a persistent gap in financial literacy among the adult population in Montenegro, highlighting the need for targeted financial education initiatives to enhance understanding of these fundamental investment principles.

4.1.4. Household Budgeting and Financial Decision-Making Roles

Financial behaviors, habits, and practices are critical determinants of individual financial stability and resilience to external shocks. Financial behavior encompasses how individuals manage their finances, including aspects of spending, saving, borrowing, and investing. The comprehension and implementation of responsible financial practices are essential not only for personal success but also for contributing to broader economic well-being. Rapid advancements in finance, including digitalization and tokenization, necessitate ongoing education to keep pace with changing financial landscapes [49–55]. It is therefore imperative to assess and identify the financial behaviors of individuals in Montenegro to enhance understanding of their financial literacy levels.

The survey results examine various financial habits of citizens, such as timely bill payments, household budgeting, the incidence of income failing to cover expenses, survival strategies during financial strain, and the ability to endure without borrowing money and results are presented in Figure 4. The research reveals significant variations in financial behavior, influenced not only by respondents' age groups but also by their geographical origins. Additionally, responses differ notably from those recorded in the 2020 study, particularly regarding budgeting practices and daily financial decision-making. Given the multitude of daily decisions individuals face that can affect their financial resilience, especially during crises, this study explores these decision-making processes.

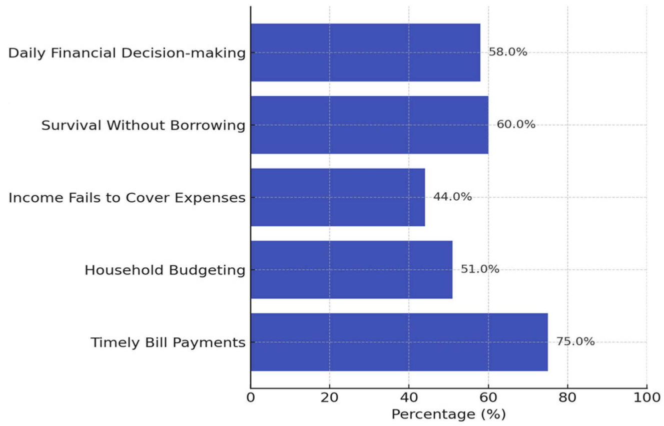

Figure 4. Prevalence of financial behaviors in 2024 in Montenegro. Results from the Financial Literacy Survey of Adults in Montenegro, authors' calculations.

In a world vulnerable to various internal and external shocks, maintaining a clear overview of household financial status is crucial. Consequently, budgeting is an essential aspect of financial literacy, as highlighted in the G20/OECD INFE framework for adult financial literacy competencies developed in 2016. More than half of the respondents (50.97%) indicated that their households do have a budget, while 41.60% reported that they do not.

4.1.5. Financial Attitudes and Behavior Patterns

Data obtained from the current research diverge from the findings of the 2020 study, indicating a decline in the percentage of respondents maintaining a household budget. Specifically, in 2020, 61% of respondents reported having a budget, reflecting a decrease of 10 percentage points in the present study.

Furthermore, the data regarding decision-making related to household finances provide insights into both the current financial practices and the cultural patterns prevalent in Montenegro. Among respondents in multi-member households, particularly those who are married or in cohabiting relationships, 286 individuals (30%) indicated that they are responsible for financial decisions within the household. Gender analysis reveals that men more frequently assume responsibility for these financial decisions, comprising 55.6% of respondents.

This data not only underscore changes in budgeting habits but also highlights gender dynamics in financial decision-making, which may be influenced by cultural norms and values within Montenegrin society.

4.1.6. Savings, Income Adequacy, and Financial Resilience

The literature on financial literacy emphasizes the significance of active saving, particularly during challenging economic times. Saving not only facilitates the achievement of long-term financial goals but also establishes a foundation for investment opportunities. When savings are directed toward investments, they can enhance financial growth through passive income and provide a buffer against inflation.

Traditionally, individuals have relied on keeping cash at home as their primary savings method. However, with the increasing stability of the banking sector and growing public confidence, a rising number of citizens are opting to deposit their savings into bank accounts. Financially literate individuals tend to diversify their investments across various financial instruments, including bonds, stocks, and funds, as well as riskier ventures. Notably, higher financial literacy does not necessarily correlate with a greater willingness to assume risk; often, those who invest in high-risk projects are less financially literate.

Current findings indicate that over one-third of respondents (39%) save money at home, while 25% save through bank accounts. This suggests that nearly two-thirds of the adult population in Montenegro either keeps excess funds at home or deposits them in banks. Given that much of the bank savings are held in non-interest-bearing or low-interest accounts, it can be inferred that a substantial portion of Montenegrin adults with surplus funds are not utilizing these resources for investment, thereby missing out on potential earnings. Such financial behaviors are particularly noteworthy in the context of high inflation rates and the depreciation of money value.

These insights underline the necessity for enhanced financial education and awareness, especially in light of the current economic climate where traditional saving methods may not suffice to preserve wealth.

4.1.7. Financial Product Awareness and Utilization

Financial literacy and financial inclusion are globally recognized as essential components for empowering individuals and ensuring overall financial stability. Therefore, it is crucial for policymakers to have access to data regarding both individual financial inclusion and financial literacy levels [56–58]. This chapter provides insights into the understanding and utilization of financial products from a consumer perspective.

Financial inclusion is a bidirectional process requiring appropriate financial products on the supply side and consumer awareness on the demand side. The data indicate that over two-thirds of respondents (67%) are familiar with financial products, with 7% having made selections from available offerings in the recent past. Furthermore, a notable 35% of respondents reported seeking financial assistance from family during periods of financial distress. This statistic is consistent with findings from a 2020 study, where 36% of participants indicated they turned to family and friends for financial loans.

Banking products dominate the financial landscape, with increasing digitalization recognized as a necessity. The study found that 95% of respondents are aware of loans, while credit cards are recognized by 87% of participants. Additionally, 61% are familiar with mobile banking, and 80% have heard of stocks, a result likely influenced by ownership transformation processes and a growing interest among younger individuals in investing. Awareness of bonds was noted at 56%, though only 1% of respondents own them.

To evaluate access to finance and general financial literacy, indicators were used to assess the possession of savings, investment, and pension products, payment financial products (excluding credit cards), and various forms of insurance. The results indicate that 54% of respondents have a checking account, 47% own a credit card, and 34% use mobile banking. Notably, consumer debt has increased by 8.7% during 2023, reaching €1.69 billion, marking the highest historical level. This trend aligns with findings from the Financial Stability Report, which notes that an increasing number of citizens possess some form of credit (45%), reflecting a growing understanding of credit and interest rate concepts.

4.2. Exploring the Correlation Between Financial Literacy and Economic Stability: A Pearson Correlation Analysis of Financial Behaviors

The Pearson correlation analysis of financial behaviors reveals interesting insights into the relationship between financial literacy and economic stability. One of the strongest positive correlations is observed between individuals who "pay bills on time" and those who "carefully monitor personal finances" (correlation coefficient of 0.508). This suggests that diligent financial monitoring, a key component of financial literacy, is closely associated with responsible bill-paying behaviors, an indicator of economic stability. Timely bill payments are critical for maintaining a positive credit history and avoiding debt accumulation, both of which contribute to long-term financial security as shown in Table 1. Most of the correlations presented in Table 1 are highly significant (Sig. < 0.01), indicating that the relationships are unlikely to be due to chance.

Another significant finding is the negative correlation between the tendency to "live for today" and the habit of carefully checking affordability before making purchases (correlation of -0.490). This implies that individuals with a present-focused mindset are less likely to exercise cautious spending habits, potentially leading to impulsive financial decisions that could undermine economic resilience. Additionally, the tendency to "live for today" negatively correlates with paying bills on time (-0.438), which could reflect a short-term outlook that overlooks essential financial obligations, heightening the risk of financial instability.

Interestingly, there is a moderate positive correlation between those willing to take investment risks and those who set long-term financial goals (0.271). This association suggests that risk tolerance, when coupled with a long-term perspective, may be part of a more strategic approach to wealth-building and stability. However, high risk tolerance without proper financial planning might still lead to potential financial setbacks, especially in volatile economic conditions.

Moreover, individuals who prefer to spend rather than save money show a significant positive correlation with the belief that "money is there to be spent" (0.380). This reflects an attitude toward immediate consumption, which can reduce the capacity for long-term savings and emergency funds, essential elements of financial resilience. Conversely, those who carefully monitor personal finances and prioritize long-term goals tend to have lower correlations with these present-focused, spend-oriented behaviors, reinforcing the idea that financial literacy promotes prudent financial management.

In summary, the analysis highlights how financial literacy, as reflected in careful spending, financial monitoring, and goal-setting behaviors, is positively correlated with financial practices that enhance economic stability. Conversely, a preference for short-term consumption and a "live-for-today" mentality correlates negatively with indicators of financial stability. These findings suggest that fostering financial literacy could help individuals adopt habits that improve their economic resilience and security over time.

Our analysis reveals a clear age-related trend in household budgeting habits. Younger respondents, particularly those aged 18–19, show the lowest likelihood of maintaining a budget, with only 37.5% reporting having one. Budgeting practices increase significantly within the 20–39 age range, peaking among individuals aged 30–39, where 65.9% have established a budget. However, budgeting declines among older age groups, with only 40% to 48% of respondents aged 50 and above maintaining a budget. This trend suggests that middle-aged individuals may recognize the importance of budgeting as they assume more financial responsibilities, while younger and older groups may benefit from tailored financial education to emphasize the importance of long-term planning.

Table 1. A Pearson correlation analysis of financial behaviors.

		Before I buy something, I carefully check if I can afford it.	I live for today. I'll think about tomorrow when it comes.	I prefer to spend money rather than save it long-term.	I pay my bills on time.	I am willing to risk my money and savings for the sake of investment.	I carefully monitor my personal finances.	I set long-term goals and strive to achieve them.	Money is there to be spent.
Before I buy something, I carefully check if I can afford it.	Pearson Correlation	1	−0.490 **	−0.222 **	0.510 **	−0.204 **	0.358 **	0.144 **	−0.060
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000	0.000	0.059
	N	1025	1016	1018	1017	1016	1019	1015	1007
I live for today. I'll think about tomorrow when it comes.	Pearson Correlation	−0.490 **	1	0.433 **	−0.438 **	0.273 **	−0.396 **	−0.172 **	0.211 **
	Sig. (2-tailed)	0.000		0.000	0.000	0.000	0.000	0.000	0.000
	N	1016	1024	1018	1016	1016	1018	1014	1007
I prefer to spend money rather than save it long-term.	Pearson Correlation	−0.222 **	0.433 **	1	−0.242 **	0.219 **	−0.285 **	−0.202 **	0.380 **
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000	0.000	0.000
	N	1018	1018	1027	1019	1018	1021	1018	1009
I pay my bills on time.	Pearson Correlation	0.510 **	−0.438 **	−0.242 **	1	−0.173 **	0.508 **	0.268 **	0.052
	Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000	0.000	0.098
	N	1017	1016	1019	1026	1019	1020	1016	1008
I am willing to risk my money and savings for the sake of investment.	Pearson Correlation	−0.204 **	0.273 **	0.219 **	−0.173 **	1	−0.044	0.271 **	0.150 **
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.157	0.000	0.000
	N	1016	1016	1018	1019	1025	1021	1017	1009
I carefully monitor my personal finances.	Pearson Correlation	0.358 **	−0.396 **	−0.285 **	0.508 **	−0.044	1	0.396 **	−0.059
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.157		0.000	0.062
	N	1019	1018	1021	1020	1021	1028	1019	1012

Table 1. *Cont.*

I set long-term goals and strive to achieve them.	Pearson Correlation	0.144 **	−0.172 **	−0.202 **	0.268 **	0.271 **	0.396 **	1	−0.125 **
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000		0.000
	N	1015	1014	1018	1016	1017	1019	1024	1009
Money is there to be spent.	Pearson Correlation	−0.060	0.211 **	0.380 **	0.052	0.150 **	−0.059	−0.125 **	1
	Sig. (2-tailed)	0.059	0.000	0.000	0.098	0.000	0.062	0.000	
	N	1007	1007	1009	1008	1009	1012	1009	1016

Results from the Financial Literacy Survey of Adults in Montenegro, authors' calculations. ** means that correlation is significant at the 0.01 level (2-tailed).

Education level strongly influences saving behaviors, with higher education correlating with more diversified saving methods. Among university graduates, a higher percentage utilize formal saving options, such as bank accounts, and some even invest in stocks or real estate (about 2–3% each), indicating a higher financial literacy level. In contrast, secondary school graduates predominantly save in cash, and 18.5% report not saving at all, revealing potential barriers to financial inclusion. Among those with only primary or elementary education, saving behaviors are even more limited; these respondents are more likely to save in cash or not save at all, underscoring a lack of engagement with formal financial institutions. This analysis underscores the importance of education in fostering financial literacy and highlights a need for targeted programs that promote formal savings methods and educate lower-educated groups on the benefits of diversified saving.

Marital status appears to play a role in respondents' perceptions of income sufficiency. Single and divorced individuals report the highest levels of income insufficiency, with around 50–60% indicating that their income does not meet their expenses. In contrast, married individuals exhibit better financial stability, with 57% able to meet their expenses, potentially due to shared household income. For individuals in "common-law" partnerships, 53% report income sufficiency, while widowed individuals present a more mixed financial picture, with both income sufficiency and shortfalls reported. These findings highlight the potential impact of marital status on economic stability, suggesting that single and divorced individuals may require more support in building financial resilience.

An analysis of budgeting habits across education levels reveals a positive correlation between higher education and budgeting practices. University graduates show the highest propensity for budgeting, with 60.4% maintaining a budget, while only 35.5% do not budget, indicating a strong inclination toward financial planning. Secondary school graduates, however, are split, with 44.2% budgeting and 45.7% not having a budget. Notably, 6.4% of secondary school graduates reported uncertainty about budgeting, possibly reflecting limited financial literacy. Among those with only primary education, 42.9% have a budget, while 44.3% do not, and a notable 10% are uncertain about budgeting. This uncertainty is even more pronounced among those with informal education, where 55% do not budget, and 3.3% are unsure. Interestingly, the small group without formal education reports the highest budgeting rate at 83.3%, though this group's small size limits the representativeness of the finding.

These findings suggest that higher education correlates with a greater likelihood of budgeting, while lower education levels, particularly primary and informal education, are associated with inconsistent budgeting practices and higher uncertainty regarding financial planning [59]. This reinforces the importance of integrating financial literacy education into early and secondary school curricula to foster budgeting habits and financial planning skills from a young age.

4.3. Understanding Financial Literacy in Montenegro Using Decision Tree Analysis

The decision-making process behind household budgeting behaviors based on demographic and financial factors. Here is a step-by-step interpretation in a more scientific framework. The main objective or outcome of interest in the model is whether or not a household maintains a budget. This variable is influenced by several layers of demographic and financial characteristics, moving from general demographics to specific financial involvement.

The first level of segmentation is by age group, categorizing individuals as Young, Middle-aged, or Older. This segmentation acknowledges that age often correlates with financial practices and stability, where—for instance—middle-aged individuals might be more likely to budget than younger or older age groups. For younger individuals, the model introduces marital status as the next determinant, dividing them into *Single* and *Married* categories. Marital status is a critical demographic factor, as marriage can lead to shared financial responsibilities, possibly increasing the propensity to budget. For married individuals, household size becomes the next factor, dividing households into Small and Large. Household size impacts budgeting behaviors because larger households might require more structured financial management due to increased expenses and complexity. For small households, the model examines financial decision involvement—whether individuals in the household are actively involved in financial decisions. This is based on the assumption that involvement in financial decision-making enhances awareness and responsibility for budgeting practices. Those who are involved are more likely to have a household budget. For larger households or those with less decision-making involvement, income level is considered next, categorized as High Income or Low Income. Income level is a significant predictor of budgeting behavior; higher income levels generally facilitate financial planning, while low-income households may prioritize immediate needs, reducing the likelihood of budgeting. The pathways lead to two potential outcomes—either the household maintains a budget or does not. The likelihood of each outcome depends on the pathway followed through demographic and financial characteristics as presented in Figure 5.

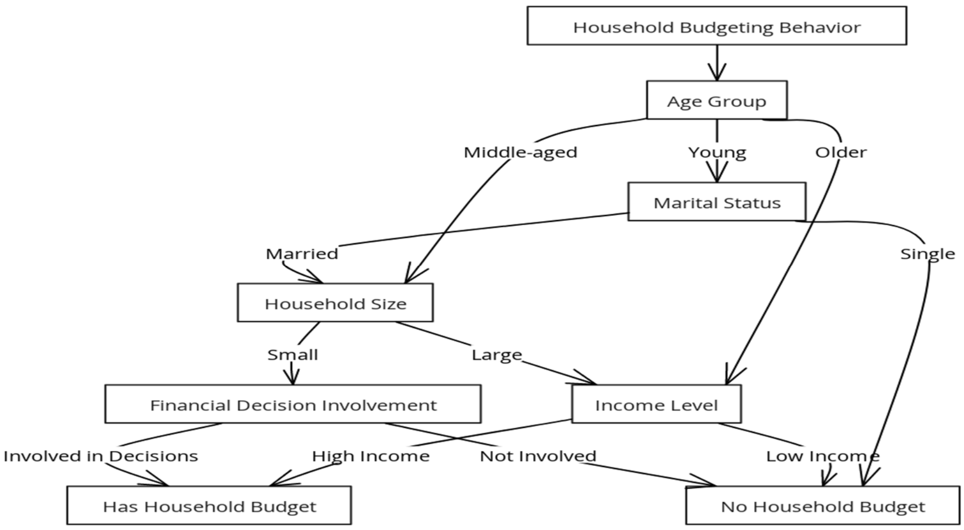

Figure 5. The decision-making process behind household budgeting behaviors. Results from the Financial Literacy Survey of Adults in Montenegro, authors' calculations.

In sum, this decision tree model identifies age, marital status, household size, financial decision involvement, and income level as critical factors that collectively influence the likelihood of household budgeting. This hierarchical model aligns with prior research emphasizing that socioeconomic and demographic factors play substantial roles in financial behavior [60–65].

To examine the factors influencing household budgeting behavior, we developed a decision tree model that leverages demographic and financial characteristics as predictors. The primary objective of the model was to classify whether a household maintains a budget (1) or does not (0). Predictor variables included age group, education level, marital status, income sufficiency, expected investment return, and preferred investment time horizon. These factors were chosen based on their potential to influence financial planning behavior and simple decision tree model is presented in Figure 6 (depth limited to the second level).

Initially, a standard decision tree classifier was implemented to identify the relationships between these variables and budgeting tendencies. The model underwent further refinement through hyperparameter tuning to enhance predictive accuracy. Using Grid Search with cross-validation, we explored optimal settings for key parameters, including maximum depth, minimum samples split, and minimum samples leaf. This optimization yielded the following best-performing parameters: a maximum depth of 7, a minimum samples split of 2, and a minimum samples leaf of 1.

The optimized decision tree model achieved a test accuracy of approximately 54.4%, with balanced performance across both classes (budget vs. no budget). Although this accuracy indicates moderate predictive power, the model effectively captures some underlying patterns in budgeting behavior. Cross-validation accuracy for the optimized model was slightly higher at 58.2%, suggesting consistency in performance across different data subsets. While further improvements could enhance accuracy, these results are valuable in identifying influential factors for budgeting decisions.

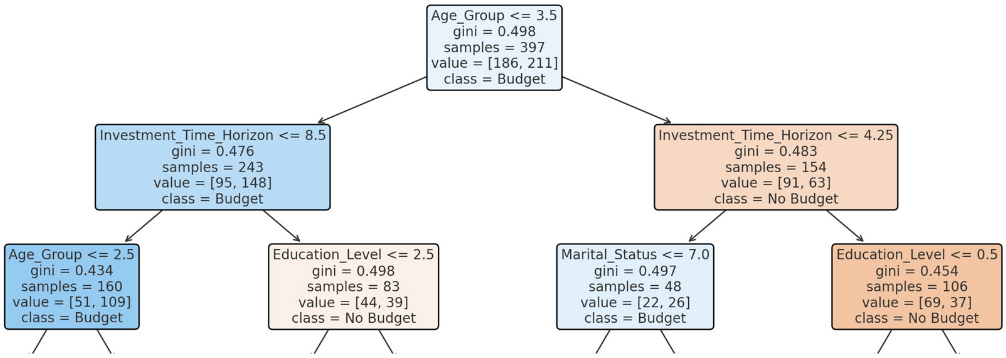

Figure 6. Simple decision tree model for household budgeting behavior in Montenegro in 2024. Results from the Financial Literacy Survey of Adults in Montenegro, authors' calculations.

To visualize the model's decision-making process, we displayed the first two levels of the tree to highlight the most significant splits. The top nodes revealed that education level and income sufficiency are particularly influential in predicting whether a household maintains a budget. Age group also emerged as a significant predictor, underscoring that budgeting habits may vary substantially across different stages of life.

A closer examination of the decision tree structure shows that households with higher educational attainment are more likely to have a budget. This finding aligns with the existing literature suggesting that financial literacy, often correlated with higher education levels, contributes to proactive financial planning. Income sufficiency, another key predictor in the model, further suggests that households with stable and sufficient income are more inclined to create and adhere to a budget. The tree's structure additionally indicates the sequential importance of these predictors, with marital status and investment preferences also contributing meaningfully to the model's predictions.

While the model's moderate accuracy highlights room for improvement, it provides valuable insights into the demographic and financial characteristics associated with budgeting. The interpretability of the decision tree model offers a clear advantage, as it visually demonstrates the stepwise influence of these factors, allowing for intuitive understanding of how each variable contributes to budgeting behavior. The model's findings indicate that education, income stability, and age are primary determinants in household financial planning, reflecting broader socio-economic trends in financial literacy and resource management.

In conclusion, this decision tree model offers a foundational approach to identifying the predictors of household budgeting behavior, highlighting the importance of demographic and behavioral factors in financial planning. Future work could focus on refining the model through additional feature engineering or incorporating other relevant financial variables, which may capture more nuanced aspects of budgeting decisions and improve model accuracy.

5. Discussion

In Montenegro, a positive correlation between financial literacy and regular savings behavior may be attributed to the country's economic volatility and high inflation rates. Financially literate individuals are more likely to understand the importance of saving as a buffer against economic uncertainty. Given the limited access to formal social safety nets in emerging economies like Montenegro, households may rely on personal savings to mitigate risks, making financial literacy a crucial determinant of economic resilience. Financially literate individuals are thus better positioned to protect themselves from income fluctuations, especially in a country where economic shocks from global market trends can disproportionately impact household income.

5.1. Financial Literacy and Debt Management

The correlation between higher financial literacy and responsible debt management in Montenegro likely stems from an increased awareness of the consequences of high-interest debt and its impact on long-term financial stability. Financial literacy equips individuals with the knowledge to compare loan terms and avoid predatory lending practices, which are often more prevalent in emerging economies. In Montenegro, where reliance on informal financial services can lead to cycles of unmanageable debt, financially literate individuals are more capable of seeking out favorable credit terms from formal institutions, thereby reducing their overall debt burden and enhancing household stability.

The observed trend where financially literate individuals are more willing to take calculated investment risks may be linked to their understanding of diversified income sources as a means to enhance financial security. In Montenegro's economy, which is heavily reliant on tourism and service sectors, economically informed individuals might see the value in investing as a way to reduce dependence on potentially unstable income streams. Financially literate individuals are more likely to comprehend concepts like risk diversification, which allows them to balance risk and reward, contributing to economic resilience by promoting alternative income opportunities during economic downturns.

5.2. Future Oriented Financial Behaviors

The correlation between financial literacy and a future-oriented financial outlook, including budgeting and long-term goal-setting, could be attributed to the limited availability of formal financial planning resources in Montenegro. With restricted access to financial advisors or planning services, individuals with higher financial literacy may be more proactive in setting long-term financial goals independently. This trend aligns with findings in other emerging economies, where financial literacy compensates for gaps in public financial support, encouraging individuals to plan for major life expenses, including education, retirement, or health emergencies, thus enhancing overall economic resilience.

The association between financial literacy and lower impulsive spending behaviors may be rooted in Montenegro's high exposure to economic fluctuations. Financially literate individuals aware of the risks posed by sudden economic downturns may adopt cautious spending habits as a preventive measure. This prudent financial behavior likely results from an understanding of budgeting principles and the need for financial reserves to withstand economic disruptions. In a socioeconomic context where financial instability can severely impact household well-being, financially literate individuals may avoid unnecessary expenses to maintain financial security.

5.3. Demographics and Financial Literacy

A key finding from our decision tree model indicates that certain demographic factors, such as education level and income, serve as significant predictors of financial literacy, which is consistent with previous studies by OECD (2018) and Cole, Sampson, and Zia (2011) [17,66]. These studies have shown that individuals with higher education levels and stable incomes tend to have better financial literacy, leading to more secure financial behaviors. In Montenegro's context, where a substantial portion of the population has limited access to financial education resources, these findings highlight the critical need for targeted educational programs.

The observed relationship between financial literacy and risk tolerance in investment decisions provides further insight. Our analysis shows that individuals with higher financial literacy are more likely to engage in calculated risk-taking, consistent with findings from Karlan, Ratan, and Zinman (2014) [18]. This risk-taking, when informed by financial knowledge, can lead to improved financial outcomes, such as investment in diversified portfolios, ultimately contributing to household economic resilience. However, it is also noted that a lack of financial literacy may lead to either excessive caution or uncalculated risks, highlighting the importance of financial education in fostering informed decision-making.

One interesting deviation from initial hypotheses was the weak correlation between financial literacy and short-term spending attitudes. Despite prior research suggesting that financially literate individuals are less impulsive in their spending, our model shows that cultural and socio-economic factors may mediate this relationship in Montenegro. This insight aligns with work by Beckmann (2013) on financial behaviors in Eastern European countries, suggesting that regional socio-cultural factors play a role in financial decision-making, sometimes limiting the impact of financial literacy alone on spending habits [30].

The decision tree model developed in this study provides a structured approach to understanding the demographic and financial factors associated with household budgeting behavior. The model's performance, with an accuracy of 54.4%, highlights that while some predictive power exists, budgeting behavior is influenced by complex, multifaceted factors that may not be fully captured by this model alone. Nevertheless, the insights derived from the decision tree reveal important patterns and associations that are valuable for both academic understanding and practical application in financial education.

One of the most notable findings from the model is the strong influence of education level on budgeting behavior. Households with higher educational attainment are significantly more likely to maintain a budget, suggesting that financial literacy, which often accompanies higher education, is crucial for financial planning. This result aligns with existing research indicating that individuals with greater financial knowledge are more inclined to engage in proactive financial management practices, such as budgeting. This insight suggests that targeted financial literacy programs, particularly for individuals with lower levels of formal education, could improve financial planning behaviors and overall economic resilience.

Income sufficiency also emerged as a key determinant of budgeting behavior in the model, with households reporting stable and sufficient income being more likely to maintain a budget. This finding is consistent with economic theories suggesting that individuals with greater financial security are more capable of engaging in forward-looking financial planning, as they have the necessary resources to allocate toward future needs. Conversely, households facing income instability may focus on immediate expenses rather than long-term planning, which could hinder their ability to establish a budget. This insight emphasizes the importance of economic policies that support income stability, as a means to empower households to take a more structured approach to financial management.

Age group also proved to be a meaningful predictor, reflecting potential generational or life-stage differences in financial behavior. Younger individuals were generally less likely to budget, which could reflect limited experience with financial planning or lower income levels in early career stages. In contrast, middle-aged individuals, particularly those in their 30s and 40s, displayed higher rates of budgeting, likely reflecting increased financial responsibilities and the need to manage household expenses. This trend supports the view that financial behaviors evolve over the life course, underscoring the value of early financial education to instill budgeting habits before major financial responsibilities arise.

While the model's interpretability is a strength, the moderate accuracy suggests limitations in its predictive power. This could be attributed to the complexity of financial behaviors, which are influenced by both observable characteristics and unobservable psychological and situational factors. For instance, attitudes toward risk, individual financial goals, and cultural norms surrounding financial practices are factors that likely impact budgeting but were not directly measured in this study. Future research could benefit from incorporating a broader range of variables, including psychological factors and personal financial attitudes, to enhance model accuracy.

5.4. Theoretical and Practical Implications and Future Research

These findings hold significant practical relevance, especially in emphasizing the importance of designing financial education programs tailored to specific groups in Montenegro, such as youth, low-income households, and rural communities. Including financial literacy programs in school curriculums could help children develop smart financial habits early in life, setting the foundation for long-term economic stability. For adults, especially those in underserved areas, targeted workshops and resources could bridge critical knowledge gaps, equipping them to make better financial decisions. Financial institutions could also play a role by offering user-friendly tools, like budgeting apps or simplified loan comparison platforms, to empower individuals to make informed choices and strengthen their household resilience.

Montenegro's cultural attitudes toward financial practices, such as the preference for cash transactions over formal banking systems, call for a tailored approach to financial literacy programs. A "one-size-fits-all" model may not work in this context. Programs that incorporate culturally relevant examples and involve community leaders could bridge the gap between traditional practices and modern financial systems, making such initiatives more relatable and widely accepted by the local population.

Future research should focus on tracking the long-term effects of financial literacy on economic stability. Longitudinal studies could provide valuable insights into how education programs and changing economic conditions shape financial behaviors over time. Additionally, examining the role of cultural factors in financial decision-making could add depth to these findings. For instance, understanding how societal attitudes toward saving, debt, or investment influence individual choices could reveal ways to better tailor financial literacy programs to Montenegro's unique socio-economic context.

Incorporating qualitative research methods, such as interviews or focus groups, would also enhance the understanding of people's financial behaviors and motivations. Listening directly to individuals' experiences and challenges could provide a richer, more nuanced perspective on the role of financial literacy in their daily lives. These insights would complement the numerical data, painting a fuller picture of how financial education contributes to economic resilience.

Exploring innovative delivery methods for financial education is another critical area for future research. Comparing the effectiveness of online tools, mobile apps, and in-person workshops could identify the most effective approaches for reaching diverse groups. In Montenegro, where some communities have limited access to technology, a blended model combining digital and in-person methods could be particularly effective. Such programs could make learning more accessible and engaging for a wide range of participants.

Financial literacy efforts could also be integrated with broader economic policies aimed at promoting stability. For example, linking financial literacy programs with job training or small business support initiatives could magnify their impact. These integrated programs would not only provide people with the knowledge to make better financial decisions but also offer practical opportunities to improve their financial situations. Researching such combined initiatives could yield valuable insights for policymakers looking to strengthen household and national economic resilience.

Overall, these findings highlight the urgent need to address financial literacy gaps in Montenegro. However, any approach must consider the cultural, demographic, and economic uniqueness of the population. By exploring innovative delivery methods and integrating financial literacy programs with other economic initiatives, policymakers and researchers can ensure that financial literacy becomes a cornerstone of long-term economic resilience.

6. Conclusions

This study highlights the critical role of financial literacy in enhancing economic resilience and stability among individuals in Montenegro. By examining various financial behaviors, such as savings rates, debt management, and risk tolerance, the analysis shows a clear correlation between financial literacy and responsible financial decision-making. Financially literate individuals tend to have higher savings, better debt management skills, and are less vulnerable to economic shocks, indicating that financial education can be an essential tool in building financial security at the household level. The decision tree model developed in this study provides a foundational approach to understanding household budgeting behavior, highlighting the role of education, income sufficiency, and age in financial planning. These findings suggest that educational initiatives, income stability policies, and early financial education could positively influence budgeting practices and, by extension, financial resilience. While the model offers valuable insights, future studies should consider additional factors, including psychological and cultural variables, to more fully capture the complexity of budgeting behavior.

The results obtained from the research on targeted financial literacy programs support the hypothesis outlined in the paper regarding financial behaviors across different demographic groups. Financial literacy and budgeting practices across age groups demonstrate that middle-aged individuals exhibit higher financial literacy, as reflected in their greater propensity to maintain budgets. In contrast, younger and older individuals may lack the necessary knowledge or skills to plan effectively. Similarly, higher education levels correlate with increased financial literacy, enabling individuals to adopt diverse saving strategies, such as investments in financial instruments. On the other hand, those with lower educational attainment often show limited understanding and reliance on informal saving methods. Married individuals display better financial literacy through shared decision-making processes, which lead to improved budgeting and expense management. Furthermore, individuals with higher incomes tend to demonstrate greater financial literacy, as evidenced by their structured financial planning. Conversely, lower-income groups are more likely to lack budgeting practices, potentially due to limited knowledge or resources.

The results align with previous research that underscores the importance of financial literacy in emerging economies, where limited access to financial education often leaves populations more vulnerable to financial instability. These findings suggest that expanding financial literacy initiatives could have significant benefits, particularly in underbanked and rural areas, by fostering more sustainable economic growth. Future research could explore targeted interventions and the impact of digital financial education tools, further strengthening Montenegro's economic resilience in an increasingly volatile global economy. In today's increasingly digital economy, the role of digital financial literacy cannot be overlooked. As more Montenegrins turn to online banking and digital financial products, understanding how to navigate these platforms becomes vital. Educational programs should incorporate digital literacy components to ensure that individuals can effectively manage their finances in an online environment, thus enhancing overall financial stability.

This study contributes to a growing body of literature on the importance of financial literacy in promoting economic stability, making a compelling case for policymakers in Montenegro to prioritize financial education as part of their broader economic development strategy. Financial literacy not only strengthens individual and household financial stability but also fosters long-term economic sustainability by reducing financial inequalities and encouraging responsible resource management. By equipping citizens with the tools to make informed financial decisions, financial literacy supports sustainable development goals, such as inclusive economic growth and resilience against external shocks. Additionally, community workshops should be organized, focusing on practical financial skills such as budgeting, saving, and responsible credit use, particularly in underrepresented regions. Finally, collaboration with local financial institutions could facilitate the development of resources aimed at enhancing financial knowledge among Montenegrin citizens.

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