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The Need for Mandatory Financial Education: Analysis of benefits and limitations.

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TABLE OF CONTENTS:

INTRODUCTION

In an ever evolving and complex global economy, the ability to make informed financial decisions has become a vital skill for individuals from all walks of life. Achieving financial well-being requires more than just earning a steady income; it necessitates a comprehensive understanding of financial concepts, strategies, and practices. This thesis aims to delve into the multifaceted realm of financial education, exploring the concepts of financial literacy and its intrinsic value in contemporary society.

1.1 *Difference between financial education and financial literacy*

Financial literacy and financial education are intricately linked yet distinct concepts within the realm of personal finance management. Although both involve the acquisition of knowledge and skills to navigate one's financial affairs, they possess nuanced differences that warrant clarification.

Financial literacy pertains to an individual's aptitude to comprehend and apply financial knowledge in practical real-world scenarios. Its emphasis lies in the practical application of financial concepts and skills, enabling individuals to possess a comprehensive understanding of key financial principles. These encompass essential aspects such as budgeting, saving, investing, credit management, debt management, and fundamental financial calculations. Through the development of financial literacy, individuals acquire the ability to make informed choices regarding their finances, carefully assess financial products and services, and adeptly maneuver the complexities of the financial domain.

In contrast, financial education encompasses a broader and more comprehensive scope. It entails a structured and intentional process that provides individuals with diverse and well-designed learning opportunities to foster their financial knowledge, skills, and attitudes. Financial education extends beyond the mere acquisition of financial literacy and encompasses both formal and informal methods of disseminating financial knowledge. This involves a range of educational initiatives, programs, and resources that aim to enhance individuals' financial capability and overall well-being.

The components of financial education are manifold and diverse, encompassing a variety of mediums and platforms. These include traditional classroom-based instruction, interactive workshops, engaging seminars, accessible online courses, self-study materials, and innovative interactive tools. There are several agents that act as providers of financial education; however, the main ones are educational institutions, government agencies, non-profit organizations, financial institutions, and employers. The primary objective of financial education is to provide individuals with the required tools, resources, and knowledge to make informed and safe financial decisions, enhance financial strength to face shocks and, lastly, to fulfil their individual financial goals.

To summarize, financial literacy primarily centers on developing an understanding of financial concepts and skills, whereas financial education encompasses a more comprehensive process of imparting financial knowledge through well-structured and purposeful learning opportunities. Financial education serves as the mean to enhance financial literacy and empower individuals with the essential tools and resources needed to navigate the diverse and dynamic landscape of personal finance with efficacy and confidence. This interdependency between financial literacy and financial education empowers individuals to improve their financial well-being and successfully navigate the complexities of the financial sector.

1.2 Why is it important to study finance?

The significance of studying finance and acquiring financial literacy extends well beyond the realm of personal financial management, permeating various facets of society, including economic stability, social mobility, and national economic growth.

Financial literacy holds a crucial position at the individual level, serving as a catalyst for fulfilling personal aspirations, including homeownership, higher education, and entrepreneurship. It empowers individuals to make prudent and well-informed financial choices, enhancing their ability to navigate the intricacies of monetary matters. Moreover, when viewed from a macroeconomic perspective, the presence of a populace equipped with commendable levels of financial literacy greatly bolsters a nation's economic stability. It diminishes the probability of encountering financial crises while concurrently fostering economic well-being.

The study of finance holds immense potential to positively impact both individuals and society as a whole. By enhancing individuals' ability to make sound decisions that align with their risk appetite and are informed by financial principles, studying finance serves as a catalyst for improved welfare. While the financial sector is constantly evolving, driven by technological advancements and evolving social concerns, it is essential to recognize that the foundations of finance remain steadfast. Therefore, developing a comprehensive understanding of the principles and basics of finance from a young age can provide individuals with the necessary tools to navigate this ever-evolving industry successfully.

The question of when it becomes crucial to embark upon the study of finance naturally arises, considering the profound impact it can have on an individual's life trajectory. Financial education is not limited to a specific age group or background, either social status or educational, rather, it should be regarded as a lifelong journey that ideally begins as soon as possible. Introducing financial concepts and providing financial literacy from an early age lays the foundation for cultivating healthy financial habits, giving a sense of responsibility, and empowering individuals to make sound financial choices as they progress through various stages of life. However, in the comprehensive analysis entitled "Financial literacy in a pedagogic prospect," several studies will be rigorously examined to substantiate the imperative of implementing financial education from an early age.

By delving into these research findings, this thesis aims to shed light on the necessity and benefits of financial education as a lifelong endeavor, advocating for its incorporation into educational curricula from the early stages of learning. The subsequent sections of this thesis will delve into the multifaceted dimensions of financial education, exploring its underlying principles, effective pedagogical approaches, and the impact of demographic factors on financial literacy. Through this extensive examination, a comprehensive framework for implementing financial education initiatives will be elucidated, offering valuable insights to policymakers, educators, and stakeholders alike.

1.3 The relevance of the study

In conclusion, this thesis aims to shed light on the significance of financial education and financial literacy in our increasingly complex economic landscape, with the final goal of contributing to the research supporting the implementation of financial education as a mandatory subject. This will be done by an in-depth analysis of the existing research, which will be used to examine different topics that are related to financial literacy and financial education.

In the first chapter of this thesis, an in-depth exploration of various topics related to financial literacy will be pursued. The chapter will be organized into six sections, each contributing to a comprehensive understanding of the subject discussed. By following the logical progression of these sections, readers will gain valuable insights into the current state of financial literacy worldwide. The initial section will provide an overview of the global landscape of financial literacy. It will analyze the existing levels of financial knowledge and skills across different regions, shedding light on the challenges and opportunities prevalent in today's interconnected economies. This assessment sets the foundation for further examination, allowing for a more nuanced understanding of the significance of financial literacy on a global scale.

Following this, a dedicated section will focus on Italy as a case study, exploring the specific financial literacy levels within the country. This case study serves as an important point of reference, offering insights into the unique factors that influence financial literacy in a specific socio-economic context. By examining Italy's financial literacy landscape, this section contributes to a broader understanding of the factors that shape financial knowledge and behavior within a localized setting.

The subsequent section will critically evaluate the fallacies surrounding financial education. It will address misconceptions and common pitfalls associated with current approaches to financial education. By highlighting these fallacies, this section aims to provide a context for the findings presented in the previous sections, offering explanations for the observed levels of financial literacy.

Delving further into the intricate relationship between financial literacy and financial crises, the fourth section will provide a comprehensive analysis of their interconnection. This analysis is crucial in understanding the necessity of providing widespread financial education to the majority of the population. Given the forces of globalization and the democratization of finance, it becomes increasingly important to mitigate the potential domino effects that can arise, that have been determinants of the 2007 financial crisis. This section will shed light on the pivotal role of financial education in preventing and managing such crises, emphasizing the urgency for comprehensive financial education initiatives.

Moreover, the fifth section of the first chapter will examine demographic differences in financial education. By focusing on specific categories within the population, this section will underline the disparities and vulnerabilities that exist from a financial perspective. It will elucidate how certain groups are at higher risk and require tailored financial education interventions to address their unique challenges effectively. The findings presented in this section contribute to a more inclusive and equitable approach to financial education.

Concluding the first chapter, the final section will explore the relationship between social responsibility and financial education. In the dynamic world of today, social concerns significantly impact the financial industry. This section will delve into the ways in which financial education can promote social responsibility and ethical financial practices. It will underscore the importance of incorporating social considerations into financial education programs, recognizing the need to address the evolving landscape of social issues and their impact on financial decision-making.

In the subsequent second chapter, the focus will shift towards highlighting the benefits of financial education and financial literacy, providing compelling reasons for the implementation of financial education as a mandatory subject. This chapter will commence with a section that examines relevant past research from a pedagogic perspective, emphasizing the long-lasting effects of financial education when provided at a young age. The findings from this section will inform subsequent discussions on the benefits of financial literacy.

The following section will extensively describe the benefits that arise from financial literacy. It will explore the positive outcomes associated with a high level of financial knowledge and skills, both at the individual and societal levels. Furthermore, a follow-up section will present a comprehensive overview of currently available financial education programs worldwide, highlighting their target audiences and specific areas of focus. This section will underscore the importance of carefully planning financial education interventions and utilizing modern tools to effectively educate the new generation.

Lastly, the final section of the second chapter will zoom in on the benefits of utilizing social media as a powerful tool for financial education. It will explore the unique opportunities and advantages that social media platforms offer in disseminating financial knowledge and engaging individuals in interactive learning experiences. This section will highlight the transformative potential of leveraging social media to enhance financial literacy initiatives.

The last chapter hosts the conclusion, in which I advocate implementing financial education in the curriculum of each student since the earliest stages of his academic path. The subject's program needs to be tailored to the students' overall educational level and needs. The use of modern tools, such as social media, has been proven to be effective in engaging students and facilitate interactions not only between students but also between them and the teachers, allowing moreover interactions across borders and thus opening the doors to an amplified range of educational possibilities such as collaborations between schools. A crucial role in this implementation is played by the exposure of students to real-world scenarios through simulations, case studies and competitions. The long-term benefits include providing future generations with the ability to assess risks and returns, make informed and, consequently, safer financial decisions and avoid bad financial behavior. Other benefits of such implementation would be the reduction in financial hardships, a decreased reliance of governments' support programs, an increase in entrepreneurial activities and even a potential intergenerational spillover of financial knowledge, with a long-term result of reducing economic inequalities and improving social mobility.

Through the comprehensive analysis and exploration of these topics, this thesis aims to contribute to the existing body of research on financial education and financial literacy. By delving into the nuances and complexities of these subjects, it seeks to provide valuable insights that support the implementation of financial education as a mandatory and transformative component of contemporary education systems.

CHAPTER 1

LITERATURE REVIEW

Financial education refers to the process of providing individuals with knowledge and skills necessary to make informed financial decisions. It encompasses various topics such as budgeting, saving, investing, and understanding financial products. The importance of financial education has gained recognition in recent years due to the increasing complexity of financial markets and the need for individuals to take charge of their own financial well-being. Moreover, the liberalization of finance and the democratization of the subject exposed individuals and firms to a dynamic environment, which is subject to quick changes and that is continuously developing new features, regulation, products and possibilities.

Financial literacy refers to the knowledge of financial topics, usually measured as the understanding of basic concepts like inflation, interest rate and compounding effect. It equips individuals with the tools and knowledge to manage their personal finances, make wise investment decisions, and achieve their financial goals.

Numerous studies have emphasized the significance of financial education in improving financial literacy. For instance, Lusardi and Mitchell (2014) found that individuals with higher levels of financial literacy are more likely to engage in retirement planning and investment activities. Similarly, studies by Fernandes (2014) and Hung (2017) highlight the positive relationship between financial education and various financial behaviors, including investment decisions.

A considerable body of research has investigated the impact of financial education programs on investment decisions. These studies have employed diverse methodologies, including randomized controlled trials, survey data analysis, and experimental designs, to examine the effectiveness of financial education interventions. In a randomized controlled trial conducted by Hastings et al. (2013), participants who received financial education interventions exhibited higher levels of financial knowledge and were more likely to invest in retirement plans compared to the control group. Another study by Bernheim and Garrett (2003) found that individuals who completed financial education courses had significantly higher participation rates in stock market investments.

While some studies demonstrate a positive relationship between financial education and investment decisions, others present mixed findings. For instance, a study by Mandell and Klein (2009) found that although financial education increased participants' financial knowledge, it did not necessarily translate into improved investment decision-making.

To understand the relationship between financial education and investment decisions, researchers have drawn upon various theoretical frameworks and models. Behavioral finance theories, such as prospect theory and mental accounting, offer insights into individuals' biases, heuristics, and decision-making processes when it comes to investing. Economic theories, such as the life-cycle hypothesis and portfolio choice theory, provide a framework for understanding how financial education can influence investment behavior based on rational decision-making.

These theoretical frameworks and models contribute to a deeper understanding of the underlying mechanisms through which financial education may impact investment decisions. They help explain the psychological and economic factors that influence individuals' investment choices and how financial education interventions can potentially mitigate biases and improve decision-making.

While the existing literature suggests a positive relationship between financial education and investment decisions, there are several gaps and limitations that need to be addressed. Firstly, many studies focus on short-term outcomes and may not capture the long-term effects of financial education programs on investment behavior. Additionally, there is a lack of consensus on the most effective approaches and delivery methods for financial education interventions.

Furthermore, most studies primarily examine the impact of financial education on knowledge acquisition and financial behaviors, without delving into the underlying mechanisms and factors influencing the effectiveness of these interventions. Understanding the specific elements of financial education programs that contribute to improved investment decisions can enhance the design and implementation of future interventions.

Addressing these gaps and limitations is crucial to inform the development of effective financial education programs that can empower individuals to make informed investment decisions and ultimately improve their financial well-being.

By critically reviewing the relevant literature, it is possible to identify the gaps and limitations in existing research, highlighting the need for further investigation. The findings from previous studies provide a foundation for understanding the relationship between financial education and investment decisions, while the theoretical frameworks offer insights into the underlying mechanisms at play.

The studies that will be used in this paper to address the relationship between financial education, and thus financial literacy, and investment decisions, will also address the benefits of financial education, the effectiveness of financial education programs, giving also precise definitions of the different methods, initiatives and programs available and the limitations of such programs.

Some of the studies used address differences in financial literacy levels among different social context, with a focus on differences that concern demography, from the social status of the target population to gender and geography.

The concern of this paper is addressing the possible effectiveness of mandatory financial education, the target population and the limitations, with an emphasis on generational benefits and

spillover effects that would be caused by the implementation of financial education in the curriculum of citizens around the world. Comparation of different school systems from different countries will be essential to determine the possibility and effectiveness of such proposal.
The main studies that will be used in this paper will be several, retrieved from online archives like Google Scholar, Government and institutions websites and are used as follows.

Articles from the Investopedia website are used to describe the birth of finance and the principle of rationality, Hayes (2022), together with the possible barriers that the financial lexicon might create. In the first chapter, the studies employed are several and differentiate for each subchapter. Topics discussed by Refrigeri (2020) in "Scenari ed esperienze di educazione finanziaria", that is, the pedagogic analysis of financial education provide an in-depth analysis of the reasons why the exposure to financial topics and money since a young age is beneficial to the individual and the society.

The study of Maurizio Trifilidis (2009) titled "L'educazione finanziaria: le iniziative a livello internazionale" examined financial education initiatives at the international level. The study aimed to provide an in-depth analysis of various programs and strategies implemented in different countries to promote financial literacy among individuals and households. Furthermore, the study addressed the challenges and limitations encountered in implementing such programs, such as the complexities associated with measuring their impact and the necessity for improved integration with existing educational systems, giving recommendations to enhance international financial education.According to the study "Financial literacy around the world", Lusardi, Oudheusden, Klapper (2015) give plenty of insights on the current level of financial literacy and analyze the differences between countries, focusing on demographic aspects such as gender and income level. The analysis provided by the study is enforced by a large and diversified sample population and the results are displayed in graphs that clearly show the discrepancy in financial literacy levels.

Priceton Survey Research Associates International (PSRAI), 2007 found that only a small portion of the financial illiterate population is interested in acquiring new knowledge, specifically in the financial sector, as many consider it a distant subject, whit everchanging terms and features.

The contribution of Rinaldi in "Educazione finanziaria in Italia" (2019) provide models and proposals to properly set up programs and initiatives, using precise definitions of the phases and the steps necessary to the creation of effective financial education programs. The methodologies proposed in this study are supported by data resulted from the ONEEF survey. The EduFin Index provides insights on the results of a specific initiative of the Italian government (Month of Financial Education), dividing the results into two sub-indexes that are the Awareness Index and the Behavioral Index. The Indexes show that even if there is a slight improvement over time, the financial literacy level in Italy is still lower than the quota fixed to determine a sufficient financial literacy. The description of the data used and collected to compute the EduFin Index are provided by the online blog AlleanzaeLavoro.

A study conducted by Lusardi and Mitchell (2007) that examines the level of financial literacy in the United States. The study is titled "Financial Literacy and Retirement Preparedness: Evidence and Implications for Financial Education" and was published in the Journal of Pension Economics and Finance. In this study, Lusardi and Mitchell assess the financial literacy levels of individuals in the United States and investigate the implications of financial literacy on retirement preparedness. They utilize data from the Health and Retirement Study (HRS) to analyze the financial knowledge of respondents and their engagement in retirement planning activities. The study reveals alarming levels of financial illiteracy among the American population, highlighting significant gaps in knowledge regarding basic financial concepts. Lusardi and Mitchell find that a large portion of the population lacks understanding in areas such as inflation, interest rates, compound interest, and risk diversification. Furthermore, the study demonstrates a strong correlation between financial literacy and retirement preparedness. Individuals with higher levels of financial literacy are more likely to engage in retirement planning activities, such as contributing to retirement accounts and making informed investment decisions. Based on their findings, Lusardi and Mitchell emphasize the importance of financial education initiatives in addressing the knowledge gaps and promoting better retirement preparedness among individuals. They argue that increasing financial literacy is crucial for individuals to make informed decisions, plan for their retirement, and achieve long-term financial security.

The need for consistent and prolonged financial education is shown as the result of many studies, such as Jump$tart Coalition (2006), Mandel and Schmid Klein (2009), Kim Gorman and Sorhaindo (2003). Moreover, a past study suggest that incentives to participate in programs of financial education should be implemented to contrast the lack of interest and participation (Brown, Gartner, 2007). The National Financial Capability Study (NFCS) conducted by the Financial Industry Regulatory Authority (FINRA) in 2019 is an important study that contributes to the understanding of financial education's impact on investment decisions. The NFCS is a nationwide survey designed to assess the financial knowledge, behaviors, and attitudes of adults in the United States. This study provides valuable insights into the financial capability of individuals and explores the relationship between financial education and investment decision-making. The NFCS survey collects data on various aspects, including financial literacy levels, investment practices, risk tolerance, and engagement in retirement planning. The findings of the study serve as a valuable resource for researchers and policymakers interested in examining the effectiveness of financial education interventions and their influence on investment decisions. Furthermore, considering the demographic aspects of the impact of financial education on investment decisions, a study conducted by the

National Endowment for Financial Education (NEFE) in 2019 holds significant relevance in understanding the impact of financial education on investment decisions, particularly among lower-income individuals. This study aims to examine the effectiveness of financial education interventions specifically targeted towards lower-income populations, investigating the relationship between financial education programs and the investment behavior of individuals with limited financial resources. It explores how financial education initiatives tailored to the unique needs and challenges of lower-income individuals can influence their investment decisions, financial knowledge, and overall financial well-being.

The possible areas of improvement are several and different from country to country as shown by the study titled "PISA 2015 Results (Volume IV): Students' Financial Literacy" conducted by the Organization for Economic Cooperation and Development (OECD) in 2017 which aimed at understanding financial literacy levels among students across participating countries using the Programme for International Student Assessment (PISA) framework. The study investigates students' knowledge and understanding of financial concepts, their ability to apply financial knowledge in real-life situations, and their attitudes towards financial issues. It provides insights into the factors influencing students' financial literacy, including educational systems, socioeconomic backgrounds, and gender differences. It identifies areas for improvement and best practices in promoting financial literacy among students, which can inform policymakers in designing effective financial education curricula and interventions.

Increasing the level of financial literacy is a key element to increase the financial well-being of individuals, as shown in multiple studies, like “Financial Well-being in America” conducted by Consumer Financial Protection Bureau (2018), “National Financial Capability Study” by Financial Industry Regulatory Authority (2019), “Financial literacy in G20 countries: A comparative analysis” done by the Organisation for Economic Co-operation and Development in 2016 and “Education and household financial decision making” by National Bureau of Economic Research. (2018).

Further support to the body of research that studies differences in financial literacy levels among people come from “Gender differences in financial literacy: A global perspective” by Organisation for Economic Co-operation and Development. (2016), “The gender gap in financial literacy: A global perspective” by Global Financial Literacy Excellence Center. (2017) and “Gender, stock market participation, and financial literacy” conducted by the National Bureau of Economic Research. (2018).

The study titled "Financial Literacy and the Financial Crisis" by the National Bureau of Economic Research (NBER) in 2012 explores the relationship between financial literacy and the occurrence of the global financial crisis. It investigates how individuals' levels of financial literacy, understanding of financial concepts, and decision-making skills influenced their vulnerability to the financial crisis. Moreover, it promotes financial education and consumer protection. The relationship between financial literacy and financial stability is supported also by the International Monetary Fund (IMF) which in 2017 conducted the study titled “Financial Education for Financial Stability" exploring the role of financial education in promoting financial stability. The study emphasizes the importance of equipping individuals with the necessary knowledge and skills to make informed financial decisions, manage risks, and protect themselves from financial vulnerabilities. It discusses the linkages between financial education, consumer protection, and overall financial stability highlighting the need for effective financial education programs, policies, and collaborations among stakeholders to enhance financial literacy and contribute to a more stable and resilient financial system.

The relationship between financial education and social responsibility is becoming increasingly more object of studies. The research suggests that financial education drives investment decisions, at both individual and corporate level, towards more socially responsible instruments. This belief is supported by numerous studies like “Financial literacy, financial education, and economic outcomes” by Hastings, J. S., Madrian, B. C., & Skimmyhorn, W. L. (2013), “The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders” Carroll, A. B. (1991) and “The Effect of Corporate Social Responsibility on Customer Donations to Corporate-Supported Nonprofits” conducted by Lichtenstein, D. R., Drumwright, M. E., & Braig, B. M. (2017).

The implementation of mandatory financial education has been analyzed in many studies. All the research on the subject shows positive outcomes in relation to the integration of financial education as a mandatory subject in the curriculum of K-12 students. Specifically, Bernheim, B. D., Garrett, D. M., & Maki, D. M. (2001) showed how financial education in high school has desirable effects on saving and investing behavior in the long term. However, even though the existing research is exhaustive in showing positive effects, the limitations to this implementation are several, and range from designing the programs, to evaluating them, providing teachers with the appropriate knowledge and utilizing the correct methodology.

The so-called digital era has increased the possibilities of knowledge sharing through technology development. Moreover, especially young generations, have shown more interest in financial topics if they are communicated and taught through social media platforms (Kubacki, K., & Rundle-Thiele, S., 2018), with the most used being Facebook and Twitter (Kliber, A., 2016).

Finally, this paper will use these studies to investigate whether there are possible ways to implement financial education as a mandatory subject, analyzing the benefits of such implementation, reducing the cost of the operation and suggest possible solutions to overcome the limitations found by the existing research.

CHAPTER 2

UNDERSTANDING FINANCIAL LITERACY: PERSPECTIVES AND CONTEXTS

2.1 Financial literacy around the world

Financial education initiatives at an international level are several and increasing over time. Some of the initiatives are enhanced by law, while some authorities have financial education among their institutional functions. Alongside the conventional educational instruments, other instruments have been developed to evaluate the effects of the results reached to analyze and improve the programs offered.

The need and search for improvement in the financial education has been increasing globally due to several reasons that are, however, common to many countries. The ageing of the population and the reforms of the pension systems increased the responsibility of families in funding health and retirement; hence, financial planning and budgeting have become more and more important for people and governments. The low level of interest rates of the past years increased the number of house loans and the share of savings invested in insurance products. On the other hand, financial intermediaries increased and diversified the products offered thanks to technological innovation.

Together with the increase in the number of products available, increased their complexity that often cannot be fully understood by consumers with their level of knowledge as, on average, they are not able to understand the characteristics of the products and estimate correctly the level of risk and return[1]. In the past years, several studies have shown concerning levels of financial literacy around the world. In the United States, only 39% of the surveyed keeps track of purchases and expenses that are considered to be "normal" (i.e., groceries), even though over 66% of them have two or more credit cards, of which 40% is not able to repay monthly the debt incurring in high interest rates and reducing the credit score. The already concerning data are worsened by the fact that only 30% declared to be interested in learning more about finance and improve not only the knowledge of general concepts but also of more technical ones.[2] In the United Kingdom, a survey in the field of National Strategy shows that 80% of the sample haven't or doesn't intend to use complementary pension forms even knowing that the future pension will not guarantee the same standard of living they have now. 33% of the purchasers of financial products did not

[1] Draghi, (2008), Un sistema con più regole, più capitale, meno debito, più trasparenza, Audizione al Senato della Repubblica, 21 ottobre 2008, Commissione 6^ del Senato della Repubblica (Finanze e Tesoro). Indagine conoscitiva sulla crisi finanziaria internazionale e sui suoi effetti sull'economia italiana

[2] Princeton Survey Research Associates International (PSRAI), Summary Report, - Financial Literacy Survey, National Foundation for Credit Counseling NFCC, (2007)

confront them with similar products available on the market and 40% of the holders of financial instruments didn't result aware of the fact that the value of such instrument is subject to market movements. Similar results are found in other countries like Germany, Japan and Australia, to name a few.

The studies made show how financial literacy is correlated with the level of general education and income bracket. This is a common denominator among countries, gender and age, with lower income people that didn't get more than 10 years of school education having the lowest levels of financial education. On the other hand, families in which there are entrepreneurs, professionals or people working in the financial industry have shown the highest levels of financial education, together with people that studied more or have higher incomes.

However, the difference is wide also within developed and developing countries, but the level of financial literacy differs also among developed countries, with northern America countries (Canada, USA) and northern Europe countries (UK, Norway, Sweden, Finland, Denmark, the Netherlands and Germany) on top of the list, together with Israel and Australia, while countries that are considered to be developing economies or from the south of Europe (Italy, Spain, Portugal) and the south Asia countries are at the bottom with the lowest levels of financial literacy. In the former group of countries, about 65% or more of adults can be considered financially literate[3], that is, they understand and are aware of what are four fundamental concepts for financial decision-making: risk diversification, inflation, numeracy (interest) and compound interest.

In developed countries, financial literacy ranges from 68% in Canada to 37% in Italy, while in developing countries the range goes from 24% in India to 42% in South Africa. However, even though developed (and thus richer) countries have on average higher financial literacy level, it is not correlated to income as the relationship between GDP per capita and financial literacy only

[3] Lusardi, A., & Mitchell, O. S. (2015). Financial literacy around the world: insights from the S&P global financial literacy survey (2015)

holds when looking at the richest economies: as GDP per capita decreases and falls below $12000, the relation becomes flatter and flatter (Fig. 1)

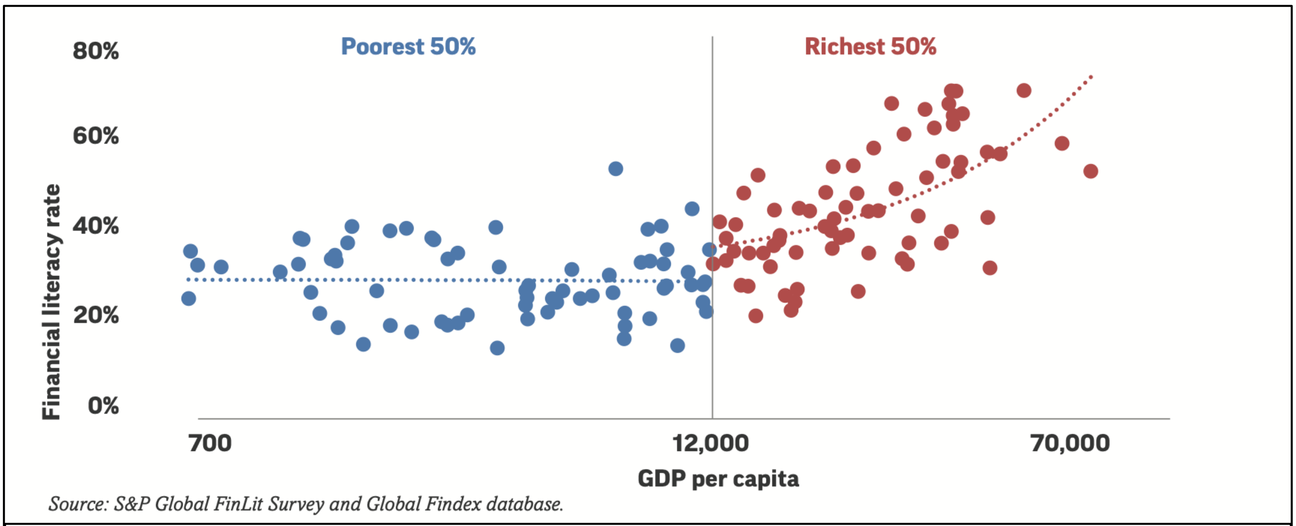

Figure 1

This means that probably, what actually affects and shapes financial literacy are national-level policies rather than any other external factor.

The concepts of inflation and interest are the most known and understood globally, while risk diversification and compound interest are the lowest, with the former being the lowest at 35% of adults correctly answering the related question. Risk diversification is also the one with the largest range of percentages: it spans from 64% in major advanced economies to 28% in major developing economies.[4] Inflation is one of the most known concepts, also thank to *"inflation memory"*: countries that experienced high level of inflation or were subject to hyperinflation in recent past have higher understanding of this concept. For example, Argentina, where financial literacy level is at 28% (lower than world average) resulted in 65% of the adult population understanding the concept of inflation (higher than world average). Similar results can be found in other countries.

In major advanced economies about 25% of adults have an outstanding loan for the purchase of a house, however, 30% of them is not able to perform basic interest calculation on their loan payments. This is an alarming fact that reminds to the 2008 Global Financial Crisis, triggered by the abuse of subprime mortgages (with the related mortgage default) in the US.

[4] This paper differs between major developed and developing countries, the former being Canada, France, Germany, Italy, Japan, UK and US, and the latter being Brazil, Russian Federation, India, China and South Africa

2.2 Financial literacy levels in Italy

Italy is characterized by a constant process of *"financialization"* of everyday life. This term is used to indicate the process through which financial concepts, strategies and instruments penetrate in the life of individuals and in the management of the resources they are endowed with.[5] In the past, the use of financial instruments increased sharply together with a decrease in the Welfare State guarantees. However, this increase in the use of financial instruments, was not followed by a significative enough increase in the financial literacy level, which, in Italy, is still among the lowest of Europe[6]. The low level of financial knowledge in Italy is reflected in the behavior of individuals, who often don't plan their future, to the point that many people (especially young) do not think about pension and retirement as an economic matter and thus don't apply to alternative pension plans, don't invest their savings and some barely save at all, thinking that the State will provide for their retirement without considering that the future cashflows will not be enough to maintain the same standard of living they have during the working years.

The concepts, described by George Simmel and Max Weber in the early 1900, of affirmation of capitalism and the use of money in all aspects of personal life are in contrast with recent analyses showing that individuals do not act in the market as agents characterized by full rationality, but rather make contracts and give certain values to things according to what the sociologist Viviana Zelizer described as "relational work", that is affected by trust and personal ideas, values, principles and norms.

The low level of financial literacy in Italy is considered one of the reasons why, during the Covid-19 pandemic, the number of families that cannot make it to the end of the month increased by 12%[7], together with the number of people that declared of not being able to face possible financial shocks that now is 30%[8]. Among the people that consider themselves to have a high level of financial knowledge, 27.7% declare of easily make it to the end of the month.

The number of programs aimed at improving financial literacy among Italian citizens increased significantly, especially between March and June 2020 (during the first national lockdown). The goal is to help people gain the knowledge necessary to save enough, budget and financially plan the future. The weekly analysis, done with google-alert, ran by ONEEF[9], showed

[5] Refrigeri L., Rinaldi E. E., Moiso V., Risultati dell'indagine nazionale ONEEF e riflessioni multidisciplinari (2019)
[6] Below Italy there are: Albania, Bosnia and Herzegovina, Bulgaria, Turkey, Kosovo, Macedonia FYR and Moldova. Data according to financial literacy around the world, insights from the standard and poor's ratings services global financial literacy survey, Leora Klapper, Annamaria Lusardi, Peter van Oudheusden
[7] Before the pandemic, 46% of families declared of facing financial hardships at the end of the month, while in June 2020, this number increased to 58%.
[8] 3 out of 10 states that it would be difficult if not impossible for them to find 2000 euros within a month to cover sudden expenses.
[9] ONEEF is an acronym saying for: "Osservatorio Nazionale Educazione Economico-Finanziaria"

an increase of programs and webinars offered by institutions covering the topics of credit, insurance products and the importance of saving.

2.2.1 Common issues to financial education initiative

Past research done in Italy on financial education programs have shown the presence of some issues common to many initiatives: the lack of clear objectives, lack of coordination between institutions, no use of scientific literature on financial socialization and literacy, limited evaluation of the effectiveness of the programs and scarce sharing of the results of the research. To overcome these critical points, ONEEF was funded[10] in 2016 and the Ministry of Instruction, Universities and Research (MIUR) launched *"Il Tavolo dell'Economia e Legalità"*, with the final goal of monitoring the financial education programs.[11]

The results of the ONEEF survey, have shown a high heterogeneity of initiatives, their duration and the methodologies used to implement them. It differentiates between three categories of activity:

- Programs: a program or a project[12] is characterized by at least two seminars (either virtual or in presence), public and clear explanation of the objectives, the possibility to dialogue with the entity promoting the program.
- Initiative: an initiative is characterized by the presence of at least one expert of the economic or financial sector (either virtual or in presence).
- Resource: resources are, for example, books, videos and websites and must be characterized by the possibility of use detached from a program or initiative.

According to the 2018 ONEEF survey, the number of initiatives increased from 206 to 297[13], with 40% of them falling in the "initiative" category and 22% resources[14]. Most of them are provided by financial institutions, however, the participation of schools appears to be quite low with respect to initiatives in other extracurricular activities in different fields. These initiatives are mostly provided in the north of the country, with the highest level in Lombardy and the lowest in Basilicata and Calabria. The target population is mainly young people (students)[15] and adults, even though

[10] A joint initiative of Università degli Studi di Udine, FEduF and Università degli Studi Milano-Bicocca, the goals of ONEEF are to list the initiatives of different institutions, develop an in-depth knowledge of the projects, be a scientific and independent reference point, stimulate the creation and development of territorial network, develop the function of reflexivity between entities.

[11] Emanuela E. Rinaldi, I risultati dell'indagine ONEEF sullo scenario dell'educazione finanziaria in Italia (2019)

[12] In institutional lexicon, program is used mainly to refer to ministerial programs with a long-term focus, however, on the ONEEF website, program and projects are used as synonyms.

[13] With respect to the period 2012-2014.

[14] With duration below two hours.

[15] Mainly students of scientific high schools (a type of Italian high school)

some resources can be used in professional and technical high schools. However, only about 5% of the entities promoting them, evaluated their effectiveness.

Since 2018, October is the "month of financial education", a joint initiative of the government and the Italian central bank that aims at introducing financial concepts to students and during which several events are organized to cover different topics. The results of the 2022 month of financial education show that Italian students are still not financially educated, with a score of 55/100, hence below the sufficiency[16]. The total score can be divided into two indexes:

- The Awareness Index
- The Behavioral Index

With respective scores of 51/100 and 58/100. The awareness index shows concerning results, with 40% of the respondents having a significant level of financial incompetency (above 50%), the behavioral index shows better results with only 20% having a bad financial behavior[17].

2.3 The fallacy of financial education

According to past studies[18], in the US, over 40% of baby-boomers[19] could not calculate how to divide lottery winnings among five people, while over 80% either did not understand the meaning of compounding or could not calculate a compound interest. This shows not only a fallacy in financial education but also in general education. Possible causes of these results are linked to the schooling system in the USA, characterized by the so-called K-12 system[20] in which only certain subjects are mandatory. The mandatory subjects in secondary education (from grade 6 to grade 12) are: science, math, English and social science. In the branch of social science is included economics, which, however, is aimed at introducing the concepts of demand and supply, micro- and macroeconomics. Despite the presence of economics among the mandatory subjects, the concepts that are taught do not seem to have the desired effect of creating financially well-behaved, wise and literate citizens.

Studies have shown that even semester-long high school programs and 18-months long adult counseling programs have not been enough[21]. This is indicative of fallacies in financial education.

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[16] The results are given by the Edufin Index.

[17] Blog "Alleanza e lavoro", https://blog.alleanzalavoro.it/edufin-index-2022

[18] Annamaria Lusardi and Olivia S. Mitchell, (2007) Financial Literacy and Retirement Planning: New Evidence from the Rand American Life Panel." University of Michigan Retirement Research Center Working Paper.

[19] Baby-boomer is a term that refers to people born between 1946 and 1964, during the demographic boom.

[20] From kindergarten to 12th grade.

[21] Jump$tart Coalition (2006), Lewis Mandell ad Linda Schmid Klein (2009), Jinhee Kim, E. Thomas Garman and Benoit Sorhaindo (2003).

The effectiveness of financial education is reduced by a number of factor and making it actually effective would be therefore extremely costly.

2.3.1 Effectiveness of financial education initiatives

To be considered effective, financial education should be extensive, teaching a big variety of skills, ranging from basic math to information checking, and improve the soft skills needed to effectively take financial decisions such as critical thinking. To address this issue, the implementation of extremely detailed programs would be required. Moreover, the complexity of financial decisions makes it difficult for policy makers, entities and institutions to develop programs that give "answers" to consumers rather than the instruments to decide on their own.

A different problem that reduces the effectiveness of financial education is the lack of interest or even resistance to participation to the programs. Incentives citizens to participate in financial education programs, adds to the costs of effective financial education. In one study, citizens were offered a free course on the correct use of credit cards, with explanations of the credit system. In this study, credit card issuers warned the holders that they were at risk of delinquency, as a reason to attend the course. The results were quite disappointing as only 0.4% attempted to log onto the website and only 0.03% completed the course.[22] The results are even more concerning considering that those who completed the course are also those with the highest level of financial knowledge. These results demonstrate the need for mandatory financial knowledge as voluntarily participation is low and often voluntarily participants are already financially educated.

The speed at which the financial industry changes and develops is another hurdle that financial education faces as the product and instruments offered constantly change and become increasingly more complex, adapting not only to the market but also to the needs and ideas of a society that is increasingly aware of social issues and dynamics. The financial marketplace is characterized by fast-paced dynamics; however, personal finance decisions are occasional and thus financial education would need to be a constant part of a consumer's life.

The last challenge that financial education faces is probably the hardest to overcome and solve as it involves emotions. Decisions in general can be affected even by the slightest emotions, but financial decisions are also the cause to a high production of stress, which might lead to non-rational decisions, that could result in a limited, pessimistic or even insufferable view of the topic with detrimental consequences. Some consumers are even subject to fear and paralysis when facing financial decisions. Often, this fear is due to the feeling of complexity and lack of

[22] Amy Brown and Kimberly Gartner, (2007), Early Intervention and Credit Cardholders: Results of Efforts to Provide Online Financial Education to New-to-Credit and At-Risk Consumers

information perceived by the consumer, who is however not interested in improving his financial knowledge.

People, often, do not consider accurately the consequences of their financial decisions, which will not be seen for a long time, putting too little weight on delayed or uncertain outcomes. Moreover, instant gratification is a huge disincentive to investment and saving activities, however, the financial consequences of these decisions will be long-term financial costs (i.e., the purchase of a car). To solve this problem, joint initiatives concerning the realms of financial education and psychotherapy might improve consumers' ability to take decisions that are thought through in an emotionally detached and debiased way. Financial therapy is the term that refers to the activity of professionals from the financial sector and licensed mental health professionals counsel people with the idea that to change financial behaviors it is necessary to change one's emotional responses to money.[23]

Another possible fallacy of financial education is the argument of "education vs. regulation", according to which regulation limits the autonomy and free-will right of consumers, while education empowers them and enables them to make appropriate financial decisions. However, the autonomy of consumers in the financial market might lead to a general impoverishment of the population if the market becomes less regulated, as the presence of junk products would rise with detrimental effects to society as a whole. Moreover, to be able to increase the autonomy in a deregulated market would require important intrusion into someone's privacy as effective financial education would reduce consumer control over how, when, where, whether and with whom exchange private financial and psychological information because of the mandatory requirement of effective financial education.

2.4 Financial literacy and financial crisis

2.4.1 Lack of financial literacy among individuals and policymakers

The importance of financial literacy and the attention of institutions towards it have increased in the recent past. A boost in this direction has been driven by the 2008 financial crisis which highlighted the need for individuals to have the necessary knowledge and skills to navigate complex financial systems.

The 2008 financial crisis, also known as Global Financial Crisis, had several starting causes, however, the main one was the creation and diffusion of complex financial instruments such as mortgage-backed securities and credit default swaps. These instruments were used to package and

[23] Cicily Carson Maton, Michelle Maton and William Marty Martin, (2010), Collaborating with a Financial Therapist: The Why, Who, What and How." Journal of Financial Planning

sell high-risk mortgage loans, which led to an unsustainable housing bubble and a subsequent wave of mortgage defaults and foreclosures. Many investors, including large financial institutions, did not fully understand the risks associated with these instruments and their underlying assets. In addition, the lack of regulatory oversight allowed for these instruments to be traded and leveraged to a degree that was far beyond what was sustainable.

The result was a financial system that was highly leveraged and vulnerable to a sudden shock, such as the bursting of the housing bubble. The collapse of the subprime mortgage market triggered a chain reaction of losses and write-downs that spread throughout the financial system. The failure of large financial institutions, such as Lehman Brothers, and the bailout of others by governments resulted in significant political and social upheaval, job losses, and a sharp decline in global economic growth.

Financial education can help to promote financial stability by increasing transparency and accountability in financial markets, encouraging responsible lending practices, and promoting consumer protection. It can also help individuals to make informed financial decisions and avoid making overly risky investments.

Research demonstrated that a lack of financial literacy can contribute to the occurrence and severity of financial crises. For example, a study by the Federal Reserve Bank of Atlanta[24] found that individuals with low levels of financial literacy were more likely to take out risky mortgages prior to the 2008 financial crisis. Similarly, a study by the National Bureau of Economic Research[25] found that individuals who were less financially literate were more likely to have subprime mortgages and experienced greater financial losses during the crisis.

The lack of financial literacy among policymakers has also been identified as a contributing factor to financial crises. A study by the International Monetary Fund[26] (IMF) found that policymakers with higher levels of financial literacy were better able to recognize and respond to financial risks and were less likely to make decisions that contributed to financial crises. Similarly, a study by the National Bureau of Economic Research found that central bank governors with higher levels of financial literacy were more effective at managing financial crises.

Improving financial literacy can help prevent financial crises by enabling individuals and policymakers to make better-informed decisions. For example, a study by the OECD[27] found that individuals with higher levels of financial literacy were more likely to save for retirement and less likely to report financial stress. Accordingly, a study by the Global Financial Literacy Excellence

[24] Federal Reserve Bank of Atlanta. (2010). The state of financial literacy among US high school students.
[25] National Bureau of Economic Research. (2012). Financial literacy and the financial crisis. Working paper 17930
[26] International Monetary Fund (IMF). (2012). Financial literacy and financial education: Measures and outcomes.
[27] Organisation for Economic Co-operation and Development (OECD). (2019). PISA 2018 results (Volume IV): Are students smart about money?

Center[28] found that financial education programs were effective in improving financial literacy and promoting positive financial behaviors.

Moreover, the relationship between financial crisis and financial literacy can be even used to promote financial education programs. Providing individuals with the appropriate knowledge in financial matters might not only promote financial and economic stability but also incentivize economic growth through sustainable investments.

2.4.2 Different approaches to the relationship between financial literacy and financial crises

The relationship between financial literacy and financial stability has been studied and officially recognized. This relationship is quite complex, and it covers a large number of aspects. On the one hand, financial literacy can contribute to financial stability by helping individuals and households to manage their finances effectively and avoid excessive debt and financial distress. By promoting financial literacy, individuals are better able to understand the risks and benefits of different financial products and services, make informed financial decisions, and avoid making overly risky investments. Moreover, Financial literacy can also contribute to financial stability at the systemic level by promoting transparency and accountability in financial markets, encouraging responsible lending practices, and promoting consumer protection. Financially literate individuals are better able to demand high-quality financial products and services and to hold financial institutions accountable for their actions.

Oppositely, financial stability can also contribute to financial literacy by creating a stable environment in which individuals can make informed financial decisions. When financial systems are stable, individuals are more likely to trust financial institutions and to feel confident in making financial decisions. In addition, financial stability can provide a supportive environment for financial education and literacy programs, as individuals are more likely to engage with and benefit from such programs when they feel secure in their financial situation.

Several evidence was produced in the past that supports this relationship, for example, a study found that individuals with higher levels of financial literacy are more likely to plan for retirement, save for emergencies, and avoid high-cost borrowing[29]. Another study found that higher levels of financial literacy are associated with better credit scores and lower likelihood of debt delinquency.[30] Moreover, a different study by the International Monetary Fund found that

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[28] Global Financial Literacy Excellence Center. (2018). The financial education effectiveness database. George Washington University.
[29] Lusardi, A., & Mitchell, O. S. (2011). Financial literacy and planning: Implications for retirement wellbeing. In Financial literacy: Implications for retirement security and the financial marketplace. Oxford University Press.
[30] Klapper, L., & Panos, G. A. (2011). Financial literacy and retirement planning in the United States. Journal of Pension Economics & Finance.

financial education can help to mitigate the risks of financial instability by promoting responsible borrowing and lending practices, increasing financial inclusion, and improving financial consumer protection.[31]

2.5Demography and financial literacy.

2.5.1 Discriminants in financial literacy

Demography is the study of human population and is a crucial factor that influences financial literacy, causing high differences within the population on both a macro and micro level. Differences at macro level refer to the disparity in financial literacy among countries, hence with a focus on geography, economic development and access to financial resources, while at a micro level, factors like age, ethnicity, gender, income and education level affect heavily financial literacy.

Age is one of the factors that affect the level of financial literacy rates. According to past studies[32], the financial literacy rates increase with age but will eventually decrease after a certain age. In major advanced economies, the highest level of financial literacy is among people from 36 to 50 years old, followed by 15 to 35 years old and then lower for people from 51 to 65 years old, while the lowest is from people older than 65 years. This is not true for emerging economies, in which the trend is different, having the highest rates for people from 15 to 35 decreasing linearly to the lowest rates for people older than 65. The graph in Fig.2 shows how financial literacy rates in major advanced economies, even the lowest, are higher than the levels in the emerging economies.

[31] International Monetary Fund (2017). Financial Education for Financial Stability. Finance & Development.
[32] Financial literacy around the world: insights from the S&P global financial literacy survey, (2015)

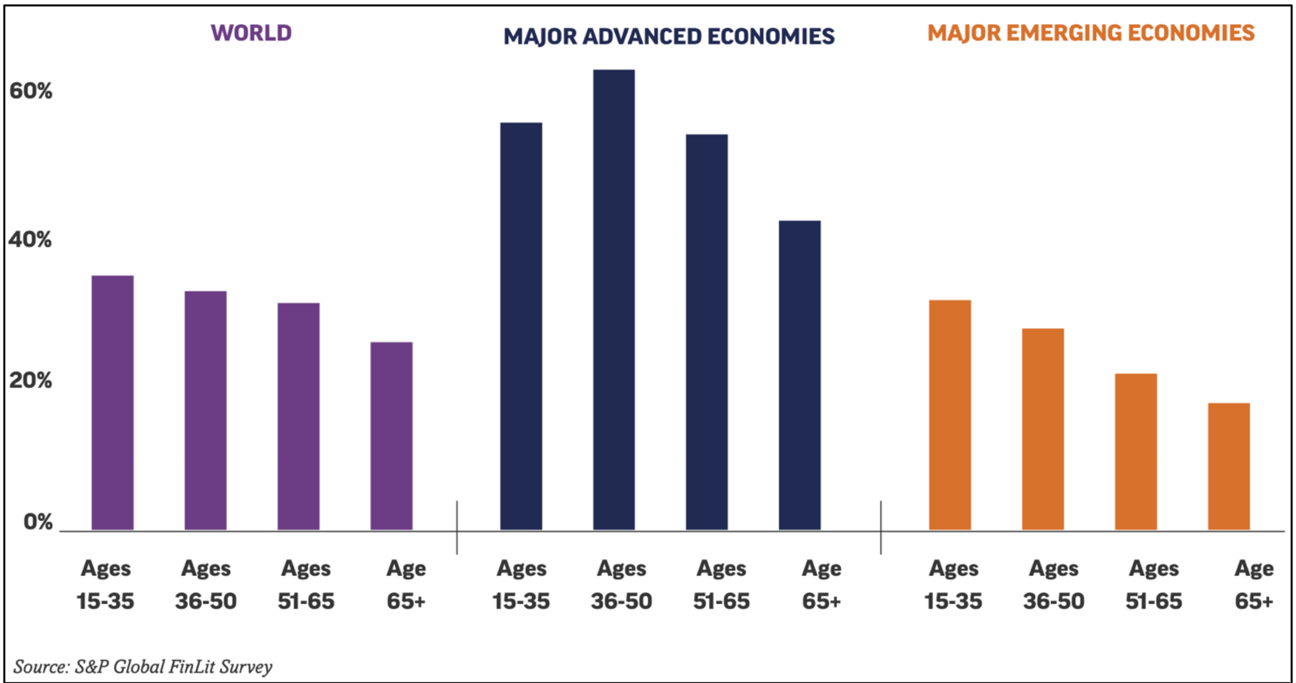

Figure 2

This is because income is another major factor affecting financial literacy. The relationship between income and financial literacy is a complex one, with various factors contributing to it. Generally, individuals with higher incomes tend to have higher levels of financial literacy, while those with lower incomes tend to have lower levels of financial literacy. Firstly, it is worth noting that income and financial literacy are interdependent factors. Higher levels of financial literacy can lead to better financial decision-making, which can, in turn, result in higher income. Similarly, individuals with higher income may have had more access to financial education and resources, which can lead to higher levels of financial literacy.

Several studies have explored the relationship between income and financial literacy. A study found that individuals with higher incomes had higher levels of financial literacy than those with lower incomes. The study showed that individuals with an annual income of $75,000 or more had an average financial literacy score of 69%, compared to those with an income of less than $25,000, who had an average score of 52%. This difference in financial literacy scores was attributed to the fact that individuals with higher incomes tend to have more access to financial resources, such as financial advisors, and are more likely to receive financial education through their employers.[33]

Another study found that individuals with lower incomes were more likely to report financial stress and to engage in risky financial behavior than those with higher incomes. This finding highlights the importance of financial literacy programs that cater to the specific needs of lower-

[33] Financial Industry Regulatory Authority, 2019 - National Financial Capability Study.

income individuals and address the financial challenges they may face. However, it is important to note that income is not the only factor that contributes to financial literacy[34].

A different study, however, found that financial literacy is not just a function of income but is also influenced by education level and access to financial education. The study showed that individuals with higher levels of education had higher levels of financial literacy, even after controlling for income[35]. Another study found that financial education interventions can have a positive impact on financial behavior, regardless of income level. The study showed that individuals who received financial education had higher levels of financial literacy and were more likely to engage in positive financial behavior, such as saving and budgeting.[36]

As said before, education is a crucial element affecting financial literacy level. The relationship between education and financial literacy has been extensively researched, with many studies indicating that higher levels of education are strongly associated with higher levels of financial literacy. Research studies have consistently shown that individuals with higher levels of education tend to have higher levels of financial literacy. For example, a study found that individuals with a college degree had an average financial literacy score of 68%, compared to an average score of 58% for those with a high school diploma or less[37]. Similarly, a different study found that individuals with a tertiary education had higher levels of financial literacy than those with lower levels of education.[38]

The relationship between education and financial literacy can be attributed to several factors. One of the primary factors is that individuals with higher levels of education are more likely to have received financial education. Financial education is typically more prevalent at higher levels of education, such as college and graduate school. This financial education can equip individuals with the knowledge and skills needed to make informed financial decisions and engage in positive financial behaviors.

Another factor that contributes to the relationship between education and financial literacy is cognitive ability. Higher levels of education are typically associated with higher levels of cognitive ability, which can improve an individual's ability to understand complex financial concepts and make informed financial decisions. A study found that individuals with higher levels of education were more likely to understand basic financial concepts, such as compound interest,

[34] National Endowment for Financial Education, 2019 - Financial Education and Lower-Income

[35] Organization for Economic Cooperation and Development, 2017. PISA 2015 Results (Volume IV): Students' Financial Literacy.

[36] Consumer Financial Protection Bureau, 2018 - Financial Well-being in America.

[37] Financial Industry Regulatory Authority,2019 - National Financial Capability Study.

[38] Organisation for Economic Co-operation and Development, 2016. Financial literacy in G20 countries: A comparative analysis.

and to make informed financial decisions.[39] The relationship between education and financial literacy has important implications for individuals' financial well-being. Individuals with higher levels of financial literacy are more likely to engage in positive financial behaviors, such as saving for retirement and avoiding high-cost debt. They are also better equipped to navigate the complex financial landscape and make informed financial decisions. This can result in improved financial outcomes, such as higher savings rates and better credit scores.

2.5.2 Gender and financial literacy

Among the factors influencing financial literacy levels, there is gender. The relationship between gender and financial literacy has been widely studied, with several researchers finding significant differences between men and women in terms of their financial knowledge and behavior.

Research has consistently shown that women tend to have lower levels of financial literacy than men. A past study found that women had an average financial literacy score of 57%, while men had an average score of 62%. This finding was consistent across all age groups and income levels[40]. Similarly, another study found that women in all countries surveyed had lower levels of financial literacy than men[41]. Several factors contribute to the gender gap in financial literacy. One of the main factors is differences in financial education. Women are less likely to receive financial education than men, which can lead to lower levels of financial literacy. A study discovered that women were less likely than men to have received financial education in school, at home, or in the workplace. This lack of financial education can result in women being less confident in their financial decision-making and more likely to engage in risky financial behavior.[42]

Another factor that contributes to the gender gap in financial literacy is differences in financial behavior. Women tend to be more risk-averse than men, which can lead to lower levels of financial literacy. Accordingly, research stated that women were less likely than men to invest in stocks, which can result in lower returns and lower levels of financial knowledge. This difference in investment behavior can be attributed to differences in risk preferences and confidence levels.[43]

The gender gap in financial literacy has important implications for women's financial well-being. Women are more likely than men to face financial challenges, such as lower earnings and

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[39] National Bureau of Economic Research. (2018). Education and household financial decision making.
[40] Financial Industry Regulatory Authority. (2019) National Financial Capability Study.
[41] Organisation for Economic Co-operation and Development. (2016) Gender differences in financial literacy: A global perspective.
[42] Global Financial Literacy Excellence Center. (2017). The gender gap in financial literacy: A global perspective.
[43] National Bureau of Economic Research. (2018). Gender, stock market participation, and financial literacy.

longer life expectancy, which can make financial literacy even more important for their financial security. Lastly, it was found that women were more likely than men to experience financial distress and to have difficulty paying bills. This finding highlights the importance of promoting financial literacy among women to help them navigate the complex financial landscape and make informed financial decisions[44].

2.5.3 Social status and financial literacy

The living context also affects financial literacy. This is especially true for people that are soldiers or prisoners that needs financial knowledge to re-enter society after a certain amount of time.

Soldiers, especially those who are transitioning back to civilian life, often face unique financial challenges. According to a survey, approximately 80% of military members report experiencing financial stress, which can lead to a range of negative outcomes, including high levels of debt and difficulty paying bills[45]. Despite these challenges, research suggests that soldiers may have a higher level of financial literacy compared to the general population. A study conducted in 2015, found that military personnel tend to have higher levels of financial knowledge and more positive financial behaviors compared to the general population. This may be due in part to the financial education and counseling services provided by the military.[46]

In contrast, prisoners often have lower levels of financial literacy compared to the general population. A study by the Financial Industry Regulatory Authority (FINRA) found that prisoners scored significantly lower on financial literacy assessments compared to the general population, with an average score of 47% compared to 69% for the general population. This lack of financial literacy can have significant consequences for prisoners, including difficulty finding employment and managing finances after release. Improving the financial literacy and knowledge, implementing new financial education programs specifically made for these segments of population could result in lower criminal rates and less economic burden for veterans re-entering society.

[44] Consumer Financial Protection Bureau. (2017). Financial well-being of women in America.
[45] National Foundation for Credit Counseling. (2019). Military financial literacy survey.
[46] Financial Industry Regulatory Authority. (2015). Financial capability in the United States 2015.

2.6 Financial literacy, social responsibility and the environment

In today's complex and interconnected world, financial literacy and social responsibility have become essential concepts for individuals and organizations. The term social responsibility refers to the moral duty of individuals to act in the best interests of society. Both are essential element to operate effectively and make sound decisions. The increasing complexity of financial instruments raised awareness on the importance of financial literacy. Many of these recently developed financial instruments focus on social responsibility and sustainability due to the fact that these topics have gained increasing importance among citizens: as the impact of human activities on the environment and society becomes increasingly apparent, individuals and organizations are recognizing their obligation to act in ways that promote sustainability and social well-being.

Some examples of financial instruments that focus on social responsibility include:

- *Green bonds:* These are fixed-income securities issued by companies, governments, or organizations to fund projects with positive environmental impact, such as renewable energy projects or energy-efficient buildings. Green bonds are becoming increasingly popular as more investors seek to support the transition to a low-carbon economy.
- *Social bonds:* These are fixed-income securities issued by companies, governments, or organizations to fund projects with positive social impact, such as affordable housing, education, or healthcare. Social bonds are often used to address social issues such as poverty, inequality, and access to basic services.
- *ESG funds:* These are investment funds that integrate environmental, social, and governance (ESG) factors into the investment process. ESG funds typically invest in companies that have good records in areas such as sustainability, human rights, and corporate governance.

These instruments are mainly used by financially literate investors that try to align their values with their investments, and thus investors that implement socially responsible investment strategies such as Socially Responsible Investments (SRI) or Impact Investing. The former strategy seeks to generate financial returns while also considering the social and environmental impact of the investments. SRI involves investing in companies that have good records in areas such as sustainability, human rights, and corporate governance, the latter seeks to generate positive social or environmental impact, in addition to financial returns. Impact investing involves investing in companies, organizations, or funds that have a clear social or environmental mission, such as renewable energy, affordable housing, or access to healthcare.

Social responsibility can take many forms, including ethical decision-making, philanthropic activities, and environmental sustainability.

The relationship between financial literacy and social responsibility has become an important area of research, as these two concepts are seen as critical for individuals and organizations to operate effectively in today's world. On one hand, it has been argued that financial literacy can lead to greater social responsibility by enabling individuals to make informed decisions that take into account the broader impact of their financial choices[47]. On the other hand, it has been suggested that social responsibility can foster financial literacy by promoting ethical decision-making and encouraging individuals to consider the broader impact of their financial decisions[48].

2.6.1 Different views on the subject

Despite the importance that this relationship is gaining, there is relative lack of empirical research in this area. Studies have discussed the relationship between financial literacy and specific aspects of social responsibility such as philanthropic behavior[49], while others have investigated the relationship between financial literacy and broader concepts such as ethical decision-making.[50]

According to a study, individuals with high levels of financial literacy may be more likely to invest in companies with strong environmental or social records. In contrast, individuals with low levels of financial literacy may be more likely to invest in companies solely based on financial returns, without considering the broader impact of their investments.[51]

Others have suggested that social responsibility can foster financial literacy by promoting ethical decision-making and encouraging individuals to consider the broader impact of their financial decisions[52]. For example, individuals who are actively engaged in philanthropic activities may be more likely to seek out financial education and make informed financial decisions that align with their values and goals.

Several theoretical frameworks have been used to understand the relationship between financial literacy and social responsibility. One such framework is the theory of planned behavior[53], which suggests that individuals' attitudes, subjective norms, and perceived behavioral control influence their

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[47] Hastings, J. S., Madrian, B. C., & Skimmyhorn, W. L. (2013). Financial literacy, financial education, and economic outcomes. Annual Review of Economics.
[48] Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. Business horizons.
[49] Piff, P. K., Stancato, D. M., Martinez, A. G., Kraus, M. W., & Keltner, D. (2013). Wealth and the Inflated Self: Class, Entitlement, and Narcissism. Personality and Social Psychology Bulletin.
[50] Lichtenstein, D. R., Drumwright, M. E., & Braig, B. M. (2017). The Effect of Corporate Social Responsibility on Customer Donations to Corporate-Supported Nonprofits. Journal of Marketing.
[51] Hastings, J. S., Madrian, B. C., & Skimmyhorn, W. L. (2013). Financial Literacy, Financial Education, and Economic Outcomes. Annual Review of Economics.
[52] Carroll, A. B. (1991). The Pyramid of Corporate Social Responsibility: Toward the Moral Management of Organizational Stakeholders. Business Horizons.
[53] Ajzen, I. (1991). The Theory of Planned Behavior. Organizational Behavior and Human Decision Processes.

intentions to engage in a behavior. This framework has been used to examine the relationship between financial literacy and philanthropic behavior.[54]

Another theoretical framework is the social cognitive theory[55], which suggests that individuals' behaviors are influenced by their personal factors, environmental factors, and behavioral factors. This framework has been used to examine the relationship between financial literacy and ethical decision-making[56].

The empirical evidence on the relationship between financial literacy and social responsibility is mixed. Some studies have found a positive relationship between financial literacy and social responsibility[57], while others have found no relationship[58]. Similarly, some studies have found that social responsibility can foster financial literacy (Carroll, 1991), while others have found no relationship (Piff et al., 2013).

One potential explanation for these mixed findings is that the relationship between financial literacy and social responsibility may be complex and multifaceted, and may depend on a variety of factors, such as individual values, socio-economic status, and cultural context. For example, individuals from low socio-economic backgrounds may have less access to financial education and resources, which could limit their ability to make informed financial decisions that consider social and environmental concerns.

Despite the mixed evidence, there is growing recognition of the importance of financial literacy and social responsibility in promoting individual well-being and societal progress. Governments, non-profit organizations, and financial institutions have all recognized the need to promote financial literacy and social responsibility through education, regulation, and corporate social responsibility initiatives[59]. There are many programs and initiatives that promote financial literacy and social responsibility, a few examples are the program offered by the non-profit organization Green America[60] like the "Green Business Certification" program. This program helps businesses adopt sustainable practices and become more environmentally responsible. The certification process

[54] Piff, P. K., Stancato, D. M., Martinez, A. G., Kraus, M. W., & Keltner, D. (2013). Wealth and the Inflated Self: Class, Entitlement, and Narcissism. Personality and Social Psychology Bulletin.
[55] Bandura, A. (1986). Social Foundations of Thought and Action: A Social Cognitive Theory.
[56] Lichtenstein, D. R., Drumwright, M. E., & Braig, B. M. (2017). The Effect of Corporate Social Responsibility on Customer Donations to Corporate-Supported Nonprofits. Journal of Marketing.
[57] Hastings, J. S., Madrian, B. C., & Skimmyhorn, W. L. (2013). Financial Literacy, Financial Education, and Economic Outcomes. Annual Review of Economics.
[58] Sherraden, M., Johnson, L., Guo, B., & Elliott, W. (2009). Financial Capability in Children: Effects of Participation in a School-Based Financial Education and Savings Program. Journal of Family and Economic Issues.
[59] OECD. (2016). G20/OECD INFE Report on Adult Financial Literacy in G20 Countries.
[60] Green America is a non-profit organization that promotes responsible behaviors in consumption and investment. Their financial programs are designed to help people make sustainable financial choices and support companies that prioritize social and environmental responsibility.

includes a rigorous assessment of a company's environmental impact, labor practices, community engagement, and other factors. Companies that meet the certification requirements are listed in Green America's National Green Pages, which is a directory of socially and environmentally responsible businesses; they also offer tips and resources to individuals in programs like “Investing for a Better World” which provides advice and guidance for socially responsible investing.

The United Nations (UN) has recognized the importance of promoting financial literacy and social responsibility as part of its broader sustainable development goals. The UN's 2030 Agenda for Sustainable Development includes a specific target to "promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" (UN, 2015). Financial literacy and social responsibility are seen as key components in achieving this goal.

The UN has launched several initiatives aimed at promoting financial literacy and social responsibility. The UN Capital Development Fund (UNCDF) is one such initiative, which works to promote financial inclusion and support the development of inclusive financial systems in low-income countries. The UN Global Compact is another initiative that encourages companies to adopt sustainable and socially responsible business practices.

Moreover, the UN has also declared 2021-2030 as the "Decade of Action for Sustainable Development" (UN, 2021). This initiative aims to accelerate progress towards the Sustainable Development Goals, including the promotion of sustainable economic growth and financial inclusion. As part of this initiative, the UN has called for increased investment in financial literacy programs and sustainable finance initiatives.

Overall, the UN recognizes the critical role that financial literacy and social responsibility play in promoting sustainable economic growth, reducing poverty, and achieving broader sustainable development goals. The UN's initiatives and programs aim to promote financial literacy and social responsibility at both the individual and institutional levels, encouraging individuals and companies to make informed and sustainable financial decisions.

CHAPTER 3

EMPOWERING INDIVIDUALS THROUGH FINANCIAL LITERACY.

3.1 Financial literacy in a pedagogic prospect

3.1.1 The beginning of financial education

Financial literacy and education in general have become more and more linked with the subjects of sociology and pedagogy. Even though the relationship between economy and pedagogy is not yet object to many discussions in the scientific scenario, the first steps on this path started in the late 70s of the past century. However, still to this day, the focuses of this research vary and are not well defined. Behavioral economists[61] concentrate on the concept of *homo economicus* and its rational behavior[62] to analyze the impact of education itself on economics rather than the effects of financial literacy ad education on the behavior of consumers.

In recent years a growing interest in measuring and analyzing the level of financial literacy of the population was shown by many governments with the purpose of finding new ways to implement formation programs available to all ages. However, despite the interest shown by different institutions (OCSE-PISA, World Bank, several national Central Banks, etc.), there haven't been many effective educational programs, as the majority of the programs offered to this day are still generic and non-tailored to a specific target population. As a matter of fact, most governments started advertising the importance of financial education for individuals rather than offering actual educational programs to the population.

3.1.2 The pedagogic point of view

From a pedagogic perspective financial literacy should be taught from a very young age, since primary school. This is because of the higher learning capabilities of children and young people with respect to adults. Children and young people get in touch with economic decisions and matters since a really young age by watching adults purchase goods, however, the concept of money in children is distorted from reality for obvious reasons of knowledge: often children do not perceive money as something real, but rather as something always accessible and non-scarce in nature. This belief is often linked to witnessing adults withdraw money from an ATM or writing a cheque. Accordingly, the acquisition of economic knowledge and citizenship values starts from

[61] Behavioral economics is the field of economy, linked with psychology that studies the behavior of consumers, analyzing how and why they take certain decisions.
[62] Angner, 2017; Luca Refrigeri, 2020.

the family and goes down a hierarchy of other social agents (school, media, friends, etc.) with private and public institutions holding the last place[63].

The processes of economic socializations (hence, the acquirement of knowledge through the exposure to economic behavior of adults) are usually the cause to unvirtuous behaviors from an economic and financial literacy point of view. This is due to the informal sphere of education that these agents transfer to young people that has to be reconciled with the intentional education of the agents, considering that both form the idea of a certain relationship between money and welfare. Intentional financial education aims to direct the philosophy, thoughts and views of young people towards the ideas of the agents, which usually is non-technical and often is not entirely driven by rationality.

Financial literacy, if taught from a young age in schools, could help children and young people to have a better understanding of financial and economic concepts that relate to the ideas taught by parents and media. As it would cover more technical concepts, it could clear doubts and provide the knowledge necessary to understand the economic concepts discussed for example in the news, for instance the increase or decrease of interest rates by central banks, inflation related topics or employment statistics and GDP forecasts.

However, financial literacy alone, is not enough to modify economic and financial behaviors[64], the determinant that changes this aspect is the method and the timing through which financial education is taught. The most important thing that needs to be passed to young people is the capability to apply economic reasoning to the economic and financial decisions of life since the earliest stages of autonomous choice. The implication of learning how to budget since a young age might result in huge improvement for planning in future life and adulthood.

It is crucial to develop the ability to take into consideration and critically analyze different point of views with a strategic eye, acting on the context rather than on general knowledge, with the final goal of creating *capable* individuals. Financial capability refers to the ability to reach a satisfying level of welfare even in the absence of personal opportunities thanks to the intentional formation[65]. Because of this distinction between financial literacy and capability, under a pedagogic point of view, it is necessary to take into consideration the different components of the learning process. Moreover, alongside the theorical knowledge of financial and economic principles, it is required to have transversal skills and knowledge (math, abstract thinking, quantitative reasoning, etc.) which are necessary to live and understand the economic dynamics of an increasingly complex society.

[63] Luca Refrigeri, 2020
[64] Lusardi, (2008), Household Saving Behavior: The Role of Financial Literacy, Information, and Financial Education Programs. NBER Working Paper 13824
[65] Leonardi, (2009), Capacitazioni, lavoro, welfare. Stato e Mercato

Various initiatives have been undertaken by governments to address the topic (for instance the introduction of a economic-oriented high school course in Italy), but the solution is far to be found: the coordination between different educational agencies needs to be improved to offer more tailored-made programs specific to the different generations, taking into consideration the context in which the program is offered like geography, economic status, social status, gender, age, previous financial knowledge. Initiatives like the one cited above are the first steps on the right path as schools are the best among the places of intentional education because attendance is mandatory.

3.1.3 Difficulties of financial education

The task of governments is harder than it seems: the problems and difficulties of implementing economy and finance as mandatory subjects in all schools are various and particularly complicated to solve, requiring the coordination of the different agencies that rule over the school system. Issues like the timing and the way to introduce economy and finance in the curriculum of every course, from the early grades of school up to university, require a careful study of methods: it could be dangerous and even counterproductive to substitute an existing subject with the study of economy, and adding hours to the already existing schedule might result as overwhelming for students, especially the youngest, which may experiment "*burnouts*"[66], driving them away from education in general or economy in particular. Moreover, actions that are *una-tantum* might become more of an instrument to raise awareness rather than increasing the financial knowledge of students. A different problem is the formation of teachers that need to acquire and understand in-depth the economic concepts that must be taught to students in order to provide with effective education.

Taking as example Italy, the precariousness of many teachers represents a huge problem in the continuity of education for the students that often end up facing different teachers and thus different teaching methods during the course of high school (in some cases, teachers might change halfway during the year or every year, leading to great confusion for students and repetitions of part of the programs thought by the Ministry).

A possible solution to the implementation of economy in the school system could be to start looking also at the economic side of existing subjects: keeping the curriculum as it is students wouldn't face an increase in the amount of subject or hours required, but rather deepen the knowledge of economy by looking at it sideways. Looking at economy through history, geography, literature or music, for example, might raise in the students the interest in the more

[66] Burnout is a term that refers to the status of overstress due to pressure from external sources (work, school, politics) that causes a steep fall in the productivity and welfare of the person affected.

technical subject as well as providing a more in-depth knowledge of the already existing subjects, acquiring in this way not only a better general knowledge but also giving them the financial competencies required to face the decisions of everyday life and understand the events discussed in the media.

Media could be used in an educational way to reach more people (not only students) in an easier and less expensive way. Nowadays several personal accounts on social media (like Instagram, Facebook, TikTok, LinkedIn) discuss and post economic content with millions of views. The issue with personal initiatives, especially on social media, is that economic news might be used to direct and orient (particularly) young people towards a certain idea which can be superficial and characterized by a hoarding behavior. Misleading use of media has been used in the past to run fraudulent practices that increase the expectations linked with investments with detrimental effects for individuals that, incentivized by the advices of people leveraging on their lack of knowledge, might not seek advice from financial professional and thus ending up with small returns or even losses. These practices could inevitably drive people away from investments with damaging effects to individuals and the society as a whole, or even from economy itself, leading people to see finance as a complex and distant subject. This effect is probably the main one that would be solved by enhancing and increasing the financial literacy level by giving individuals the ability to spot fraudulent practices and critically analyze the advice received on social media to make better and informed investment decisions.

3.2 The benefits of Financial Literacy

3.2.1 Narrow benefits of financial education

Financial literacy has been identified as a key factor in promoting financial well-being and achieving financial goals[67]. The benefits of financial literacy can be categorized into several areas, including improved financial behavior, increased financial security, and better economic outcomes.

One of the main benefits of financial literacy is its impact on financial behavior. Individuals who are financially literate are more likely to engage in responsible financial behaviors such as saving, budgeting, and investing[68]. They are also more likely to make informed decisions when choosing financial products such as credit cards, mortgages, and insurance policies[69]. In contrast, those with

[67] Hastings, J. S., & Madrian, B. C. (2015). Financial literacy, financial education, and economic outcomes. Annual Review of Economics; Lusardi, A., & Mitchell, O. S. (2011). Financial literacy around the world: An overview. Journal of Pension Economics and Finance.
[68] Cole, S., & Shastry, G. K. (2012). Smart money: The effect of education, cognitive ability, and financial literacy on financial market participation; Lusardi, A., & Mitchell, O. S. (2007). Financial literacy and retirement preparedness: Evidence and implications for financial education.
[69] Lusardi, A., & Mitchell, O. S. (2011). Financial literacy around the world: An overview. Journal of Pension Economics and Finance

low levels of financial literacy are more likely to engage in risky financial behavior such as carrying credit card debt or taking out payday loans[70]. Financial literacy has been shown to have a positive relationship with individuals' ability to manage credit cards, mortgages, and insurance policies effectively. Several studies have found that financial literacy is positively associated with responsible credit card use. For example, a study by Lusardi and Tufano (2009)[71] found that individuals with higher levels of financial literacy were more likely to pay their credit card bills in full each month, avoid late fees, and maintain lower credit card balances. Another study[72] found that financial literacy was positively associated with the likelihood of individuals using credit cards for emergency purposes rather than for discretionary spending.

Financial literacy is also positively associated with effective mortgage management. A study by Brown et al. (2014)[73] found that individuals with higher levels of financial literacy were more likely to understand the terms and conditions of their mortgage agreements, make timely mortgage payments, and avoid mortgage delinquencies and foreclosures.

Finally, financial literacy is positively associated with effective insurance policy management. A study by Yang and Hanna (2016)[74] found that individuals with higher levels of financial literacy were more likely to understand the terms and conditions of their insurance policies, compare insurance policies before purchasing them, and avoid insurance-related fraud and scams.

The positive relationship between financial literacy and credit card, mortgage, and insurance management can be explained by the fact that individuals with higher levels of financial literacy are more likely to understand the risks and benefits associated with these financial products. They are more likely to make informed decisions, avoid high interest rates and fees, and take advantage of available benefits and protections.

Another benefit of financial literacy is increased financial security. Financially literate individuals are better equipped to manage financial emergencies and unexpected expenses, reducing the risk of financial hardship[75]. They are also more likely to have a plan for retirement and other long-term financial goals, reducing the risk of financial insecurity in later life[76].

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[70] Fernandes, D., Lynch Jr, J. G., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. Management Science

[71] Lusardi, A., & Tufano, P. (2009). Debt literacy, financial experiences, and overindebtedness. NBER Working Paper 14808

[72] Christelis, D., Jappelli, T., & Padula, M. (2010). Cognitive abilities and portfolio choice. European Economic Review

[73] Brown, M., Henchoz, C., & Spycher, T. (2014). Financial literacy and mortgage choice. Swiss Journal of Economics and Statistics

[74] Yang, J., & Hanna, S. D. (2016). Financial literacy and insurance demand: Evidence from the life insurance market. Journal of Risk and Insurance

[75] Lusardi, A., & Mitchell, O. S. (2011). Financial literacy around the world: An overview. Journal of Pension Economics and Finance

[76] Cole, S., & Shastry, G. K. (2012). Smart money: The effect of education, cognitive ability, and financial literacy on financial market participation. The Journal of Policy Analysis and Management; Lusardi, A., & Mitchell, O. S. (2007).

There is evidence to suggest that individuals with higher levels of financial literacy are more likely to invest in mutual funds and pension funds. Several studies have found that financial literacy is positively associated with investment in mutual funds. For example, a study by Bajtelsmit and VanDerhei (2000)[77] found that individuals with higher levels of financial literacy were more likely to invest in mutual funds than those with lower levels of financial literacy. Similarly, a study by Chen and Volpe (1998)[78] found that financial knowledge was positively associated with mutual fund ownership.

There is also evidence to suggest that financial literacy is positively associated with investment in pension funds. For example, a study found that individuals with higher levels of financial literacy were more likely to participate in their employer-sponsored retirement plans than those with lower levels of financial literacy[79]. Another study found that financial literacy was positively associated with participation in pension plans[80].

The relationship between financial literacy and investment in mutual funds and pension funds can be explained by the fact that individuals with higher levels of financial literacy are more likely to understand the benefits of these investment vehicles. Mutual funds and pension funds are typically managed by investment professionals who select a diversified portfolio of stocks and bonds, providing investors with exposure to a broad range of securities and reducing investment risk. Individuals with higher levels of financial literacy are more likely to understand the benefits of diversification and the role that mutual funds and pension funds can play in helping them achieve their financial goals.

3.2.2 Broad benefits of financial education

Financial literacy also has implications for broader economic outcomes. Studies have shown that higher levels of financial literacy are associated with better credit scores and lower levels of

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Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth. Journal of Monetary Economics

[77] Bajtelsmit, V. L., & VanDerhei, J. A. (2000). Risk aversion and pension investment choices. Journal of Risk and Insurance

[78] Chen, H., & Volpe, R. P. (1998). An analysis of personal financial literacy among college students. Financial Services Review

[79] Hung, A. A., & Yoong, J. (2010). How do employer 401(k) contributions affect participation and savings behavior? Evidence from a randomized experiment. Journal of Public Economics

[80] Brown, J. R., & Graf, R. A. (2012). Financial knowledge and 401(k) investment performance. Journal of Pension Economics and Finance

household debt[81]. Financially literate individuals are also more likely to be successful entrepreneurs and small business owners, contributing to economic growth and development[82].

Improved financial decision-making is a major benefit of financial literacy. Individuals who are financially literate are better equipped to understand financial concepts such as interest rates, compound interest, and investment risk, enabling them to make informed decisions about their personal finances[83]. Financially literate individuals are also more likely to seek out financial information and advice, enabling them to make better decisions when faced with complex financial products or situations[84].

In addition to improved financial decision-making, financial literacy has been linked to improved mental and physical health outcomes. Financial stress is a common cause of anxiety and depression, and individuals with low levels of financial literacy are more likely to experience financial stress[85]. In contrast, financially literate individuals are more likely to have a sense of financial control and security, reducing the risk of financial stress and its associated negative health outcomes[86].

Financial literacy can also benefit society as a whole by promoting financial inclusion and reducing inequality. Financially literate individuals are more likely to access and use financial services such as banking and credit, enabling them to participate more fully in the economy (Lusardi & Mitchell, 2014). Financial inclusion can also reduce inequality by enabling individuals to build wealth and achieve greater financial stability, reducing the gap between the rich and the poor (Hastings & Madrian, 2015).

The benefits of financial literacy are numerous and far-reaching. By promoting financial literacy, policymakers, educators, and financial institutions can help individuals achieve their financial goals, improve their overall well-being, and contribute to broader economic and social development. At the national level, financial literacy has been found to be positively associated with economic development. A study found that countries with higher levels of financial literacy tend to have higher levels of financial development, as measured by indicators such as the depth and efficiency of financial markets[87]. Another study found that financial literacy is positively associated with economic growth, as measured by increases in GDP per capita[88].

[81] Hastings, J. S., & Madrian, B. C. (2015). Financial literacy, financial education and economic outcomes. Annual Review of Economics; Lusardi, A., & Mitchell, O. S. (2011). Financial literacy around the world. Journal of Pension Economics and Finance

[82] Cole, S., & Shastry, G. K. (2012). Smart money: The effect of education on financial behavior. American Economic Journal: Applied Economics

[83] Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence.

[84] Hastings, J. S., & Madrian, B. C. (2015). The power of suggestion: Inertia in 401(k) participation and savings behavior.

[85] Hilgert, M. A., Hogarth, J. M., & Beverly, S. G. (2003). Household financial management: The connection between knowledge and behavior.

[86] Lusardi, A., Tufano, P., & Schneider, D. (2010). Financially fragile households: Evidence and implications.

[87] Beck, T., Chen, T., & Lin, C. (2014). Financial literacy and household investment decisions.

[88] Grohmann, A., Kouwenberg, R., & Menkhoff, L. (2019). Financial literacy, financial advice, and financial behavior.

The positive relationship between financial literacy and economic development can be explained by the fact that financial literacy enables individuals and countries to make better financial decisions. At the individual level, financial literacy can help individuals to better manage their finances, invest in education and training, and take advantage of entrepreneurial opportunities. At the national level, financial literacy can help to promote financial stability, increase investment in productive assets, and improve the efficiency of financial markets.

3.3Programs currently available around the world

3.3.1 Government's effort in financial education

Starting from the 2007 financial crisis, the importance of financial education and financial literacy has become more and more a concern of governments and institutions around the world. This increased awareness led to an increase in the number of programs offered to enhance and improve the financial education level of individuals with the final goal of increasing the welfare of society as a whole.

As a consequence of the previously described phenomenon, many governments have new features on their websites that aim at educating individuals under a financial point of view and the topic has been increasingly involved in their policies.

The examples below listed show how governments from all around the world[89] aim at increasing the knowledge of basic sound financial behavior among citizens, focusing on savings, retirement planning, credit and debt management and the importance of making well-informed financial decisions.

1. MyMoney.gov (United States): MyMoney.gov is a financial education website that provides resources for individuals of all ages, including students, parents, and educators. The website covers a range of financial topics, such as saving, investing, and budgeting, and provides tools and calculators to help individuals make informed financial decisions.
2. National Financial Educators Council (United States): The National Financial Educators Council offers financial education programs for high school and college students, as well as adults. Their programs cover a range of financial topics, including credit and debt management, budgeting, and investing.
3. Money Advice Service (United Kingdom): The Money Advice Service provides free financial education and advice to individuals in the United Kingdom. They offer online tools and resources, such as budget planners, debt calculators, and savings calculators, as well as in-person advice and support.

[89] The countries taken into consideration are: United States, United Kingdom, Australia and Japan.

4. Financial Conduct Authority (FCA) program (United Kingdom): The FCA runs a financial education program aimed at young people, called "The Money Advice Service." The program provides financial education resources for parents, teachers, and young people, covering topics such as budgeting, saving, and investing.
5. MoneySmart (Australia): MoneySmart is an online resource provided by the Australian Securities and Investments Commission (ASIC) that provides information on a range of financial topics, including budgeting, saving, investing, and managing debt. The website also provides tools and calculators to help individuals make informed financial decisions.
6. MoneySmart Teaching (Australia): MoneySmart Teaching is a program provided by ASIC that offers financial education resources and professional development for teachers. The program aims to equip teachers with the knowledge and skills needed to teach financial literacy to their students.
7. Life Planning Education program (Japan): The Life Planning Education program is a financial education program implemented in schools in Japan. The program aims to provide students with the knowledge and skills needed to manage their finances effectively, including budgeting, saving, and investing.
8. Financial Services Agency (FSA) (Japan): The Japanese government has established the FSA to oversee and regulate the financial industry and promote financial literacy among the public. The agency provides financial education resources and initiatives aimed at promoting financial literacy and improving individuals' financial outcomes.

3.3.2 Key characteristics of effective financial education programs

The effectiveness of these programs can be assessed in several ways. Analyzing and rating a financial education program as effective is difficult as the topics that need to be covered are several and the results can be biased by the target, the context in which the program is offered, and the methodology used to implement it.

Among the several methods to analyze the effectiveness of the programs, there are:

1. Pre- and post-program surveys: One way to measure the effectiveness of financial education programs is to conduct surveys before and after the program. The pre-program survey can assess participants' knowledge, attitudes, and behaviors related to personal finance. The post-program survey can evaluate the program's impact on these variables. This method is commonly used in financial education programs, and it can provide quantitative data to analyze.
2. Behavior change: Another way to assess the effectiveness of financial education programs is to measure participants' behavior change. For example, if the program aims to increase

savings, the effectiveness can be measured by the increase in the savings rate of the participants after the program. This method provides concrete evidence of the program's impact on participants' financial behavior.

3. Long-term follow-up: It is essential to assess the long-term impact of financial education programs to determine if the impact is sustainable. Long-term follow-up surveys or data analysis can provide insight into whether the behavior changes observed immediately after the program are maintained over time.
4. Randomized controlled trials (RCTs): RCTs are considered the gold standard for evaluating the effectiveness of programs. RCTs involve randomly assigning participants to a treatment group that receives the financial education program and a control group that does not. The impact of the program is then measured by comparing the outcomes of the two groups. RCTs can provide robust evidence of the effectiveness of financial education programs.

There are some key features and characteristics that are common to effective financial education programs, but again, given the complexity of the task of assessing the actual effectiveness of these initiatives, they are several. Among these characteristics, the most important are:

- Tailoring content to the specific needs and characteristics of the target audience.
- Using interactive and experiential learning methods to engage learners and enhance their understanding of financial concepts.
- Incorporating practical exercises and case studies to help learners apply their knowledge to real-life situations.
- Using multiple delivery channels, such as in-person workshops, online courses, and mobile apps, to reach a wider audience.
- Providing ongoing support and follow-up to reinforce learning and encourage behavior change.

Summing up, there are several programs that are currently offered by governments of many countries, however, their effectiveness in changing people’s behavior is difficult to assess. Moreover, the effects of these programs are mainly shown in the short term, while they dissipate in over time.

3.4 Financial education as a mandatory subject

3.4.1 Challenges in implementing financial education.

It is generally perceived that monetary education is a significant determinant of monetary prosperity, and that people who are all the more monetarily proficient will generally go with better monetary choices and accomplish better financial results. Subsequently, numerous nations all over the planet are investigating the execution of monetary training as an obligatory subject since early on. As a result, numerous studies have been conducted to assess the effectiveness of mandatory financial education programs. One such study was conducted by Atkinson and Messy (2013)[90], which is focused on measuring financial literacy among adults in different countries. The International Network on Financial Education (INFE) and the Organization for Economic Cooperation and Development (OECD) collaborated on the study as a pilot project to develop a survey instrument for assessing financial literacy.

Over 15,000 adults from 13 nations participated in the study, including Australia, Canada, France, Italy, the Netherlands, New Zealand, Spain, Switzerland, Chile, Turkey, South Africa, the United Kingdom, and the United States. The survey instrument was designed to assess four key areas of financial literacy: understanding financial concepts, managing financial products, making informed decisions and taking responsible actions, and engaging with financial institutions. The study found significant variation in financial literacy levels across countries, with some countries performing better than others. Overall, the results indicated that a large proportion of adults lacked basic financial knowledge and skills. For instance, many respondents struggled to answer questions related to interest rates, inflation, and compound interest. The study concludes that financial literacy is a critical component of financial well-being and that more needs to be done to improve financial education programs and policies. The study recommends that financial education programs should be tailored to the specific needs and circumstances of different populations and that policymakers should prioritize the development of effective financial education strategies to improve financial decision-making skills, encourage saving, and reduce debt.

Another study done by Fernandes, D., Lynch Jr, J. G., Netemeyer, R. G.[91] in 2014 investigates the relationship between financial literacy, financial education, and downstream financial behaviors. The National Financial Capability Study, a nationally representative survey of adults' financial attitudes and behaviors in the United States, provided the basis for the study. The investigation discovers that people who are all the more monetarily proficient are bound to take part in dependable monetary ways of behaving, like putting something aside for retirement, money management, and overseeing obligation. The investigation likewise discovers that monetary training can essentially work on monetary proficiency and that early openness to monetary schooling can prompt better long-haul results. In addition, the study reveals that women, younger adults, and those with lower incomes and education levels are particularly vulnerable to financial vulnerability. Additionally, there are significant disparities in financial literacy and education across demographic groups. This study emphasizes the significance of financial education in fostering responsible financial behavior and the

[90] Atkinson, A., & Messy, F. A. (2013). Measuring Financial Literacy: Results of the OECD / International Network on Financial Education (INFE) Pilot Study. OECD Working Papers on Finance, Insurance and Private Pensions.

[91] Fernandes, D., Lynch Jr, J. G., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. Management Science

necessity of developing more efficient and specialized financial education programs, particularly for vulnerable populations, for policymakers and educators.

Several studies have specifically examined the effectiveness of implementing financial education as a mandatory subject. One such study was conducted by Bernheim[92] in 2001, which examines the long-term effects of high school financial curriculum mandates on saving behavior. The study uses data from a nationally representative sample of Americans, comparing those who were exposed to financial education during high school due to state mandates to those who were not. The study finds that individuals who were exposed to financial education mandates during high school are more likely to save and have higher net worth later in life. Specifically, the study found that high school financial education mandates had a positive effect on retirement savings, stock market investments, and home ownership. Furthermore, the study suggests that the benefits of financial education mandates are not limited to the individuals directly affected by the mandates. Rather, the investigation discovers that there are positive overflow impacts to relatives, with those presented to monetary schooling bound to examine monetary issues with their mates and kids, prompting better monetary decision-production for the whole family. Likewise, a concentrate by Mottola and Kieffer[93] directed in 2016, which analyzed the effect of monetary training on the monetary information and perspectives of secondary school understudies, found that monetary schooling fundamentally worked on both the monetary information and mentalities of secondary school understudies. More specifically, the study found that students learned more about budgeting, saving, and investing when they received financial education. The investigation likewise discovered that monetary schooling emphatically impacted understudies' perspectives towards cash the executives, with understudies announcing expanded trust in their capacity to actually deal with their funds. Furthermore, the study found that the effectiveness of financial education was greater for students who had a greater exposure to financial concepts before the financial education program. This suggests that early exposure to financial education can lead to better financial outcomes later in life.

However, some studies have found mixed evidence on the effectiveness of financial education programs. For example, Hastings[94], in a study done in 2013, aimed to analyze the impact of financial literacy and financial education on various economic outcomes, such as savings, debt management, and retirement planning. The researchers conducted a thorough review of existing studies and found that financial literacy is positively associated with financial behavior and outcomes, such as saving

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[92] Bernheim, B. D. (2001). Financial education, saving, and asset accumulation. In Saving and asset accumulation in low and middle-income households: Evidence from the LIS.

[93] Mottola, G. R., & Kieffer, C. H. (2016). Evaluating the effectiveness of state financial education mandates. Journal of Consumer Affairs.

[94] Hastings, J. S., Madrian, B. C., & Skimmyhorn, W. L. (2013). Financial literacy, financial education, and economic outcomes. Annual Review of Economics.

for retirement and making informed investment decisions. Furthermore, they found that financial education can be effective in improving financial literacy, but its impact on financial behavior and outcomes is less clear. The study also highlighted the importance of considering behavioral factors, such as biases and heuristics, when designing financial education programs. The researchers suggest that interventions should be tailored to specific groups and consider individual preferences and decision-making processes. Additionally, they suggest that financial education programs should be delivered early in life to improve long-term outcomes.

One challenge to implementing financial education as a mandatory subject is ensuring that it is effectively delivered to students. Lyons in 2006[95] conducted a national study in the United States to assess the state of financial education and program evaluation. The researchers reviewed the financial education curriculum in all 50 states and surveyed 489 public high school teachers to gather data on the implementation and evaluation of financial education programs. The study found that most high school students in the U.S. receive some form of financial education, but the quality and depth of the education varies greatly across states and schools. The researchers also found that financial education programs that used a combination of classroom instruction and experiential learning activities, such as simulations and games, were more effective in improving financial knowledge and behavior than programs that relied solely on classroom instruction. Additionally, the study found that financial education programs that were evaluated using pre- and post-tests or other assessment tools were more likely to be effective than programs that were not evaluated. The researchers recommended that financial education programs should be standardized across states and schools, and that they should be evaluated using valid and reliable assessment tools to ensure their effectiveness. Another study with similar result was the one conducted by Mandell in 2004[96]. The study aimed to investigate the impact of financial literacy education on subsequent financial behavior. The researchers conducted a longitudinal study of high school students in the United States who had completed a financial literacy course during their senior year. The study followed up with these students four years after graduation to assess their financial behavior and attitudes. Students who had taken a course on financial literacy had a higher level of financial knowledge and were more likely to engage in positive financial behaviors like saving and budgeting, according to the findings. What's more, the investigation discovered that the monetary proficiency course decidedly affected understudies' mentalities towards cash and monetary navigation. This study's findings suggest that students' attitudes and behaviors regarding money can be influenced for a long time by financial education. The study also emphasizes the significance of providing financial education to children at

[95] Lyons, A. C. (2006). Financial education and program evaluation: Challenges and solutions. Journal of Consumer Affairs

[96] Mandell, L. (2004). Financial literacy education in high school: Implications for the investing behaviors and intentions of young adults. Journal of Consumer Affairs.

a young age, as this can have a positive impact in the long run. Clearly, both studies suggest that a more coordinated and comprehensive approach to financial education is needed.

Another challenge to implementing financial education as a mandatory subject is ensuring that teachers are adequately prepared to teach financial education. O'Donnell and Witte in 2019[97] examined the impact of state-level mandates for financial education on teacher preparedness and student outcomes. The authors analyzed data from a national survey of high school teachers and students to examine the extent to which teacher preparedness and student outcomes were affected by state-level mandates for financial education. The findings of the study suggest that mandates for financial education are associated with higher levels of teacher preparedness, as measured by the number of financial topics covered, the frequency of financial instruction, and the use of experiential learning techniques. Moreover, students in states with financial education mandates had higher levels of financial knowledge and were more likely to report engaging in positive financial behaviors, such as saving and investing. The study also found that the effectiveness of financial education depends on the quality of the instruction and the teacher's level of preparedness. Teachers who were more prepared to teach financial education were more effective at improving student outcomes. These findings highlight the importance of providing teachers with the necessary training and resources to effectively teach financial education.

3.4.2 Successful models for the implementation of financial education

Despite these challenges, the evidence suggests that implementing financial education as a mandatory subject can have positive effects on students' financial literacy and behavior. In 2010, Shim and other scholars[98] conducted a study aimed at investigating the influence of parents, work, and education on the financial socialization of first-year college students. The researchers conducted an online survey of 2097 first-year college students from a large public university in the United States. The survey assessed the students' demographic characteristics, financial socialization experiences, and financial behaviors. The findings of the study showed that parents, work, and education all had significant effects on the financial socialization of college students. Specifically, parental financial behaviors and conversations about money were found to have a strong influence on students' financial attitudes and behaviors. In addition, work experience was positively associated with financial responsibility and financial independence, while financial education had a positive impact on financial knowledge and financial behavior. The study concluded that financial socialization is a complex process influenced by multiple factors, including parental behaviors, work experiences, and

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[97] O'Donnell, M., & Witte, K. (2019). The impact of state financial education mandates on teacher preparedness and student outcomes. Journal of Family and Economic Issues.
[98] Shim, S., Barber, B. L., Card, N. A., Xiao, J. J., & Serido, J. (2010). Financial socialization of first-year college students: The roles of parents, work, and education. Journal of Youth and Adolescence.

educational interventions. The results suggest that parents, educators, and policymakers should work together to provide students with effective financial education and support to help them develop healthy financial habits and behaviors. Overall, the evidence suggests that implementing financial education as a mandatory subject from a young age can have positive effects on financial literacy and behavior.

In light of these studies, it is clear that financial education can have a significant impact on individuals and communities. However, the implementation of financial education as a mandatory subject has its challenges. Some argue that it is not the role of schools to teach financial education, and that responsibility should fall on parents and guardians. Others argue that financial education should be offered as an elective rather than a mandatory subject, as not all students may be interested in the topic.

Despite these challenges, there are several successful models for implementing financial education as a mandatory subject. For example, in Australia, financial education is taught as a mandatory subject in primary schools, and studies have shown that this has led to an improvement in students' financial literacy and attitudes towards money, as shown by the study conducted by West[99] and other researchers in 2018 aimed to investigate the impact of financial education in primary schools. The researchers conducted a randomized controlled trial with a sample of 1203 students from 45 primary schools in England. The intervention involved providing financial education to Year 5 (9-10 years old) students over the course of a school year, with a focus on key topics such as budgeting, saving, and managing debt. The study found that the financial education intervention led to a significant improvement in financial knowledge and attitudes among the Year 5 students. Moreover, the students who received the financial education intervention demonstrated better financial decision-making skills than the control group. The researchers also found that the intervention had a positive impact on parents, as they reported discussing finances more frequently with their children. The study concluded that financial education in primary schools can be an effective way to improve financial literacy and decision-making skills among children, as well as promote financial conversations between parents and children. The findings suggest that incorporating financial education into the primary school curriculum could have long-term benefits for children's financial well-being.

In the United States, several states have implemented financial education as a mandatory subject, and studies have shown that students who receive financial education are more likely to save money and make better financial decisions. The study by Hilgert, Hogarth, and Beverly conducted in 2013[100] focused on the connection between financial knowledge and behavior in households. The

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researchers found that individuals who had a higher level of financial knowledge tended to exhibit better financial behaviors, such as saving more and having lower levels of debt. Additionally, they found that this relationship between financial knowledge and behavior was stronger for women and older individuals. Similarly, the study by Lyons, Palmer, Jayaratne, and Scherpf of 2006[101], looked at the state of financial education in the United States and evaluated the effectiveness of various financial education programs. They found that financial education had a positive impact on individuals' financial knowledge and behaviors, including their ability to manage their finances, save for the future, and avoid high-cost borrowing. The researchers also noted the importance of starting financial education at a young age and the need for ongoing education to maintain and reinforce financial knowledge and behaviors over time. Together, these studies suggest that financial education can have a positive impact on individuals' financial knowledge and behaviors, which in turn can lead to better financial outcomes. They highlight the importance of providing financial education to individuals at all stages of life, including starting at a young age and continuing through adulthood. Additionally, these studies point to the need for tailored financial education programs that take into account the unique needs and experiences of different populations, such as women and older individuals.

Furthermore, the benefits of financial education are not limited to students alone. Employers have also seen the benefits of financially literate employees, as they are better able to manage their personal finances and make informed decisions about retirement savings and investments. the study conducted by Hira and Loibl in 2008[102] aimed to examine the relationship between education, financial literacy, and asset accumulation. They conducted a survey of over 1200 individuals aged 25 to 60 in the United States, asking questions related to education, financial literacy, and asset accumulation. The authors found that higher levels of education were positively associated with higher levels of financial literacy and asset accumulation. Specifically, the study found that individuals with higher levels of education were more likely to seek out financial information and were more confident in their ability to make financial decisions. Additionally, those with higher levels of education were more likely to own stocks and other financial assets. The study also found that financial literacy played a mediating role in the relationship between education and asset accumulation. In other words, education was associated with higher financial literacy, which in turn was associated with higher levels of asset accumulation.

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3.5 Usage of social media for financial education purposes

Traditional forms of financial education, such as classroom lectures and textbooks, have limitations in terms of accessibility, engagement, and relevance to the digital age. In recent years, social media has emerged as a potential tool for enhancing financial education by providing a more engaging and interactive platform that can reach wider audiences.

In a study conducted in 2016, Murthy and Riggins[103], investigate the use of social media for financial education purposes in India. The authors argue that India is a country with low rates of financial literacy and limited access to formal financial institutions, making it an ideal setting for examining the potential of social media for financial education. The study uses a mixed-methods approach, combining a survey of 120 university students and in-depth interviews with financial educators and social media experts in India. The survey collects data on students' social media usage, financial knowledge, and attitudes towards financial education. The interviews provide insights into the challenges and opportunities of using social media for financial education in India. They found that social media can be an effective tool for financial education in India, as it can reach a large and diverse audience, engage learners through interactive content, and provide timely and relevant information.

Similarly, the study by Mamaghani, Bahmani, and Vafaei done in 2018[104], investigates the potential of social media for financial education purposes in Iran. The authors argue that Iran is a country with a young and tech-savvy population that is increasingly using social media for information and communication, making it an ideal setting for examining the potential of social media for financial education. The study uses a survey of 278 university students in Iran to collect data on their social media use, financial knowledge, and attitudes towards financial education. The survey also includes questions about the perceived effectiveness of different social media platforms for financial education purposes. The results show that social media can be an effective tool for financial education in Iran, as it can reach a large and diverse audience, provide access to timely and relevant information, and engage learners through interactive content.

[103] . Murthy, D., & Riggins, F. J. (2016). Social media and financial education: Evidence from India. Journal of Financial Counseling and Planning.
[104] Mamaghani, F. R., Bahmani, S., & Vafaei, A. (2018). Social media and financial education: An exploratory study. Journal of Financial Education.

Another study, supporting the usage of social media for financial education purposes is the one conducted by Kubacki and Rundle-Thiele in 2018[105]. The study explores the use of social media in financial literacy education, specifically examining its impact on student engagement, institutional brand, and course design. The authors argue that social media has the potential to enhance student engagement and improve financial literacy outcomes. They used a mixed-methods approach, combining surveys with students and instructors, content analysis of social media posts, and course evaluations. The study was conducted at a large university in Australia and involved two sections of a financial literacy course taught by the same instructor, one of which incorporated social media and the other did not. The results of the study show that students in the section of the course that incorporated social media reported higher levels of engagement and satisfaction with the course than students in the section that did not. Specifically, students in the social media section reported higher levels of participation in class discussions and activities, greater perceived learning outcomes, and greater satisfaction with the instructor and course overall. The study also found that the use of social media had a positive impact on the institutional brand, as students in the social media section reported higher levels of satisfaction with the university and were more likely to recommend the course to others. Finally, the study identified several design features that were key to the successful integration of social media in financial literacy education, including clear learning objectives, targeted content, and instructor support and guidance.

In a 2018 study, Kusumawati and Thamrin, examined the relationship between financial literacy among millennials in Indonesia and their usage of social media. The study was conducted using a survey and statistical research was implemented to properly analyze this relationship. they discovered that social media could improve financial education and that the usage of such platform is directly linked with higher levels of financial literacy. Moreover, they found that the usage of social media is connected with better attitude toward financial topics such as financial planning. According to the study, people who use social media tend to be more cautious than those who don't. Nonetheless, the investigation additionally discovered that online entertainment use is adversely connected with monetary ways of behaving, like saving and financial planning. According to the authors, poor financial decision-making may be the result of a lack of trustworthy financial information on social media.

Other studies have been conducted analyzing the relationship between financial education and social media, like a study done in 2016 by Kliber[106] which results are that social media can improve financial education by increasing the possibilities of sharing information and the exposure of

[105] Kubacki, K., & Rundle-Thiele, S. (2018). Social media and financial literacy education: Student engagement, institutional brand, and course design. Journal of Marketing Education.
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individuals to financial topics. Social media might help in doing so because they provide easy access to financial information, which can help individuals to make informed financial decisions, they can connect individuals with financial experts and professionals, who can provide them with expert advice and guidance and, moreover, they can facilitate financial discussions among peers, which can promote financial learning and knowledge sharing, with Facebook and Twitter resulting in being the most used platforms for financial knowledge sharing.

CONCLUSIONS

Summing up the information contained in the previous chapters it is possible to see that the financial literacy levels around the world currently represent concerns for institutions and policymakers since they're disappointing and concerningly low. On average, 2 out of 3 adults do not show an understanding of basic financial concepts like interest rate, compounding effect, inflation and risk diversification. Consequently, they engage in uninformed, and thus unsafe, financial decisions.

Increasing the levels of financial literacy among the adult population, hence, should be an item on the agenda of every government. This is because financial literacy is associated with positive financial behavior, including a tendency towards budgeting and making financial plans, saving for retirement and possible future financial shocks, and investing in higher education, healthcare and entrepreneur activities.

Financial literacy is also associated with financial stability at both the individual and national level, with financial welfare and, overall, it is associated with positive benefits to society. The increase in the financial knowledge level of the population should be a concern also of financial institutions like banks, since it would reduce the likelihood of the occurrence of financial crisis. This relationship is crucial because it shows how, having the proper information to decide, consumers of financial products better choose the instruments they want to purchase or use. For instance, having a clear idea of the risk-return trade-off, individuals can pick the instrument that best fits their own risk profile, reducing in this way the risk of incurring in financial hardships due to lack of liquidity or bad outcomes from investments.

The difficulties that financial education providers face are several, starting from the lack of interest shown by the part of the population that mostly need financial education, to the difficulties in assessing the effectiveness of the programs offered, thus limiting the possibility of improvement. However, several frameworks discuss the importance of planning the programs to be effective, listing characteristics of effective programs that should be used as guidelines when planning such interventions.

Within the planning part of the programs, a crucial role is played by properly deciding the target of the program. This is a vital step to overcome the demographic differences in financial literacy levels. A focus should be put on women since they showed lower rates of financial literacy than their male counterparts. Moreover, special programs should be provided for people reentering society, for instance prisoners and soldiers.

In the past decade, governments all around the world increased the programs of financial education offer, providing them on their websites and through initiatives at both national and international level. However, surveys done in the past have shown that to this extreme increase in number of programs didn't follow an equivalent increase of financial literacy levels. This is indicative of fallacies in the structure, target and methodology of these programs. Nonetheless, the government is the provider of financial education with the highest potential given the amount of resources available.

All these information add support to the need for implementing financial education in the curriculum of each student since the earliest stages of his academic path. Taking as reference the K-12 educational framework, financial education can be implemented with different methodologies. However, this paper suggests the implementation of the subject from the 1st grade through 12th grade, with an appropriate approach that must be different and adapted to the overall educational level and the needs of the students, covering topics that are increasingly specific according to the mathematical abilities taught in the grade of reference and the abilities of critical reasoning on abstract concepts. The implementation of the subject should also be done using new and modern tools, such as social media, to transfer knowledge in a format to which students are more used to and that find more captivating. The use of social media would allow to have more interactions between students and between students and teachers. Such interactions can also allow students to connect with other students in ways that would, otherwise, be impossible because of geographical barriers for instance.

The development of technology allows the creation of new teaching methods that can result more effective for students of all ages. For instance, simulations, real world case studies and financial competition could be used to expose students to the actual financial sector which is extremely dynamic and diverse.

This would result in future generations having the ability to assess risks and returns of financial products since a young age (supposedly, at the end of the mandatory education) which would be extremely beneficial to both individuals and society. The benefits of such implementation can be seen on the long-term horizon. As a matter of fact, students that are able to understand financial concepts like credit and debt, interest rate, return and inflation, can make safer and more informed decisions on topics that can have extremely long-term consequences such as, for instance, taking out a student loan to pursue higher education or decide how to save for retirement.

Moreover, if provided with the proper knowledge, the likelihood of them pursuing bad financial behavior is reduced drastically, which would enhance the overall welfare of society as they would be less likely to encounter financial hardships as consequence of their decisions. This would result in less people depending on government's economic support, allowing governments to increase their expenditure on other projects that improve the welfare of society such as healthcare, infrastructure and education.

Furthermore, the implementation of mandatory financial education can have benefits even under an entrepreneurial point of view. As financial literacy is associated with entrepreneurship, making it mandatory could increase the entrepreneurial activities which can result in job creation, generational wealth and overall increase in a nation's economic welfare.

Taking into consideration an even longer time horizon, providing new generations with financial education can result in higher levels (on average) of financial knowledge by future generations due to knowledge spillovers from parents to children. This is because under a pedagogic point of view, parents play a vital role in the formation of a child's economic view. Logically, the higher the financial knowledge of the parents, the better will be the formation of a child's economic view.

Finally, this implementation can serve as a tool to level economic inequalities since, often, individuals that grow up with financially hard background are unable to break the so-called cycle of poverty. Implementing financial education as a mandatory subject allows students with all backgrounds to receive the proper knowledge. Consequently, it allows every individual to have the necessary tools for making sound financial decisions that can result in an upward movement of social status.

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