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HOUSEHOLD FINANCE FOR BUSY POLICYMAKERS: INFORMING THE DESIGN OF FINANCIAL EDUCATION INITIATIVES IN ITALY

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Alla mia famiglia che mi ha mostrato il cammino
e all'Europa multiculturale
che ho la fortuna di abitare.

INTRODUCTION

Motivation

The management of money has been the leitmotiv of economics ever since bartering lost its fashion. Much has been said and written about asset pricing and corporate finance, yet poor consideration was historically conferred upon “household finance” – to the extent that the term eloquently traces back to 2006. The field, however, has recently carved out his very special prominence in both the academic literature and the international political agenda.

The change in the welfare systems and the increase in life expectancy that have been taking place in Europe – as well as in large parts of the globe – since the XXI century have assigned ordinary people complex choices, such as that of private insurances, pension funds and better portfolio diversification. The 2007-2008 crisis gave further emphasis to the individual and household dimension in the processes of financialization (Hall, 2012). According to the OECD (2017), “the transfer of financial risk from governments to households that began before the global financial crisis has expanded in scope. This means that individuals need to bear more responsibility for their long-term financial wellbeing, and to invest in order to be more resilient to financial shocks and accumulate sufficient assets to ensure retirement income and fund future expenses”. The potential socio-economic wellbeing of households incontrovertibly hinges on their knowledge, expertise and confidence when handling their wealth.

Although the international community has put a spotlight on the globally low rates of financial literacy, and considerable literature has investigated the extent to which the “financialization” process has taken place, there is a shortage of solutions. Policymakers have, often clumsily, attempted to address the issue by designing widely diverse financial education initiatives. There is, in fact, a diffused contradiction: whereas the policy outcomes have been interpreted in behavioral terms in almost the totality of cases, very few strategies have *a-priori* contemplated, and capitalized on, these cognitive insights.

As we meet the challenges and opportunities of the new decade, this work aspires to filling a gap in the current literature about the design of FEIs; it does it by introducing a behavioural lens – the EAST framework – in design stage of the intervention, in order to single out the specific features that are realistically likely to render an initiative successful. Hence, the research aims to lay out an evidence-based roadmap for financial education policymakers, and to provide readers with an immersive experience into behaviorally informed interventions.

Research design and structure

Given the relative speed at which the newborn topic of household finance has gained saliency in the agenda of policymakers, this work aims at understanding how financial education can be employed to stimulate higher financial literacy scores. The research question addresses the extent to which is possible to intervene on the design of financial education initiatives (from now on, FEIs, the independent variable) in order to deliver higher financial literacy scores (the dependent variable), with particular reference being made to (a) workplace-based FEIs, (b) school-based FEIs and (c) community-based FEIs.

As for the theoretical framework, the vision of reality is interpretivism, as the study aims at producing hermeneutical knowledge and providing an understanding, rather than a comprehensive explanation, of the topic. The theoretical paradigm guiding the research is behavioralism, and indeed this work tests the integration of findings from behavioural finance (in terms of both heuristics and operational frameworks) to the design of FEIs. In addition to that, the present study draws insights from the functionalist paradigm, for the author's belief is that diminishing disparities in the level of financial literacy should be a goal of the society as a whole. The reasoning applied to the study is deductive, moving from the general theory of behavioural household finance and financial literacy (chapter 1, 2 and 3) to experiential practice (chapter 4).

Until 25 years ago, Italian households invested in relatively simple instruments such as deposits (banking and postal) and public bonds; the security of savings correlated de facto with the stability of the financial system. Nowadays, the investment forms are much more complex, partially reflecting a quest for higher profits; this ultimately exposes household wealth to a full spectrum of risks and complicates the protection of savings (Visco, 2018). Compared to the other OECD Countries, Italy exhibits lower financial literacy scores (measured by the OECD/INFE survey) and diffused household vulnerability. At the same time, it was no earlier than 2017 that a National Committee for financial education was put in place to coordinate public and private strategies; due to these peculiarities, the country has been chosen as the focus of the study. The level of explanation is macro, since policies are considered as being part of a national strategy for financial education.

The dissertation starts with a state of the art about the neoclassical theories salient to household finance (chapter one). Household trends are presented in both the EU and in Italy, with a specific focus on territorial patterns in the Italian peninsula. In the second chapter, the two main theoretical frameworks of referral (the LC/PIH model and the modern theory of portfolio allocation) are enriched with earlier findings from behavioural finance; first, both the behavioural life-cycle model and the behavioural theory of portfolio allocation are presented; then, three cognitive biases (mental accounting, procrastination and loss aversion) are eviscerated. Moving to the third chapter, the research expands and covers both formal and operative definitions of financial literacy (the “Big Three” model by Lusardi & Mitchell and the OECD/INFE framework) and cross-country comparisons are provided. Despite the lack of unambiguous evidence about the impact of FEIs, an explanation for the desirability of financial training is suggested. For each chapter, specificities about Italy are presented.

Finally, through a qualitative document analysis, the fourth chapter identifies operative best practices to enhance financial literacy by intervening on the design of FEIs. Starting from FEIs that are currently in place or the design phase in Italy, it is performed a study of forty-five interventions that had a positive, statistically significant impact on financial knowledge and skills. Each finding is then integrated within a mnemonic behavioural framework named "EAST”, which was developed by the Behavioural Insight Team (BIT) in 2012, as to derive operational cues with replicability potential in Italy. For more detailed information on the methodology, see chapter 4.1. The fifth section offers some concluding remarks.

I. HOUSEHOLD FINANCE

In the 2006 presidential address to the American Financial Association (AFA), Harvard Professor John Y. Campbell neologized the term "household finance" in order to define a field that had hitherto been lacking status and agenda of its own. Despite having attracted considerable interest in the past three decades, scant relative involvement was, and still is, conferred upon household finance compared to the traditional disciplines of asset pricing and corporate finance.[1] The first category calculates how asset prices are set in capital markets and how risks are compensated by average expected returns, thus showing valid affinities with the scope of household decision-making. The corporate area, instead, investigates the extent to which business entities use financial means to enhance the benefits of firm owners. Household finance configures as a brand-new field of academic investigation. Drawing insights from asset pricing and by analogy with corporate finance, household finance intends to explore how households operate financial tools and markets in order to further their long-term objectives (Campbell 2006) while disposing of enough resources to cover short-term financial needs.

1.1 An emerging sector

The definition of a household routinely used in censuses has been formulated by the United Nations Economic Commission for Europe (UNECE):

> "A household is (a) a person living alone […] or (b) a group of two or more persons who combine to occupy a housing unit and to provide themselves with food and possibly other essentials for living. The group may be composed of related persons only, or of unrelated persons, or of a combination of both. The group may also pool their incomes". (UNECE, 2009).

Both when they invest their savings or take out a personal loan, households worldwide have grown into a sizeable profit generator for intermediaries. This synergy has become so intense that, between an ATM withdrawal, an automatic charge of a bill or a payment by credit card, "perhaps not a day goes by that a household does not interface with the financial

[1] According to Donni and Pontieux (2011), the same remark can be made with regards to personal finances. Prior to the last decade, the standard models in economics have "treated households as a black box", by adopting a unitary approach in which individual models are simply transposed to households.

markets" (Guiso, 2011). However, theories from asset pricing, corporate or personal finance cannot be generalized to households straightforwardly, as the decision-making of the latter incorporates unique constraints that preclude the pure implementation of textbook models.

First, a multi-person household is more than an aggregate of several individuals, and so are the needs and preferences of its components.[2] This factor carries significant intra-household allocation considerations. In 1987, future Nobel winner Amartya K. Sen observed that "there is a good deal of evidence from all over the world that food is often distributed very unequally within the family, with a distinct sex bias (against the female) and also an age bias (against the children)". At least two logical reasonings stem from this line of thought. First, the existence of parallelism between distribution in the household and distribution in the society (Pollack, 2015). Second, should household resources be mismanaged, the detrimental allocative effect on the vulnerable categories is exacerbated.

Harvard's Household Finance Handbook (2018) provides useful insights about the unique features of the field. For instance, households are characterized by varying aggregate rates of patience – that is, preference for future over present consumption – such that their population may be partitioned in subgroups ranging from myopic (living hand-to-mouth, Parker 2017) to very patient, or "prudent" (Kimball, 1990). Support for dependents – notably children – constitutes another peculiarity of households. Childcare costs tend to peak when parents are in midlife, which is also when their actual earnings often appear to increase (Attanasio and Weber, 1995). How the number of dependents should affect consumption and saving dynamics is not yet well understood – I will come back on this in next bullet point.

When thinking about the economic prosperity of the population of a country, household represents the preferred unit of analysis because it is "the most valid level of aggregation of individual income at which an assumption of income sharing is most valid" (Canberra Group, 2011). As the net worth of households is everywhere a significant component of national net worth, understanding the economic environment and the behaviour of households should ultimately assist policy-makers counter poverty and possibly deaden distortions in financial

[2] For more on this, see Samuelson (1956). His approach treats the family preference simply as the ordering of individual utility functions. In his words, the preferences of family members "have the special property of being independent of the other members' consumption. But since blood is thicker than water, the preferences of the different members are interrelated on what might be called a consensus, or social welfare function" (p.10).

markets (Samphantharak & Townsend, 2009).

1.1.1 Components of lifetime income

The economic planning of all households – especially families – encompasses long yet finite time horizons, namely a lifetime. Similar to businesses, households may hold limited borrowing capacity and face complex tax statuses (Campbell, 2006), but their respective sources of income are unlike. The latter consists of a permanent component (long-term average income) and a transitory component (e.g. temporary transfers). I will hereby rely upon the guidelines to define household income provided by the International Conference of Labour Statisticians (ICLS), the standard-setting body of the ILO, according to which:

> "Household income consists of all receipts, whether monetary or in-kind, that are received by the household, or by individual members of the household, at annual or more frequent intervals, excluding windfall gains and other such irregular and typically one-time receipts".
>
> "Household income may be defined to cover: (I) income from employment (both paid and self-employment); (II) property income; (III) income from the production of household services for own consumption; (IV) current transfers received". (ILO/ICLS, 2003)

Commonly, the main supply of lifetime wealth comes from real assets and, usually, their most sizeable component is homeowning. Wages constitute a significant indicator of living standards both during the working life and after retirement as well; in turn, wages connect wealth to nontradable assets, notably human capital (Campbell, 2006). However, the background risk of labour income may foster sentiments of loss aversion and a cautious, even detrimental, style of investment (Heaton and Lucas, 2000). Furthermore, as well as liquid assets (cash, stocks, checking accounts), the economic wellbeing of households profoundly depends on illiquid assets (real estates, retirement accounts, trusts) which – though exposing significantly higher average return rates – entail transaction costs and, if it is pricey to extract cash from them, may cause the befalling of liquidity shortages (Kaplan and Violante, 2014).

1.2 Literature Review: Standard models of household decision-making

Anyone who thinks about economic development has to wonder about the role played by savings: "is thrift the origin of growth, or is it simply its consequence?", asks Deaton (2005). For decades, the explaining factors that drive household saving and consumption represented an area of intensive academic research. Importantly, considerations on household behaviour necessarily include considerations on individual behaviour as well. J. Maynard Keynes (1936) attempted to answer the question "why do people save?". Out of the eight reasons he listed, the first two motives for saving are:

> "1. To build up a reserve against unforeseen contingencies; 2. To provide for an anticipated future relationship between the income and the needs of the individual"

Browning and Lusardi (1996) re-nominated the reason no.1 the "precautionary motive", and the reason no.2 the "life-cycle motive". Let this be the starting point for assessing the state of the art on the household's intertemporal allocation of money.

1.2.1 The LC/PIH model

As time passed, new postulates were required to update the Keynesian "Absolute Income Hypothesis" (AIH) – formulated in a very bad timing (the Great Depression) – which sketches consumption as a function of the aggregate income. In the model of John M. Keynes, an increase in the current disposable income corresponds to an increase, though less than proportional, in the marginal propensity to consume. The additional effective demand would bring about production and a rise in the employment level, giving impulse to a virtuous cycle (the so-called Keynesian multiplier). In the Keynesian scenario, thrift was treated with suspicion, as it might generate insufficient demand and impede the multiplier effect. Such prediction turned out to be incorrect (Guiso and Jappelli, 2003). In the early 1950s, new valuable contributions were brought to the field. Both the "Life-Cycle Hypothesis" (LCH) postulated by Modigliani and Brumberg in 1954 (figure 1)[3] and the "Permanent Income Hypothesis" (PIH) postulated by Friedman in 1957, questioned the size of the Keynesian multiplier. Their models attracted exceptionally flattering academic reviews.[4] [5]

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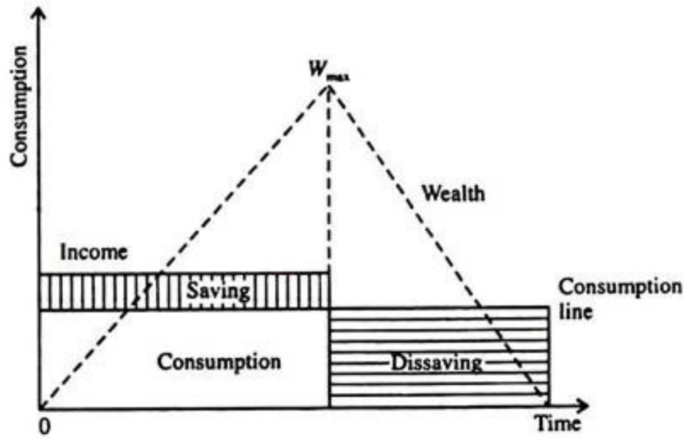
[3] In 1985, Modigliani was awarded the Nobel Prize for his "pioneering analyses of household saving and financial markets". A few years later, he condensated the LCH in a final paper, to honor the memory of his brilliant PhD student Richard Brumberg who untimely died in 1955.

[4] For instance, Johnson and Falkingham (1992) described the LCH as the "elegant and logically consistent heuristic device which allows us to think about the way individuals, or households, plan the inflow and outflows of economic resources over their life-cycle".

[5] The life-cycle/permanent income hypothesis was initially formulated by Fisher (1930), but empirically validated only through Modigliani's later works.

Figure 1. Modigliani and Brumerg's Life-Cycle Model to predict saving behaviour.



Source: Kari, 2017

According to the hypotheses, people foretell their long-term capacity to consume, then set aside a fraction of that calculation for current consumption. This calculation is either in the form of permanent income, as concerns infinite-horizon [6] (Friedman) or wealth, as concerns the finite-horizon (Modigliani). Due to the complementarity of the two hypotheses [7], they are commonly assembled together and widely known as the LC/PIH model.

The model estimates that households have rational expectations about their permanent income or wealth (expected lifetime resources) and smooth their consumption as to maintain a uniform level of spending across their livelihoods. In this way, the LC/PIH model suggests, consumers seek to equalize the marginal utility of consumption over each stage of their lives. In such perspective, households should not deviate their consumption unless they confront unexpected changes in their permanent income[8] – which implies that their current income, being only transitory (due to accidental occurrences e.g. cyclical fluctuations in economic activity) holds relatively small effect on consumption.

The LC/PIH model presents relevant implications for household finance. Accordingly, consumers are expected to put aside part of their income to meet their consumption needs during retirement. This very simple idea dominates our common understanding of the life-

[6] I used the terms "infinite horizons" because Friedman explored the hypothesis that family dynasties live indefinitely. Under this model, consumers altruistically maximize their own utility and that of their descendants.

[7] Friedman himself, in his "A theory of the Consumption Function" (1957), repeatedly owes to the earlier work of Modigliani and Brumberg.

[8] These shifts are mostly non-forecastable.

cycle of household members: saving money when young (and have an income), to be able to spend at later stages of life, when that income is lacking. The function of saving is similar to that of stock in a firm (Guiso and Jappelli, 2003); as stocks are meant to stabilize production in times of seasonal demand fluctuations, savings allow households to sustain their consumption even if incomes are volatile. This finding explains why, when looking at families, the affluent groups show propensity to save a greater proportion of their current earnings whereas the less prosperous save a lesser proportion.

1.2.2 Angus Deaton's analysis and its implications

While there has been detailed economic analysis of the effects of ageing on life cycle consumption and socio-economic trends, the effects of shifts in the composition of households have been less prominent. Indeed, the LC/PIH model takes the time paths of income and dependents as given (Browning and Lusardi, 1996). Concerning this point, an interesting reasoning has been proposed by 2015 Nobel Laureate Sir Angus Deaton. The British-American economist praises Modigliani and Brumberg's most brilliant intuition, *i.e.* that the main reason people supposedly put aside resources is to prepare for retirement (the Keynesian motive no.2). Deaton explores the hypothesis that not only growth, but also the demographic structure represents an influential forecaster of national savings, even though the causal trajectories remain unclear.

Let us assume an economy in which either the per capita incomes or the population are growing, such that each generation is better off than the previous. In the first scenario (income growth) the young would be saving more than the old are spending. The more sustained is the economic growth, the more people are inclined to save (Deaton, 2005). Deaton confirms that the aggregate level of saving diminishes as the share of elderly in the population is high.

Should the second scenario materialize (population growth), the same would be true as well, since the young would outnumber the old and there will be positive net saving – that is, more people are saving than dissaving. Repeated cross-country regressions have found that aggregate saving rates are lower when the presence of children (share population aged 0-14/ total population) is high. There is *prima facie* evidence that an increase in the household components fosters growing expenditures and that childcaring delays the voluntary saving for retirement, compared to childless adults. This possibility perfectly fits the LC/PIH model.

Other authors remember that a trade-off with efficiency shall not be taken out of the picture (Capéau and De Rock, 2015); cohabitation allows individuals to share assets (e.g. homes, cars) which improves saving opportunities. Furthermore, people do not save solely to provide for retirement, e.g. plans on future fertility may increase the household propensity to put money apart. Recent studies even captured an increase in per capita consumption following the departure of dependents (Rottke and Klos, 2016). As far as household size is concerned, the literature has not been able to draw a firm conclusion.

In general, falling birthrates and the shift in longevity will affect impact economic growth, retirement savings and financial markets. The LC/PIH model is one in which wealth “gets passed around” among generations: young people have little wealth, the middle aged have more, and the amount of personal wealth commonly peaks just before people retire (when earnings are high and after the ages corresponding to childcaring). In terms of economic growth, such assumption generates negative forecasts for countries that present high saving rates and whose populations are greying (Deaton, 2005), which is the case of Italy. According to economist Torsten Sløk, Deutsche Bank's Chief International Economist, "the key question […] is whether the global economy is able to generate enough productivity growth to offset these demographic trends” [9].

1.2.3 The buffer-stock saving model

Over time, the LC/PIH model has been subject to refinements and extensions. The introduction of the idea that consumers are “prudent”, that is they have a motive for precautionary savings (Kimball, 1990) has been a significant integration to the model (Browning and Lusardi, 1996). A possible explanation for the above-mentioned risk aversion is associated with higher uncertainty on future earnings, or even the drastic fear of zero-income in the future (Alan et al., 2012).

JHU Professor Christopher Carroll elaborated a version of the LC/PIH model (1997) in which prudent consumers are also “impatient”, ie. they show high rate of time preference – put in easier other words, if they had unequivocal certainties on future income, they would immediately spend more than their present income. These consumers are inclined to engage

9 Ungarino, R. (March 19, 2019) “For the first time ever there are more people over 65 than under 5”, weforum.org, World Economic Forum.

in “buffer-stock” behaviours. According to Carroll, people have a (generally small) target wealth-to-income ratio[10] at which they adjust their saving. Should wealth be above the target, people run down their resources (impatience is the dominant trait); should wealth be below the target, people are inclined to save more (prudence is the dominant trait).

Since the amount of wealth heavily depends on the ability to borrow, buffer-stock saving can be adopted as a rule of thumb in order to predict the behaviour of households that cannot borrow and are at least modestly impatient (Beshears et al., 2018). The rule establishes a positive correlation between consumption growth and income growth (Deaton, 1991; Gourinchas and Parker, 2002). According to some authors, indeed, the most common buffer-stock savers are young agents (Gourinchas and Parker, 2002; Zhou, 2003) whereas elderly households are inclined to comply with the traditional LC/PIH norm – indeed, borrowing constraints are more likely for young agents (Carroll, 1997). On the other hand, Samwick (1998) found that some households can actually maintain buffer-stock behaviours for long times, until retirement is only a few years away.

1.2.4 A synthesis: the life-cycle framework

So far, we lack unambiguous understanding about the impact of demographic factors and household size on household financing. It is also not well understood how individual models concatenate as concerns households. The general consumption model used in the micro and macro analysis of consumers behaviour, the LC/PIH, has aged well (Deaton, 2005), but it fails to provide an extensive explanation for household behaviour.

Browning and Crossley neologized a new concept that could serve as a common denominator for all the models that are partly deviating from the standard LC/PIH formulation. The so-called “life-cycle framework” rejects an a-priori slant to consumption smoothing. Its core tenet is that people make, or at least attempt to make, sequential choices aimed at achieving uniform consumption levels, and that such choices are based on the information (the degree of certainty) available to them (Browning and Crossley, 2001).

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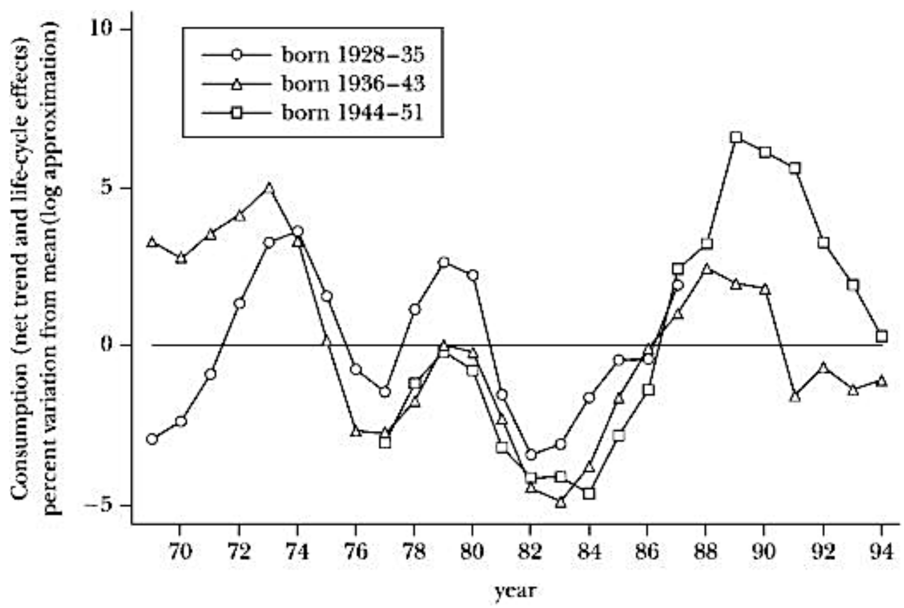
[10] Wealth consists of the market value of all real and intangible assets accumulated minus all debts. The most common indicator of wealth is net worth. Income is the amount of money or goods earned over a given time period and can be added to (or subtracted from) wealth. The wealth-income ratio is a relative interpretation of wealth (stock) in relation to income (flow).

When it comes to households, the authors warn against "missing the forest by looking too closely at particular trees". Through a Survey Data conducted in the U.K. they were able to demonstrate that, whereas the average monthly income of families is mostly constant over the year, the expenditures registered in December are up to 21% higher compared to the previous months. Browning and Crossley's finding challenges the existence of a high correlation between income and consumption. They suggest that smoothing consumption does not mean keeping it constant, but rather to distribute lifetime consumption in such a way that no reallocation will increase the welfare – that is, the marginal utility of spending an extra euro is equal at any point in time.

The authors plotted a three-year business cycle running from 1970 to 1994 (figure 2). It considers three cohorts of couples, such that the head of the household is aged above 24 (for the youngest cohort) or below 60 (for the oldest cohort).

Figure 2. Business-Cycle Patterns of Consumption



Source: Browning and Crossley, 2001

Albeit with variations in intensities, the three cohorts are quite synchronized; the life-cycle framework appears consistent over life-time spans among the generations. Differences may be traced back to some individual household's experiences – that in turn shape the expectations about future financial constraints – such as medical expenses, unemployment spells, government transfers, social security benefits.

1.2.5 The Modern Theory of Portfolio allocation

Historically, the notion of utility has matched multiple meanings. As households weight alternatives for their portfolio choices, it is possible to differentiate between their "experienced utility" (in Bentham's usage of hedonic pleasure, or displeasure, experienced after the choice) and the modern notion of "decision utility" (the outcome that rational households intend to maximize). Due to its subjectivity and complexity to be measured, most economic discourse has ignored the notion of experienced utility (Kahneman et al., 1997). There are two main categories of assets in which households can invest: either a risk-free asset with a rate of return that is assumed to be constant over time; or a risky asset, *i.e.* a risky company or, equivalently, its stocks. Standard models of portfolio selection assume that households have true information on the return of each asset and are able to maximize their decision utilities accordingly.

Miller and Modigliani (1961) provided the identikit of the rational investors, who "always prefer more wealth to less and are indifferent as to whether a given increment to their wealth takes the form of cash payments or an increase in the market value of their holdings of shares". In this field, the neoclassical Modern Portfolio Theory (MPT) – or Mean-variance Portfolio Theory, or simply Portfolio Theory – elaborated by Harry Markowitz (1952) is the theoretical framework of referral. Markowitz's genius intuition was that the acceptable risk-to-reward ratio should be calculated on the whole portfolio, rather than on an asset-by-asset basis (hence, the adjective "modern"). According to the MPT, each investor disposes of a set of optimal portfolios that lie above the so-called "efficient frontier". The frontier is a line that provides the perspective of higher return at the minimum level of acceptable risk (along the risk-reward spectrum). By weighting potential risks and expected returns, investors are able to discern their preferred (most efficient) portfolio that is close to the efficiency frontier and, ideally, overlaps with it. Efficiency-based considerations take into account that higher degrees of risk imply higher rewards, whilst risk-free assets are associated with modest potential returns; they also consider that risk-free assets are guaranteed against loss in nominal value, but remain vulnerable to a drop in purchasing power. According to the model, all the portfolios that lie below the efficient frontier are excluded, as they do not satisfy the maximum possible return at the bearable level of risk. To this date, the assumptions of perfect knowledge and investor's rationality appear debatable (see: paragraph 2.1). Furthermore, the

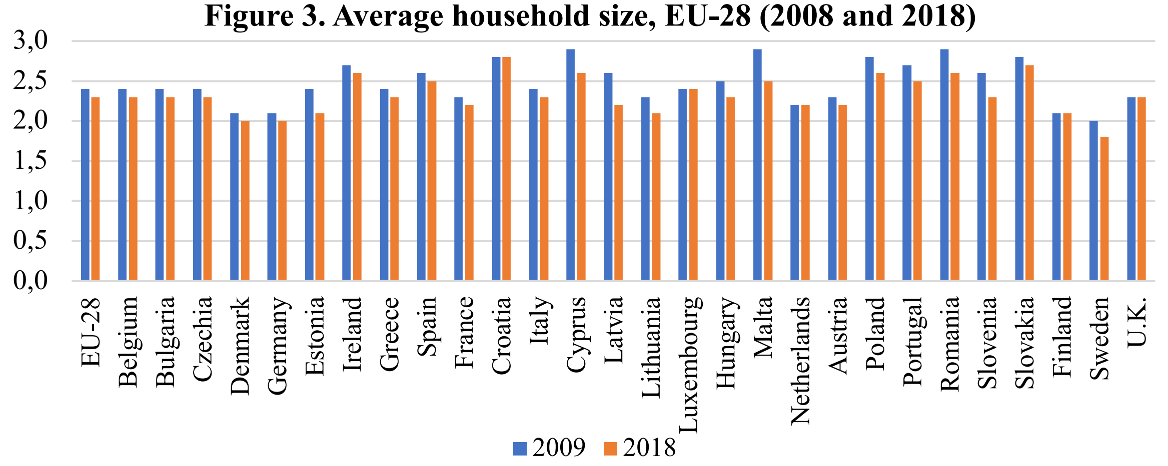
MPT suggests that rational actors can lessen their exposure to risks by diversifying their portfolios (Markowitz, 1992). However, there is no lack of evidence about poorly diversified household portfolios (Campbell, 2006; Guiso and Sodini, 2013; Beshears et al., 2018) and, if diversification takes place, it can be naive (Benartzi and Thaler, 2001). For instance, households exhibit a disproportionate preference for illiquid assets accumulation over their life cycle (Beshears et al., 2018), or allocate most wealth to conservative portfolios dominated by low-risk securities, with no or few stocks (Fabozzi et al., 2002). The issue is of utterly importance, as it was shown that suboptimal portfolios at the individual household level distort the intertemporal consumption choices, the aggregate growth and, eventually, the social welfare (Bhamra et al., 2019).

1.3 Household trends in the EU

1.3.1 Demographic characteristics

Based on the latest data available (Eurostat, 2018), the average size of households in the EU-28 was 2.3 components (Figure 3). The amount has been stable since 2011, with a 0.1% decrease compared to 2010. The most sizeable households are located in Croatia (2.8 components), while Sweden has the smallest average household size (1.8 components, compared to 2.0 in 2009) immediately followed by Germany and Denmark (2.0 members, compared to 2.1 in 2009). The biggest decline since 2009 is observed in Malta, a loss from an average of 2.9 members in 2009 to 2.5 members in 2018.

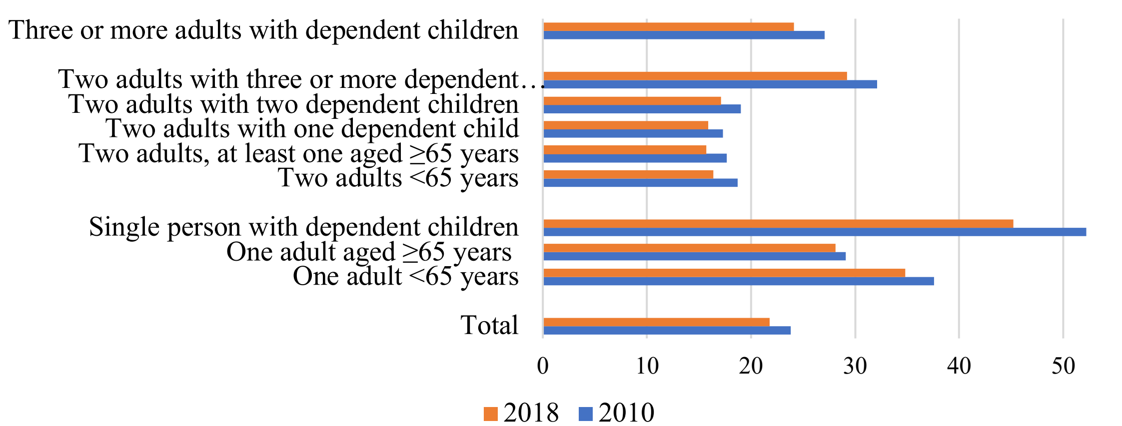
Figure 3. Average household size, EU-28 (2008 and 2018)



Source: Eurostat LFS Survey, 2019

In 2018, almost two-thirds of households consisted of one or two people. The single-person group was both the most common type of household (33.9%) and the category that showed the highest growth from 2009 to 2018 (3.7 percentage points). Together with the decrease in the total size of households, the EU-28 population kept growing (though at a relatively slow pace) and the overall number of households increased. The total amount of EU-28 households rose from 209 million in 2009 to nearly 223 million in 2018 (Eurostat, 2019). Based on the latest data available (Figure 4), 45.2% of single parents (having one or more children) run the risk of poverty and/or social exclusion.[11,12] The percentage shows a significant decrease since 2010, when the average value was 52.2%, but still accounts for more than double the average of other types of households. In general, one-person households are more vulnerable, since no partner can help to alleviate problems of temporary natures such us unemployment (mostly in the case of young adults) or illness.

Figure 4. People at risk of poverty or social exclusion by household type, EU-28 (2010-2018)
(% of population)



Source: Eurostat, 2020

1.3.2 Assets, Liabilities and Net Wealth

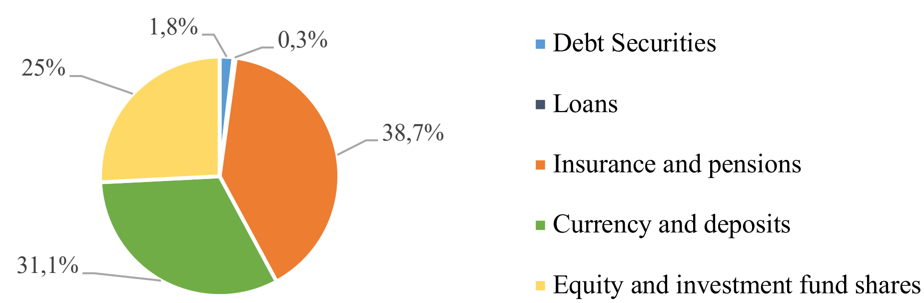
In terms of wealth composition, households from the EU-18 euro-area (data from Lithuania are missing) mainly rely on real assets, which totals 82.2% of the totality.

[11] A child is described by Eurostat as a family member under the age of 25 who lives in full economic and social dependency on others (parents/adults).

[12] That is, experience at least one of the following conditions: risk of poverty, severe material deprivation and/or low labour intensity (Eurostat).

The household main residence (HMR) is the lion share that accounts for almost half of the real asset's portfolio. Only 17.8% of the total wealth derives from financial instruments (ECB, 2016)[13]. Specifically, EU-28 household financial assets totalled EUR 35 150 billion in 2018. Insurance, pension and standardized guarantees constituted the most common financial asset (38.7% of total assets). Together with currency and deposits and equity and investment fund shares, the three instruments accounted for 94,9% of all financial assets (Figure 5).

Figure 5. Total assets of household by financial instrument, EU-28 (2018)
(% share of total financial assets of households)



Source: Eurostat, 2020

Of all liabilities, 85.8% of household debt is constituted by mortgages, and on average one in four households in the euro-zone holds a mortgage debt. The debt-to-asset ratio represents the ultimate ability of households to pay their debts. The indicator of elevated insolvency risk is a value over 100% of this amount. With the median debt-asset ratio of 25.7%, insolvency threats in euro-zone are small. However, should we look at the households in the first net wealth quintile (*i.e.* the lowest ranked in terms of wealth), such ratio heavily increases up to 117%. This data suggests that not only household net wealth distribution in the euro-zone is unequal (with the richest 10% households holding 51.2% of total wealth), but also the distribution of vulnerabilities is highly skewed (ECB, 2016).

Consistently with the enlarged life-cycle framework previously presented, age is a crucial determinant of the distribution of net wealth. Indeed, age corresponds to heterogeneous

[13] The "Household Finance and Consumption Survey" (HFCS) by ECB represents a huge effort of data collection across 84 000 households in 18 euro-zone countries. The ECB was expected to release the third wave in Autumn 2019, but the data are not yet available. So far, the latest HFCS data available – hereby presented - trace back to 2016 (the second wave).

phases and levels of income and savings over the lifetime of euro-zone households. The age profile of median net wealth is hump-shaped: young households whose reference person[14] is aged 16-34 have a EUR 16.300 median wealth, which peaks at EUR 160.000 when the head of households is 65 years old and decreases thereafter (ECB, 2016). Nevertheless, variability linked to saving and investment preferences – not to mention the complexities of the labour markets – can be identified within all age groups.

Looking at the big picture, at least three considerations can be made: first of all, the vast majority of households taken into consideration (97.2%) own at least one financial asset, but in relatively small quantities (ECB, 2016). The preference towards real assets, especially real estates and vehicles, enhances the financial vulnerability of households in the events of liquidity shortages. Furthermore, European households run significant detrimental effects linked to the drop in house prices in most euro-zone countries – according to the HFCS, the median value of the HMR in 2016 was EUR 165,800, reflecting a significant 14% decrease from 2013. Finally, the portfolio of individual households tends to be dominated by one main asset (HMR, deposits, other real estates, vehicles), showing consistently low degrees of diversification. Preference for tangible assets endowments and low rates of portfolio diversification reflects disparities in the social safety nets of the Member States and the financial sophistication of their citizens.

1.4 Household trends in Italy

1.4.1 Demographic characteristics

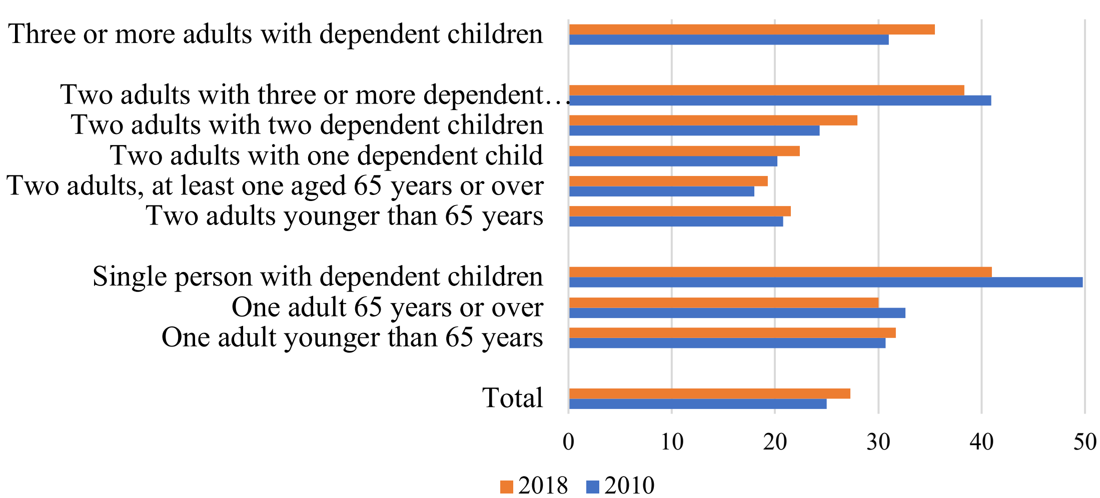
A process of simplification of Italian household's structures has been ongoing for two decades now. On the one hand, the number of households has risen to 25.500 million (average 2016-2017); on the other, the number of their members has faced a contraction from 2.7 to 2.4 in twenty years (ISTAT, 2019). Today, seven households out of ten do not have any dependent children and, among those who does, 16% are single-parent households. The sharp reduction in marriages, the increase in longevity and, to a lesser extent, the increase in marital instability are critical explanations for the change in household behaviours (ISTAT, 2019).

[14] "Household reference person" is loosely defined by the Canberra Group as the highest income earner in the household (UNECE, 2011).

For a long time, Italy has witnessed a process of lengthening in the transition time to the adult state. Compared to previous generations, young people experience more fragmented life paths which, in turn, slow down the emancipation from the family unit. With its average exit age from the household of origin being 30.1 years, the peninsula is the sixth place among the EU-28 States (Eurostat, 2018). In 2018, young people aged 20-34 accounted for 16% of the total resident population (minus three percentage points compared to 2008). More than one in two people among them, either married or unmarried, lived with at least one parent. This circumstance is mainly due to a lack of financial independence, the length of studies, difficulties in finding a suitable employment and/or the inability to meet the cost of housing, but also to the "characteristic traits of Italian culture that lead young people to seek guarantees and stability before leaving the household of origin" (ISTAT, 2019).

Compared to the previous decade, the total number of people at risk of poverty or social exclusion is growing (figure 6). The condition of the most vulnerable groups is improving, yet it remains serious. For instance, single mothers (86% of single-parent households) face fewer financial difficulties than in previous years, yet remain an at-risk category. Concretely, about half of the Italian single mothers cannot afford an unexpected expenditure of EUR 800, and almost one in five declares to be late on mortgage or rent payments (ISTAT, 2018).

Figure 6. People at risk of poverty or social exclusion by household type, Italy (2010-2018)
(% of population)



Source: Eurostat, 2020

Furthermore, analyzing the comparative data on household structure is a useful exercise for the purpose of this dissertation (Table 1). First of all, Italy is a State of outright homeowners. Compared to the other countries in the euro-zone, Italy shows a shallow level of mortgage debt and fewer renters. Secondly, Italy is in the last place as concerns the number of young households (7.2% of all households, compared to 14.4% of the euro area), and in the first place as concerns the number of households headed by a person aged 75+ years. More than four reference persons in ten is officially out of work, a value which is in line with the average. Compared to the other countries, however, Italy has significantly more self-employed heads of households. The education category displays the most relevant variance. Since educational attainments are positively correlated with financial literacy (Lusardi and Mitchell, 2009), the comparatively low share of secondary and post-secondary educated household heads should be a worrying factor.

Table 1. Household structure by selected country, 2016
(% of all households)

Housing Status							
	Euro area	**BE**	**DE**	**GR**	**ES**	**FR**	**IT**
Owner - outright	41,5	38,4	27,8	60,6	55,3	39,8	58,6
Owner - with mortgage	19,7	31,9	16,5	11,4	27,8	18,9	9,6
Renter or other	38,8	29,7	55,7	27,9	16,9	41,3	31,8
Age of the reference person							
16-34	14,4	13,6	18,4	12,5	12	16,2	7,2
35-44	17.8	18.6	15.5	18	22,3	16,9	17,6
45-54	20	19,1	20,7	19,9	20,6	17,8	22
55-64	18	18,5	16,8	18	16,7	19	18,1
65-74	14,8	13,5	14,1	16,1	14,2	14,3	16,4
75+	15	16,6	14,4	15,4	14,2	15,8	18,7
Work status of the reference person							
Employee	48,2	50,1	56	36,5	44,5	42,9	44,5
Self-employed	8,7	5,9	8,2	14,4	10,4	6,9	11,7
Retired	30,9	33,3	28,3	39,3	27,9	37,2	30,7

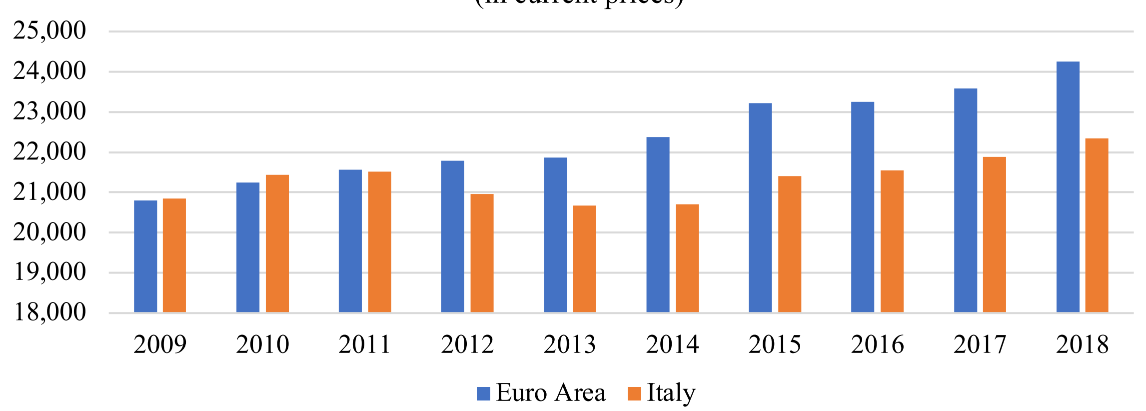
Other non-working	12,1	10,7	7,5	9,8	17,2	13	13,1
Education of reference person							
Primary	32	26,5	11	39,3	53,7	31,2	52,1
Secondary	41,6	33,1	57,9	42,4	17,6	41,4	34,5
Post-secondary	26,4	40,4	31,1	18,3	28,7	27,4	13,4

Source: ECB, 2016

1.4.2 Income, savings, investment dynamics

Following a positive trend that is ongoing from 2012, the disposable income of Italian households has continued to rise, though slightly, throughout 2018. The indicator is relevant since, taking account for taxes, in-kind benefits and social contributions, it reflects the purchasing power and the ability of households "to invest in goods and services or save for the future" (ESA, 2010). Even though the overall performance of the country is improving, from the contextualization of the value within the euro-zone it can be seen that the deviation of the Italian value from the euro area average is non-negligible and increasing (Figure 7). Overall, the net wealth of Italian households in relation to disposable income remains higher than the Euro-zone (8.2 and 7.7 at the end of 2018, respectively, ISTAT 2019), but is facing a slowdown and grows at significantly lower rates compared to the euro area average.

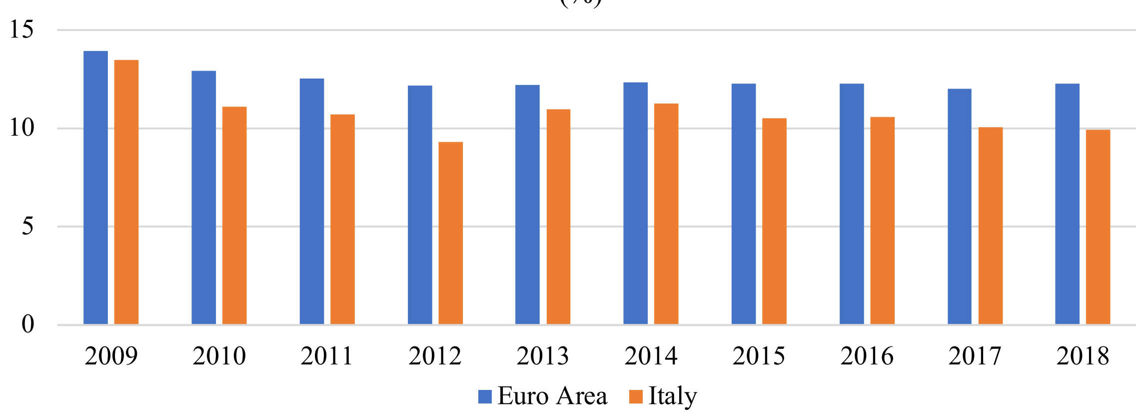
Figure 7. Adjusted gross disposable income of household per capita, Euro Area and Italy (2009-2018)
(in current prices)



Source: Eurostat

The saving rate, at around 10%, confirms the stable trend of the past five years and is lower than the value recorded in the EU-28 area (Figure 8).[15] Meanwhile, the percentage of adults who are able to save on a regular basis has declined from 33% to 31%. Precautionary savings (in the event of unforeseen events), which still records high levels, has returned to the "physiological" concentrations of 2019 (43.4%), very similar to the pre-crisis levels of 2005. At that time, the second reason for savings was the purchase of a house. In the aftermath of the housing bubble, the incidence of the housing motive for saving fell by 8%, and only started to approach the pre-crisis values from 2017 onwards. Instead, both the share of savings aimed at leaving an inheritance to children or for retirement purposes display a downward trend. Whereas the economic recovery may serve as an explanation for the former pattern, the reduction in retirement reserves seems to be linked to emotional and irrational factors – taking into account that one in two savers express concern about their standard of living during the post-working life (Russo, 2019). Turning to the investment rate dynamics (Figure 9), it presents a swinging trend that has recently stabilized above 7%. The deviation of the investment rate from the saving rate is in line with the pattern of the euro area.

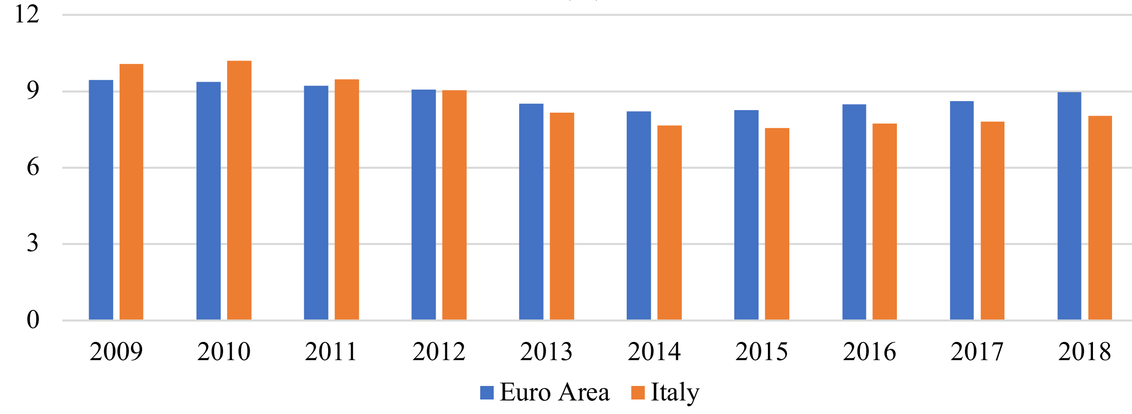
Figure 8. Gross household saving rate, Euro Area and Italy (2009-2018)
(%)



Source: Eurostat

[15] For the figure 9 and 10, values represented include non-profit institutions serving as households (consistently with the definition of ESA, 2010).

Figure 9. Gross household investment rate, Euro Area and Italy (2009-2018)
(%)



Source: Eurostat

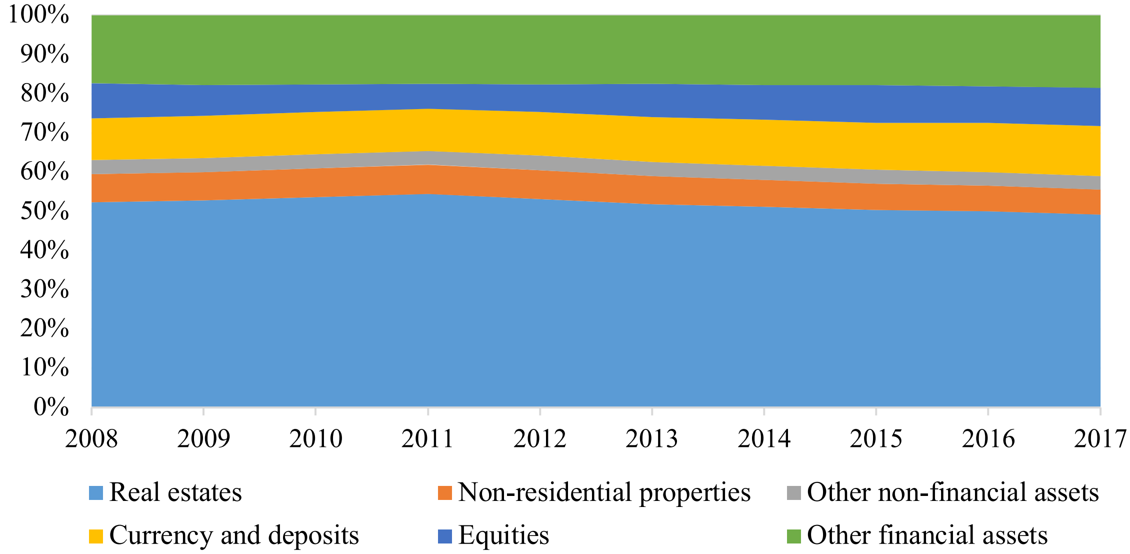
According to the 2019 Report of the Market Supervisory Authority, CONSOB, financial choices planning and monitoring (the so-called financial control) among Italian households are still not widespread. 60% of the population does not follow a precise rule when it comes to the management of personal finances, while almost all of the remaining 40% decide sequentially defining one spending objective at a time. Only a third of the people surveyed declared to have a financial plan, and less than 40% have detailed monitoring of progress, with expenses being noted in detail. Among people who do not plan, 42% believe that it is useless for a plan, either to lack the capacity to save or to manage costs, whilst 20% do not wish to change, while acknowledging its usefulness (CONSOB, 2019).

Unsurprisingly, the absolute majority of Italian households records a preference for non-financial assets, mostly constituted by residential and non-residential properties (Figure 10). These figures show a basic prudence in investment choices that do not necessarily lead to better returns. In fact, as concerns non-financial assets, the contraction in their value is attributable to the falling prices in the real estate markets which continues from 2012[16]. Counterintuitively, by the end of 2017, the share of real assets grew held by the Italian households remained stable (ISTAT, 2019). Although official data on the 2018 activities are still being processed, the latest general scenario forecasts a decline in the financial assets of

[16] This trend is however slowing down. The decline in the value of real estates wealth was -0.8% in 2017, down from -1.3% in 2016 (ISTAT, 2019).

Italian households by 3.1% (compared to -0.5% in the euro-zone). The breakdown of these assets appears in substantial alignment with the patterns recorded in the euro area, with a contraction in the share of equities vis-à-vis a rise in the percentage of currency, deposits and other financial assets (mostly insurance policies).

Figure 10. Composition of household assets, Italy (2008-2017)



Source: ISTAT and Banca d'Italia

1.4.3 A territorial perspective

In a speech held in September 2019, the General Manager of the Bank of Italy, Fabio Panetta, defined the development of Southern Italy as "the unresolved problem of the Italian economy".[17] In the *Mezzogiorno* area (term that codifies the Southern Italian regions and the islands), per capita GDP is half that of Northern Italy; the unemployment rate has approached 17%, twice as high as in the rest of Italy, with 59.1% of the female adult population being professionally inactive; overall, the infrastructural endowment and the provision essential public services in Southern regions are unsatisfactory (ISTAT, 2019).

The territorial disequilibria have an extensive incidence on the economic situation of households residing in these disadvantaged regions (Table 2). In 2018, the percentage of

[17] The content of Mr Panetta's intervention is available here: https://www.bancaditalia.it/pubblicazioni/interventi-direttorio/int-dir-2019/Panetta_21_settembre_2019_Foggia.pdf (accessed: March 3, 2019)

households who declared to be financially better-off compared to 2017 was almost halved in the Southern areas compared to Northern Italy. Nearly one in three households in Mezzogiorno recorded a worsening, either mild or severe, of its financial position. The endowment of economic resources is scarce or insufficient for nearly 45% of Mezzogiorno's households, compared to the national average of 39.1% – which is *per se* high.

Table 2. Assessment of the economic situation, Italy (2018)
(% of all households)

Households' assessment of the economic situation compared to the previous year				
	Improved	**Unchanged**	**Aggravated**	**Severely aggravated**
Italy	8.1	62.5	22.7	5.9
North	10.2	62.4	21.7	5.1
Centre	7.3	63.3	22.9	5.8
South	5.5	62.2	24.1	7.1
Households' assessment of the economic resources over the last 12 months				
	Excellent	**Adequate**	**Scarce**	**Severely insufficient**
Italy	1.3	59	34.1	5
North	1.6	63	31.3	3.6
Centre	1.4	58.6	34.9	4.5
South	0.7	53.3	37.6	7.5

Source: ISTAT 2020

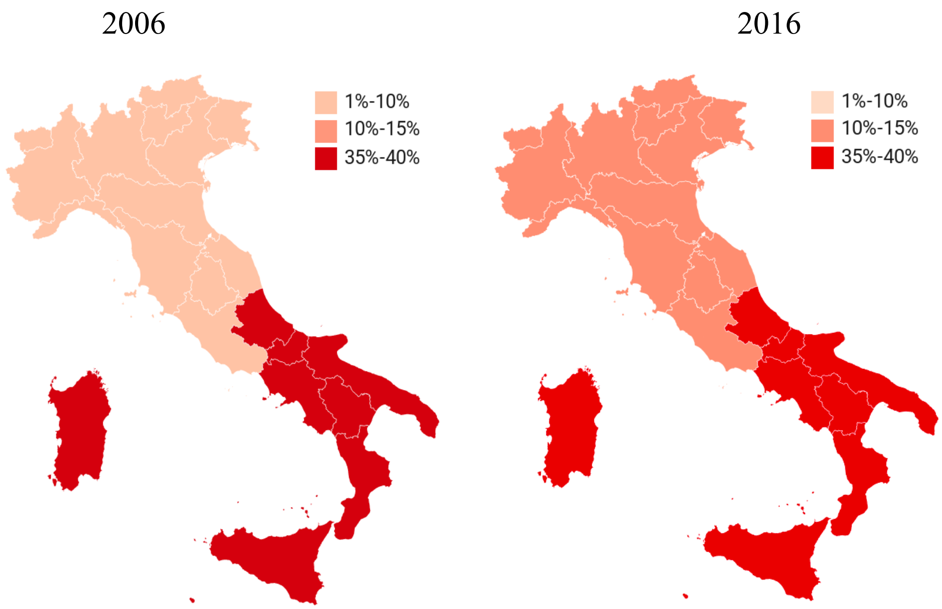
Within the peninsula, the Mezzogiorno area remains the area with the highest percentage of individuals at risk of poverty (Figure 11)[18], which remained substantially unchanged in the past decade (39.5% in 2006, 39.4% in 2016). Overall, the highest risk of poverty occurs in Sicily. An increase in the poverty risk was significantly recorded in both Northern and Central Italy – respectively +6.7% and +2.6% since 2006 (Banca d'Italia, 2018).[19]

[18] The risk of poverty indicates the households whose net income is below the poverty risk threshold. The threshold is set at 60% of the median of the individual net distribution of income.

[19] The survey on the balance sheets of Italian households is published by the Bank of Italy every two or three years. The latest survey was released on March 2018.

Figure 11. Incidence of households at risk of poverty by geographical area, Italy (2006 and 2016)

(% of total households)



Elaboration of the author from Banca d'Italia, 2018

As the potential subsistence and prosperity of a household deeply depends on the quantity and quality of its workforce, the issue of work is prominent. In this scenario, demographic trends represent a critical variable. The demographic heritage of Italy has ceased to renew itself; in the last ten years the transfers of residence show a consistently negative migratory balance and a net loss of about 420 thousand Italian residents. Almost half (208.000 units) are young people aged 20-34, of which two out of three have a medium-high level of education. According to the forecasts of ISTAT,[20] by 2050, the population over the age of 65 will make up a range between 32% and 37% of the total (compared to the level of 2018, equal to 23%). This figure will have massive repercussions on the composition of employment and a further rise in the demand for assistance and health care services, and is likely to reproduce the structural imbalances, already seen in the household population, between members in a situation of dependency and those able to provide support and care (Visco, 2018). The population ageing would also have an impact on the size and composition of household consumption, with the risk of acting as a brake on the demand for goods and services.

[20] Which also considers a net inflow of 165,000 immigrants per year.

The Southern regions are the lesser prepared to consequences of population ageing. First, it must be considered that an increase in both the household disposable income and in the middle-class population has driven to a related rise in savers in Italy. The largest share of savers only resides in North-Eastern Italy (63.8%), followed by Central Italy (54.2%). Although 72% of Southern Italy residents agree that "saving is indispensable", the percentage of savers in Southern Italy is below 45% and half of them qualifies as "small savers" (Russo, 2019). Second, the loss of human capital in the *Mezzogiorno* has gradually worsened throughout the decades. In Southern Italy, the proportion of young people aged 20-24 years who have completed high school is 76.8%, compared to 83.5% in Central and Northern Italy. Since the beginning of the new century, 2.15 million residents have left Southern Italy; half of them are aged under 35 and almost a fifth holds a bachelor's degree (Svimez, 2019). From 2012 to 2017, the movements from Southern to Central and Northern regions declined; on the contrary, the amount of migration flows from Southern regions to foreign countries almost doubled, from 25.000 to 43.000 (ISTAT, 2019). Looking at in-flow patterns, Southern Italy welcomes fewer foreigners compared to the remaining regions, and most of these belong to emergency flows (migrants seeking for humanitarian protection). By 2019, the presence of foreigners has grown by just over 4% (Italian Ministry of the Interior, 2020).

The challenge is not only in Italy's ability, through its social and welfare system, to respond to the needs of these people; it is equally essential to put households in the position of not being left behind when it comes to managing their wealth.

II. BEHAVIORAL FINANCE

2.1 A departure from the neoclassical theory

Modern finance (or neoclassical finance), and specifically the modern portfolio theory and the life-cycle model, are built on the fundamental premise that households make rational intertemporal choices to maximize their utilities. In modern finance, individuals are assumed to be entirely logical and able to process all the available knowledge; importantly, rational agents do not modify their decisions on the basis of how the question is framed. These underlying assumptions have been extensively questioned by behavioural models. Indeed, it is well-established in the academic literature that most actors exhibit inconsistencies in their consumption and investment decisions. Whereas neoclassical finance follows a normative approach, behavioural finance adopts a descriptive standpoint; thus, the two areas are not in conflict, as neoclassical finance scholars not aim at explaining *what* people would rationally choose, whereas behaviouralists attempt to understand *how* actual preferences are formed.

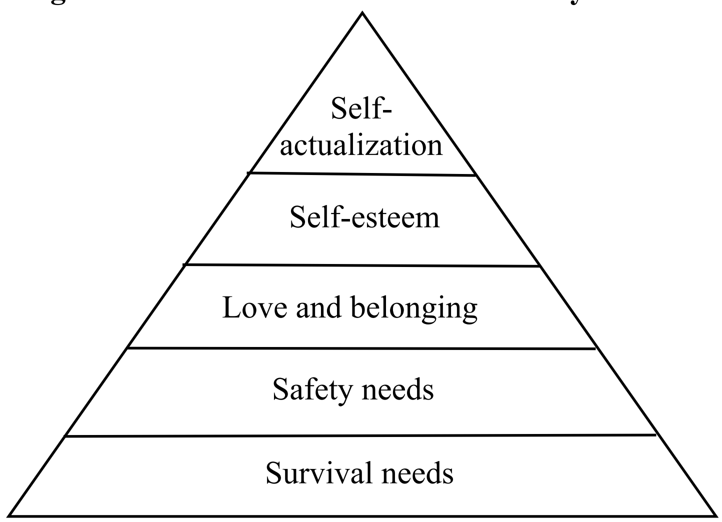
With regards to the portfolio formation and consumptions choices throughout the phases of the vital cycle, two alternative models are hereby presented: the behavioural portfolio theory (Shefrin and Statman, 1984) and the behavioural life cycle model (Shefrin and Thaler, 1988). Subsequently, the specificities of three fundamental heuristics – mental accounting, procrastination and loss aversion – will be investigated; finally, for each of them, it will be provided an overlook of their impact on the Italian household's behaviour.

2.1.1 Behavioral portfolio theory

As per the previous discussion, the neoclassical Modern Portfolio Theory by Harry Markowitz (1952) assumes that investors are rational agents who select their portfolios based on self-constructed efficient frontiers. Should the combination of assets lie below the pre-established efficient frontier, no investor would pick the unsatisfying portfolio. Shefrin & Statman (1984) proposed the behavioural portfolio theory (BPT) as a more realistic alternative to the Markowitz model. The BPT combine elements from two psychologically-based models, namely Maslow's theory of needs and Lopes' SP/A theory.

Prior to Shefrin and Statman's theorization, indeed, Abraham Maslow (1943) proposed an influent reasoning. In his "theory of needs", Maslow claimed that people define a hierarchical order for their needs. It is represented in a five-level pyramid, where the bottom level contains the more urgent needs; once the priority needs are satisfied, individuals can climb the pyramid to achieve greater aspirations (figure 12). The five levels are: survival needs, safety needs, love/belonging, self-esteem, self-actualization. Especially for the lower layers that do not include relational of affective aspirations (e.g. food, clothing, shelter), a financial endowment is necessary for their realization.

Figure 12. Abraham Maslow's Hierarchy of Needs



Source: Maslow 1943

The "security-potential/aspiration theory" (SP/A) (Lopes, 1987; Lopes and Oden, 1999) is a motivationist model that emphasizes the role of emotions in the process of portfolio selection. It comprises two elements: (a) a security-potential factor, deriving from how the individual looks at risks (desire for success or fear for failure)[21]; and (b) an aspirational level, deriving from the emotions and constrained by circumstantial factors. Even taking into account the variability of the contexts, Lopes observes that for most people the desire for security (risk-aversion) prevails over that of potential (risk-seeking).

The same mechanism of the Maslow's model applies to the portfolio behaviour: people with lower wealth will prioritize urgent needs then, should they have the opportunity, devote a small portion of their resources towards more ambitious aims, in an attempt to elevate their social wellbeing. Furthermore, similarly to the SP/A model by Lopes, people select among

[21] The notion of security by Lopes' SP/A is similar to Andrew Roy's concept of "safety" (1954) that will be later exposed in this dissertation.

their option under the influence of both systematic mental biases and contextual emotional states at the moment of the evaluation. Both in the MPT and the BPT, individuals build their subjective efficient frontier and consider the portfolio as a whole, namely as a single mental account (see more in paragraph 2.2). However, mean-variance investors pick a portfolio by taking into account the expected returns in relation to the expected risks; BPT investors, instead, pick a portfolio by considering the expected returns in relation to their individual aspirations. The less realistic the aspirations, the harder it is to find the optimal portfolio.

Furthermore, biased investors, especially if naïve or uninformed, tend to ignore or even distrust scientific evidence. During a wide experiment held in 2013, both financial experts and ordinary American citizens were asked if they agreed with the following statement: "it is hard to predict stock prices". Whereas the totality of the experts agreed with the statement, up to 45% of the ordinary citizens disagreed (Sapienza and Zingales, 2013).

Finally, rational and ordinary people differ in the ability to distinguish their positions as investors from their positions as customers. As rational investors, they should only consider the practical reward from the investment; as rational consumers, they should care about both economic and emotional benefits of the commodities they purchase. Instead, ordinary people are hesitant to isolate their roles as investors from their roles as consumers (Statman, 2014). For instance, many individuals prefer socially responsible investment (e.g. avoid buying stocks of tobacco, gambling or military firms) even if the dismissed companies would have significantly higher returns. Nevertheless, as investors become more financially sophisticated their predisposition to fall in cognitive shortcuts when selecting their portfolio diminishes (Vissing-Jorgensen, 2004; Silva Rosa and Durand, 2008).

2.1.2 Behavioral life cycle theory

According to the neoclassical Life Cycle/Permanent Income Hypothesis (LC/PIH) by Modigliani and Brumberg (1954) and Friedman (1957), the first motivation for saving in the present is future consumption. Any buying decision is explained by a rational trade-off between spending now and spending later, taking into account that marginal utility diminishes along the lifetime. As summarized by the Nobel laureate Richard Thaler, the essence of the LC/PIH is as follows: "in any year [you should] compute the present value of your wealth, including current income, net assets, and future income; figure out the level annuity you could purchase with that money; then consume the amount you would receive if you in fact owned such an annuity" (Thaler, 1990). Even though the LC/PIH has been updated and widened (e.g., Browning and Crossley's life-cycle framework), it still roots on the basic principles that people are able to calculate the correct saving rate and adjust their spending on the basis of the expected lifetime wealth. This assumption is however unsupported, as there is sizeable evidence about sub-optimal circumstances in many Western societies, e.g. personal bankruptcy (Sullivan et al., 1989; Domowitz and Sartain, 1999), household bankruptcy (Fay et al., 2002; Livshits et al., 2007) or household overspending (Hanna and Zan, 2008; Hanna and Wang, 2016). Additionally, growing literature documents that many households fail to save as much as they have wished, or even planned, to do (Farguson and Johnson, 1997; Choi et al., 2004).

In 1988, Shefrin and Thaler launched the behavioral life cycle hypothesis (BLCH) to solve the oversimplistic aspects of previous theories; it is a descriptive model aimed at complementing the LC/PIH that, instead, was normative in its nature. The BLCH allows to form more realistic predictions on how individuals and household are going to perform in their economic decisions, as it takes into consideration previously neglected factors such as mental accounting (to which paragraph 2.2 will be dedicated) and self-control (a relevant consequence of which will be analyzed in paragraph 2.3). The fundamental standpoint upon which Shefrin and Thaler have built the BLCH is that people have hard times refraining from consumption. For this reason, the trade-off between saving and consumption are far from being an exercise of rationality; instead, individuals experience the process as an inner struggle between two contradictory personalities: the "planner" (seeking to achieve the long-run economic wellbeing) and the "doer" (seeking immediate gratification). The interaction between these two opposing forces corresponds to the interplay between the prefrontal cortex and the limbic system at work in the human brain (Shefrin and Thaler, 1988).

Analyzing the behavioral life cycle hypothesis requires to put emphasis on the temporal discount rate. It is the index through which the most common psychological habits are summarized, and many consumption decisions rely on it. As in Fisher (1930), saving is in itself the outcome of continuous intertemporal decisions. Anomalies in the intertemporal choice – and, thus, violations of consumption smoothing as assumed by the LC/PIH – emerge from the various ways in which consumer interpret the importance of their action across time spans (see more: subparagraph 2.4.1). Not only individuals discount the amount of a reward in a subjective manner, they also have a personal perception of the time required to achieve the benefit. Indeed, the decision to delay an earning in the future inevitably entails the renunciation of minor gains that could be obtained earlier and at the same nominal cost. Dynamic inconsistency explains many patterns of undersaving and overconsumption (Thaler, 1981; Loewenstein & Prelec, 1992).

2.2 Mental accounting

The concept of mental accounting traces back to Keynes (1936) and is the transposition of traditional accounting from corporations to private consumers. Consistently with the insights from behavioural finance, it is a "series of cognitive operations used by individuals and households to coordinate, analyse and monitor financial transactions" (Thaler, 1999). These "mental containers" are structured to ease the decision-making process, but often result in a violation of some basic principles of rationality. When executing cost-benefit analyses on resources inflows and outflows, households differentiate among three wide categories of funding: current income, current assets (e.g. retirement savings, real estates) and future income (Shefrin and Thaler 1988; Thaler 1999).

Across these three categories, people hold unequal marginal propensities to consume, such that one euro of household wealth is weighted differently based on its origin; the propensity to consume is typically high for current income and low out of future income predictions. It follows that, in everyday life, extraordinary revenues (e.g. scratch cards or lottery victories) are immediately spent rather than saved, since they are commonly treated as income instead of wealth. Whereas the storage of liquidity is geared towards consumption, current assets and future income appear to be oriented towards conservation or to form an "aspirational capital" aimed improving their own wellness, or to transmit greater wealth to the next generations. This distinction probably constitutes the most relevant aspect of mental accounting, as it is conditioned by the size and nature of the human capital of the various households. For instance, a head of household who has a risky job (e.g. a SME entrepreneur, or a self-employed worker) is typically more cautious than a civil servant when allocating of savings of the household (Liera, 2010).

Additionally, most auditing systems have a small expenditure account that is subject to lesser rigour as the other accounts – a tendency labelled "denomination effect". In mental accounting, this is well represented by the cash in the wallet. The probability of spending is greater when the equivalent sum of money is expressed by several small denominations (twenty coins of 1 euro) rather than a single large denomination, e.g. one banknote of 20 euro; this explains why people often go to the ATM or are reluctant to change large banknotes. Not by chance, efficacious advertising tends to highlight the daily cost of a commodity (e.g. "less than one coffee per day") in order to diminish the self-blaming tendency related to the expenditure (Wilkinson and Klaes, 2012).

2.2.1 Framing

It is known from mental accounting that people have a tendency to match inflows and outflows, and from prospect theory that displacements from the reference point have asymmetric effects due to the loss aversion. In other words, transactions involving more than one financial aspect (mental accounting) appear as more or less desirable depending on how many and which accounts are considered; one of the most important consequences is a shift in the risk propensity. The attitude towards integration or segregation of the accounts depends on whether the transaction is framed to suggest the use of one or two (more) accounts.

The term "framing" illustrates how the expectations and preferences of individuals differ on the basis of how an issue is presented to them, which is in sharp contrast to what is established by the neoclassical concept of invariance. In fact, the latter would require that "the preference order between prospects should not depend on the manner in which they are described. […] Two versions of a choice problem that are recognized to be equivalent when shown together should elicit the same preference even when shown separately" (Kahneman and Tversky, 1983). Higher emphasis on potential gains triggers risk appetite, whereas highlighting losses increases loss aversion. The language, context and presentation are all elements that play a vital role in the process of choosing by the individual in general, and by the investor in the specific.

For instance, a transaction is more attractive if: (a) gains are segregated (the person is entitled to two earnings, 10€ and 50€; the transaction would be more convenient by holding it in separate accounts); (b) losses are combined (the person is subjected to two losses of 10€

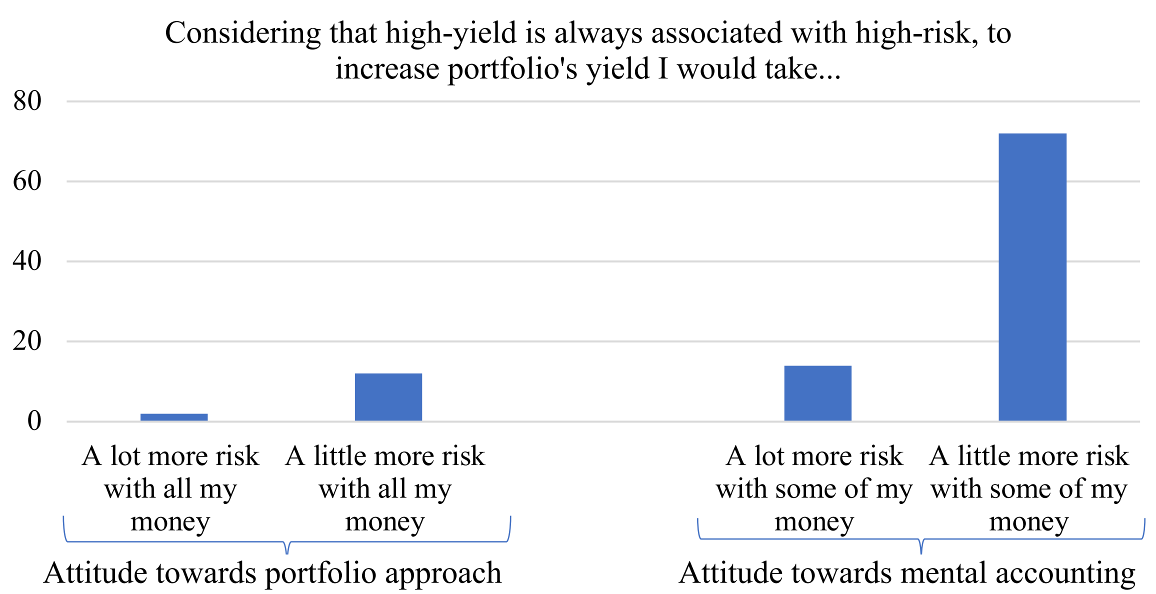
and 50€; the transaction would be less dreadful by aggregating them); (b) large losses are offset by high gains (the person is exposed to a gain of 50€ and a loss of 10€; the deal would be more desirable by subtracting the loss from the gain); (d) Small gains are separated by large losses (the person is exposed to a loss of 40€ and a gain of 10€; the transaction would be more desirable by keeping the gain separate from the loss).

During an experiment, participants were asked to construct their preferred portfolio and then evaluate it in comparison with the median portfolio (calculated on the basis of all the assets selected). The median portfolio is framed as the safe combination of losses and waste, such as the trade-off between risk and return appears to be balanced. Individuals who are susceptible to framing tend to pick the median risk portfolio, even if it is inconsistent with the portfolio they actually prefer (Bernatzi and Thaler, 2002).

2.2.2 Italy

According to a survey conducted by the CONSOB Observatory (2019), almost all of the Italian households (86% of the totality) seem prone to follow the typical approach of mental accounting in the management of their investments (Figure 13).

Figure 13. Attitude towards mental accounting, Italy (2019)



Source: CONSOB 2019

The attitude towards mental accounting of Italian households was found to be positively correlated with socio-demographic traits such as age, financial wealth, income, home ownership, living in Northern Italy; and personal traits such as self-efficacy (very high correlation) and optimism. It is very common among head of households who are retired, widowed/divorced and, in general, households relying on a single income (CONSOB, 2019).

2.3 Procrastination

The tendency to postpone economic decisions (procrastination) constitutes a guiding factor behind inadequate handling of household wealth, because it may impede or retard financial planning. These tendencies towards postponement lead households to a departure from rationality; for instance, by taking decisions based on their present needs, neglecting future necessities such as building a social safety net before the pension (Benartzi and Thaler, 2001). Indeed, preferences vary according to the temporal frame in which they are taken into consideration. Therefore, procrastination is a vicious cycle; decision that appear optimal in the present become less attractive as time passes (in the game theory, it is referred to as “dynamic inconsistency”) causing dissatisfaction and rethinking.

There are multiple explanations for procrastination: choice overload, embarrassment (fear to admit having financial problems), anxiety of a trade-off between the present and the future (Wang, 2017). In general, repeated episodes of inertia are an expression of poor self-control of those who are in charge of the economic choices of the household. Ainslie (1975) and Loewenstein (1992) suggested that consumption decisions are about handling short-term and long-term goals under the lure of present pleasure. Refraining from gratification – and hence from short-sighted behaviors – is a hard exercise at which impulsive people rarely succeed. The impact of poor self-control on asset accumulation contributes to explain why social class is passed over generations (Martineau, 1977).

Impulsivity can be explained through a “hot-cool” model (Metcalfe and Mischel, 1999) based on two systems that interact in the human brain – as the prefrontal cortex manages the processing of information and is responsible for making decisions. The “hot” system is simple, reflexive and quick; it emerges in early life and is associated with visceral impulses that induce action. The “cool” system is complex, slow and contemplative; it is associated with the hippocampus and frontal lobes, and is consolidated over time. The cool system is under the cognitive control, while the hot system is controlled by the stimuli. When the hot system takes over, individuals indulge in what makes them feel better – which is explained by the dose of dopamine that accompanies procrastination. Evidence documents that, due to procrastination attitudes, people plan and save less than they wish to do (Katona, 1975).

Moreover, procrastination was found to be adversely correlated with trust in the financial intermediaries, especially when it comes to stock participation. Those individuals who fear that other market players are going to trick them out, tend to consider stocks that project poor returns or, more frequently, be hesitant to participate in the market (Guiso et al., 2008). As a general rule, procrastination is more intense when it is paired with other psychological fallacies. Another example is loss aversion (see more on the next paragraph), as the tendency to delay important decisions is positively correlated with a certain aversion to losses and risks (Van Roon, 2018).

A meaningful implication for procrastination is that consumers have a predisposition for remaining faithful to their current situation, a fallacy that Samuelson and Zeckhauser (1988) described as "status quo bias"; the latter too is connected to loss aversion (see more on the next paragraph). Procrastination is often paired with inattention; in everyday life, Samuelson claimed, individuals fail to answer incentives because they may not even acknowledge the potential for decision-making. Throughout the vital arc, inertia is hump-shaped and positively correlated to the socio-economic status of the household – typically peaking for middle-aged and wealthy households (Andersen et al., 2017).

2.3.1 Hyperbolic discounting

When the axiom of rationality – contained in the neoclassical model of the intertemporal discount – is violated, the dynamic consistency of choices may fail; in extreme cases, this intertemporal inconsistency may lead to a reversal of preferences in the course of time. Drawing from the concepts of self-control and procrastination, the American psychologist George Ainslie (1975) formulated the notion of hyperbolic discounting, according to which individuals innately *discount* the value of earnings that arrive later; this is because the time discount rate is a decreasing function of the waiting time. Such behavior implies that, if "smaller-sooner" (SS) earnings are imminent, many individuals prefer them over "larger-later" (LL) rewards.

Hyperbolic discounting varies in intensity, based on whether the consumer is sophisticated or naïve (Laibson, 1997).[22] The first ones are able to acknowledge their self-defeating tendencies and contain it, whilst inexperienced agents underestimate the magnitude of their self-control deficiencies (O'Donoghue and Rabin, 1999). People affected by hyperbolic discounting procrastinate because they erroneously consider that what they are doing in the present is more relevant than what they will do in the future; in turn, the prejudice towards the value of future consumption leads to smaller savings today.

For instance, interesting insights were provided by a broad survey conducted by Choi et al. (2004) involving a number of self-reported undersavers. Among them, 35% declared the intention to raise their savings rate in the next few months, but almost 90% of those well-intentioned respondents did not make any improvements to their plans four months later. They procrastinated about saving more in the present, assuming that they will do it later. In modern times, a growing number of ad-hoc commitment devices are available for customers affected by hyperbolic discounting.[23] They have access to a broad variety of assets that effectively allow them to fulfill multiple levels of commitment. However, abundance of these devices may lead to circularity in self-control deficiencies, as choice overload leads in turn to procrastination.

2.3.2 Italy

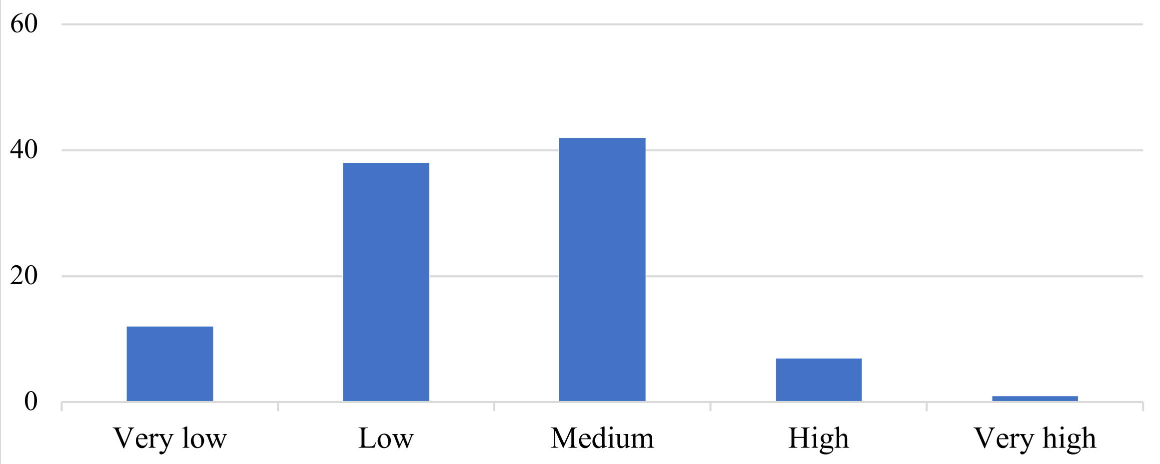
According to the latest available data (October 2019), planning of financial choices is yet to be diffused among Italian households. 60% of Italian households do not follow a precise rule when managing their wealth, whereas the remaining 40% decide by sequentially setting one spending target at a time (CONSOB, 2019). Only one household in three holds a financial plan, and less than half of them is committed to monitoring it. Of those households that do not plan, 20% recognize the necessity of planning but do not feel prepared to change their

[22] Sophisticated agents fully acknowledge their self-control problems, differently from naïve agents who are fully unaware of them. O'Donoghue and Rabin (1999) introduce a third category, the "*partial naivete*" where a person is "aware that she will have future self-control problems, but underestimates their magnitude".

[23] Commitment devices are conditional arrangements that work by imposing costs, either in monetary or psychological terms – in the latter case, they are called "soft commitment devices" (Bryan, 2010).

habits in the short term (status quo bias). According to self-declarations, procrastination is moderately diffused, but less than 10% is exposed to high intensities (figure 14). This figure is not exhausting; in other situations, household have exhibited procrastination as well. For instance, in 2018, 25% of Italian households declared a strong intention to improve their financial literacy over the next 12 months. Of these, during 2019 just over a quarter claims to have engaged in learning more about saving and investment. Despite the diffused good intentions, inactivity has been dominant and financial knowledge has not recorded significant improvements.

Figure 14. Overall attitude towards procrastination, Italy (2019)



Source: CONSOB 2019

The inclination towards procrastination is prevalent among men who live in Southern Italy and the self-employed; it is negatively correlated with self-efficacy, optimism and trust in financial intermediaries, and increases with financial anxiety.[24] Head of households who share the decision-making with a partner record a lesser level of procrastination.

2.4 Loss aversion

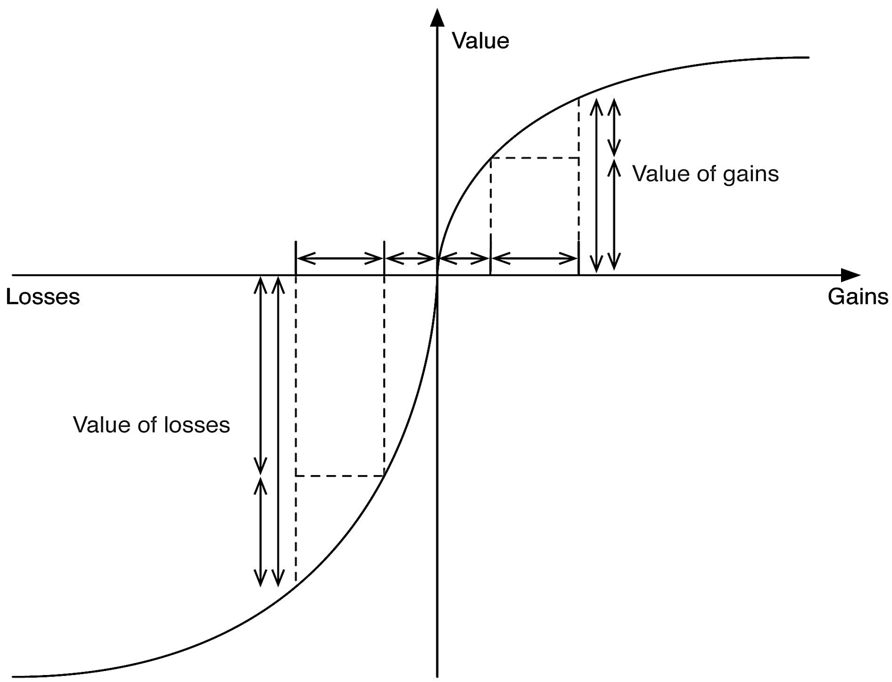
The neoclassical theory incorporating the loss aversion standpoint was developed in the earlier 1960s by Andrew D. Roy; through his "safety first" criterion, the British economist

[24] The definition of financial anxiety, as proposed by Shapiro and Burchell (2011) is: "an uneasy and unhealthy attitude towards engaging with, and administering [...] personal finances in an effective way".

supposed that investors minimize the probability that the return on their portfolio falls below a pre-defined threshold, or "level of ruin" (Roy, 1954). Subsequent evidence, however, demonstrated that Roy's model assumed too much consistency.

According to Kahneman and Tversky (1979), the term loss aversion describes the heuristic for which the regret of losing an amount of money is greater than the pleasure of gaining the same amount (Figure 15).

Figure 15. The loss aversion value function



Source: Kahneman and Tversky 1979

Sentiments of loss aversion appear to be strongly influenced by the gender of the investor. Women typically adopt more conservative behaviour in investment decisions, preferring less risky products than their male counterparts. Indeed, women naturally appear as more loss averse and, at the same time, feel less competent than men; they would not therefore suffer from the effects of overconfidence, which seems to influence the behaviour of male investors (Eckel and Grossman, 2002). In the management of a household, the expected interaction between male and female – and, in general, more and less risk averse – decision-makers could constitute a significant predictor of their portfolio behavior. A variant of loss aversion is the "myopic" loss aversion, which combines the emphasis on losses to short-sightedness. The investors who are subjected by this fallacy systematically neglect long-term perspectives and concentrate on those of short horizon, regarding which the fear of undergoing losses can be dominant (Benartzi and Thaler 1995). Myopic loss aversion helps understanding why households appear reluctant to invest in risky assets e.g. stocks.

2.4.1 Availability heuristic

A further demonstration that the MPT is outdated is provided by the composition of portfolios in terms of foreign and domestic assets. For instance, the mean-variance portfolio theory would make each investor equally familiar – and thus, not loss-averse – with all assets, both national and foreign (Knight, 1921; Huberman, 2001). Instead, most households are subject to the so-called "home bias"; individuals affected tend to unduly concentrate their investments in domestic equities and regard with suspect at foreign stocks, despite the benefits of diversification across international markets (Tesar and Wegner, 1995). Other investors, instead, are disproportionately biased towards the stocks of the firm they work for (Bernatzi, 2001).

This familiarity-induced style of investment derives from the so-called "availability heuristic", or "availability bias", a cognitive fallacy to which behavioral finance scholars drew much attention. The most reliable definition of this heuristic was produced by Kahneman and Tversky (1973), who documented "situations in which people assess the frequency of a class, or the probability of an event, by the ease with which instances or occurrences can be brought to mind".[25] Put in easier words, "the availability heuristic operates on the notion that if you can think of it, it must be important" (Esgate and Groome, 2005). This common bias is extremely relevant when the perception of risk is at stake, as people who are systematically affected by it are not reliable in their portfolio-building judgements, as they exempt themselves from processing all the relevant information.

In general terms, the human mind recalls with ease salient and frequent events, rather than facts that are less visible or do not occur with regularity. Since individuals make decisions based on the information available to them, and familiar facts are those more vividly remembered, inaccurate investment decisions can be unintentionally formulated due to this

[25] In an experiment held by Kahneman and Tversky (1973), participants were read a list of 40 names, composed of 19 female celebrities and 21 less famous men; people were then asked which of the two genders was the most represented. Since the names of female VIPs were more easily recalled, the majority of respondents erroneously answered that women were most numerous.

shortcut (Kahneman and Tversky, 1973; Campbell, 2006). The propensity to fall in this mental shortcut is likely to last long, as it is the outcome of a ubiquitous subconscious mechanism. The availability heuristic seems to reflect people's propensity to be compassionate about what they perceive as familiar, and to be uncomfortable with – or even distaste – what they perceive as alien and remote (Huberman, 2001). To propose a real-world example, investors are inclined to pick stocks of companies whose public status is aligned with their personalities and values (Ising and Pompian, 2006).

In addition to the earlier mentioned home bias, in the financial market the availability heuristic is reflected by a larger purchase of shares of those companies with (a) extremely high trading volumes, (b) extremely high one-day returns or (c) broad press coverage (Barber and Odean, 2008). In general terms, an object that captures the investor's attention ("all that glitter") is going to remain salient in his/her mind and to shape the choice set. "Frequent reporting of an entity in the media increases its availability in memory and thus increases its likelihood of coming to mind and being selected" (Cheng, 2010).

2.4.2 Disposition Effect

Looking deeper into the portfolio composition, loss aversion holds sizeable impacts on the management of real assets. Substantial academic evidence corroborates the existence of a "disposition effect" (Shefrin and Statman, 1985; Weber and Camerer, 1998). Especially in times of downward market conditions for real estates, "investors tend to sell winners too early and ride losers too long" (Shefrin and Statman, 1985) – that is, individuals are inclined to sell assets in profits too early and keep loss-making securities in the portfolio too long. When market prices fall, many investors who have bought the asset at higher prices will refrain from selling it.

This cognitive fallacy may be better understood in the light of another sub-optimal behavior to which individuals are prone: over consideration of sunk costs. Thaler (1980) stated that a family is more prone to go through a snowstorm to watch a basketball game if they have bought $40 tickets to the game, than if they were offered the same tickets free of charge. Nobel prize laureate Paul A. Samuelson made it extremely clear that all individuals should "look at the marginal costs and marginal benefits of a decision and ignore past and sunk cost […] let bygones be bygones!" (Samuelson, 2010). Even though the future performance of an asset is not related to the price at which the investor has purchased it, loss averse individuals set the latter as their reference price for future selling. Taking decisions based on such an ineffective point of reference leads to reasoning in terms of loss or gain in relation to this value, overshadowing more rational evaluations on whether to retain or liquidate the investment. This behavior is the opposite of rationality, as investors should strive to keep profitable investments as long as possible and to get rid of declining investments immediately. A loss averse course of action is fiscally inefficient as well, as the investor keeps on paying the taxes on gains that were sold in haste, without being able to offset the potential losses generated by the assets still in the portfolio.

Additionally, Kihlstrom and Laffont (1979) claimed that loss aversion could also determine how people choose their professional careers. Because growing a business holds uncertainties in the rate of returns, the more loss-averse will pursue safer professional paths, e.g. fixed-wage careers in the public sector. From this perspective, varied levels of loss aversion among adults contribute to explain who in a society becomes an entrepreneur.

2.4.3 Italy

According to self-assessment indicators presented to Italian households, the majority of respondents acknowledge their aversion to risk and loss; with particular regard to this last aspect, two-thirds of the consulted households claim to be reluctant to invest in an asset that presents even a small risk of capital loss. At the same time, the remaining 37% declares to be tolerant towards losses, either permanent or recoverable in the long term, as far as they are modest (CONSOB, 2019). Of the EUR 4 287 billion in financial wealth owned by Italian households, as many as EUR 1 371 billion are immobilized in bank accounts; they are not spent nor invested, and no interest is collected from them. In 2019, the entrepreneurs willing to make investments are 11%, compared to the 25% recorded in 2018 (Banca d'Italia, 2019).

The degree of loss aversion is associated with both socio-demographic factors and personal traits (table 3). Loss aversion is typically accompanied by some factors of vulnerability such as old age (the bias peaks in the category of the retired), single-income households and marital status (widowers or divorcees).

Table 3. Positive correlation among loss aversion and background factors for Italian households, 2019

	Loss aversion	**Tolerance to short-term losses**	**Tolerance to long-term losses**
Socio-demographics	Age, South and the Islands, out-of-labor, retired, widowed/divorced, single-income	Man, education, north, financial wealth, income, employee, relatives in financial sector, married, home ownership	Man, education, financial wealth, income, home ownership
Personal traits	Anxiety, procrastination	Anxiety, mental accounting	Anxiety, procrastination

CONSOB 2019

The long period of difficulty in the real economy has left an almost indelible mark on investment habits of Italian households and has strengthened the average loss aversion. In 2019, the main objective of the investments is confirmed to be security for 62.2% of Italian households, from 59.6% of 2018. The financial instability and volatility conferred high priority to liquidity in current accounts, even at the cost of losing a purchasing power correspondent to a one-year inflation. After 2009, only 8.3% of Italians founded an economic activity, 5% took over or acquired it and 10.4% has increased its size. Regardless of the economic sector, about 43% of the population has produced the most significant investment in a pre-crisis period, and only one in three was generated from zero. In half of the cases, the investments were made between 2009 and 2012, i.e. before the second recession, when sentiments loss aversion were less intense among the investors (Centro Luigi Einaudi, 2019).

III. FINANCIAL LITERACY

3.1 How to compute Financial Literacy

In a society in which the longevity of components is increasing, the value of learning how to make forward-looking economic decisions is skyrocketing; at the same time, these choices have become more complicated as the supply, in terms of financial and social security products, is becoming larger and more differentiated. The consideration that policymakers, financial institutions, regulators and international organizations have long dedicated to financial literacy highlights the need to define accurate and efficient methodologies for assessing the knowledge, skills and attitudes of financial consumers. The analysis of the applicable literature reveals that the meaning of financial literacy has evolved over time and is still lacking a precise definition (Table 4).

Table 4. Definitions of financial literacy

Author	Definition
Noctor et al., 1992	"The ability to make informed judgement and to make effective decisions regarding the use and management of money."
Vitt et al., 2000	"The ability to read, analyse, manage and communicate about the personal financial conditions that affect material wellbeing."
Kim, 2001	"A basic knowledge that people need in order to survive in a modern society."
Moore, 2003	"Individuals are considered financially literate if they are competent and can demonstrate they have used knowledge they have learned. Financial literacy cannot be measured directly so proxies must be used. Literacy is obtained through practical experience and active integration of knowledge. As people become more literate, they become increasingly more financially sophisticated and it is conjectured that this may also mean that an individual may be more competent."
Worthington, 2004	"Mathematical ability and understanding of financial terms"

Danes and Habermann, 2007	"The ability to interpret, communicate, compute, develop independent judgement, and take actions resulting from those processes in order to thrive in our complex financial world."
Lusardi and Mitchell, 2007	"[Familiarity] with the most basic economic concepts needed to make sensible saving and investment decisions."
OECD, 2013	"The combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing."

Financial literacy is not an absolute condition, but a continuously shifting feature that evolves over the life of the person. From a quantitative perspective, it could be formulated in two ways. It is, on the one hand, the knowledge of common financial principles and products, e.g. the concept of risk or inflation (the Lusardi and Mitchell framework); on the other hand, the operational expertise in specific circumstances that emerge from the personal skills and experiences (the OECD/INFE framework, in line with the description set out by Worthington, 2006).

3.1.1 The Lusardi and Mitchell framework

In 2004, Annamaria Lusardi[26] and Olivia Mitchell ideated the so-called "big three" questions to measure the level of financial literacy of the respondents.[27] The questionnaire evaluates the knowledge of three tools for financial decision-making that are both essential and universal. These are: (a) numeracy, i.e. understanding the rate of interest and interest compounding; (b) inflation; (c) risk diversification (see Table 5). Throughout the years, the authors have provided multiple operational suggestions for those intended to use this method (Lusardi and Mitchell, 2004; 2008; 2011). In the design of the question set, Lusardi and Mitchell were motivated by four principles: simplicity (target basic components of decision-

[26] Annamaria Lusardi is the Director of the Global Financial Literacy Excellence Center (GFLEC) and of the National Committee for Financial Education in Italy.

[27] The questionnaire was revised and finalized in 2011, when the authors published their article "Financial Literacy Around the World: An Overview". Still today, it remains on the "top ten" of the most-cited works ever published by the Journal of Pension Economics and Finance of the University of Cambridge.

making), relevance (the questions should pertain day-to-day economic choices repeated over the lifetime), brevity (a small number of questions eases their universal adoptability) and capacity to differentiate among the fields of financial knowledge, in order to allow a comparison among respondents (Lusardi and Mitchell, 2014). Since 2004, when the questions were employed by the U.S. Health and Retirement Study, the "big three" method has been inspired financial literacy surveys worldwide – either in the original wording or with small variations; as of today, it is the standard "simplified" method used by the private sector – e.g. Allianz, ING Bank – and in many academic works.

Table 5. The "Big Three" Financial Literacy Questions (correct answer in italics)

Concept	Question wording	Answer options
Interest rates and compounding	Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?	• *More than $102** • Exactly $102 • Less than $102 • Do not know • Refuse to answer
Inflation	Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?	• More than today • Exactly the same • *Less than today* • Do not know • Refuse to answer
Risk diversification	Please tell me whether this statement is true or false: "buying a single company's stock usually provides a safer return than a stock mutual fund."	• True • *False* • Do not know • Refuse to answer

Source: Lusardi and Mitchell, 2004

3.1.2 The OECD/INFE framework

The International Network on Financial Education (INFE) was created in 2008 by the OECD in order to allow the exchange of good practices, the collection of data and the development of policy tools in the field of financial education.[28] It produces data on the financial literacy of adults that are comparable across countries, in order to inform financial education strategies.[29] The first comparative analysis of results was conducted in 2011 and concerned only 14 selected countries; following the harmonization of the methodology in 2015, about 30 countries have then adopted the questionnaire. The OECD/INFE model integrates the previously presented “big three” model, as it furthers its scope and proposes specific and subjective situations to which respondents can easily relate.

The questionnaire tests the financial knowledge of the interviewees as concerns three areas: (a) knowledge, which incorporates and extends the “big three” questions developed by Lusardi and Mitchell (8 questions); (b) behaviour, as an indicators of greater ability to manage the finances (9 questions); and (c) attitudes, as an attempt to draw a personality profile of respondents (3 statements). The attitudinal component covers a relevant role, as it is intended to identify tendencies towards consumption or precautionary saving and, in general the far-sightedness of individuals (Table 6 and Table 7).

Table 6. Structure of the main OECD/INFE questionnaire

Knowledge	**Behaviour**	**Attitude**
• Simple and compound interest • Inflation • Risk and return • Portfolio diversification	• Planning and managing finances • Financial goals • Making ends meet • Choosing and using financial products and services	• Propensity towards consumption or saving • Intertemporal preferences • Risk tolerance or aversion

Source: OECD/INFE toolkit 2018

[28] In 2012, the G20 leaders announced the “National Strategies for Financial Education” program that conferred financial awareness a critical role on the global agenda.
[29] A specular methodology is used for the Programme for International Student Assessment (PISA), which investigates the degree of financial literacy among students.

Table 7. Attitudes questions – OECD/INFE questionnaire
(Agree or disagree with each statement on a scale of 1 to 5)

Q1	• I find it more satisfying to spend money than to save it for the long-term; • Money is there to be spent; • I am satisfied with my present financial situation; • I keep a close personal watch on my financial affairs; • My financial situation limits my ability to do the things that are important to me; • I set long term financial goals and strive to achieve them; • I have too much debt right now.
Q2	• I tend to worry about paying my normal living expenses; • My finances control my life; • Before I buy something, I carefully consider whether I can afford it; • I have money left over at the end of the month; • I pay my bills on time.
Q3	• Because of my money situation, I feel like I will never have the things I want in life; • I am concerned that my money won't last; • I am just getting by financially; • I tend to live for today and let tomorrow take care of itself.

Source: OECD/INFE toolkit 2018

3.2 Levels of financial literacy

3.2.1 Cross-country comparison

Reaching a reliable comparison of the level of financial literacy across the countries is a hard exercise, as national surveys are both uncommon (because they are resource-intensive and time-consuming) and rarely conducted under sufficiently comparable methodologies. However, based on the model detailed by Lusardi and Mitchell (2011), it is possible to draw a cross-country comparison of the levels of financial knowledge across 15 Countries (Table

8).[30] According to the surveys, financial literacy is diffusely insufficient. Notably, the scores tend to be low even in countries that are equipped with developed economies and markets. Among them, the countries with more generous welfare systems – and in particular retirement schemes – present lower results than those where pension schemes are, even partly, privatized. Italy, in particular, along with Portugal and Spain, ranks low in European countries, with a wide gender imbalance to the detriment of women (Lusardi and Mitchell 2011; Klapper et al. 2014). Whereas the basic functioning of interest rates and inflation are moderately understood (totalling an average score of 62.35% and 62% respectively), one in two respondents across the 15 countries is severely unprepared in the field of risk diversification (45,8%).

Table 8. Findings from financial literacy surveys across 15 Countries (% of correct answers)

Authors	Country Code	Year of data	Interest rate	Inflation	Risk diversification
Lusardi and Mitchell, 2011	USA	2009	64.9	64.3	51.8
Van Rooij et al., 2011	NL	2010	84.8	76.9	51.9
Bucher-Koener and Lusardi, 2011	GER	2009	82.4	78.4	61.8
Sekita, 2011	JP	2010	70.5	58.8	39.5
Agnew et al., 2013	AU	2012	83.1	69.3	54.7
Crossan et al., 2011	NZ	2009	86.0	81.0	49.0
Brown and Graf, 2013	CH	2011	79.3	78.4	73.5
Fornero and Monticone, 2011	IT	2007	40.0	59.3	52.2
Almenberg et al., 2011	SE	2010	35.2	59.5	68.4
Arrondel et al., 2013	FR	2011	48.0	61.2	66.8

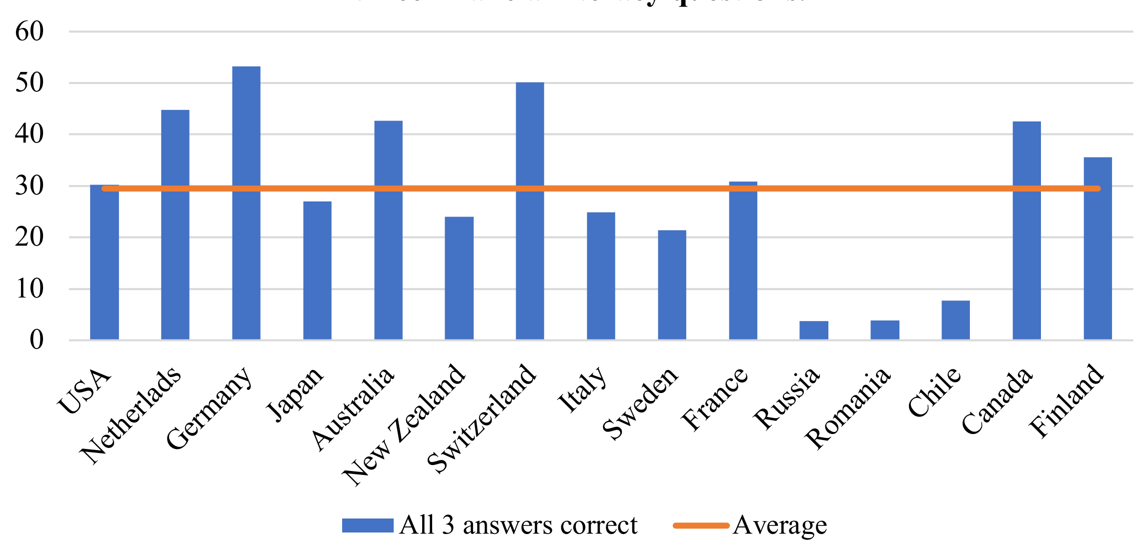
[30] The below-mentioned national surveys were indeed all conducted under the strict observation of the “big three” methodology.

Klapper and Panos, 2011	RU	2009	36.3	50.8	12.8
Beckmann, 2013	RO	2011	41.3	31.8	14.7
Moure, 2016	CL	2009	47.4	17.7	14.7
Boisclair et al., 2017	CA	2012	77.9	66.2	9.4
Kalmi and Ruuskanen, 2017	FI	2014	58.1	76.5	65.8

Source: GFLEC 2020

In summary, the findings expose a substantial discrepancy among countries in terms of literacy rates, i.e. the number of citizens who respond correctly to the three main questions (figure 16); it averages 29.5% and ranges from over 50% in Germany and Switzerland to below 10% in Russia, Romania and Chile. This raises concerns about the preparedness of families, their ability to cope with financial decisions, and the effect of uncertainty on savings (Fornero and Monticone, 2011).

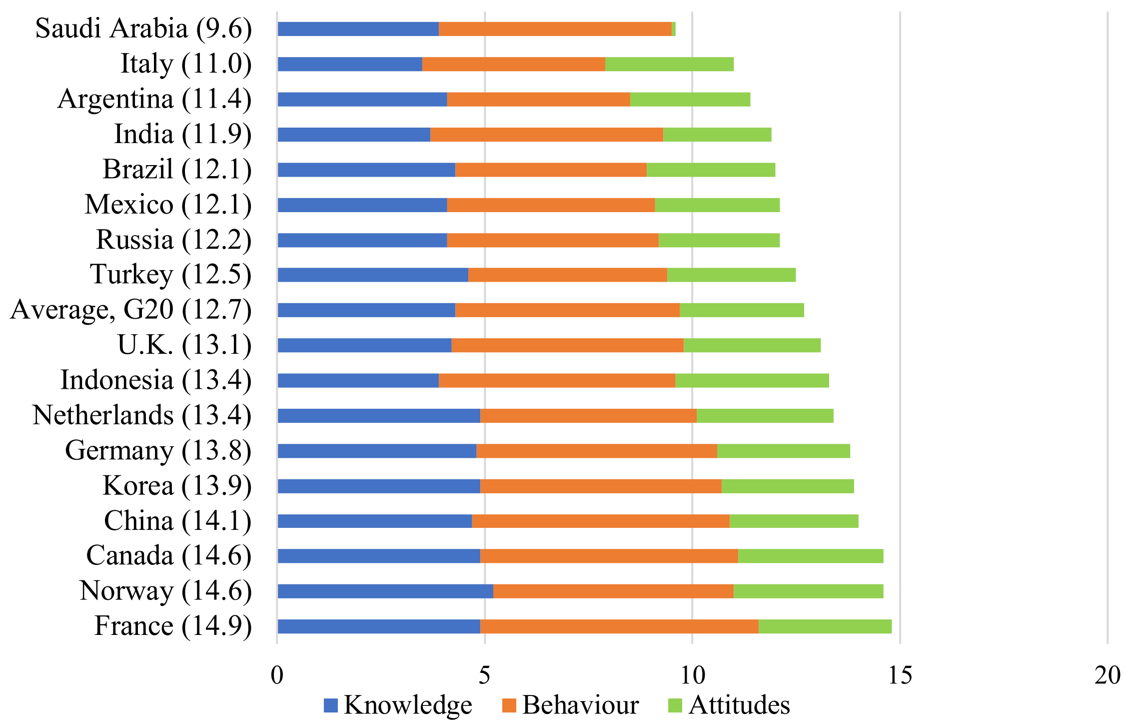
Figure 16. Percentage of respondents who answered correctly all three financial literacy questions.



Source: GFLEC 2020

The latest available OECD/INFE report, published in 2017, allows to draw more specific insights on the degrees of financial literacy held across countries; in this case, national surveys have collected data from the G20 members (figure 17).[31] The mean score for all participating countries is only 13.2 points out of a total of 21, with significant variation across countries. For instance, the Netherlands has fairly high rates of knowledge compared to Indonesia, but citizens have adopted less successful financial behaviours. The study reveals that Saudi Arabia is the least performing of all nations (with an average score of 9.6 out of 21), immediately followed by Italy (11) and Argentina (11.4), as opposed to France and Norway. The average value for each category is: 4.4 (out of 7) for financial knowledge; 5.4 (out of 9) for financial behaviour; 3 (out of 5) for financial attitudes.

Figure 17. Financial knowledge, behaviour and attitudes (All respondents sorted by overall score of 21 in parentesis)



Source: OECD/INFE 2017

In particular, results from the category of financial knowledge raise concern in Indonesia, Italy and Saudi Arabia (scoring less than 4 points). On average, only one in two respondents can correctly calculate simple interest on saving, and the proportion decreases for Italy,

[31] The OECD invited all G20 countries to gather data using the OECD/INFE toolkit and to submit data for review. This final study includes nineteen G20 countries and two invited guest countries, the Netherlands and Norway. The number of G20 countries included in the following statistics may change based on the availability of comparable data (OECD, 2017).

Russia and Mexico. There are major gender gaps in the extent of financial literacy across the G20 nations, with female respondents being 11% less able to achieve the minimum target score for financial knowledge (54% of men and 43% of women). Among financial behaviours, the OECD recognizes budgeting as essential to resource management. However, only 60% of the G20 households have declared to use one, and the percentage falls to 32% in Norway and to 37% in Italy. In Italy, only 27% of respondents agree with the statement "I set long term financial goals and strive to achieve them". It is the lowest level recorded across all countries; even the second worst-performing country, Turkey, scores a significantly higher value (44%).

3.2.1 Italy

The Italian Literacy and Financial Competence Survey (IACOFI) conducted by Banca d'Italia in early 2017, based on the OECD/INFE harmonized methodology for measuring adult financial skills, largely confirmed the results of other surveys that used heterogeneous methodologies (S&P Global Financial Survey, 2015; Allianz, 2017; CONSOB, 2017; Centro Luigi Einaudi and Intesa Sanpaolo, 2019). Financial literacy in Italy is the second-lowest recorded among G20 countries, and the Italian scores are lower than the average in two of the three areas considered (knowledge and behaviour). In fact, the previously presented data inform that Italian households struggle with basic economic notions and, in turn, exhibit limited ability in money management. As concerns the attitudinal parameter, Italy is quite in line with the G20 average. Similarly, the trend in the answers to the three questions regarding the long-run attitude is nearly identical to the mean value; in particular, 40% of Italians disagree that "spending is more satisfying than saving for the long term" (the corresponding G20 average is 43%). In terms of financial literacy, Italy is closer to the Brics (Brazil, Russia, India, China and South Africa) than to the G7 nations.

The socio-demographic features of the Italian population partly clarify the gap with other G20 countries. The degree of financial literacy is not consistent across the population and, importantly, the report is able to reveal which groups are most vulnerable (Table 9). The category more straightforwardly at risk is that composed by individuals with low levels of formal schooling; as a matter of fact, education appears to be one of the most critical aspects in providing a sufficient degree of comprehension of financial notions. The average level of knowledge is about 4 for university graduates, and decreases to 3.2 for those with secondary education and 2 for the lowest schooled. There are, however, sections of the population for whom poor financial skills are less visible. For instance, all the above-mentioned surveys indicate that women have a lesser understanding of financial notions. The gender differences in financial knowledge in Italy, though fewer than those reported in other countries, remain relevant – on average, the score is 3.42 for women and 3.63 for men. For the Centro Luigi Einaudi (2017), which conducted the survey under the Lusardi and Mitchell's model, at the same level of education and type of job women are 10% less likely to respond correctly to the three questions than their male peers. Employees are well prepared, particularly when it comes to legislative adjustments, new instruments and regulations. This phenomenon may be explained by the existence of labour unions, which potentially play a part in the distribution of information and the promotion of improvements in the field of employment. Furthermore, the BOI report informs that the elderly (64+ years old) have relatively poorer financial abilities, a value that is more unclear and heterogeneous for younger respondents. Some studies, such as IACOFI, indicate a humped profile of financial knowledge, i.e. rising up 40-50 years (with the peak at around 44 years) and then declining; for to the S&P Global Financial Survey, younger respondents are the most skilled. Finally, all three categories exhibit discrepancies based on the geographical area of residence of the respondent; on average, people living in Northern and Centre Italy are more financially literate.

Table 9. Financial literacy scores in Italy, 2017

(averages; weighted data)

Gender			
	Knowledge (total score: 7)	**Behaviour (total score: 9)**	**Attitude (total score: 5)**
Female	3.4	4.4	3.1
Male	3.6	4.4	3
Age			
Below 35	3.5	4.1	2.8
35-44	3.7	4.6	3.1
45-54	3.6	4.6	3.1
55-64	3.6	4.4	3.2

Over 64	3.3	4.5	3.3
Work status			
Self-employed	3.8	4.7	3
Employee	3.7	4.7	3.1
Stay-at-home	3.2	4.2	3.1
Unemployed	3.2	4	2.9
Retired	3.4	4.5	3.3
Education			
Primary	4	4.8	3.2
Secondary	3.5	4.4	3.1
Post-secondary	2.4	3.7	3.1
Geographical area			
North	3.6	4.5	3.2
Centre	3.6	4.5	3.1
South	3.4	4.3	3

Source: Banca d'Italia, 2017

3.3 State of the art: Impact of Financial Education Initiatives (FEIs)

For the time being, education in finance theory is not widespread. For instance, financial literacy lacks a dignity of its own within the framework of the Sustainable Development Goals; however, it has been brought to the attention of the United Nations as it constitutes a transversal driver for at least six SDGs,[32] and the UN has increasingly asked governments to adopt financial education initiatives (henceforth referred to as FEIs).[33] Indeed, the growing

[32] The SGDs that would benefit from financial education, according to the "Center for Financial Education and Capability", are: the eradication of poverty (SDG 1), promotion of healthy lives (SDG 3), the achievement of quality education (SDG 4), gender equality (SDG 5), innovation and infrastructure (SGD 9) and the fight against climate change (SDG 13).

[33] It is necessary to bear in mind the distinction between the concept of financial education and the concept of financial literacy. Financial education is a mechanism by which consumers and investors develop their understanding of financial products and principles. Financial literacy, on the other hand, is the outcome of this process and describes the opportunity to use the expertise and skills acquired to handle economic resources. Education and literacy are strictly related, and it is precisely on the advancement and propagation of financial education that many organization and governments have focused their investments.

sophistication of the financial decisions that people have to make in their lifetimes requires financial literacy rates that are much higher than those presently available in large parts of the population. Financial education initiatives are the mechanism that should enable citizens to improve their skills. Regulatory agencies, advocacy groups and financial institutions have been growingly designed campaigns in order to spread financial preparedness and improve financial literacy rates among consumers, with a special emphasis on members of minority groups. As a consequence, there is a variety of approaches that can be employed to raise the awareness of consumers. There is a range of outlets from which information can be gained, all at differing standards of accuracy or reliability; these include formal schooling, such as high school or college courses, workshops and out-of-school lessons, as well as informal channels such as parents, peers and work (Lee and Hogarth 1999). FEIs seek to raise the level of awareness of individuals; a greater comprehension of financial processes improves the abilities required to perform more conscious activities (OECD, 2011). It is then believed that there is a double causal correlation between information, skills and future behaviour. In-depth research has attempted to investigate the relevance of this causal relation (knowledge-skills-behaviour) with inconclusive findings. Some reports indicate a positive correlation between financial education and: (a) age of retirement readiness and accumulation of sufficient backup saving (Lusardi and Mitchell 2007, 2011; Almenberg and Save-Söderberg, 2011; Fornero and Monticone 2011; Van Roiji et al., 2012); (b) involvement in the capital market (Van Rooij, et al., 2011; Almenberg and Dreber, 2015); (c) a higher overall return on financial assets and a lower level of debt (Thorne e Porter, 2007; Hastings and Mitchell 2010, 2011). At the other side of the coin, an experimental game conducted by Campioni et al. (2017) show that poor financial knowledge is conducive to unnecessary and more expensive debts, as well as to the imprudent use of credit and debit cards. Financial literacy training has a positive impact on the likelihood of correctly distinguishing items the household budget, knowing the minimum amount needed to open a bank account and separate productive loans from those unproductive (Carpena, Shapiro and Zia, 2011). It is also demonstrated that the number of literacy courses organized by high schools increases the likelihood of holding higher financial profits and diminishes the amount of debt and the risk of home foreclosures in middle adulthood (Cole et al., 2016).

Notwithstanding these significant correlations, there is conflicting evidence on the causal impact of financial education on either financial literacy or real behaviour (Fernandes et al., 2014; Miller et al, 2014) partially due to heuristics and biases (Cole et al., 2012; Gale and Levine, 2010). Unsurprisingly, the biggest drawback in this research is the lack in experiments that can sort out unequivocal causal links. In general, the researches raise the issues of self-selection and causal inference typical of the correlation studies (Fondazione Cariplo, 2010). For instance, Meier and Sprenger (2008) demonstrate the presence of a positive correlation between the propensity to undertake financial education initiative and sensitivity towards intertemporal choices (what the authors define as "farsightedness"); other analyses seem to suggest that the effectiveness of a financial education course depends strictly on the level of financial knowledge prior to the course itself (Lyons et al., 2006).

Further difficulties emerge from the concept of financial education itself; it ranges from low-touch, time-limited and tightly focused informative measures to high-touch, long-term programs intended to include a wide spectrum of expertise (Beshears et al., 2018). Results also depend on individuals selected to participate to the FEIs, such that the same initiative may have various impacts based on the sample on which it is carried out. Most times, the participation to financial education initiatives (especially in the case of those workplace-based) is voluntary. Those who enroll in these programs tend to be more diligent and attentive, features that are already associated with higher wealth accumulation; others start attending late and use financial education as a remedial device, in order to make up for previous undersaving. For instance, Lusardi and Mitchell (2007) found that retirement seminars generally have a positive wealth impact, but recorded a higher effect for the low-income or low-schooled audience – which was precisely the category that attended less. At the other hand, Choi et al. (2018) concluded that participants in retirement seminars had optimist intentions (e.g. they claimed their commitment to change their retirement plan) but did not follow through. The study of the factors explaining the lack of interest in finance was given broad prominence in the late economic literature, in particular associated to the gender. It emerged that the technicality of the language domains used in finance are one of the biggest barriers to women's involvement in both capital markets (Boggio et al., 2014) and simple financial activities (Boggio and Coda Moscarola, 2017), understanding a lower demand for participation in the FEIs. Other variables that may also affect the impact of FEIs include personality traits (Borghans et al., 2008) and family environment (Cunha and Heckman, 2007; Cunha et al., 2010). Another critical hurdle is arguably technology: owing to cost-containment purposes, the primary medium for the distribution of financial education services is currently the internet, and this excludes the older and less educated segments of the population (Franceschi et al., 2017).

3.3.1 Why are FEIs desirable even under uncertain outcomes

It was observed in the previous paragraph that it is unclear how much a FEI is capable of improving the skills of individuals and impacting the future behaviour of households. Despite this uncertainty, though, several projects have been implemented in a variety of countries in recent years and many more are about to be introduced. The obvious problem is why, in the face of unclear gains, the community (international bodies, national and regional governments, regulatory agencies, privates and financial intermediaries) still bears costs, sometimes high, for these programs. The explanations may be different, but they are largely due to the fact that, if they were effective, interventions might produce very high returns for society (figure 18).

Figure 18. Potential benefits of financial education initiatives

Short-term	Medium-Term	Long-term
		Efficient financial markets
	Better financial decisions	Less financial exclusion
Attitudes	Better resources management	Less household distress
Knowledge	Better financial planning	Less financial disputes
Awareness	Faster response to crisis	Less insolvency
		Less burdens on taxpayers (e.g. subsidies)

Elaboration of the author from Chionsini and Trifilidis, 2010

If successful, financial education programs could help to reduce the number of financial disputes, with benefits in terms of the cost of civil justice; increased financial literacy could facilitate the step towards complementary pension schemes and informed economic decisions could lessen the burden of support measures. Indeed, it was previously demonstrated that financial literacy is especially modest among the least educated, the elderly and women – under a paternalist perspective, one would assume that these segments of the society are the inherent beneficiaries of public welfare; calculations on the sustainability of social system requires citizens to rely more on individual responsibility, being able to offset the long-term consequences of financial inculturation. Additionally, lowering the emotional stress arising from financial pressure can lead to lower health costs; for instance, a research conducted by the *British Journal of Psychiatry* in 2003 showed that 25% of citizens in financial distress received care for anxiety and depression (for a total of £370 millions of direct treatment costs) and causing losses to the society by wasting 109.7 million working days, at the cost of another £8.1 billion (Thomas and Morris, 2010). The financial crisis has been a reminder of how both the stability of the banking system and the preservation of the customer trust are essential safeguards for the security of savings, and a prerequisite for full competition. In the case of banking and financial products, intermediaries and clients are in an asymmetrical role in terms of their respective knowledge, assessment ability and expertise. More knowledgeable customers, as well as making healthier decisions for themselves, can be strengthen intermediaries, by creating demand for new services and products, resulting in increased innovation, improved quality of supply and market efficiency (Chionsini and Trifilidis, 2010). Furthermore, enhanced financial culture generates positive externalities at the macro-economic level; financial knowledge is a proxy for a deeper understanding of economic policy choices, with virtuous consequences in terms of sustainability of public finances (Murtinu et al., 2017), facilitates the resilience of the financial system and reduces the inequalities among investors (Lo Prete 2013).

Ultimately, the literature seems to indicate that the heart of the matter is not whether or not FEIs are effective, because it is known that they might not be efficient. As in other areas of policymaking, the success of financial education programs depends on how they are executed, that is, on the degree to which they can leverage the emotional variables that influence human decision-making. In conclusion, it should be acknowledged that a FEI is not an instrument for the wealthy, nor solely as an opportunity for "enrichment". Instead, it is a tool that can work properly alongside others to counter poverty and foster constructive attitudes towards a more inclusive, equitable and invigorated community (Centro Luigi Einaudi, 2017).

IV. INFORMING THE DESIGN OF FEIs

4.1 Methodology

Improving financial literacy should be a priority item in the agenda of policymakers, as it can have positive spillover effects not only on those who personally benefit from it, but also on their households components – e.g., in terms of more financially secure professional career, earlier retirement and higher education – and for the society at large – e.g., in terms of diffused wellbeing, larger private investment and lesser burden on the social welfare.

Starting from an overview of the FEIs that are either in place or in the design stage in Italy (numerically insufficient and currently lacking an available impact analysis), a study about the international best practices in the field of financial education is hereby presented. The research is a qualitative document analysis. The purpose of the study is to extract operative insights that are applicable in Italy, based on both the OECD recommendations (see: 4.2), the stated mission of the relatively newborn National Committee for Financial Education (see: 4.2.1) and the country-specific priorities (see: 4.2.2).

The population under study is understood as the international best practices from financial education initiatives with available impact evaluation. The rationale for the selection is that the intervention shows a strong, statistically significant impact on a level of financial knowledge. The design of the selected FEIs is consistent with the behavioural re-adaptations of the modern portfolio theory (see: 2.1.1) and the life-cycle theory (see: 2.1.2). The selected timeframe is from 1977 to 2018. These years are chosen because, by the second half of the 1970s, most advancements in behavioural science were made. Specifically, in 1977 Marylin Kourilsky published the results of a pioneer study on the interplay between psychology and decision-making in elementary school children; in 1979, Kahneman and Tversky perfectioned their prospect theory (see: chapter 2) which was then used by policymakers as a framework for designing programs and interpreting results. The latest available evidence date back to 2018.

Data are inductively gathered from multiple sources and conceptualized as in figure 19. The sources of data about financial education interventions are policy reports, official documents and academic studies made available to the public. The data corpus consists of forty-five interventions with a total sample size of over 130.000 observations, that are subdivided according to the target audience into three categories: (a) workplace-based initiatives (targeting employees); (b) school-based initiatives (targeting all school grades); and (c) community-based initiatives (targeting the members of the society under a logic of lifelong learning, with priority being given to vulnerable groups). Effectiveness of school-based programs to enhance household finance is mostly measured through the impact on financial knowledge; for workplace-based and community-based initiatives, some papers even identify behavioural changes steering from participation. Notably, most empirical evidence comes from the U.S. experience, where financial education programs have been in place for several decades. Both traditional (lecture-based and pamphlet-based) and non-traditional interventions (media campaigning, web-based) are included in this analysis, provided that they present evidence-based data consistent with the methodology.

Figure 19. Conceptualization

CONCEPT	VARIABLE	INDICATORS
Effective financial education initiative	Easiness	Take advantage of the power of defaults
		Reduce the effort of taking up a service
		Simplify messages
	Attractiveness	Attract attention
		Personalize
		Design rewards
	Sociality	Reinforce social norms
		Use the power of network embeddedness
		Encourage people to make a commitment to others
	Timeliness	Prompt people when they are most receptive
		Consider the immediate costs and benefits
		Help plan reactions to the events

As emerges from the figure above, the findings from each paper are then integrated into a pragmatic framework for behavioural change named "EAST" (Easy, Attractive, Social and

Timely) that was developed by the Behavioural Insight Team in 2010. In section 4.3, four behavioural frameworks have been presented (COM-B, BCW, MINSPACE, EAST) and, for all of them, the pros and cons are identified. The selected framework, EAST, has been defined as a framework for "busy policymakers" because it is an extraordinarily accessible and pragmatic way of designing policies. About the EAST, the U.K. Minister for Government Policy Oliver Letwin declared in 2014: “the behavioural science literature can be complex, so having a simple framework which policymakers can easily access and apply is invaluable. As the Minister responsible for Government Policy, I have seen how some of these insights can be applied in practice to help generate a policy that’s smarter, simpler and is highly cost-effective”.

The information gathered for the purpose of the research have limitations. First of all, many possibly virtuous initiatives are taken out from this study because empirical data conform to the methodology are unavailable. Indeed, the vast majorities of FEIs currently in place do not include rigorous monitoring and evaluations; in this regard, relevant barriers are the time- and labour-intensiveness of performing impact evaluation, and self-selection biases arising from the non-mandatory nature of financial education initiatives. Secondly, since most financial literacy programmes are fairly recent, much of the work is being developed in the form of pilot projects with small, context-specific samples. Third, as there are relatively few longer-term impact analyses in the present literature, there is no definitive evidence of the longevity of impacts. Finally, only seven papers out of forty-five include a discussion of costs. In order to partly fill this gap, section 4.8 presents a matrix elaborated by Kraft (2019) for assessing the cost-effectiveness of financial education initiatives.

4.2 OECD Recommendations on the NSFEs

The supranational organizations that sponsored the establishment of national educational initiatives to foster financial literacy were primarily three: (a) the European Commission (especially DG MARKT); (b) the World Bank; and (c) the Organization for Economic Cooperation and Development (OECD). The mission of the European Commission focused on standard-setting and the exchange of information among the EU Member States.[34] The

[34] For instance, the Development of Online Consumers Education Tools or Adults (DOLCETA) in 2003; the Recommendation on Principles and Good Practices for Financial Education and

WB based its research on protecting consumers and investors, primarily to stimulate the development of consumer protection rules (e.g. the Global program for consumer protection and financial literacy, 2010; the WB's Good Practices for Financial Consumer Protection, 2012). The most heterogeneous stimulus originated from the OECD. Its contribution has been articulated in several initiatives, such as assessing and tracking the level of global financial literacy, protecting consumers and helping policymakers to develop an effective financial education strategy. In 2005, the OECD developed the International Gateway for Financial Education (IGFE), a database that gathers all the work and research that has been done so far around the world on the subject; in 2008 it created the previously-mentioned INFE, a group of public agencies from various countries, established with the goal of exchanging ideas and projects to outline strategies and methodologies for spreading financial literacy.

In line with the best practices at the international level, successful financial education shall include tools for organizing the delivery of training aimed at fostering coherence between the initiatives and the needs of citizens. The OECD encourages synergies between existing programs and the need to disseminate the most effective teaching methods; this coordination is pursued through the National Strategy for Financial Education (NSFE). In 2015, fifty-nine countries had adopted a national financial education strategy, which is an impressive 200% increase since 2011. At the time of writing, NSFEs are implemented in more than sixty countries. Research on national strategies for financial education was initiated in 2009 as an integrative component of the OECD initiatives on consumer security and financial inclusion; in particular, it was launched with a view to improving economic stability in the aftermath of the 2008 global crisis. The remarkable rise in the number of governments that have designed these national approaches to financial education bears witness to its prominence. Nevertheless, it is imperative for FEIs-promoting countries to carry out further impact evaluations and, in particular, to report data that are comparable both at national and international level; it would ease the identification of the successful initiatives, facilitating the reallocation of resources while encouraging the transparency and sustainability of financial education policies. The assessment of the program should be

Awareness in 2005; the establishment of the Expert Group on Financial Education (EGFE); the creation of the European Database for Financial Education (EDFE) in 2009 – a portal that collects all the work carried out on the subject divided by geographical area, methods and target audience. It is, however, no longer working.

carried out qualitatively via consultation with stakeholders, on the ground of an evidence-based logic. The preferred tool of quantification, on the basis of the entire population or specific interest groups, is the reiteration of financial knowledge questionnaires (OECD/INFE, 2015). To the date, there is no such thing as all-inclusive data on the impact of many components of the national policies, both ongoing and concluded.

On several occasions[35], the OECD has specifically recommended a joint expenditure of public and private resources and involvement of private, non-profit and national entities (multi-stakeholder approach) in the execution of the national strategy; however, the public contribution shall assume a prominent role. Furthermore, behavioural science – the "nudge" method (Thaler and Sunstein, 2008) – shall be increasingly incorporated in the design of national strategies, to develop performance-maximizing initiatives at the lowest cost. Adopting a low-cost perspective is beneficial in both financial terms (as budgets are tight and the private entities are unlikely to deploy extensive resources in these programs) and in terms of opportunities for rapid and large-scale delivery (Billari et al., 2017). As a general rule, the application of behavioural insights should be interpreted as complementing, rather than substituting, conventional delivery models for investor awareness. Schemes that incorporate behavioural knowledge and cognitive-based strategies will be able to push deeper into both automatic and analytical mental processes, making them more capable of achieving positive behaviour transformation (OECD/INFE, 2018).

4.2.1 Italy

The previously mentioned surveys showed that the level of Italian financial culture is among the lowest in developed economies. These unsatisfying rates of literacy require efficacious and coordinated formative interventions. Financial education in Italy officially began in 2005, with the *Codice del Consumo* (art. 4 of Legislative Decree no. 206/2005) which gives consumers education the status of an indispensable right for individuals. In Italy, a nationwide discussion on the topic only gained momentum following the outbreak of the financial crisis. A range of public and private bodies have initiated various programs in the

[35] G20-OECD High-level Principles on Financial Consumer Protection, 2011; OECD/INFE High-level Principles on National Strategies for Financial Education, 2012; OECD/INFE Policy Handbook, 2015.

field of financial education, each targeting its group of interest. The core problem has been the absence, for a long time, of a central agency that could coordinate and monitor the initiatives; it did not allow for the correct application of the article 4.2 of the Codice del Consumo, according to which "activities aimed at consumer education, carried out by public or private entities, have no promotional purpose and [...] take particular account of the most vulnerable categories of consumers". To this end, the Italian Ministry of Economy and Finance (MEF), in agreement with the Ministry of Education University and Research (MIUR), has adopted a "National Strategy for financial, social security and insurance education" (Law. No 15/2017). In order to enforce this strategy, a "National Committee for the Planning and Coordination of Financial Education" was formed by the MEF in August 2017.[36] It functions through regular meetings and can set up different study groups in which academics and experts are involved. The expenses resulting from the operations of the Committee shall be covered, up to a limit of EUR 1 million per year from 2017 (initial budget), by a corresponding reduction of the Special Current Account Fund of the MEF. The key initiatives of the NSFE are outlined in the National Strategy Plan for Financial Education, spanning the period 2017-2019. In designing the NSFE, the Committee took into account the framework of the pre-existent supply, as emerged from the FEIs Census conducted in Italy by the Supervisory Authorities and addressing the three-year period 2012-2014. At that time, the census acknowledged the presence of about 200 programs sponsored by 250 subjects; a volume that, although not insignificant, was not sufficient to meet the educational needs of Italians. On average, the interventions were small: almost two-thirds involved fewer than 1,000 individuals, targeted general audience and were mostly limited to the dissemination of information material. From the launch of the Committee, many new programs were designed that could reach the disadvantaged segments of the population (such as young people, women, migrants) and by testing new informative methods, e.g. the development of a financial education web-portal, "finance at the theatre" or at the cinema, interactive games for children, workplace-based interventions.

[36] The Committee is composed of eleven members and is directed by Prof. Annamaria Lusardi. The members are appointed by the MEF, the MIUR, the Minister for Economic Development, (MISE), the Minister for Labour and Social Policy, Bank of Italy, CONSOB, the Insurance Supervisory Institute (IVASS), the Pension Funds Supervisory Board (COVIP) and the National Council of Consumers.

In late February 2020, BOI announced the establishment of the Customer Protection and Financial Education Department. The mission of the department is stated as follows: "strengthening protection instruments for persons using banking and financial services and increasing the level of financial awareness of the population".

4.2.2 What to target

From the post-war period onwards, Italy has been a country of savers who own at least the first home and are little indebted. These peculiarities have been clarified by the relentless speed of the productive engine, the generosity of the welfare state and the high level of public debt (Visco, 2018). Such system, however, has slowly jammed in the last two decades. According to the previously mentioned survey on Italian households, the rate of gross savings continues to decline and remains slightly below 10%, compared to about 12% on average in the euro region. Centro Einaudi recently investigated the financial perception of Italian households; it emerged over 80% of respondents dedicate no more than one hour to collecting information on how to manage their resources. Young and middle-aged households struggle to choose how to invest, and more than half respondents in all categories fear inadequate risk calculation. Strikingly, over 77% of people below the age of 35 is unable to choose the right timing for investing, and 40% predicts his old-age income to be insufficient (Table 10).

Table 10. Survey on financial perceptions of Italian households, 2019
(% of respondents)

"Time spent weekly to collect information on money management…"							
	Male	**Female**	**Age <35**	**35-44**	**45-54**	**55-64**	**>64**
No time	30.6	37.1	35.2	30.1	34	29.7	35.9
Up to 1 hour	53.6	50.5	51.6	52.3	51.3	56.8	50.9
1-2 hours	4.1	2.7	3.7	5.1	3.9	3.6	2.5
>2 hours	2.8	-	-	2.3	2	-	2.1
"The most difficult aspects when making an investment is…"							
Choosing among different types of investment	32.3	25.8	34.8	32.3	29.5	32.6	26.6

Choosing a specific asset, bond or fund in the market	26	22.5	29.6	29.7	24	27.4	21.6
Understanding the risks of investment alternatives	55.5	57.2	52.2	51.1	55.4	55.3	55.9
Choosing the right moment to invest or disinvest	45.8	42.3	77.3	42.7	42.1	43.9	44.6
"At 65-70 years old, you think that your income will be…"							
More than sufficient	8.7	4.7	11	6.4	5.1	9.1	-
Sufficient	47.4	43.7	33.9	40.7	43.9	57.6	-
Barely sufficient	25.9	25.9	28.6	24.5	29.4	23.4	-
Insufficient	8.3	9.5	6.7	8.3	12	5.8	-
Totally insufficient	1.9	3.2	4.6	3.4	2.4	0.6	-

Source: Centro Luigi Einaudi, 2019

In 2018, BlackRock Inc. conducted a broad survey targeting Italian heads of households aged between 25 and 74, in order to investigate the financial regrets of Italian households and what aspects they would improve. In line with the above, Italians consider themselves as savers and not investors (78% of Italians, compared to 69% of the world) and 33% of the lost investment of a household is due to insufficient financial knowledge. Interestingly, it emerged that Italian savers aspire to be investors: seven out of ten interviewees agree that financial health is living without having to rely solely on the present salary, and 50% of them recognize that their future outlook would be brighter if they started investing now; when respondents take a step to invest, indeed, they feel 18% more satisfied and 12% happier, and Italians who have started saving for retirement report a 17% higher sense of wellbeing than those who have not. However, only 43% of respondent declared to have started saving for retirement, a value that is 20% lower than the global average. This might be partly explained by hyperbolic discounting patterns (see subparagraph 2.3.1). The financial goals of Italian households appear to be disproportionately focused on the present – for instance, the economic priority of 46% of respondents is to improve their current quality of life, and 36% would like to go on holiday (BlackRock Global Investor Pulse, 2018).

In conclusion, FEIs should be conveniently designed to steer citizens towards less conservative choices that imply a bearable exposure to risks (because Italian households are loss averse), to consolidate their propensity to save (currently stable but deteriorated since 2008) and to point up the long-term decision-making, especially in the light of the retirement saving, taking into account the above-mentioned propensity to seek immediate gratification.

4.3 Behavioural frameworks applicable

Although financial education initiatives have recently gained momentum, abundant research underlies the inherent difficulty of substantiating successful interventions (see paragraph 3.3; for an in-depth analysis of the literature, see Miller et al., 2014). It was often highlighted that these interventions would benefit from the incorporation of cognitive factors, as the latter are found to significantly shape the economic behaviour (see chapter 2; subparagraph 3.3.1). Given these insights, following a behavioural framework is a practical manner of screening the spectrum of available interventions; these “big picture” models set the basis for a systematic study of how behaviorally informed strategies can be chosen and mixed together as to achieve the maximum outcome while minimizing the risk of overlapping policies. In order to determine the form or types of treatments that are likely to be successful, behavioural scientists have built various methods that guide policymakers in the selection of the available options. As concerns financial education interventions, the IOSCO[37] and OECD/INFE members have canvassed at least two valid behavioural change frameworks, the BCW and the MINDSPACE, which are hereby paired with their corresponding simpler version, COM-B and EAST.

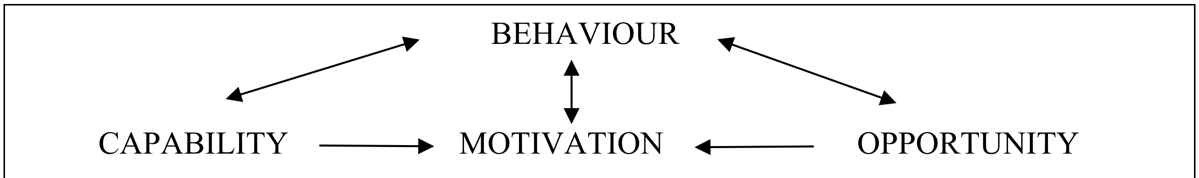
4.3.1 COM-B

The COM-B framework was theorized by Michie, Stralen and West (2011). It is a generic model that takes into account three minimal factors for behavioural change, *id est* (a) capability, the psychological or physical skills to enable the behaviour; (b) opportunity: the

[37] The International Organization of Securities Commissions (IOSCO) is an international organization that brings together more than two hundred securities regulators across the globe. The IOSCO member for Italy is CONSOB.

environment, either physical or social; and (c) motivation: the attitudes and aspirations that initiate or prevent behaviour (Figure 20).

Figure 20. The COM-B system



Type of intervention: o Education (increase knowledge) o Training (increase skills) o Modelling (provide models to imitate)	Type of intervention: o Persuasion o Modelling	Type of intervention: o Incentivization (create expectation of reward) o Coercion (create expectation of punishment) o Restriction (prohibit by rules)

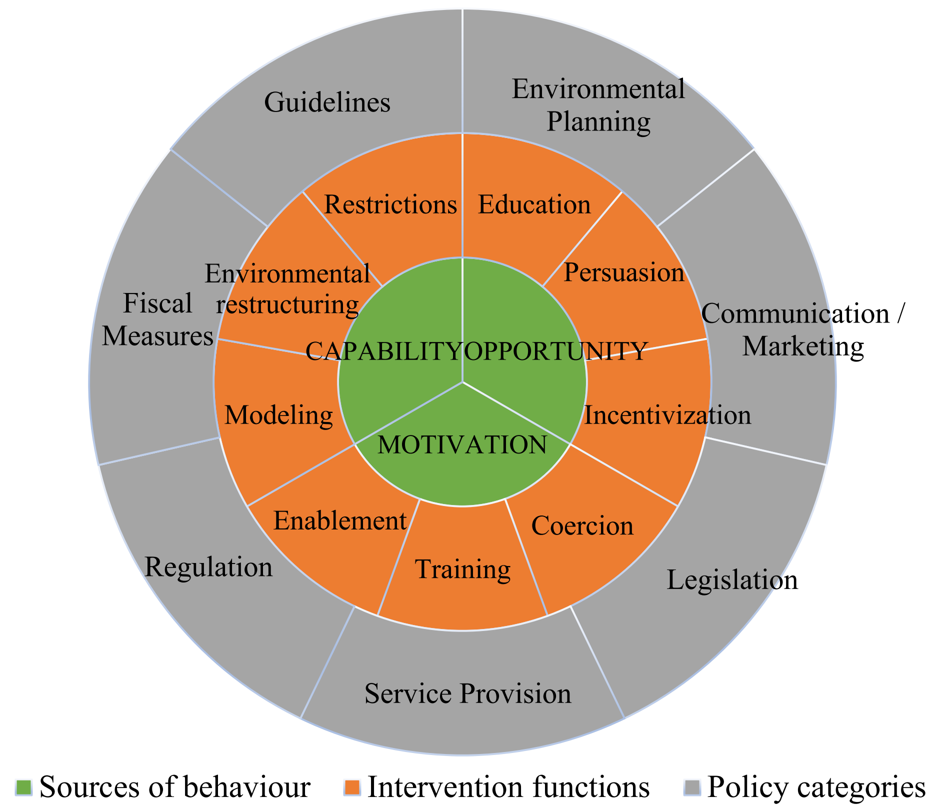
Elaboration of the author from Michie et al., 2011

The direction of the arrows indicates the interaction between the COM-B components; for instance, Bachmann and Hens (2015) demonstrated that motivation (e.g., consciousness of the need for information) influences capability (e.g., investment competence) that in turn shapes behavior (e.g., seeking professional advice). Similarly, Lusardi and Mitchell (2007) found that capability (e.g., financial literacy) influences behavior (e.g., anticipated planning) that in turn increases opportunity (e.g., wealth holdings). These conclusions are consistent with findings by Van Rooij et al. (2007), Lusardi and Mitchell (2011) and Calcagno and Monticone (2013).

4.3.2 BCW

Contextually to the COM-B model, Michie et al. (2011) have developed the Behaviour Change Wheel (BCW). It integrates and details the COM-B framework by singling out three layers: policy categories (seven items), intervention functions (nine items) and sources of behaviour (three items, coinciding with the COM-B system). The interaction among the components is no longer linear as in the COM-B (Figure 21).

Figure 21. The BCW Framework



Elaboration of the author from Michie et al., 2011

When confronted with endless possibilities for intervention, the BCW serves as a link between policies and target behaviour (for a definition of the policy categories, see Table 11). The BCW is rigorous and sophisticated, as it creates a web of possible interventions that are associated to multiple benefits. According to the authors, it allows to identify non-overlapping approaches and, possibly, keeping stringent interventions – *id est*, that would require environment modification (coercion, environmental restructuring, restrictions, modelling) – as the last resort.

Table 11. Definition of the policy categories

Policies	Definition	Examples
Communication/ marketing	Using print, electronic, telephonic or broadcast media	Conducting mass media campaigns

Guidelines	Creating documents that recommend or mandate practice. This includes all changes to service provision	Producing and disseminating treatment protocols
Fiscal	Using tax system to reduce or increase the financial cost	Increasing duty or increasing anti-smuggling activities
Regulation	Establishing rules or principles of behaviour or practice	Establishing voluntary agreements on advertising
Legislation	Making or changing laws	Prohibiting sale or use
Environmental/ social planning	Designing and/or controlling the physical or social environment	Using town planning
Service provision	Delivering a service	Establishing support services in workplaces, communities, etc.

Source: Michie et al., 2011

However, there are at least two limits to these models (COM-B and BCW). First, the authors tested the application of both of them as concerns health care and energy conservation interventions; while the frameworks seem plausible, no improvement in financial behaviour has been yet established – when reviewing the system, financial regulators may add other ties and comparisons to the three layers (IOSCO/OECD, 2018). Second, as a single intervention is designed embed multiple behavioural insights, such three-layer method is intensive in terms of both resources and knowledge, especially for policymakers using it for the first time. Even though these models are appealing, it does not seem viable to test them in Italy, given the limited public resources that the country has so far reserved to the national strategy for financial education.

4.3.3 MINDSPACE

The Behavioural Insights Team (BIT), unofficially known as the "nudge unit", developed the MINDSPACE framework in 2010. Originally designed to incorporate behavioural insights in the policymaking of the U.K. Cabinet, it now offers a viable model for the Italian government as well. As highlighted in the foreword of the discussion document, "many of the biggest policy challenges we are now facing will only be resolved if we are successful in persuading people to change their behaviour, their lifestyles or their existing habits. […] Whilst behavioural theory has already been deployed to good effect in some areas, it has much greater potential to help us. To realize that potential, we have to build our capacity and ensure that we have a sophisticated understanding of what does influence behaviour." (BIT, 2010). Concretely, MINDSPACE is a mnemonic checklist of nine sources of behaviour (Table 12), upon which policies should be built or reshaped.

Table 12. The MINDSPACE Framework

Messenger	We are heavily influenced by who communicates information.
Incentives	Our responses to incentives are shaped by predictable mental shortcuts, such as loss aversion and mental accounting.
Norms	We are strongly influenced by what others do.
Defaults	We "go with the flow" of pre-set options.
Salience	Our attention is drawn to what is novel and seems relevant to us.
Priming	Our acts are often influenced by sub-conscious cues.
Affect	Our emotional associations can powerfully shape our actions.
Commitments	We seek to be consistent with our public promises, and reciprocate acts.
Ego	We act in ways that make us feel better about ourselves.

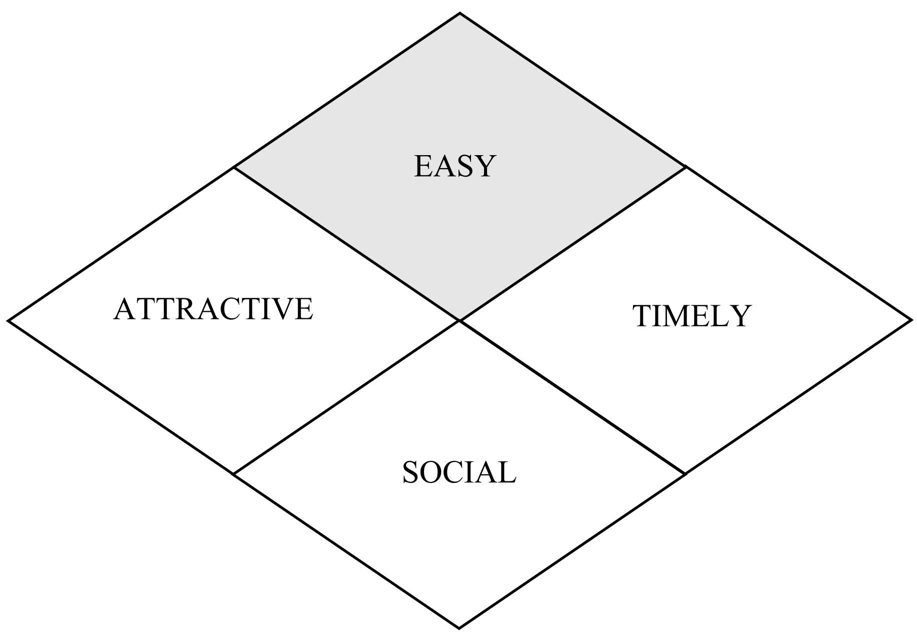
Source: BIT, 2010

Inspired by the "theory of nudge" by Thaler and Sunstein (2008), MINDSPACE underlies some behavioural dimensions that are relevant in the area of FEIs shaping. For instance, in the receipt of an information, people are influenced by the perceived authority of the "messenger" and the emotions they have towards him. Citizens are more inclined to act on the instructions of experts, but also of people showing demographic or behavioural similarities to them; similarly, a good initiative undertaken by a government or a private institution may be ineffective if the latter is disliked. As previously mentioned, people weight losses more than gains, measure the worth of money based on a narrow reference point and prefer present payoffs to larger but distant rewards. Having acknowledge that people filter out information as a coping strategy (BIT, 2010), the target groups shall be provided with stimuli that are salient and trigger their emotional response. The most relevant insight is given by the Ego component. People like to consider themselves as self-consistent and, should their actions and self-beliefs be in conflict, it is often the convictions – rather than the behaviour – that are adjusted. It has been found that after individuals make initial minor improvements to their behaviour, a strong urge to consistently change their beliefs arises. This insight shows that not only, as traditionally believed, does attitude change behaviour; it also works the other way around, possibly with even better results.

4.3.4 EAST

The EAST framework was developed by the BIT in 2012, as a simplified version of the MINDSPACE. Based on the model, policies shall be made "Easy, Attractive, Social and Timely" (Figure 22). Ideally, tasks for average citizens shall be made nearly effortless (e.g., simplifying application processes for financial assistance) and contents and messages shall be customized, meagre and specific; interventions should tickle social norms (e.g., underly the widespreadness of the desired behaviour, encourage the formulation of public commitments) and be timely implemented when people are most receptive to them.

Figure 22. The EAST Framework



Source: BIT, 2012

According to the BIT, there are four-stages of application of the EAST frameworks: (a) identify the behaviour to be targeted, the benchmarks to be achieved and the extent of the effect necessary to justify the programme (a cost-benefit analysis); (b) consider the context from the viewpoint of the segment involved, as an identical intervention might not elicit the same outcome in different contexts; (c) construct an intervention consistent with the EAST model and, if appropriate, review the previous phases; (d) test, re-learn and adapt: whenever possible, use randomized controlled trials (RCTs) to assess the impact of the intervention.

There is reason to believe that EAST is the most viable among the previously mentioned frameworks. The limits of COM-B and BCW have been previously discussed (see subparagraph 4.3.2). As for the EAST, instead, it was specifically designed to overcome the limitations of the previous system and to make it more flexible in case of changes in the context, as it is more generic and counts less items. The third stage of EAST can be integrated with insights from the MINDSPACE. On the other hand, EAST removes all frictions from complex models; it provides a minimal set of "action-oriented principles for busy policymakers" (BIT, 2012) and underlies the RCTs as an essential part of the methodology.

4.4 Workplace-based FEIs

According to the life-cycle hypothesis, spending during the professional life should be planned as to minimize debt accumulation and prepare for the long-term goal of income adequacy at old-age. However, an increasing number of workers struggle to handle their resources wisely. Work instability, divorce and the strains of home ownership endanger the financial wellbeing of numerous households belonging to all socio-economic strata.

4.4.1 Italy

The EduFin Committee is committed at carrying out workplace-based financial education initiatives in collaboration with the National Institute of Social Security (INPS), other occupational funds and the Ministries (MIUR, MEF, MISE). The Committee may set up partnerships with associations, professional organizations and private bodies, with a view to build a capillary network capable of targeting different segments of the society.

On January 25, 2019, the Committee has signed an agreement with the National Institute for Insurance against Accidents at Work (INAIL) to encourage financial awareness in the workplace.[38] It is the first public institute that provides financial education to all its workforce; the program targets 8.600 INAIL employees, distributed in 272 organizational units located around the national territory. Participation to the courses are free and lessons can occur in the form of e-learning. The modules will address five macro areas: currency and payment instruments, and social security, insurance and investment instruments. Insights from the course are meant to increase not only the productivity of employees, but to help them develop skills that are useful at the personal and household level as well. Data on the impact of the initiatives have not been processed yet. Similarly, on February 15, 2019, the Committee has signed a protocol with INPS in order to spread information on pensions and to enable medium to long-term financial planning among the employees of the institution. The Committee is currently working on a series of pilot financial education programs on the workplace, to be carried out in collaboration with the Bocconi University of Milan as a part of the 2019-2021 Program.

The 2017-2019 "National Strategy for financial education" identifies micro-entrepreneurs as privileged beneficiaries of financial awareness strategies. Small and medium-sized enterprises (active companies with revenues of less than EUR 50 million) constitute an essential component of the productive fabric. In 2017, the nearly 5.3 million SMEs gave employment to over 15 million people and generated a total turnover of EUR 2,000 billion (Prometeia, 2019). Not only does SMEs constitute the backbone of the economy at the aggregate level; they also explain much of household wellness, as 85% of all business in Italy are family businesses (AIDAF, 2020). Fair to say that SMEs play an especially vital role in the economy of some territories; in the South, small and medium-sized businesses account for 83% of productive activities (Prometeia, 2019). Moreover, entrepreneurship is a tool for reaching out to women. Based on the estimates of Confartigianato (2019), Italian women outnumber men in the entrepreneurial vocation: in 2018 were born 368 female-lead enterprises per day, with a birth rate of 7.2% compared to 5.3% of male enterprises. Throughout the decades, dependence on debt financing – and especially banking debt – has remained the preponderant feature of the SMEs' capital structure. It follows that an essential element in the empowerment of small and medium entrepreneurs is explaining the "usability"

[38] The integral version of the protocol is available at: https://www.inail.it/cs/internet/docs/alg-prac-prot-int-inail-comitato-edufin-2019.pdf

of market finance as a sustainable alternative to the banking circuit (examples of alternative resources: mini-bonds, private equity, crowdfunding). In support of small entrepreneurs, the Committee aims at encouraging financial awareness through the Association that reunites the Chambers of Commerce (Unioncamere) starting from the three-year period 2019-2021. Among the projects that are already in place, instead, there is an experimental project between CONSOB and Federterziario (a non-profit confederation of 50,000 Italian SMEs that operate in the tertiary sector). The program is articulated in two phases: the phase A, in 2019, offering a five-meetings financial education course to some territorial representatives of Federterziario, that were selected as a "study class", in five meetings; and phase B, in 2020-2021, directly involving all the SMEs associated to Federterziario and coordinated by the previously formed members of the study class; the formative modules will take place in fifteen Italian cities and entail distance-learning instruments.

4.4.2 Evidence-based best practices

Table 13. Best practices from workplace-based FEIs

Authors, date, country	Intervention and sample	Findings	EAST Best practice
Bayer et al., 2009 (USA)	Employer-provided financial education; written materials. (N=1.162)	Both participation and contributions to voluntary savings plans are significantly higher when employers offer retirement seminars. Firm size is negatively correlated with participation. No effect from written materials is detected.	EASY: Seminars are more effective than written materials (e.g. newsletters, printed brochures) that would require a proactive attitude from the employee. SOCIAL: seminars are well-effective in small firms where the peer effect is highly felt.

Bernheim and Garrett, 2003 (USA)	Employer-based seminars for the purpose of retirement for household whose respondents are aged 30 to 48 (N= 2.055 households)	Workplace-based seminars highly stimulate retirement saving among low and moderate savers (those in the first two quartiles of wealth). Evidence that most seminars are remedial, i.e. offered by employers when they perceived that employees are undersaving).	EASY: Target low and moderate savers. TIMELY: Courses tend to be less effective as a remedial device; consider the delivery of mandatory courses and anticipate timings, as voluntary attendees are those already inclined to save and, thus, the less affected by the content of the seminar (overcome selection bias).
Brune et al., 2015 (Malawi)	Treated farmers were offered training programs matched with the direct deposit of their cash crop harvest into bank accounts in their names; farmers in the control group were paid harvest proceeds in cash (the status quo) (N=5.985).	Treated farmers exhibited higher savings than those in the control group. A year later, the treatment had a positive impact on expenditure on crop inputs (e.g., savings were spent on fertilizers) and household expenditures (e.g., savings were spent on clothes, soaps, school fees).	EASY: Capitalize on the status quo bias by proposing to automatically sort worker surpluses into separate bank accounts.
Calderon et al., 2013 (Mexico)	Free 48-hours business course for randomly selected	The treatment group exhibits higher profits, serve more customers and	EASY: Especially for firms having fixed costs, teach how to

	female entrepreneurs, intensive form (lasting 6 weeks with two classes per week four-hour long) (N=875).	is more likely to be licensed with the government. High-quality entrepreneurs gain from business experience, while many lowest-quality entrepreneurs leave their companies as training makes them fully grasp that they are ill-suited to business management; the faster departure of bad firms could cause good firms to expand to a size that is more competitive (see: Hsieh and Klenow, 2009)	increase profits by changing business practices and the catalogue of products.
Clark and D'Ambrosio, 2008 (USA)	Voluntary seminars for employees of colleges and non-profit organizations about retirement plans (N=633).	12% of attendees reported changes in retirement age goals, and approximately 30% reported changes in retirement income goals. However, three months after the seminar, only one-fourth of those who declared the intention to change plan followed-through.	ATTRACTIVE: Underlie that courses may help households realize they are wealthier than they think (have exceeded their stated goal) hence they may save less, or retire earlier. SOCIAL: Asking employees to state their preference in front of other attendees is a form of implicit

			commitment that could help fill the intention-action gap.
Clark, Morrill and Allen, 2011 (USA)	Seminars for retirement-eligible employees. Retirees were explained the benefits of both annuities 401(k) and of lump-sum (DB) pension plans (N=1.269)	After the seminars, one-quarter of retirees modified their purchase choice. The purchase of annuities (rather than the default option) is positively associated with patience, risk aversion and life expectancy.	ATTRACTIVE: In order to avoid status quo bias, leverage on the risk aversion of employees.
Drexler et al., 2014 (Dominican Republic)	RCT to evaluate the effect of two business education programs for Dominican microentrepreneurs, in collaboration with ADOPEM Bank: (a) traditional accounting training, (b) streamlined, rule-of-thumb training to teach simple financial heuristics (N=1.193).	The rule-of-thumb training dramatically strengthened company financial standards, accurate performance efficiency, and sales. For poorly literate entrepreneurs, the influence of the rule-of-thumb training was considerably more significant than that of standard training, indicating that simplifying training programs could boost their usefulness for less skilled individuals.	EASY: simplifying training programs by introducing rule-of-thumb components boost the effect on low-skilled workers. Examples of rule-of-thumb training: why separate household money from business money and how to keep records of the flows (mental accounting); how to make realistic estimates on the increase/decrease of resources from the

			beginning to the end of the month.
Duflo and Saez, 2003 (USA)	University-organized information fair for the college employees; the treated group received a 20$ monetary reward for attendance. Follow-ups after five and eleven months (N=6.200).	Those who received the reward were five times more likely to attend the fair than other employees. Peer effect: even those excluded from incentives, who were in departments with those receiving the incentive, show both higher attendance and saving rates. 11 months after the fair, plan participation rates in treated group was 1.3% higher than the control group.	ATTRACTIVE/ SOCIAL: Small monetary incentives, especially when combined with the peer effect, are likely to be cost-effective – in the study, the increases in savings more than offset the cost of incentives. However, the effects tend to be short-term.
Edmiston et al., 2009 (USA)	Pilot program in three firms who have perceived financial distress among their employees. Two components: (a) A classroom component: 1-hour long classes once a week for 9 weeks; and (b) One-on-one component: employees (and their	13% rise in the share of income saving for the pension; 50% rise in the share of respondents who paid off their monthly credit card balances. At the end of the treatment, attendees said that working with an advisor made them realistically conscious about they were financially; two to three years after, there were	ATTRACTIVE: Consider providing a one-on-one component where workers and possibly their households receive customized financial consultancy from a planner. SOCIAL: At the end of the intervention, HR may organize a short session in which

	households, if they wish so) work with an advisor for at least a year (3 to 5 meetings) to develop and implement a plan. (N=700)	major improvements in the average satisfaction with the financial situation of attendants (long-term effect). All the three firms that hosted the pilot program are still running the program and have extended it to more staff.	participants share their thoughts; this helps reinforce the perception of having committed to a new financial path.
Goda et al. 2012 (USA)	Provide by mail income projections along with general plan information and materials assisting the employees of the University of Minnesota through the steps of changing contribution rates (N=16.881).	29% higher probability of a change in contributions relative to a control group over a six-month period. While the share of those who changed contribution level is limited, those who did follow-up increased their savings by over $1.100 per year.	EASY: Providing income projections matched with information on how to improve the financial situation stimulates the availability heuristics.
Hira and Loib, 2005 (USA)	An hour-long introductory session during which employees of a large insurance firm were given a preview and asked to take part in a more intense 3.5-hour training session (N=1.486).	Workers improved four indexes of financial literacy and registered more optimist expectations about their future financial capabilities; this, in turn, impacts their emotional bond towards the employer (self-assessed indexes of company	ATTRACTIVE: Intervene on the motivation of employer; companies benefit from providing educational programs in terms of worker loyalty.

		ratings and company supports).	
Joo and Garman, 1998 (USA)	Clerical employees were asked to indicate the financial education program topics they would like to see offered at their place of employment. (N= 447)	20.7% desired two financial education programs, 16.2% three programs, 13.7% four, 11.8% five. Workers clearly are interested in workplace financial education. Parents and younger workers asked for courses on credit management, college planning, budgeting and home-buying.	EASY: Ask employees which courses they would like to follow; the answer reflects the position in the life-cycle. ATTRACTIVE/ TIMELY: Provide courses on home-buying for young workers and on budgeting for parents.
Karlan and Valdivia, 2011 (Peru)	Business literacy courses for female entrepreneurs conducted by FINCA (microfinance institution). The control group received education sessions on lending and saving, the treatment group received also 30- to 60-minute-long entrepreneurship training courses; the frequency of both	Attendees increased their knowledge good business practices, e.g. on how to produce and sell products, the using of discounts and credit, reinvesting profit. Positive although small effect on the number of hours female children spend in school or doing schoolwork (subtracted by leisure); more educated mothers increase preference for education of their daughters.	EASY: Entrepreneurship is not a “fixed spirit”; frequent microfinance programs can enhance it. SOCIAL: Underlie that business success empowers female workers vis-à-vis their husbands and increases their bargaining power and contribution within the household (e.g. help repay debt). After a

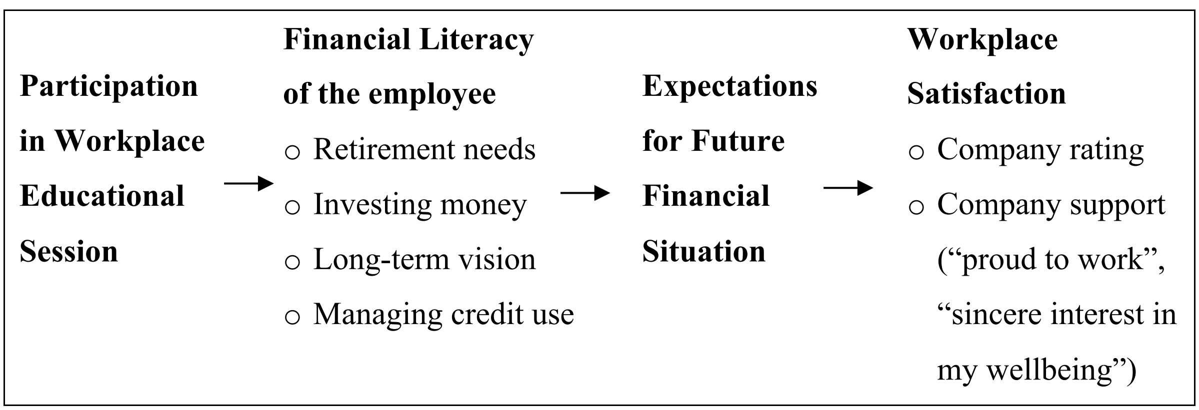
	courses was 22 weekly or bi-weekly sessions throughout one to two years (N=6.429).		free trial, customers with low-prior demand would appreciate it and seek the services.
Lusardi et al., 2009 (USA)	Planning and saving aid program for no-profit organizations employees (N=459).	First, through a focus group, employees were asked to indicate their top three perceived obstacles to money management: they indicated lack of self-control, little income and lack of information. Sharp rise in supplementary retirement accounts: the election rate of pension plans tripled in a 30-day and doubled in a 60-day period.	EASY: Information was made more concrete, as employees themselves indicated what they were willing to work on. TIMELY: employees close to the retirement age are the most inclined to make sizeable changes.
Muller, 2001 (USA)	Classroom-based seminars at the workplace (N=640)	Attending a retirement meeting increases the likelihood of saving among persons age 40 or under. For women, the response to seminars depends on marital status; after the seminars, unmarried women are 9% more likely to invest in a retirement vehicle than married women.	TIMELY: Targeting middle-life workers, as they are in the wealth accumulation phase of the life-cycle income. Unmarried women are more receptive to FEIs.

Prawitz and Cohart, 2014 (USA)	Year-round initiatives targeting basic financial concepts (LTSI plans, insurance, retirement planning, estate) for the employees of a large company. To attract participation in pre-test questionnaires, people were given an insurance premium discount and a customized financial action plan and education programming based on their pre-test assessment (N=995).	Workers started making use of, or updated a budget; exhibit a gradual build-up in both retirement and non-retirement savings (especially the former, consistently with the life-cycle theory); decline in the frequency of negative bill-paying habits.	ATTRACTIVE: Supply service providers discounts to incentivize the completion of pre-survey tests; EASY: Based on the preliminary skills assessment, sort employees into different education programming and, possibly, give them customized action plans. SOCIAL: Being in a group with selected people having similar needs stimulates social networking (see also: Duflo and Saez, 2003).
Skimmy-horn, 2012 (USA)	Mandatory 8-hour Personal Financial Management Course (PFMC) for new soldiers (N=85.879)	PFMC doubles savings and has persisted effects for two years; PFMC reduced cumulative account balances and aggregate monthly payments.	TIMELY: Provide courses to newly hired employees (people who start new jobs are inclined to save)

Another intensive research that was a milestone in the field was carried out by Kim (2007); it is not mentioned in the above table, due to the small dimension if the sample (N=93). Kim investigated the impact of a workplace-based series of 1-hour workshops in 8 modules, with

20-25 participants per class. As an incentive, attendants were given financial workbooks. Three months after the last workshop, attendees showed improvements in self-assessed indexes of financial behaviour (following a weekly or monthly budget, risks gauging) and recorded higher financial wellbeing of their households (feeling more secure and less stressed) compared to the pre-workshop survey outcomes. In turn, the financial wellbeing of employees positively reflects on the workplace in terms of absenteeism, organizational commitment and job satisfaction (Kim, 2007).[39] The finding that financial distress hurts job performances has been widely reported (see also: Garman et al., 1996; Joo and Grable, 2000; Kim and Garman, 2003; Miller, 2016; Mrkvicka et al., 2016; PWC, 2018). This constitutes a potentially attractive incentive, in terms of return on the investment, for employers to offer educational programs as, in the words of Meyer and Allen (1997), a "psychologically rewarding experience" (Figure 23).

Figure 23. Relationship between workplace-based education and workplace satisfaction



Source: Hira and Loibl, 2005

4.4.3 Key takeaways

Workplace-based FEIs should provide employees with information they find useful. The easiest and most effective way to do so it by asking them what courses they would like their company to offer (Lusardi et al., 2009). As Joo and Garman (1998) put it, "workers, much

[39] A very similar research – once again excluded due to the small dimension of the sample – was conducted by Miller et al. (2019); the authors confirm that financial education programs at the workplace are likely to be mutually beneficial for employees and employers.

like voters in an election, know what they want and what will help them. They only have to be asked". At the same cost, general-content courses are less effective than those targeted and customized. As concerns organizing meetings with financial planners, one-on-one components may yield significant success (Edmiston et al., 2009). Effective programs should also attempt to teach mental accounting techniques (see paragraph 2.2) and rule-of-thumb practices, e.g. how to label and separate the household budget from the business budget (Drexler et al., 2014).

The empirical evidence exhibits consistence with the life-cycle hypothesis (Modigliani and Brumberg, 1954; see: chapter 1.2). There are three moments in which employees are especially inclined to internalize financial notions: the start of a new job, middle-life (the wealth accumulation phase for the retirement in the LC/PIH) and immediately before their retirement. Each category would benefit from knowledge that is useful to its circumstances, e.g. providing information on credit management and home-buying to newly hired workers and those with many dependent children, investment notions to middle-aged employees, savings tips to retirement-eligible workers.

It is useful to consider employing benefits in order to increase the take-up; it is no mystery that individuals are generally little interested in financial education topics, and it is true for Italy (see: Table 10). Many individuals do not take part into FEIs because they do not perceive benefit to outweigh costs; a small monetary incentive significantly helps improving workers participation (Duflo and Saez, 2003). There is lesser positive evidence that in-kind incentives, or incentives in the form of simple reimbursement, work.

Finally, using the power of networks plays a pivotal role on the success of the FEI, either due to a wish to conform with one's colleagues (Duflo and Saez, 2003; Bayer et al., 2009), social learning (Edmiston et al., 2009; Prawitz and Cohart, 2014) or reinforcing intra-household bargaining (Karlan and Valdivia, 2011).

4.5 School-based FEIs

From the 2018 Blackrock survey has emerged that the fear of being financially unprepared is widespread among young people, equal to 42% among the millennials and 26% among the baby boomers. According to the OECD estimates, Italy exhibits the third-highest share of NEETs, i.e. young people who do not work, study or attend any training program; they are

26% of all citizens aged 18-24, compared to the 14% OECD average; at the same time, the percentage of Italians NEETs aged 20-34 is the highest in Europe (OCED, 2019). High school is the last chance the society has to mandate the financial training of students.

School is an essential medium because youngsters can be extraordinarily receptive – not by chance they are regularly targeted by marketing campaigns and aggressive ads – and public schools allow to access all segments of the society, including those in the vulnerable groups. Supplying financial education to young people can, in fact, bridge the inequities in the level of financial knowledge that are attributable to the socio-economic background of the household. Basing the transmission of financial information exclusively on a parent-to-children exchange would only exacerbate this disparity, because parents with very poor education and wellbeing are likely to pass insufficient knowledge to their children (Bucks et al., 2006; Lusardi, Mitchell e Curto, 2010; Ronchini et al., 2013; Lusardi and Lopez, 2016);[40] this explains why household finance should account for non-adult members of the families as well.

Skill formation is a life cycle process that begins in the womb and goes on throughout life (Cunha et al., 2005). Talking about American citizens, in 2005 the Nobel graduate James Heckman made a provocative statement that could fairly be enlarged to broadest segments of the world population: "the family is the major source of inequality in the society". Investing in children while they are young is the most cost-effective manner to remediate the disadvantages due to adverse family circumstances (Clement, 2005).

4.5.1 Italy

The latest data from the 2015 OECD/PISA (International Student Assessment Programme) survey shows that Italy is lagging behind in the field of financial education and poor familiarity with issues related to saving (OECD/PISA, 2017).[41] It shall be noted that the

[40] The socio-economic factors appear to be the biggest indicators of financial literacy. Quoting Lusardi and Lopez (2016), "students born in households that are one standard deviation richer than the average household (top 84% of the socio-economic index) have, on average, a financial literacy score that is 35.5 points higher than students who live in the mean household".

[41] The latest available OECD/PISA survey was released in December 2019 and it does include a section that evaluates of financial literacy, to which Italy has participated since 2012. However, at the time of writing the results of that section have not yet been made public; therefore, the data presented are those of the survey published in 2017.

Italian Constitution explicitly protects savings of all forms (art. 47) and assigns to the Republic itself the responsibility to lay down "general rules for education" (art. 33).[42] According to Ignazio Visco (2010), economic and financial training provided to young people from primary school, even when not ensuring significant results in the short term, remains one of the essential tools for the growth and development of the nation. Financial education is, in this sense, a public good and, as such, a fundamental right.

Various initiatives by the Committee, Feduf and BOI are already in place for young people. Among these, the "Collana dei Quaderni Didattici" i.e. the publication, from 2012, of a series of books intended to teach cash alternatives to primary school students. The Feduf's project "Fiabe e Denaro" ("fairytales and money"), i.e. a book with nine illustrated fairytales and educational cards about economy, was intended to be accompanied by creative workshops and group games involving children of the primary schools. The most comprehensive project is the educational path organized by Feduf called KIDS, JUNIOR and TEENS (Table 14), which progresses from primary to first-grade secondary school students. It is optional; an interested teacher may register one or more classes free of charge through the website *www.economiascuola.it* by filling in the appropriate registration form. As far as Feduf is concerned, in the school year 2018-2019, 594 schools were enrolled in the education programmes with an estimated 1,656 classes for a total of 39,465 students.

Table 14. Summary of the KIDS, JUNIOR and TEENS educational path

Initiative	Target	Modules	Content
KIDS	Primary school (*primary school*), classes III, IV, V	Three lessons of an hour and a half each.	(1) The value of money and profit. (2) The conscious use of money and savings. (3) The banking and payment systems.

[42] Article 33 of the Constitution of the Italian Republic: "The Republic lays down general rules for education and establishes state schools of all branches and grades. [...] Higher education institutions, universities and academies, have the right to establish their own regulations within the limits laid down by the law".
Article 47 of the Constitution of the Italian Republic: "The Republic encourages and safeguards savings in all forms. It regulates, co-ordinates and oversees the operation of credit".

JUNIOR	Lower secondary school (*92i ach media*)	Three lessons of an hour and a half each. At the end of the program, it is possible to take part in the national contest “racconti di valore” which proposes the dramatization, set to music or writing of stories related to the issues addressed in the classroom.	(1) Labour, income, consumption: human capital, the life-cycle of the household. (2) Savings and investment. (3) Bank and money management.
TEENS	Upper secondary school (*92i ach superiore*). Particularly recommended to third classes as a prerequisite for alternance work school programs)	Four lessons of an hour and a half each. At the end of the program, classes can participate in the contest “che impresa ragazzi!” that awards the best business plan, or the contest “mamma 92i ache impresa!” that awards written works about the entrepreneurial culture.	(1) Labour, income and consumption. (2) Saving and investment. (3) Bank and money management. (4) The enterprise and its financing. In-depth modules are also available as concerns: economy, ethics and globalisation; economy and legality; prevention of usury and over-indebtedness.

Source: Feduf, 2019

Throughout the school year, the Committee organizes multiple free enrollment initiatives such as seminars to teach financial education pills, tax seminars (in collaboration with Agenzia delle Entrate), household finance and spending reviews courses for university students, ad hoc events on the protection of savings (in collaboration with Cassa Depositi e Prestiti and Poste Italiane). In collaboration with the MIUR, the Committee also promotes the organization of Financial Economy Olympics, an initiative aimed at young people in the first three years of upper secondary schools. Last year the initiative saw the participation of over 7,600 students in almost 300 schools. Another concrete example is the pilot project "Finance: a story to tell from barter to bitcoin" launched by CONSOB for secondary school in Lombardy. The initiative involved 27 schools in 10 provinces and consisted of three lessons of 2 hours each in October (the "month of financial education"), anticipated by a teacher training coordinated by the CONSOB staff. The modules covered historical events such as: the bubble of tulips (Netherlands, 1637), the Ponzi and Madoff frauds (USA, 1920), the birth of the stock markets (Belgium, 1950), and the 2007 crisis, along with information on behavioral traps (optimism, herding behaviour, risk aversion). Of the various financial education initiatives, no empirical evaluation of the effectiveness is available.

The Committee plans to strengthen memoranda of understanding with more associations and bodies interested in furthering financial education, regional school offices or individual schools for the next three years. Among the proposals of the Committee, there was the introduction of the subject of financial education, as a part of the national civic education training, as early as the 2018-2019 school year (in accordance with Law No. 107/2015, Article 1, paragraph 7 – the so-called "Buona Scuola"). The introduction, initially foreseen in the financial manoeuvre for 2020, was then postponed. The "milleproroghe" decree, then published in March, introduces financial education as part of the civil education curriculum; however, the financing are increased by EUR 200.000, a seemingly inadequate figure faced with the prospect of training the teachers. Some relevant recommendations to the MIUR are: (a) to encourage the INVALSI study to monitor the evolution of the financial skills of students over time; (b) that the Ministry authorizes, at the request of individual schools, experimentations to advance financial education in the curricular programs.

4.5.2 Evidence-based best practices

Table 15. Best practices from school-based FEIs

Authors, date, country	Intervention	Findings	EAST Best Practice
Bernheim, Garrett and Maki, 2001 (USA)	State-wide review of financial curriculum mandate for high-school students. It	Five years since the mandate, adults who attended it held saving rates 1.5% higher than those not subject to the	EASY: Early exposure to financial education mandates in middle

	extends the study of Bernheim and Garrett (2003) on employer financial education, using the same Merrill Lynch-sponsored household survey, on individuals aged 30-49 who have or not attended financial education mandates in high school (N=2.000).	program. The impact was higher for those lived in non-frugal households. Middle-aged adults who attended financial management courses in high school saved larger shares of their incomes. This demonstrates that early exposure to financial topics increases confidence and familiarity with financial issues, weakening obstacles that inhibit sound decision-making and eventually increasing the rate at which people save and accumulate in their adulthood.	school stimulates status quo heuristic and availability and is likely to have long-term effects.
Bruhn et al., 2014 (Brazil)	Comprehensive financial education training delivered to high school students aged 15-70, created by the NSFE working group in collaboration with the Ministry of Education. The intervention spanned three semesters for a total of 17 months. It includes textbooks for	The treatment groups showed statistically significant improvements in the likelihood of saving, listing monthly expenses and holding a bank account. The intervention did not divert from academic records; instead, the graduation rate of the treated students was 1% higher than that of the control group. Parent workshop had an attendance	EASY/ ATTRACTIVE: Incorporating financial education in regular subjects (mathematics, italian, history) rather than creating a separate subject may help diminish the workload of teachers and students; repeating

	students with 72 case studies that applied theory to daily life. Teachers attended training sessions, taught by educators, before and during the program. Parents were offered facultative workshops. (N=815 schools).	rate of 46%; following them, and the take-home exercises, parents of treated students were found to be more likely to increase their saving rate. It shall be noted that follow-up surveys only captured the short-term effects of the program.	the most relevant notions helps to simplify and internalize them. Being integrative of the curricular subjects, not only does the FEI not interfere with the regular didactic, it may even boost the final grades of students. SOCIAL: Make it collaborative by involving parents.
Carlin and Robinson, 2012 (USA)	Simulation game named "Finance Park" for students aged 13-19 years old. Participants are randomly assigned fictitious identities, e.g., 25-year-old single mother of two children. Based on their fixed disposable income, they select a budget plan with concrete expenditures (telephone plan, insurance, charity, recreation). Students	Students who received the pre-simulation training have internalized the notions and, indeed, made kiosk choices that demonstrated preference for delayed gratification. However, in the kiosk of health insurance (the only one in which no support decision was provided, hence children were not helped by volunteers in weighting plans), some students who received the training made inferior choices. The authors	ATTRACTIVE/ SOCIAL: Set up a gaming occasion in which students can put into practice the theory they have been taught, e.g. assign a fictional family membership. To help understanding household budgeting, assign students with "unexpected

	can physically go to kiosks located in the park, serviced by volunteers, to get information and “purchase” their bundle. Before the game, children can attend a non-mandatory 19-hour curriculum (N=2,357)	associate this unintended consequence to patterns of overconfidence. This demonstrates that financial education and decision support are complementary, not substitutes.	expenses”, such as home improvements, and stimulate their ability to amortize costs. To avoid overconfidence bias, remind students of the benefits of seeking decision support.
Ertac and Alan, 2018 (Turkey)	Education program for students aged 9- or 10-year-old in 73 primary school classes in Istanbul, offered by a major bank in collaboration with the Ministry of Education. The curriculum was delivered for two hours once a week, for eight weeks, through educational materials (fun games, eight mini case studies followed by discussions) conveyed by previously trained teachers. (N=3.850)	The intervention improves non-cognitive skills. Treated children are more patient and show higher self-control overriding temptations. Overall, the treatment is successful in training forward-looking mindset (e.g. giving up one gift now for receiving more gifts a week or two from now). The impact of the intervention is uniform in the sample. By follow-up tracings of the sample, the authors found that results persisted almost three years following the program (authors were able to eventually reach to 63% of the initial sample).	EASY/ ATTRACTIVE: design project-related activities e.g. case-studies. Example of a case-study: a girl desires a bike she cannot afford; she has the possibility to come back in time and decide alternative saving and consuming scenarios. Children are asked to draw pictures and build a time machine (making a vivid

			representation of future payoffs).
Frisancho, 2018 (Peru)	"Finanzas en mi Colegio" semester program for students aged 14 to 17. In addition to financial knowledge, emotional traits were surveyed. Teachers were surveyed as well. (N=300 public schools)	The highest financial literacy improvements are exhibited among the oldest cohorts, who also declared to have become 2% more likely to discuss household budget with their family. For 15-year-old, the effect of the treatment equals a 14.8-point improvement in the 2015 PISA assessment. The expense per student is $4.80 and a $1 increase in program spending results in a 3.3-point gain in the PISA evaluation. As concerns emotional traits, overall post-test scores are as follows: 1.8% increase in the share of risk averse; 1.8% decrease in the share of hyperbolic discounters. The level of self-control shows promising increases. Results from pre- and post-test surveys on teachers show changes in their attitudes as well: a striking 7% increase in their self-assessed level of	EASY: Differently from adults who generally prefer stand-alone subjects or specialized training, students appear to benefit from repetitive cumulative knowledge. ATTRACTIVE/ SOCIAL: Teachers seem to benefit from training as well, especially in psychological terms. The impact of FEIs may permeate the psychological traits of participants, making them more financially aware and risk averse. TIMELY: Target high school students as they are getting prepared to

		risk aversion, and a decrease in their impulsiveness in their consumption habits.	move to the labour market or invest in their human capital by pursuing university education.
Harter and Harter, 2007 (USA)	"Financial Fitness for Life" (FFFL) program for students in elementary, middle, and high school in an underprivileged region of Kentucky. Once teachers completed the participation in the study and submitted the results from the final test, each received a $250 stipend. (N=1.041)	A year after the treatment, exit surveys sat by participants in all three grades showed increased financial skills; the highest overall increase was recorded in elementary schools. The share of students who were satisfied by the programs were high: 86% for elementary schools, 72% for middle schools, 67% for high schools (although the appreciation is smaller than in other grades, 80% of high school students found the lessons "useful or very useful")	ATTRACTIVE: As participation to FEIs are not mandates, and courses may be time-consuming, consider providing monetary incentives for teachers to take training. Have an introductory session with the teachers and let them have their say about which lessons would be most useful for their classes.
Kourilsky, 1977 (USA)	Teacher-guided program for five kindergarten classes in California. Pupils ranged from five- to six-year-old. Teachers	Results from both teachers and parents report are positive; The treatment group showed more competence in basic economic notions –	EASY/ SOCIAL: Exchange goods and services, create a banking point (to stimulate deferred gratification).

	received a 30-hour pre-program training. The program lasted a semester. (N=96)	especially as concerns scarcity, decision-making and business organization – compared to the control classrooms. Boy-girl gaps were found to be statistically insignificant. 97% of parent reported a positive attitude towards the program and 91.3% wished for the program to be prolonged until the end of the grades.	Reinforce experience through games and role play. ATTRACTIVE: Make children perform classroom activities for which they are paid in classroom currency.
Kourilsky and Keislar, 1983 (USA)	Interdisciplinary project called "Mini Society" targeting economics, entrepreneurship, ethics and mathematical skills for children aged 8-12 years. It lasts 10 weeks (3 hours per week); for the first two weeks, the teacher is the leader, then become a member of the society. Children are faced with an initial scarcity problem (not enough pens for everyone) and have to design ways to solve it by "setting a market economy in motion".	The project helped children blossom their entrepreneurial vocation, e.g. some children became store managers. Others showed risk aversion and preferred to become salaried workers. As new elements were progressively introduced to the story, children become aware of new topics such as inflation (e.g. "after a couple of weeks, the treasurer announces that the treasury was running out of currency. After a lengthy discussion of the alternatives, the citizens voted to have the government print more	EASY: Confront children with a real-life situation (a scarcity problem, e.g. not enough pencils for all the children) and encourage them to create a market society (e.g. create pencil and erasers businesses). SOCIAL: Help each child finds his/her position in a microcosm and discover their entrepreneurial vocations.

	New problems are progressively presented to the "society" and children are in charge to decide how to deal with them while protecting their community. (N=1.853)	money"). At the end of the project, students showed higher self-esteem, attitude towards learning and entrepreneurship awareness.	
Lührmann, Serra-Garcia, and Winter, 2012 (Germany)	Three 90-minute financial education sessions, taught by volunteer coaches, for 14- to 16-year-old students, offered by a non-profit organization and sponsored by for-profit providers. Modules deal with shopping, planning and saving. (N=716)	Exit surveys from the treated group showed a decrease in impulse shopping based on a hypothetical saving scenario ("how would you allocate EUR 100 if you had no other source of income"). Higher numeracy correlates with increased financial literacy. The largest improvement is in terms of identifying the riskiness of assets.	EASY: Short financial training may have positive impact; however, it would be preferred for them to be taught by specialized coaches rather than teachers.
Morgan, 1991 (USA)	Five 15-minute video program called "Econ and Me" for elementary children (mostly seven-year-old). Videos starred children actors and addressed themes as household finance (e.g. interdependence, resources pooling), business planning (e.g.	"Yes or No" test to measure the effectiveness of the program. The post-test scores of children whose teachers received training showed higher scores than their own pre-test trials; furthermore, that have better scores than the control classrooms.	EASY: Provide visual and multimedia support using story formats. SOCIAL: Videos are more effective if presented in forms of stories starred by other children.

	building a clubhouse), saving and consuming given scarce income. (N=300)		
Schug and Hagedorn, 2005 (USA)	School-based program for children of second and third year of primary school. Each child received 8 financial lessons and a "money savvy pig", i.e. a piggy bank with four slots (instead of one) for saving, spending, investing, and donating (N=300)	Children were asked to agree or disagree with self-assessment sentences by using symbols: a smiley face for agree, a straight-mouth face for do not know or am unsure, a frown face for disagree. After the test, children agreed: 13% more with the statement "I know a lot about how to handle my money"; 16% less on "it is important to have things I want when I want them", showing lesser inclination towards immediate gratification; 25% less on "it is best to put the money you save in your room at home" and 17% more on "it is important for families to keep money in real banks".	EASY: Provide experiential skills about the importance of saving money in banks by distributing physical tools (e.g. piggy money boxes) to the pupils.
Sherraden et al., 2011 (USA)	4-years in-class financial education "I can save" (ICS) curricula for elementary school children; 90%	The attendance decreased throughout the years due to the children changing after-school activities or moving out of school. ICS students	EASY: Make the students perform concrete tasks, e.g. visiting banks, filling out the

	were African American and 50% came from low-income households (qualified for discounted lunch). Each child received financial lessons from ICS staff and incentives: $1 and free snacks for each meeting (1-hour after school most weeks for four years). Meetings included games and, from year 2, monthly field trips to deposit savings in the bank. There were 20 workshops for parents. (N=167)	are at ease with economic vocabulary, talk more about economic concepts and are overall more confident about money, especially as concerns the interaction with banks. Most children agreed that the activity they liked the most was doing games. At the end of the treatment, children capabilities were improved regardless of parent education or income. The only relevant difference was that children of married parents outperformed children of unmarried or divorced parents.	deposit slips (activity that a child in the study found "the most fun"). ATTRACTIVE: Reward students with free snacks and a symbolic sum (e.g. 1€) for each lesson, then encourage them to save them and put them into a bank account.
Sosin et al., 1997 (USA)	Eighteen elementary school classes (except first grade pupils) received four-module basic economics classes after having their teacher trained; none of the teachers had a background in economics. Teachers were free to decide how	Though the control group scored best in the pre-test survey, after the classes it was outperformed by treated students. Significantly, high improvements were recorded in the "macro-international" module (income distribution, trade, unemployment, role of government,) even though it was the least extensively taught. No significant effect	TIMELY: The financial education investment should start early. Had older students started learning financial themes in younger grades, they would have likely scored better in terms of

	much time to dedicate to each module (N=323)	was found as concerns income and ethnic background, yet in the last grade little gender difference was found; however, the authors have not found an explanation for it.	financial attitude and confidence.
Varcoe et al., 2005 (USA)	Six-month financial education curriculum for high school students, mostly aged 17-18 in four California counties. Teachers were free to choose the frequency of courses based on the classroom necessities (N=114).	Post-test scores exhibit increases in both financial knowledge (e.g. notions about depreciation, liability insurances, impulse buying) and financial attitude (e.g. likelihood of saving money by sharing a magazine subscription with friends, sale shopping, talking about household budget with the parents, saving money on the car insurance). Minimal gender differences are found.	EASY/ TIMELY: Teach concrete, everyday life situations that are useful for their situation, e.g. saving on credit card bills or car/ motorcycle insurance as they turn the driving age.
Walstad et al., 2010 (USA)	DVD-based curriculum “Financing your future” (FYF) for high school students; five videos for six-hours over two- to four- weeks. Volunteer teachers were provided with 3-hour training. Lessons covered topics as: setting economic	Before the training, both the control group and the treatment exhibited the same level of literacy. After the training, the overall performance of FYF students rose by 19.7%, from 49.2% correct answers to 68.9% (the control group scored equal pre- and post-survey).	EASY/ ATTRACTIVE: A series of edutainment tools, such as videos, could be a valuable alternative to extensive teacher training.

	goals, investing in one's own human capital, cost and benefits of being banked and making credit, how to build a financial plan. (N=800)	The highest increases were recorded among credit card possessors and senior students (circumstance that the authors associate to their expected greater maturity).	

4.5.3 Key takeaways

From the above-mentioned literature emerged that postponing financial training until the late school years (e.g., high school senior year) is suboptimal; by then students may have already started developing poor financial habits (Borden et al., 2013). Luckily, there is evidence suggesting that delivering early financial education not only is desirable, but can as well yield high improvements in terms of cognitive and non-cognitive skills.

Consistently with the "timely" section of the EAST framework, two moments have emerged as particularly teachable: lower primary school years (Kourilsky, 1983; Schug and Hagedorn, 2005) and the last three grades of high school (Bernheim and Garret, 2001; Varcoe et al., 2005; Frisancho, 2018). On the one hand, elementary school children are found to be a malleable and receptive audience whose critical spirit can be successfully fostered; on the other hand, secondary school students prepare to make relevant intertemporal decisions as they gradually move into the labour market, stipulate a vehicle insurance or hold their first credit card; quoting Frisancho (2018), "school-based financial education is a promising avenue to improve financial literacy among older children who are soon to be adults".

Effective interventions appear to be interactive and experiential, succeeding to create an enjoyable learning experience for the audience. An effective way for achieving it is by using gamification and simulations. For instance, in the design of the household budget, students may be randomly assigned fictitious identities of a family member (Carlin and Robinson, 2012) who face both planned and unforeseen expenditures. To contain hyperbolic discounting in children, Ertac and Alan (2018) suggested to make the benefits of future payoffs vivid (e.g., requesting children to paint drawings of what they would receive should they give up immediate gratification). In order to internalize theory, students are encouraged to perform concrete tasks, such as making field visits to local banks, filling out the deposit slips, making stock market simulations, running a school bank (Sherraden et al., 2011).

Short interventions (e.g., one-day meetings, short intensive modules) appear to be more cost-effective when directly serviced by external “coaches”, specialized in the content of the modules, rather than offering teacher training (Lührmann et al., 2014). Professors themselves could, instead, find profitable to attend pre-test training before a long intervention with frequent dosage (e.g., in-class weekly sessions, semester-long curricula). Teachers be involved in the decision-making process and the selection of modules; in fact, teachers are likely to select realistic goals for their students (Harter and Harter, 2007). Should the initiative be expected to be time-intensive, consider providing incentives (e.g. a lump-sum contribution) to the teachers involved (Harter and Harter, 2007). Similarly, younger students could be rewarded with a symbolic sum (e.g. 1€) for each lesson, then encouraged to save the reward and put it into a bank account (Sherraden et al., 2011). For instance, each child could be given a piggy bank; following Schug and Hagedorn (2005), the money boxes could be conveniently divided in four slots – intended for saving, spending, investing and donating – in order to stimulate mental accounting and deferred gratification. If educators choose not to use real monetary incentives, some “classroom money” (Kourilsky, 1977) could be created instead that, once accumulated, may correspond to a reward (e.g., snacks or in-kind gifts).

4.6 Community-based FEIs

An effective financial education strategy cannot be separated from an infrastructure that promotes continuative formal and informal insights throughout the life cycle. The empirical evidence on the impact that psychological traits exert on behavior cannot be neglected; therefore, it is necessary to intervene not only to stimulate the knowledge of individuals but on their attitude towards finance as well, acting under to a logic of “lifelong learning”. The research describes "community-based FEIs" as financial literacy programs which require involvement of a civil society, often through funding collaborations with non-governmental organization, businesses and financial institutions.

In financial education, “there is no substitute for the government providing information in an independent manner” (Gale, 2010). In the absence of a capillary system of public knowledge, consumers receive most information from the financial industry. For cost-benefit considerations, public and private partnerships could be stipulated in order to convey financial information while preventing the public from covering all costs. Outside from workplaces or schools, there are two viable options for delivering community targeted FEIs. Campaigning tends to be more efficacious when the message is personalized for internally homogeneous subsets of the population. A less costly option is to spread the same message across the members of a wider community – which, however, dilutes the impact of the intervention. One of the benefits of web interventions is that both general and tailored messages can be delivered in a less costly way than in a conventional campaign. Today, a convincing strategy must take full advantage of multichannel activated at the level of educational involvement. In terms of accessibility, the online presence is a fundamental instrument of individual and collective growth with enormous potential in the field of financial education.

4.6.1 Italy

The launch of a web platform named "Quello che conta" (www.quellocheconta.it) was the pivotal initiative of the National Strategy for Financial Education 2017-2019.[43] At its design and activation, which took place in January 2018, were allocated most of the resources for the three-year period. The public portal offers guidelines on desirable and less virtuous behaviours, as well as food for thought on the cognitive biases of consumers and investors; it also provides guidance on the various active FEIs, distinguishing them according to the target audience and geographical location. CONSOB has identified the best practice in the experience of the major Anglo-Saxon countries (United Kingdom, USA, Australia), with regard to insightful content, the diversification of subjects and the various resources offered (both general orientation and specific educational themes), as well as the high degree of transparency and comprehensibility for retail investors and savers (ASSBB, 2019). "Quello che conta" is currently being improved through the economic assistance of the European Commission (in the context of the Structural Reform Support Service, or SRSS). Specifically, interactive exercises will be introduced to strengthen the segmentation of the portal users; games and simulators that will assist with financial decisions (e.g. the "investire

[43] The Committee portal sums up to the CONSOB website "Web Investor Education" (http://www.consob.it/web/investor-education).

non è un gioco" game created with the University of Trento to capitalize on mental accounting); computer and telephone apps; and video tutorials to encourage the use of new content on the website. However, no discussion on online tools should disregard considerations on the digital divide. It has decreased over the last decade: if, on average, one in two Italian households had access to the Internet at home in 2010, that figure has hit three out of four in 2019. Nevertheless, there are variations not only among regions but also among urban and rural areas; in centers with fewer than 2.000 inhabitants, for instance, 30% of households do not have an Internet connection (Istat, 2019). Predictably, the digital gap excludes (a) the elderly (just one in four adults aged 65 or older makes use of the Internet) and (b) the least educated (only 69% of those with secondary education makes use of the Internet, compared to 93% of graduates).

In 2018, October was designated the "Month of Financial Education". The Month has become a fixture with the largest number of initiatives, national and local, to raise awareness on the issues of financial education, insurance and social security. The first edition (1-31 October 2018) involved 197 entities, both public and private, which realized about 350 events in 120 Italian cities. The calendar of the second edition (1-31 October 2019) was marked by 602 appointments (+72% compared to the year of debut). As it is physiological, some regional differences persist, e.g., activities were planned and executed in all the regions of Italy, although Lombardy (143), Lazio (89) and Veneto (42) alone have hosted almost half of the initiatives. There are many ways in which financial education has been delivered: meetings, workshops, seminars, lessons, but also games, quizzes, treasure hunts, cinematic forum, theater performances. As concerns the field of edutainment, finance projects for theater or cinema are worth mentioning. An example is "Occhio alle Truffe!", a CONSOB-promoted theatrical play about the so-called "Charles Ponzi scheme".[44] From 2019 the show toured the major Italian cities; at the time of writing, the show is still itinerant, though remotely due to the Covid-19 outbreak.

For the support of the elderly, the Committee is building partnerships with Third Generation University and other organisations devoted to them (e.g. local elderly centers).

[44] Charles Ponzi is an Italian immigrant to America who, in the first decades of the XX century, carried out a fraud that has affected about 40 thousand investors and raised nearly $20 million. The money-making mechanism designed by Ponzi is still in use in online scams.

The Committee will also facilitate the incorporation of financial education into the teaching units of the Provincial Adult Education Centres (CPIA), already initiated in 2016 by Rete Italiana Istruzione degli Adulti (RIIA) and MIUR, also with a view to including vulnerable communities as migrants; by the end of 2019, almost all CPIA (97) and more than 2,200 adults as learners were involved in the initiative (Miceli, 2019). After the 2018-2019 academic year, the "Edufin Docenti" project has also been launched for CPIA teachers (23 hours of attendance and 10 hours in webinars). The Committee also intends to promote the creation of initiatives tailored for women. For example, it signed a Memorandum of Understanding with Komen Italia, an association devoted to the prevention of breast cancer, to collaborate on women's financial wellbeing, e.g. the dissemination of information material of health insurances in the care centers of Komen.

Awareness-raising programs will be conducted in favor of the general public, leveraging advertisement and broadcasting spaces (national radio and television services), regional news outlets, websites and social media. The advertising initiative, ongoing since 2018, intends to spread the visibility of the portal as well. In April 2020, Consip (the central purchasing body of the Italian public administration) launched a call for tenders for a national financial awareness information program, split into two calls, to carry out (a) marketing campaigns for the proper management of their money; and (b) a cross-media campaigns for the development of radio and TV commercials, TV and radio promotional graphics, print, social media and posters. The total value of the campaign is EUR 1 million.

4.6.2 Evidence-based best practices

Table 16. Best practices from community-based FEIs

Authors, date, country	**Intervention**	**Findings**	**EAST Best practice**
Berg and Zia, 2017 (South Africa)	Insertion of targeted messages on gambling and debt management scripted in "Scandal!", a	The follow-up surveys indicate statistically significant improvements in the treatment group:	EASY/ SOCIAL: Seek the insertion of financial education messages in the plot of popular

	popular TV soap opera in South Africa, sponsored by a large no-profit association. The storyline aired for 2 months and involved a main female character falling into a debt trap, experiencing the effects of mismanagement in her home life, and eventually developing responsible budget management skills. Follow-ups were conducted four and seven months after the end of the plot. Since preventing the control group from watching the same series is impossible, while the treatment group was given a monetary incentive to watch "Scandal!" the control group received the same incentive to watch a comparable soap opera that overlapped with "Scandal!" in primetime	4.9% increase in treatment-specific knowledge (e.g., the hidden costs of borrowing), 5.2% decrease in the likelihood of gambling, greater likelihood of borrowing through formal channels (2.8%) and, strikingly, 7.1% increase in the willingness to borrow for productive purposes (e.g., making investments, house restructuring). No variations in the understanding of financial notions external to the soap opera plot was recorded. Seven months after the storyline ended, many viewers did not recall the presence of the financial counselor who appeared in a couple of episodes; according to the authors, the short exposure to the character did not allow the audience to emotionally connect with him. Those who remember the character said they recalled	television shows is very effective. Instead of disseminating openly informative messages, media should "speak" to the audience through emotions (e.g., the emotional distress that debt holding causes to the home life). TIMELY: In the case of media campaigns, the impact is higher if the exposure to the message is prolonged; for instance, some characters (e.g., financial counselors) should be given repeated exposure in many episodes, so that the audience develops emotional connections and familiarity with them.

	(they would be asked questions about the episodes via phone call and receive $7 if they correctly answered to 3/4 questions). (N=1.031)	a strange particular: the counselor was a woman, which did not coincide with their expected representation of such worker.	
Bruhn et al. 2014 (Mexico)	Large-scale financial education course, free and 4-hour long, offered by a major financial institution for local adults who either responded to: an invitation letter from the institution, a Facebook advertisement, a screener surveys on the streets of Mexico City. Five types of incentives employed: (a) gift card of the value of $72, (b) gift card of the value of $36 (c) $36 gift card to be received a month after the course, (d) a free taxi roundtrip ride to the training location, (e) a CD video showing positive testimonies	Six months after the course, the treatment group recorded an 8.7% rise in financial knowledge, 9.5% rise in an index of saving, while no impact on borrowing behaviour. The effect could be either long- or short-lived, as after the six-month period there is no data on the effects. As concerns the incentives, the three types of monetary payments boosted attendance rates by about 10% (+114 attendants); there was no significant difference in attendance between those who got the immediate gift card and those who received the one-month deferred payment (statistically insignificant impact of the	ATTRACTIVE: Expressing interest towards financial education is rarely conducive *per se* to attending training, even when such training enjoys high reputation. People who have little interest in financial training will not attend unless they are given monetary (rather than in-kind) rewards. Time-deferred payment of rewards is equally effective as timely payments (no present bias). However, due to the possibility of a minimal impact of the courses, such rewards should be minimal.

	from previous participants (N=3.503).	present bias).. The interventions lowering transportation cost (d) and reducing information uncertainty (d) did not affect the motivation of clients.	
Doi, McKenzie and Zia, 2014 (Indonesia)	4-month long, free financial training for migrant workers and their households. The sample in the treatment was assigned three types of training interventions: (a) for the migrant only (two full days, 9h per day); (b) for the other household member (responsible for the decision-making in the absence of the household head) only (2 half days, 4h per day); (c) provided separately to both the migrant and their household member. The mean age was 41-year-old. Participants were given transportation allowances and one-	The authors find strong and statistically significant impact of the treatment on financial knowledge and awareness. On average, treated households were 10% more likely to have saved in the past six months, 11.5% more inclined to save in the following two months, 10.2% more likely to have a bank account. Intervention C (migrant plus household member) was the most effective (e.g., resulted in 9% rise in the likelihood of preparing cash records, and significant increases in an aggregate measure of budgeting and financial planning); the authors believe that the	EASY/ SOCIAL: In the definition of the target group, it is crucial to identify the head of the household; for instance, many households (in this paper, migrant households) have declared that stay-at-home women are in charge of the management of the family. The training should be participative and interactive (discussion groups, share experiences and thoughts). The theory must be applicable to day-to-day situations (e.g., examples on how to use an ATM machine or fill in a bank form).

	night accommodations in rooms in the same building as the public-owned training location. Follow-ups were conducted 6, 12 and 18 months after the intervention. (N=400)	complementarities are the reason for its success. Furthermore, many migrant households declared that the management of the household budget and routine needs was the wife, de facto making her the head of the household.	ATTRACTIVE: Give participants a take-home book with sample budgeting templates. TIMELY: Middle aged participants are generally receptive.
Federal Deposit Insurance Corporation (FDIC), 2017 (USA)	Two-year pilot program consisting of 21 geographically diverse "Youth Savings education" programs for all students of all grades (mostly 13- to 17-year-old). Lessons dealt with concrete notions such as credit management, identity theft, buying a car, or asking teenagers to perform "reality checks" (imagine their future spouse, children, salary and household budget) Banks either (a) opened a permanent branch in a school (through a memorandum of	24% of schools opted for Model A, 38% for model B and another 38% for model C. Accounts are low-cost (minimum opening and monthly balance = \$5, minimum deposit = \$1, no fees) and can be non-custodial (the minor is the sole owner) or custodial (an adult manages the account until the owner reaches the age of majority – the minor can freely make deposits, but needs the permission of the adult to make withdrawals). Mean account balances ranged greatly with the highest being \$4,005 and the smallest \$5; four banks	EASY: On-site visits increases availability and convenience for young clients and encourages saving habits. SOCIAL: Reward saving behaviours with prizes has a positive social impact on cohorts; Custodian parents are first-hand involved in how their children manage their money. ATTRACTIVE: banks are likely to open new regular accounts for the household members of participants and to build fidelity in the young customers; in turn,

	understanding with the school district), (b) organized periodic banking days or (c) simply encouraged students to visit nearby branches. (N=4.672)	had an overall balance of more than $1,000. Some banks provided encouraged account openings through (a) monetary incentives, e.g., $50 incentive for opening an account and then $25 for keeping $50 or more in the account after 6 months (Montecito Bank and Trust) or bonus coupons to be spent in local stores every (tot $) deposits (WesBanco Bank); (b) non-monetary incentives, e.g., annual pizza parties, "parent nights", distribute piggy banks. Three-quarter of banks said the program resulted in new accounts being created from family members of the treated children as well.	students get very convenient zero-fee banking accounts or are even offered bank-sponsored monetary incentives to open an account, e.g. bonus coupons to be spent in local shops strengthens community relationships.
Haynes-Bordas et al., 2008 (USA)	"Second-chance" program named "Get Checking™", organized by the no-profit NEFE, for people who were previously reported for account abuse or mismanagement.	For 22% of unbanked consumers, the reason for not having a bank account is mistrust in the financial system due to previous bad experiences. This is however suboptimal for them, as negative	EASY: Unbanked consumers should be reminded of the vital benefits stemming from good credit history (e.g., likelihood that the borrower approves a loan application).

	Consumers register and pay a fee for six-hour course; it covers topics as selecting an account that is right for the participant and managing it. If consumers passed the course, they received a certificate and the opportunity to open a checking account. Follow-ups were conducted every year for three years. (N=160)	experiences make it harder to access loans. The intervention has a significant positive impact on the management behaviours, e.g., follow-up surveys indicate that many consumers increased their transaction records, communication with the bank and started building a positive credit history. Note: Since Get Checking™ consumers are generally highly motivated, it is hard to clearly separate the effect of the course from that of the attitude.	ATTRACTIVE/ TIMELY: Financial courses can help reconciliate individuals who had previous problems with the banking system and rebuild their trust and understanding vis-à-vis financial institution. Again, middle-aged individuals are the most receptive.
Hung and Yoong, 2010 (USA)	Individual online counselling for investments portfolio, organized by the RAND Population Center and delivered to a sample of employees with defined contribution plans. The sample was either assigned to "no advice" (control group), "unsolicited advice" (default treatment	Most investors were found to under diversify, be overly aggressive or overly conservative (especially women). Unsolicited advice has no effect on investment behaviour of households. Instead, individuals who actively solicit advice (65% of the treatment group) tend to be the lowest financially literate and, by the end of	EASY: Working on motivation and the personality traits (e.g. risk aversion) of an investor is itself a form of training. ATTRACTIVE: targeting employees who are less financially literate is generally a good idea, as they are the most inclined to seek

	group) or "affirmative decision", i.e. those who actively seeked for counselling (choice treatment group). (N=618).	the counselling, showed an improvement in their financial performance.	free advices and to follow them.
Carpena et al., 2011 (India)	5-week video-based financial training for low-income and low-schooled households. Participants were stratified by neighborhood and randomly assigned to watch health videos (control group) or financial videos (treatment group). Each session lasted 2-3 hours, once a week. Participants were told in advance that they would earn compensation based on their correct answers about the topics presented. Follow-up three weeks after the treatment. (N=1.200)	From the beginning, participants knew that their compensation would be determined by their final knowledge and skills. Regardless of the incentives, financial numeracy shows no improvements – on the contrary, the videos did produce an effect on the control group; according to the authors, health notions are easier to understand than financial ones. There is a strong positive effect on the level of financial awareness and financial attitudes, e.g., respondents are 17% more likely to know the minimum requirements to open a bank account and 20% more likely to consider	EASY: Targeting low-schooled households is key in the design of community-based interventions. However, short-term training is unlikely to produce any significant effect on the population in terms of numeracy skills: they are just too hard to learn in limited amounts of time. Short-term training should focus on the attitudes, rather than the skills, of participants. ATTRACTIVE: Compensations should be calibrated on the objective of the intervention. If the effort required is high (e.g., to increase the numeracy skills of participants),

		borrowing for consumption an unproductive behaviour.	credible offers should be rather high as well.
Schreiner et al., 2002 (USA)	On average 12-hours courses matched with IDA[45] saving opportunities targeted for low-income households (e.g., self-employed women, public housing residents) organized by microenterprises organizations. (N=1.103)	The courses did increase savings for low-income households: exposing the households to between 1 and 10 hours of financial education raised their mean IDA savings by \$1.16/month for each hour; after 10 hours, additional time did not affect saving. Marital status did not affect the probability of being a saver; instead, household composition affected the amount saved (an additional adult in the household increased savings and an additional child decreased it). Findings are in line with those by Grinstein-Weiss and Schreiner (2001). Note: IDA participants tend to be highly motivated savers (Mills et al 2008)	EASY: Courses need not to be long to be effective; on the contrary, excessive length (e.g. >10 hours) may turn out to be cost-ineffective; target low-income workers who have numerous dependents; teach psychological techniques to assist attendees in managing the household budgets.

[45] IDAs (Individual Development Accounts) are matched saving accounts, typically sponsored by no-profit or governmental agencies in collaboration with financial institutions. For each $1 deposited by the IDA holder, a co-contribution (generally $1) is erogated, provided that participants undergo financial training and spend the sum for a pre-determined goal (e.g., start a business, home-purchasing, save for education or job training).

Song, 2012 (China)	Two treatments for farmer, in the form of household visits: (a) the calculation treatment: provide projections of expected benefit levels at age >60 at different levels of contribution (b) the education treatment, ie. the same treatment plus seminars on basic financial notions (N=1.104)	Neglect of compound interest is associated with poor pension payments, and teaching awareness on compound interest allows households to partly correct the mistakes: 40% rise in the mean contribution rate of the education treatment group compared to the control group.	EASY: The delivery of mathematical projections combined with teaching notions on compound interest and time preference may allow a sensible rise in pension savings for low-income households. TIMELY: Intensive training on retirement savings are most effective for poorly educated older adults.
Tisdell et al., 2011 (USA)	Mixed method research to study culturally responsive financial education practices. Financial educators responded a survey about what they perceived to be the best techniques for teaching financial notions; it followed an in-depth interview of 15 of them (N=271)	95.5% agreed that the teaching approach should be calibrated based on differences among learners (e.g., age, disabilities, socio-economic status, ethnicity). Most interviewees underlined that it is vital to intervene on how people feel around money (quoting an educator, "the dollars are not the legacy, the attitudes are the legacy!". On a scale from 1 to 5, the most effective tools are thought to be: "drawing on learner	EASY: Do not expect a single course to improve the financial behaviour of attendees altogether. Aim at improving people's emotion around money, starting from the household budget. SOCIAL: A large sample of financial educators believe that encouraging learners to share their experiences is the best-performing tool in financial education. Alternatively, educators

		experiences (M=4.2), group discussions (M=4.2), educators sharing their own stories (M=3.8), using stories featuring members of diverse groups (M=3.8)".	can share their own stories.
Maynard et al., 2012 (USA)	Website providing various types of financial literacy games, e.g.: managing a farm ("Farm Blitz"), a vampire night club ("Bite Club") or the budget of a dancing team during a tour ("Groove Nation"), helping celebrities to find their way out of debt ("Celebrity Calamity"), or doing the personification of a financial planner ("refund rush"). Sample taken from users who played the game and compiled a demographic survey. (N=11.656)	Using Google Analytics, it was estimated that, between 2009 and 2012, the games entertained the web users 260.785 times. All users navigated the website voluntarily. The return rate was 18% and the average time spent playing equaled 34 minutes. Based on a game-specific survey, players showed better skills and confidence in the financial decision-making. More than one-third of users chose Celebrity Calamity. Females play more casual games that men (63% compared to 37%). Age: 19% of users are <18, 45% of users are 18-29, 34% are 30-59 and only 2% are 60 or older.	EASY/ ATTRACTIVE: Capitalize on gamification. Aside from television, video games are an immersive and appealing medium, especially when trying to reach the audience of young adults. TIMELY: Gamification has women aged 18-29 as its key audience. Such target is optimal, because women are part of the vulnerable group and the age bridges school-based initiatives and work-place initiatives in a logic of lifelong learning.

Russell et al., 2006 (Australia)	Matched saving program (IDA) named “Saver Plus” for low-income households, lasting seven to eighteen months. 90% of the sample is composed by women aged 30-to 50-year-old. 88% of the sample joined the program for the matched saving. Follow-up three months after the end of the program. (N=268)	Prior to the program, 61% either saved nothing or saved irregularly. A key part of the program was to set a saving goal; for 77% of participants it was $1.000, the lowest target to get the maximum amount of co-contribution. By the end of the program, 59% matched their goal and 35% exceeded it; many of those who failed declared they had to face unexpected household expenditures. Three months later, 84% were still saving.	ATTRACTIVE: Delivering financial curriculum together with matched saving program (i.e., having co-contribution arrangements); beware that the matching cup does not discourage saving above that sum. SOCIAL: Publicly commit to a saving goal. People tend to conform to the saving goal of others.
Xiao et al., 2003 (USA)	Financial education program named MONEY 2000™, sponsored by Cooperative Extension systems (cooperative governmental agencies), to encourage participants to reduce the debt by, or save, a pre-determined amount of money by the end of the year 2000. Participants received	In New Jersey alone (where the program debuted), it was reported $7 millions of aggregate savings and debt reduction. According to the cost-benefit analysis carried out by the sponsors, each $1 spent on the program multiplied in $25 of benefits. According to the Transtheoretical Model of Change (TTM), a framework that was mostly used for health care	EASY: provide fact sheets on the benefits of counterconditioning, e.g. “saving $3 a day instead of buying drinks or lottery tickets saves more than $1000 a year". ATTRACTIVE: Encourage participants to make small-term commitment, e.g., “I will not go to the mall more than one a month”

	quarterly newsletters, classes, conferences, home study courses, computerized debt reduction through a program of analysis named Powerpay. People in the sample were randomly selected from those who completed an online survey. Tracking of participants every six months. (N=520)	behavioural change, financial attitudes can improve following: social-liberation and self-liberation, e.g., make public commitments and write down the saving/debt reduction goal (leverage on social norm); dramatic relief (share dramatic stories); counterconditioning, i.e. teach healthier behaviours to substitute the unhealthy practices; stimulus control: enroll in an automatic saving plan (e.g., the 401(k) in the USA) such that money is automatically deposited into a separate account (status quo).	and set non-monetary rewards for their actions, e.g., "If I do not go to the mall today, I will reward myself by listening to my favourite music and taking a long bath". SOCIAL: Arrange courses such that participants create a support group; stimulate mutuality among individuals who share a goal, share psychological arousals (e.g., how they felt when they saw their bank balance increase).

4.6.3 Key takeaways

The design of financial education programs requires the preliminary identification of the target group. In this regard, it is necessary to single out who is really in charge of the household decision-making. As it is often the case, the highest-paid member of the family do not necessarily coincide with the head of the household; it is no mystery that many women are paid less than men, yet they are often in charge of the household management and expenses.[46] This is also true for many stay-at-home women who would benefit from financial education more than working males, and would not receive workplace-based training (Doi et al., 2014). It is useful to place emphasis on measurable goals and set deadlines for their achievement, e.g., save $2.000 by the end of the year, or extinguish a debt. Possibly, such goals should be expressed in a written form and/or as a public commitment; it occurs often that participants conform to the goal stated by others (peer effect). (Xiao et al., 2003; Russell et al., 2006).

According to a large sample of financial educators, storytelling is a key determinant of success of a community-based FEI (Tisdell et al., 2011; Klontz et al., 2008; Tyler, 2009). Preferably, participants should be put into a situation in which they are at ease when speaking about their experiences. It may be difficult to achieve it, yet educators can stimulate openness by sharing their own experiences as equals to attendees (Tisdell et al., 2011). Another tip is to create group discussions in which attendants are asked how they might react to a hypothetical economic situation. Free individual counselling e.g. supplying feedbacks on the quality of portfolios, should be provided yet only if solicited (Hung and Yoon, 2010); this makes the treatment cost-effective and avoids triggering negative emotions, such as perceiving the intervention as intrusive. These findings are consistent with those of Gino (2008), who underlined that people are far more open to the advice they pay for, rather than the advice they obtain free of charge.

Needless to say, there is no such thing as a compulsory community-based initiative. It would come naturally to argue that attendance rates heavily depend on the credibility the program has vis-à-vis potential participants. However, non-compulsory FEIs usually have very low enrollment rates and even large-scale programs with high reputation may struggle to keep attendants going; Willis (2011) summarizes this as "voluntary financial education is widely available today but rarely used". To avoid the risk of immobility, incentives could be provided to participants. They should be monetary rather than in-kind, with no significant differentiation needed on whether making the payment timely or deferred (no present bias detected); in order to outweigh limited impacts, such incentives should be kept to a minimal value (Bruhn et al., 2014). Higher rewards should correspond to higher efforts required (e.g.,

[46] Although decreasing, in 2019 the gender salary gap in Italy was equal to gross EUR 2.700 (Job Pricing Observatory).

improving numeracy skills is harder than absorbing general knowledge), yet changing numeracy literacy is hard and rarely cost-effective (Carpena et al., 2011). It is rational to solicit emotions and attitudes, rather than skills. The literature demonstrates that even the best-designed intervention will not work, unless people will voluntarily follow it. For instance, voluntary bank account opening paired with financial education training sponsored by the financial institution may constitute a win-win strategy to increase awareness without imposing high costs on public resources. From the demand side, young people would benefit from low-cost, no minimum deposit, zero-fee bank accounts possibly custodial (i.e., the responsible adult has to authorize withdrawal operations); this empowers the sense of responsibility and familiarity of youngsters with financial notions, and they could be rewarded if they open the account after the training course (e.g., coupons to be used in local stores) or if they achieve pre-determined saving goals. From the supply side, such initiative is likely to stimulate fidelity and the opening of other bank accounts from other members of the household (FDIC, 2017).

At the time of the writing, most financial education initiatives are based on lectures or informational pamphlet, and most take place in a static site of learning. When it comes to community-based strategies, however, it seems plausible to test non-traditional forms of financial education. Berg and Zia (2017) found strong positive impact of an awareness campaign conducted by inserting financial literacy notions in the storyline of a popular soap opera; similarly, Maynard et al. (2012) found that advertising the use of educative video games yields improvements in the level of financial knowledge and perceived self-efficacy, especially among women aged 18- to 50-year-old. Campaigning should stimulate emotional persuasion and the effect is found to be higher when the exposure to the media stimulus is longer. In fact, according to Bertrand et al. (2010), campaigning appeals to intuitive rather than deliberative processes (the "hot" fast system rather than the "cool" decision-making, as in Metcalfe and Mischel, 1999. See: chapter 2.3). However, the impact of these initiatives is hard to capture, and indeed there is little empirical evidence in the field.

4.7 Roadmap for the construction of the empirical evidence

It shall be considered that the topic of financial literacy has recently asserted itself and has been accompanied by a strong push for the expansion of programs. However, that often occurred to the detriment of a logic of randomization in the construction of empirical evidence.[47] It is necessary to identify a practical and concise framework (upon which to establish the design), the target audience (prioritizing the vulnerable and highly receptive population), measurable goals (in terms of knowledge and skills that the audience is expected to acquire) with pre-determined time frames, and effective evaluation methodologies (allowing cost-benefits analysis and to pursue economies of scale and scope). For instance, Kraft (2019) has proposed a scheme to evaluate the cost-effectiveness and scalability of education treatments having academic scores as the key achievement (figure 24); the chromatic scale indicates from the preferred combination (dark green) to the least preferred (red). The matrix may also serve as a blueprint for other types of interventions and outcomes.

Figure 24. Scheme for interpreting effect sizes from causal studies with achievement outcomes

	Cost-Effectiveness ratio (ES/cost) Cost per pupil				**Scalability**
ES		Low (<$500)	Moderate ($500 to $4.000)	High ($4.000>)	
	Small (<.05)	Small ES/ Low cost	Small ES/ Moderate cost	Small ES/ High Cost	Easy to scale
	Medium (0.5-<.20)	Medium ES/ Low cost	Medium ES/ Moderate cost	Medium ES/ High Cost	Reasonable to scale
	Large (.20>)	High ES/ Low cost	High ES/ Moderate cost	High ES/ High Cost	Hard to scale

Source: Kraft 2019[48]

For future enquiries, a data collection approach is needed to reliably estimate the short, medium and long-term effects of financial education interventions. With regard to the institutional research, Fondazione Cariplo (2010) identifies excellent examples in the multipurpose surveys of ISTAT, the Survey on Household Income and Wealth by Banca

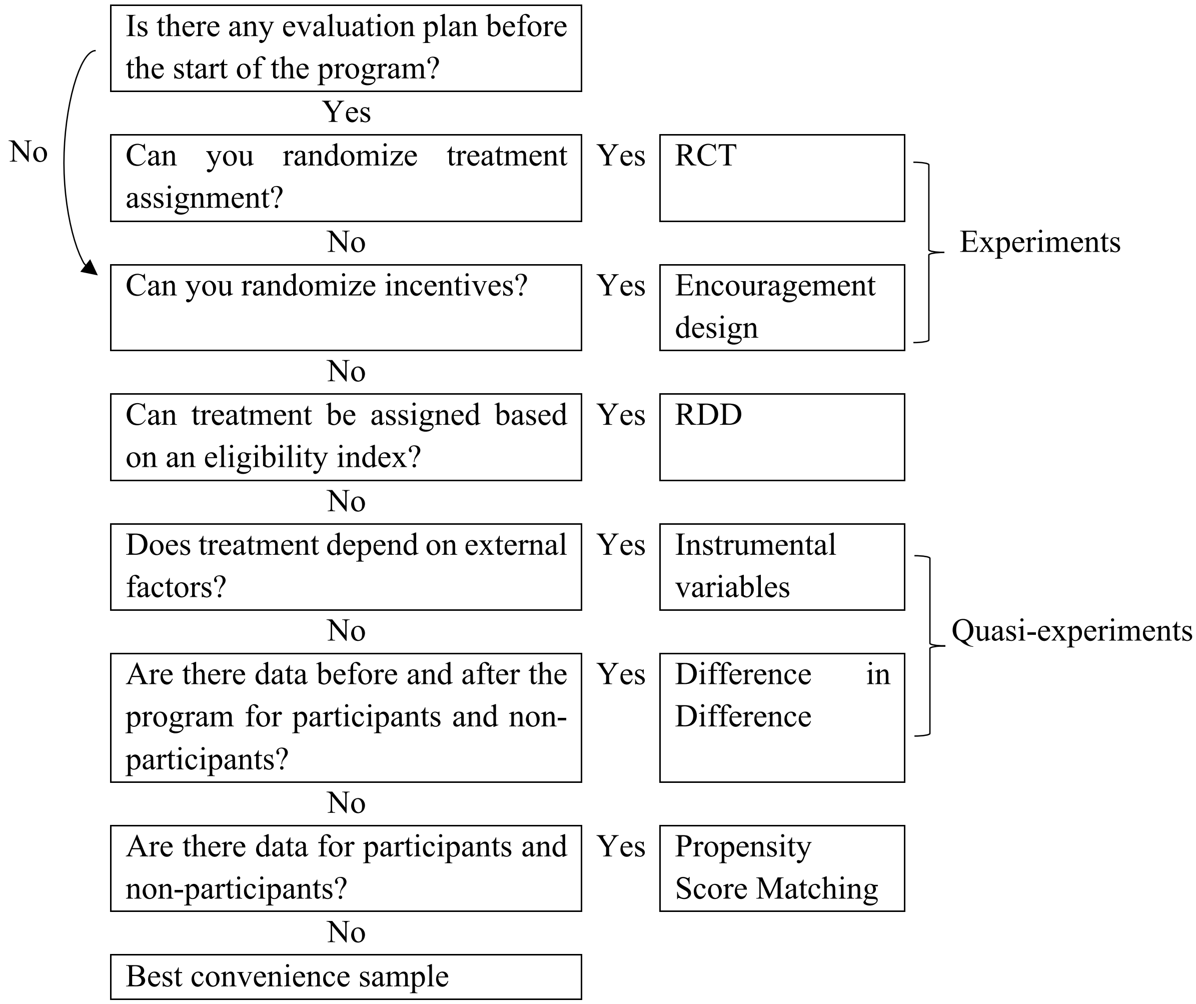
[47] A randomized evaluation of an intervention (treatment) shall be carried out by excluding from it a group of potential participants, drawn randomly (control group).

[48] ES = effect size; Cost-effectiveness-ratio = ES/costs. The scheme includes all expenditures, e.g., total cost of training, salaries, reimbursement expenses etcetera. The matrix is adaptable to intervention-specific assessments.

d'Italia, and the International Survey of European Statistics on Income and Living Conditions (EU-SILC). For instance, the Italian National Committee for Financial Education has signed a long-term partnership with ISTAT for the gatherings of future data and the tracking of improvements. Instead, even at the international level, a method for calculating knowledge and outcomes in the area of insurance is missing. The IVASS is working on a proposal to create and administer an insurance literacy exam in this regard; the results of this work can be as well employed by the Committee (Open Government, 2019). In the short horizon, a preliminary effect on the level of financial awareness can be examined via effort-related indicators (input rather than outcome indicators), summarized by such metrics: (a) public awareness of the initiative, or how many people have been reached through financial, social and insurance initiatives; (b) diffusion among the most disadvantaged groups; (c) diffusion of knowledge on the activities of the Committee.

Whereas experiments (RCTs and encouragement designs) conventionally allow making reliable estimates, it is often complicated to adopt them in the FEIs evaluation plan. A concrete example are large-scale communication initiatives, especially websites, for whose development are diffusedly allocated consistent resources. These are tools that, by their nature, do not lend themselves to robust experimental impact assessments; for instance, it is difficult – if not impossible – to randomly exclude subject groups from accessing these information channels (Fondazione Cariplo, 2010). An equivalent problem occurs when, due to the voluntary nature of participation, self-selection bias occurs; for instance, employees who attend a seminar in their company are not necessarily a randomize group. When randomization is not viable (neither for the treatment assignment nor of incentives), the second-best option is using quasi-experiments, that simulate randomness by creating control groups via econometric tools, e.g., difference in difference estimations (figure 25). It is recommended that future studies include one or two-years follow-up, in order to capture not only the persistence of the effects on the attitudes but, possibly, the effects on financial behaviour as well.

Figure 25. Decision tree for selecting impact evaluation design



Source: Yoong et al., 2013

CONCLUDING REMARKS

The inclusion of a behavioural framework in the design of financial education initiatives is a useful exercise that is likely to boost their efficacy. From the application of the EAST framework to forty-five successful FEIs emerges that interventions should be Easy, Attractive, Social and Timely. Some of the best practices identified are as follows:

(a) Easy: capitalize on the status quo bias by encouraging participants to automatically sort a percentage of the income surpluses into separate bank accounts; simplifying curricula by introducing rule-of-thumb components (e.g., mental accounting training); provide fact sheets on the benefits of counterconditioning (e.g., “saving $3 a day instead of buying drinks or lottery tickets saves more than $1000 a year"). Especially for school-based treatments, design project-related activities e.g. visiting banks, filling out the deposit slips; installing ATM in high school helps developing earlier familiarity with banking tools; whereas adults tend to prefer stand-alone subjects or specialized training, students appear to benefit from repetitive cumulative knowledge. Provide visual and multimedia support, rather than written materials, using story formats whose main characters are aged the same as the target audience; introduce an edutainment dimension via non-traditional FEIs e.g., games, role play, insertion of financial notions in television programs.

(b) Attractive: provide participants (especially adults) with the knowledge they regard as useful, by asking them directly what they would like their communities and workplace to offer. Given the non-mandatory nature of FEIs, monetary rewards are generally efficacious and sometimes the only reason people take part in the FEI at all; most volunteers use interventions only as a remedial device, which is suboptimal because voluntary attendees are those already inclined to save and, thus, the less affected by the content of the seminar (selection bias). Small monetary incentives, especially when combined with the peer effect, are likely to be cost-effective; however, effects may be short-lived, and compensation should increase as the require effort increases. Consider providing a one-on-one component where the head of the household receives customized financial consultancy from a planner, but only if such measure is solicited; search for sponsors to supply discounted services conditional on the completion of the program; deliver financial curriculum together with matched saving program (the equivalent of the U.S. IDAs). As for the initiatives targeting the young population, test incentives for both teachers (since training can be time-intensive and long as financial education is not compulsory in the school system) and students (e.g., perform classroom activities for which they are paid in classroom currency or a symbolic sum of $1 dollar for each lesson, or increase their grade in a regular school subject). There is inconclusive evidence that in-kind incentives, or those in the form of simple reimbursements, work. For a cost-effective review of the programs, it is helpful to adopt the Kraft (2019) matrix for interpreting the effect size of financial education interventions.

(c) Social: asking participants to state their commitment publicly or in a written form helps to fill the intention-action gap; if participants are encouraged to share their experiences, the educator should share his/her own as well, in order to build a pair-to-pair relationship; underly that the virtuous behaviour is already diffused (social norms); at the end of the intervention, organize short session in which participants share their thoughts, to psychologically reinforce the perception of having committed to a new financial path. For interventions targeting low-income women, repeatedly underline that financial success empowers women vis-à-vis their husbands and increases their bargaining power and contribution within the household. Create simulation games (valid especially for students) in which each participant impersonates a fictional family member who has to co-manage the household budget and deal with unexpected expenses. When it comes to media-based initiatives, the media should use storytelling to create emotional challenges with the audience, rather than disseminating explicitly informative contents.

(d) Timely: the available evidence suggests not to carry out FEIs aimed at the entire population, but instead to target specific groups and set the strategies for each of them. As a general rule, the most receptive segments of the population tend to be: middle-life workers (as they are in the wealth accumulation phase of their life-cycle), newly hired employees, unmarried women and those with more than one dependent child, people seeking for "second chances" in the financial markets (e.g., who were previously reported for account abuse or mismanagement), employees immediately close to the retirement age. Teach concrete, everyday life situations that are useful for the situation of participants, e.g. saving on credit card bills or car/ motorcycle insurance as they turn the driving age, courses on home-buying and retirement accumulation for the middle-aged audience and on budgeting for parents; provide vivid income projections for salient moments of the life-cycle.

It is necessary that the NSFE initiatives are articulated and conducted in continuity under a lifelong learning perspective; the Committee should enjoy reliable and constant financing, including those stemming from eventual synergies between public and private providers; the monitoring should be based on pre-determined benchmarks, taking into account that the most reliable tool of impact evaluation, the RCT, is often the less viable due to self-selection biases and time and resource constraints. Financial education shall be cultivated under a long-term perspective, in order to invigorate the financial wellbeing of the Italian households and, in turn, of the society at large.

APPENDIXES

A. List of Abbreviations

AFA	American Financial Association
AIDAF	Associazione Italiana delle Aziende Familiari
ASSBB	Associazione per lo Sviluppo degli Studi di Banca e Borsa
BCW	Behaviour Change Wheel
BIT	Behavioural Insight Team
BLCH	Behavioural Life-Cycle Hypothesis
BOI	Banca d’Italia
COM-B	“Capability, Opportunity, Motivation, Behaviour” framework
CONSOB	Commissione nazionale per le società e la Borsa
COVIP	Commissione di Vigilanza sui Fondi Pensione
CPIA	Centri Provinciali per l'Istruzione degli adulti
EAST	“Easy, Attractive, Social, Timely” framework
ECB	European Central Bank
FEI	Financial Education Initiative
FEDUF	Fondazione per l'Educazione Finanziaria e al Risparmio
GFLEC	Global Financial Literacy Excellence Center
HFCS	Household Finance and Consumption Survey
HMR	Household Main Residence
IDA	Individual Development Account
ILO	International Labour Organization
IOSCO	International Organization of Securities Commissions
INAIL	Istituto Nazionale per l'Assicurazione contro gli Infortuni sul Lavoro
ISTAT	Istituto Nazionale di Statistica
IVASS	Istituto per la Vigilanza sulle Assicurazioni
LC/PIH	Lifecycle/Permanent Income Hypothesis
MEF	Ministero dell’Economia e della Finanza
MISE	Ministero dello Sviluppo Economico
MIUR	Ministero dell’Istruzione, dell’Università e della Ricerca
MPT	Modern Portfolio Theory
NEET	Neither in Employment nor in Education or Training

NSFE	National Strategy for Financial Education
SME	Small-Medium Enterprise
SP/A	Security-Potential/Aspiration Theory
OECD	Organization for Economic Co-operation and Development
OECD/INFE	International Network on Financial Education
OECD/PISA	International Student Assessment Programme
RCT	Randomized Control Trial
RDD	Regression Discontinuity Design
RIIA	Rete Italiana Istruzione degli Adulti
U.K.	United Kingdom
UNECE	United Nations Economic Commission for Europe
USA	United States of America

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ABSTRACT

This work aims at understanding how behaviorally informed financial education strategies can be employed to augment financial literacy scores. The research question addresses the extent to which is possible to intervene on the design of financial education initiatives (FEIs) in order to deliver higher financial literacy scores (the dependent variable), with particular reference being made to (a) workplace-based FEIs, (b) school-based FEIs and (c) community-based FEIs. The vision of reality is interpretivism, the reasoning is deductive, and the two main theoretical paradigms are behavioralism (the dominant lens) and functionalism. The case study, Italy, has been selected by virtue of its peculiar traits: compared to the other OECD Countries, Italy exhibits lower financial literacy scores and diffused household vulnerability. At the same time, it was no earlier than 2017 that a National Committee for Financial Education was put in place to coordinate public and private strategies. Concretely, the study extracts operative insights that are applicable in Italy, based on the OECD recommendations, the stated mission of the relatively newborn National Committee for Financial Education, and country-specific priorities.

Chapter One

The dissertation starts with a state of the art about the neoclassical theories salient to household finance. It analyzes both:

(a) Saving Models: Browning and Crossley's "life-cycle framework" (2001) provides a sophisticated synthesis of the LC/PIH model (Modigliani and Brumberg, 1954; Friedman, 1957), Deaton's hypothesis (2005), and the buffer-stock savings model (Carroll, 1997);

(b) Investment models: the Modern Portfolio Theory (Markowitz, 1952) stipulates that, by weighting potential risks and expected returns, investors are able to discern their preferred portfolio that is close to the efficiency frontier and, ideally, overlaps with it.

Secondly, household trends are presented in both the EU and in Italy, with a specific focus on territorial patterns in the Italian peninsula. Data shows that, on the one hand, the number of households has risen; on the other hand, the number of their members has faced a contraction. Compared to the eurozone average, Italian heads of household have lower shares of secondary and post-secondary education. Overall, the net wealth of Italian households

remains higher than the Euro-zone, but it grows at significantly lower rates compared to the euro area average. The saving rate, at around 10%, confirms the stable trend of the past five years and is lower than the value recorded in the EU-28 area. As concerns how wealth is invested, the absolute majority of Italian households records a preference for real assets, mostly residential properties, that are suffering from the contraction in the real estate markets that has been in place since 2012. Finally, territorial differences are detrimental to the Mezzogiorno area, where the unemployment rate is twice as high as in the rest of Italy.

Chapter Two

In the second chapter, the two main theoretical frameworks of referral (the LC/PIH model and the modern theory of portfolio allocation) are enriched with earlier findings from behavioural finance; first, both the behavioural life-cycle model and the behavioural theory of portfolio allocation are presented. It emerges that:

(a) Saving models: consistently with Shefrin and Thaler's behavioral life cycle hypothesis (1988), the trade-off between saving and consumption is an inner struggle between two contradictory personalities: the "planner" and the "doer", whose dynamic inconsistency explains many patterns of undersaving and overconsumption;

(b) Investment models: Shefrin & Statman's behavioural portfolio theory (1984) provides a realistic alternative to the Markowitz model. MPT investors pick a portfolio by taking into account the expected returns in relation to the expected risks; BPT investors pick a portfolio by considering the expected returns in relation to their individual aspirations. Furthermore, ordinary people are hesitant to isolate their roles as investors (that requires consideration of the practical reward from the investment) from their roles as consumers (that computes the emotional benefits of the commodities they purchase).

Three cognitive biases are then eviscerated and, for each of them, specificities about their diffusion among Italian households is presented:

(a) Mental accounting: The attitude towards mental accounting of Italian households was found to be positively correlated with socio-demographic traits such as age, financial wealth, income, home ownership, living in Northern Italy; and personal traits such as self-efficacy and optimism. It is very common among head of households who are retired, widowed/divorced and, in general, households relying on a single income.

(b) Procrastination: Throughout the vital arc, inertia is hump-shaped and positively correlated to the socio-economic status of the household. In Italy, only one household in three holds a financial plan, and less than half of them is committed to monitoring it. Of those households that do not plan, 20% recognize the necessity of planning but do not feel prepared to change their habits in the short term (status quo bias). The inclination towards procrastination is prevalent among men who live in Southern Italy and the self-employed; it is negatively correlated with self-efficacy, optimism and trust in financial intermediaries, and increases with financial anxiety. Head of households who share the decision-making with a partner record lower levels of procrastination.

(c) Loss aversion: it appears to be strongly influenced by the gender of the investor, with women typically being more loss averse and, at the same time, suffering less from the effects of overconfidence. Loss aversion is very diffused in Italy: two-thirds of households claim to be reluctant to invest in an asset that presents even a small risk of capital loss. Of the EUR 4 287 billion in financial wealth owned by Italian households, as many as EUR 1 371 billion are immobilized in bank accounts. The fallacy is associated is typically accompanied by some factors of vulnerability such as old age (the bias peaks in the category of the retired), single-income households and marital status.

Chapter Three

Moving to the third chapter, the research expands and covers both formal and operative definitions of financial literacy and cross-country comparisons are provided. In particular, the "Big Three" questionnaire by Lusardi and Mitchell (2004) evaluates the knowledge of three tools for financial decision-making that are both essential and universal: numeracy, inflation and risk diversification. The OECD/INFE Framework furthers the scope of the "big three" model, and proposes specific situations to which respondents can easily relate. The questionnaire tests knowledge, behaviour; and attitudes. The socio-demographic features of the Italian population partly clarify the gap with other G20 countries and, importantly, formal schooling is a major indicator of financial literacy – with the average level of knowledge being 4 for university graduates, and 2 for the lowest schooled. For Centro Luigi Einaudi (2017), at the same level of education and type of job women are 10% less likely to respond correctly to the three questions than their male peers. On average, people living in Northern and Centre Italy are more financially literate. Some studies, such as IACOFI (2017), indicate a humped profile of financial knowledge, i.e. rising up 40-50 years and then declining.

When it comes to the design of FEIs, there is a range of outlets from which information can be gained, all at differing standards of accuracy or reliability; these include formal schooling, workshops and out-of-school lessons, as well as informal channels. In-depth research has attempted to investigate the relevance of this causal relation (knowledge-skills-behaviour) with inconclusive findings. Some reports indicate a positive correlation between financial education and: (a) age of retirement readiness and accumulation of sufficient backup saving (Lusardi and Mitchell 2007, 2011; Almenberg and Save-Söderberg, 2011; Fornero and Monticone 2011; Van Roiji et al., 2012); (b) involvement in the capital market (Van Rooij, et al., 2011; Almenberg and Dreber, 2015); (c) a higher overall return on financial assets and a lower level of debt (Thorne e Porter, 2007; Hastings and Mitchell 2010, 2011). Notwithstanding these significant correlations, there is conflicting evidence on the causal impact of financial education on either financial literacy or real behaviour partially due to heuristics and biases (Cole et al., 2012; Gale and Levine, 2010).

The underlying problem is why, in the face of unclear gains, the community still bears costs, sometimes high, for these programs. The explanations may be different, but they are largely due to the fact that, if they were effective, interventions might produce very high returns for society. If successful, financial education programs could help to reduce the number of financial disputes, with benefits in terms of the cost of civil justice; they could facilitate the step towards complementary pension schemes and informed economic decisions could lessen the burden of support measures. Additionally, lowering the emotional stress arising from financial pressure can lead to lower health costs (British Journal of Psychiatry, 2003). Knowledgeable customers create demand for new services and products, resulting in increased innovation and quality of supply (Chionsini and Trifilidis, 2010). Finally, financial culture generates positive externalities at the macro-economic level; financial knowledge is a proxy for a deeper understanding of economic policy choices, with virtuous consequences in terms of sustainability of public finances (Murtinu et al., 2017), it facilitates the resilience of the financial system and reduces inequalities among investors (Lo Prete 2013).

Ultimately, the literature seems to indicate that the heart of the matter is not whether or not FEIs are effective, because it is known that they might not be efficient. As in other areas of policymaking, the success of financial education programs depends on how they are executed, that is, on the degree to which they can leverage the emotional variables that influence human decision-making. Chapter three concludes that financial literacy should be a priority item in the agenda of policymakers, as it can have positive spillover effects not only on those who personally benefit from it, but also on their households components and for the society at large.

Chapter Four

Finally, through a qualitative document analysis, the fourth chapter identifies operative best practices to enhance financial literacy by intervening on the design of FEIs. The selected timeframe is from 1977 to 2018. These years are chosen because, by the second half of the 1970s, most advancements in behavioural science were made. Starting from FEIs that are currently in place or the design phase in Italy, it is performed a study of forty-five policies that had a positive, statistically significant impact on financial knowledge and skills. Each finding is then integrated within a mnemonic behavioural framework named "EAST”. For more detailed information on the methodology, and the limitations of the research, see chapter 4.1. The data corpus consists of forty-five interventions with a total sample size of over 130.000 observations, that are subdivided according to the target audience into three categories: (a) workplace-based initiatives (targeting employees); (b) school-based initiatives (targeting all school grades); and (c) community-based initiatives (targeting the members of the society under a logic of lifelong learning, with priority being given to vulnerable groups).

In the aftermath of the 2008 financial crisis, the OECD has encouraged the establishment of National Strategies for Financial Education (NSFEs). The Italian MEF, in agreement with the MIUR, has adopted a NSFE in 2017. In order to enforce this strategy, a “National Committee for the Planning and Coordination of Financial Education” in August 2017. In Italy, FEIs should be designed to steer citizens towards less conservative choices (because Italian households are loss averse), to consolidate their propensity to save (currently stable but deteriorated since 2008) and to point up the long-term decision-making.

As for the behavioural frameworks applicable, four of them are presented. These are

(a) The COM-B (Michie, Stralen and West, 2011), a generic model that takes into account three minimal factors for behavioural change: capability, opportunity and motivation.

(b) The Behaviour Change Wheel (Michie et al., 2011), which creates is more rigorous and sophisticated alternative to the COM-B. However, both models are resource- and time-intensive, especially for policymakers using them for the first time.

(d) The MINDSPACE (BIT, 2010), which is a mnemonic checklist of nine sources of behaviour upon which policies should be built or reshaped.

(e) The EAST (BIT, 2012), a simplified version of the MINDSPACE. Based on the EAST, policies shall be made "Easy, Attractive, Social and Timely".

The analysis of FEIs is then subdivided into:

(a) Workplace-based FEIs: In Italy, the EduFin Committee is committed at carrying out workplace-based financial education initiatives in collaboration with INPS, INAIL, CONSOB, Federterziario, other occupational funds and the Ministries (MIUR, MEF, MISE). The 2017-2019 "National Strategy for financial education" identifies micro-entrepreneurs as privileged beneficiaries of awareness strategies.

    The analysis concludes that workplace-based FEIs should provide employees with information they find useful; the easiest and most effective way to do so it by asking them what courses they would like their company to offer (Lusardi et al., 2009). At the same cost, general-content courses are less effective than those targeted and customized. One-on-one meetings with financial planners may yield significant success (Edmiston et al., 2009). Effective programs should also attempt to teach mental accounting techniques and rule-of-thumb practices (Drexler et al., 2014). Consistently with the LC/PIH, there are three moments in which employees are especially inclined to internalize financial notions: the start of a new job, middle-life and immediately before retirement. Small monetary incentives may significantly improve workers participation (Duflo and Saez, 2003). There is lesser positive evidence that in-kind incentives, or reimbursements, work.

(b) School-based FEIs: the fear of being financially unprepared is widespread among young people: 42% among the millennials and 26% among the baby boomers (Blackrock, 2018). Various initiatives by the Committee, Feduf and BOI are already in place for young people and, from 2019 financial education integrates the civil education curriculum.

    From the analysis emerged that postponing financial training until the late school years is suboptimal because, by then, students may have already started developing poor financial habits (Borden et al., 2013). Two moments are particularly teachable: lower primary school years (when the audience is receptive and malleable) and the last three grades of high school (when students gradually move into the labour market, stipulate a vehicle insurance or hold their first credit card). Effective interventions appear to be interactive and experiential, e.g., by using gamification and simulations. In order to internalize theory, students are encouraged to perform concrete tasks, such as making field visits to local banks, filling out the deposit slips, making stock market simulations, running a school bank (Sherraden et al., 2011). Short interventions appear to be more cost-effective when directly serviced by external "coaches", specialized in the content of the modules, rather than offering teacher training (Lührmann et al., 2014). Teachers should be involved in the selection of modules and, should the initiative be expected to be time-intensive, they may be provided with incentives e.g. via a lump-sum contribution (Harter and Harter, 2007). Similarly, younger students could be rewarded with a symbolic sum for each lesson, then encouraged to save the reward or put it into a bank account. For instance, each child could be given a piggy bank divided in slots (to stimulate mental accounting) and "classroom money" (Kourilsky, 1977) could substitute real money.

(c) Community-based FEIs. In Italy, the launch of a web platform named "Quello che conta" was the pivotal initiative of the 2017-2019 NSFE; the portal offers food for thought on the cognitive biases and guidance on the active FEIs; finally, simulation games are currently been added to it. In 2018, October was designated the "Month of Financial Education". Awareness-raising programs conducted in favor of the general public, leverage advertisement and broadcasting spaces, websites and social media.

The key take-aways from the behavioural analysis are as follows: first, the design of programs requires to single out who is really in charge of the household decision-making; as it is often the case, the highest-paid member of the family do not necessarily coincide with the head of the household; this is true for many stay-at-home women who would not receive workplace-based training (Doi et al., 2014). It is useful to place emphasis on measurable goals and set deadlines for their achievement, e.g., save $2.000 by the end of the year, or extinguish a debt. Possibly, such goals should be expressed in a written form and/or as a public commitment, and it occurs often that participants conform to the goal stated by others (peer effect). Storytelling is a key determinant of success of a community-based FEI (Tisdell et al., 2011; Klontz et al., 2008; Tyler, 2009); a tip is to create group discussions in which attendants are asked how they might react to a hypothetical economic situation. Free individual counselling should be provided yet only if solicited (Hung and Yoon, 2010). Since there is no such thing as a compulsory community-based initiative, monetary (rather than in-kind) incentives could be provided to participants, with no significant differentiation needed on whether making the payment timely or deferred, and higher rewards should correspond to higher efforts required (improving numeracy skills is harder than absorbing general knowledge). Furthermore, voluntary bank account opening paired with financial education training sponsored by the financial institution may constitute a win-win strategy. Berg and Zia (2017) found strong positive impact of an awareness campaign conducted by inserting financial literacy notions in the storyline of a popular soap opera; similarly, Maynard et al. (2012) found that advertising the use of educative video games yields improvements in perceived self-efficacy, especially among women aged 18- to 50-year-old. It is rational to solicit emotions and attitudes, rather than skills; according to Bertrand et al. (2010), campaigning appeals to intuitive rather than deliberative processes (the “hot” rather than the “cool” decision-making).

The last section offers a chromatic scheme, proposed by Kraft (2019), to evaluate the cost-effectiveness and scalability of education treatments having academic scores as the key achievement; due to its flexibility, the matrix may serve as a blueprint for the future design of FEIs.

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