USING DEBIASING TECHNIQUES TO IMPROVE FINANCIAL BEHAVIOR

Alin ISTOCESCU

Ph. D candidate, National Institute for Economic Research "Costin C. Kirițescu",
alin.istocescu@gmail.com

Abstract: *To overcome the systematic biases and environmental traps identified by behavioral economists, there was a need of finding the so-called debiasing techniques, including techniques focused on the individuals and the environment, and this paper offers recommendations for improving the impact of financial education programs in the life of people. This paper shows the negative effects that behavioral biases have on human life and how the consequences of those biases can be mitigated with the use of debiasing techniques.*

Keywords: *financial education; behavioral economics; budgeting; behavioral biases*

JEL Classification: *A20, G4.*

1. INTRODUCTION TO DEBIASING TECHNIQUES

The debiasing techniques signify the acting against mitigating or eliminating the negative effects of behavioral biases on the individual decision-making process. At this point, it is still debated if these strategies influence singular decisions or if they can modify the thought process as a whole in the long term.

The literature shows that behavioral biases come from making judgment errors, and as such, there are two approaches on how these can be stopped. It can be done either from an individual perspective or from the decision environment point of view.

The first approach consists of providing knowledge that allows consumers and investors to think more in-depth and more effectively about financial issues and make more informed decisions, as well as teaching to use their minds in order to avoid behavioral barriers. The participants' capability of evaluating probabilities can be improved by using various teaching methods in various forms: learning by doing, making simulations of real-life scenarios or lessons done outside a classroom (visits to a bank, etc).

The most effective way of helping people improve their decision-making process is by educating them on what is wrong and not. It is expected that individuals will employ the learned knowledge (such as compound interest, inflation, and diversification of investment portfolio) instead of heuristics and hence avoid biases.

Improving numeracy and logic skills is also important since there is a tight link between poor math skills and proness to decision errors, such as the ones caused by the framing effect (where people decide on things based on whether they are presented with positive or negative coutset - as a loss or as a win), ratio bias (the tendency of individuals to judge probabilities expressed as ratios of large numbers as more likely than equivalent or even higher probabilities expressed as a ratio of small numbers), and misunderstanding of downside financial risk.

The use of quantitative models can represent a very good tool to change the way people make their decisions. They could also be used to elaborate forecasts based on existing data and to mitigate behavioral biases. Institutions should first think through, assess and find out the low cognitive levels of the target audience, and work on segmentation as well; that way the customization of programs and optimization of efforts could happen more swiftly and without encountering serious problems.

On the other hand, it is difficult to enable learners to identify the situations to apply the acquired knowledge and motivate them to do so. Research has shown that teaching decision rules with brief training and concrete examples can help individuals apply economic concepts such as sunk costs and opportunity costs in decision tests. Studies have shown that teaching rules of the decision-making process as well as implementing them in daily lives, together with applied training and real-life case scenarios could be a way to actually allow individuals to learn about various financial and economic concepts.

But challenges could still appear. People attending those courses could turn out to be difficult to work with and so they might not be interested in acquiring knowledge. Thus, institutions that run these types of courses must find ways to incentivize them to work harder in achieving the desired goals. Literature and research have shown that if people are taught and trained to make better decisions while being provided with concrete real-life examples, it could be helpful for them when applying basic economic concepts like sunk and opportunity costs in situations where they have to act positively.

Several experiments have been conducted by researchers in the psychological sciences field to test debiasing strategies meant to lower the levels of narrow thinking by encouraging people to look at a problem or a situation using a different approach. For example, they could first identify all the everything that needs to be accomplished.

If looking at the objectives one at a time instead of all-at-once, decision-makers will be able to have more options to choose from and better the chance of a healthy approach. To be able to keep overconfidence and confirmation biases at minimal levels, they can take the time to consider why they might be overestimating their chances of success in a particular task or prediction.

They may also apply the prospective hindsight technique (i.e., to project themselves into the future, assume a failure scenario, and analyze the possible cause). This is useful in identifying potential causal paths that do not come to mind in foresight.

The second approach wants to change the environment in which the decisions are being made. This happens as a catalyst from changing behaviors and for people to better reason with certain situations where they have to make important decisions. This approach creates scenarios where behavioral biases become void or can even provide good financial outcomes.

Institutions can come up with financial or non-financial ways of incentivizing the people; they can build up environments in such ways to suggest making wise and smart decisions and actions. This is called choice architecture.

Financial incentives are the traditional means of changing the decision environment and governments frequently use financial incentives, such as subsidies, fines, and bonuses to encourage wise choices or stop undesirable behaviors.

Matching employee contributions is a widely used monetary incentive to foster retirement savings, along with automatic enrolment. Prize-linked savings (PLS) pool interest into a prize fund that creates an additional monetary incentive to encourage saving. PLS is typically a savings product that offers chances to win cash prizes and becomes a commitment mechanism that prevents hyperbolic discounting bias, by helping savers to place more importance on the future when they consider the possibility of obtaining prizes and counterbalance immediate gratification.

There are some workplaces where matching employee contributions is a mechanism used to create an incentive for people to think about retirement savings. These programs are called prize-

linked savings and are used to offer chances to win financial prizes and it somewhat becomes a mechanism that prevents the hyperbolic discounting bias (where people think about the future being more important rather than immediate gratification).

Policy-makers can also provide non-financial incentives, including accountability, new information about financial products, and pointing out social norms to decision-makers.

Accountability and peer pressure were success factors identified in two experiments designed to improve group saving behavior. Institutions may, however, encounter restrictions or dangers when trying to apply these techniques to financial literacy programs, such as budget constraints (in case of giving monetary incentives), risk of 'backfiring', or risk of information overload.

Choice architecture offers an alternative approach. It shows that people usually make irrational and inconsistent choices. Thus it focuses on more automatic processes of judgment and influence, "changing behavior without changing minds".

Choice architecture interventions are designed to offer choices or alter the decision process to influence behavior for good (to promote decisions that enhance one's overall well-being), without prohibiting any option or significantly changing their economic incentives. These interventions are usually simple, easy to avoid, and often called "nudges", a term coined by Nobel Prize recipient, Richard Thaler.

Nudges are an attractive instrument for public policy since they keep citizens' freedom of choice and can offer rapid results at a relatively low cost. If they are applied to financial education, nudges can be used to encourage good financial behaviors such as saving money and investing wisely. It is possible to combine cognitive approaches (based on changing minds through education, information, regulation, taxes, subsidies, etc.) and such choice architecture interventions to achieve behavior change more effectively.

The most studied and analyzed choice architecture intervention in personal finance is the automatic enrollment, which takes advantage of the participants' inertia (path of least resistance) and procrastination to increase participation in retirement saving plans.

Automatic enrollment is the most well-known and researched choice architecture intervention in behavioral finance. It somewhat uses the participants' inertia, which is called the path of least resistance, in its favor while also using procrastination for increased participation in retirement saving plans.

In the case of company-designed plans, as few employees opt out of default options, the predefined saving rates and investment funds should be carefully set. For example, low initial rates can result in insufficient savings, and default contributions to the employer's stock may lack diversification.

In order to not avoid financial sacrifice and for savings to be more acceptable, people can also use a part of their salary apriori for retirement, and this could provide higher levels of savings.

Field experiments have successfully tackled behavioral biases impeding the saving behavior of low-income groups. Methods to cope with present bias comprise the use of hard commitment devices, such as economic penalties for failure or rewards for success, and soft commitment strategies, which have psychological consequences, e.g., the feeling of guilt or loss when withdrawing funds from a lockbox.

Research and studies have successfully stopped some behavioral biases that stood in the way of healthy financial behavior in low-income target groups. There had been two ways of looking at this challenge. The first one used harsher commitment points, such as financial restrictions when it came to failure or rewards in the case of a successful scenario. The kinder approach used a psychological trick and the exploitation of feelings of guilt or loss when withdrawing funds from a savings account for example.

Mental accounting mechanisms, such as earmarking savings for emergency health expenditures or a future acquisition and social pressure to make deposits in a group setting, are also effective to overcome savings barriers.

Mental accounting can also be used in these types of situations. People could be incentives to save for emergency health situations or postpone present spending for the future. Social and peer pressure (friends and family) can be used to incentivize people to make deposits as a group. These situations could prove effective in overcoming behavioral barriers when saving.

Financial education programs can teach personal discipline strategies, such as having personal credit limits. Another possible intervention is to commit future salary raises to debt decrease.

An environment modification that increases the chances of achieving behavioral change is providing opportunities for participants to immediately act during or after a financial education program. When these opportunities are offered with fewer hassle factors, they help participants avoid procrastination and take actions such as opening a savings account or enrolling in a retirement savings plan.

If these programs come as simple and as clean as possible, they can help attendees to avoid procrastination and start taking actions to improve their savings behavior and, ultimately, their whole lives.

2. HOW CAN FINANCIAL EDUCATION PROGRAMS USE BEHAVIORAL ECONOMICS?

Below there are a few recommendations for improving the impact of financial education on people's behavior. To begin with, financial education programs should be designed in a way that incentivizes take up and completion, since people who most need to change their financial behavior will typically be the ones who show less interest in financial education.

Moreover, the financial education contents and delivery methods should be carefully selected to be adequate to the target group and to maximize knowledge retention. Finally, financial education programs should include follow-up strategies that will help to sustain positive behavioral change over time.

- Timing is key and the way the program is marketed and presented matter;
- Programs should focus on people's irrational behavior, as well as on the fact that they might now know how low or high their financial knowledge level is;
- Using social and peer preferences may increase the appeal and take-up of programs.
- Course material should be as fresh, interesting and as tailored for the attendees' needs as possible;
- Programs should have clear priorities set in order to see who the intended target groups are, as well as identifying their needs and preferences;
- Make the course environment as supportive and as inclusive as possible;
- Financial education programs should be linked to concrete actions;
- A list of negative behavioral traits should exist just to make the decision process smoother;
- Individuals who are self-aware of their likelihood for procrastination could be educated about the availability of commitment devices for themselves, while those who are more susceptible to overconfidence or emotions could be taught to impose breaks between purchases and thinking thoroughly about each decision one makes. More directly, participants could be required to say what behavioral traits they want changed and their progress could then be tracked;

- Real life scenarios could be used as a way to change behaviors. Actual group meetings to monitor and encourage progress may be most useful, particularly in settings where community norms are important.

Having the above behavioral barriers in mind, a financial education program can be piloted to test the effectiveness of three approaches:

- Teaching rules of thumb rather than, or in addition to, focusing on knowledge of financial concepts;
- Make the program experiential, thus shifting the focus from knowledge to behavior, increase the relevance of the curriculum and provide the opportunity to practice the skill being learned;
- Probably the most important approach is that financial education should be well-timed, which means that building upon some basic level of financial education (financial education that should be taught very early in life, starting from kindergarten, age 4-5), with key learning that should be reinforced at teachable moments intervals in life, when one is about to make important financial decisions.

In order to test the strategies and recommendations to overcome systematic biases, a table showing how to integrate behavioral insight into budgeting and the importance of building up of savings.

It was based on mapping the key biases that influence people's behavior towards budgeting, identify the likely consequences of these behaviors as well as possible activities which could contribute to overcome these biases through financial education. The biases that were found interesting for the study, as well as important are listed below and the outcome of the exercise is summarized in Table 1.

Table 1. Behavioral barriers that appear in the budgeting process. Possible consequences and ways to improve financial habits

Budgeting process phases	Typical behavior occurring during budgeting phases	Biases	Possible consequences	Scenarios for trainers	Objectives for improvement
Pre-budgeting phase	Not understating the need for drafting a budget and documenting income and expenses	1. Overconfidence 2. Limited attention 3. Illusion of being in control	Permanent struggle to have enough money for the whole month.	Present statistics about the consequences of not budgeting and real-life examples which people can relate with	Understanding that a budget is a powerful tool to help overcome behavior biases
	Fear of being restricted by having to follow a budget	1. Limited attention 2. Subjective validation 3. Ostrich effect 4. Overconfidence	Impossibility to get out of the vicious cycle of spending chaotically		

Budgeting phase	Confusing wants with needs	1. Emotions and affect 2. Social and peer pressure 3. Restraint bias 4. Overconfidence 5. Illusion of validity 6. Illusion of control 7. Subjective validation 8. Survivorship bias	Might end spending more on unnecessary things or addictions (coffee, tobacco, alcohol, gambling, etc) and thus run out of money for house mortgage, car lease, gasoline, utility bills, and food.	Present a slide to illustrate needs and wants, with needs written with green and wants with red (like a streetlight).	Separate primary expenses and allocate a lower percentage of the monthly budget for things that are not necessary.
	Underestimating monthly expenses	1. Mental accounting 2. Limited attention 3. Illusion of being in control 4. Overconfidence	Not being able to keep up with bills, expenses, experiencing mental frustration, emotional breakdowns, borrowing money from friends, or excessive usage of credit cards.	3-6 months test to confront mental estimation of monthly expenditures with actual spending	Gradually correct one's expectations about monthly expenses
	Non-realistic goals	1. Overconfidence 2. Illusion of being in control 3. Choice-supportive bias	Having consumption patterns that are beyond your reach (expensive cars or houses) Borrow money from friends or family, using credit cards to finance these expenses	Trainers can present cases of people who went bankrupt because of bad decisions and were forced to downgrade their lifestyles.	Raise awareness to live according to your income
	Not taking unexpected events into account	4. Overconfidence 5. Choice-supportive bias 6. Illusion of validity 7. Normalcy bias 8. Ostrich effect	In the unfortunate event of getting involved into an accident, having a stroke, getting an illness that requires periodic treatment the individual has to spend more money on getting healed/cured, on medicine or on hospital bills.	Present real cases where people had experienced an accident or some kind of illness and emphasize on the necessity of having an emergency fund / saving for unplanned or unexpected events.	Create a safety net to help overcome unexpected scenarios

Post-budgeting phase	Difficulty in staying committed to the budget	1. Procrastination 2. Overconfidence 3. Illusion of being in control 4. Impact bias	After drafting a budget, the individual is unable to follow and to stay committed to it for longer periods of time.	1. Invite past trainees to share their experiences about how budgeting helped improve their lives and what staying committed every month meant to them. 2. Invite present trainees to establish step by step goals immediately after drafting the budget and to follow each phase of the process accordingly. 3. Create follow-up sessions to see how the trainees are sticking to the plan, if they have difficulties or challenges in following it and try assessing and resolving them.	1. Reevaluate each step of the budgeting process to see how one managed to budget properly and commit to those steps every month through self-motivation, discipline and hard work. 2. If all monthly objectives were 100% fulfilled, one can allocate a certain sum of money (as a prize, as a self-reward) to spend it on anything. 3. Take part in group meetings with people who have done budgeting activities in the past and still do it in the present.

- Choice-supportive bias - The tendency to remember one's choices as better than they actually were.
- Illusion of control - The tendency to overestimate one's degree of influence over other external events.
- Illusion of validity - Believing that one's judgments are accurate, especially when available information is consistent or inter-correlated.
- Impact bias - The tendency to overestimate the length or the intensity of the impact of future feeling states.
- Normalcy bias - The refusal to plan for, or react to, a disaster that has never happened before.
- Ostrich effect- Ignoring an obvious (negative) situation.
- Restraint bias - The tendency to overestimate one's ability to show restraint in the face of temptation.
- Subjective validation - Perception that something is true if a subject's belief demands it to be true. Also assigns perceived connections between coincidences.
- Survivorship bias - Concentrating on the people or things that "survived" some process and inadvertently overlooking those that did not because of their lack of visibility.
- Overconfidence bias - the tendency to overestimate our abilities and talent.
- Limited attention bias – the status quo affects choices by both imposing psychological constraints and focusing attention.
- Emotions and affect bias - a distortion in cognition and decision making due to emotional factors.
- Social and peer pressure - the direct influence on people by peers, or the effect on an individual who gets encouraged to follow their peers by changing their attitudes, values or behaviors to conform to those of the influencing group or individual.

3. CONCLUSIONS

People act mostly in irrational and rather odd ways when dealing with financial challenges. The barriers that have been found in research, studies and in literature overall show that there are a lot of factors that need to be weighed in before making important financial decisions and taking significant actions when dealing with financial strains.

It is important for institutions, trainers and financial educators to take notice of the needs of the trainees and see the traits of their financial behavior. When assessing their spending behavior, financiar trainers need to make the trainees aware and try to change those negative traits. The trainers could very well use real life examples when talking about talking decisions or about the lack of discipline needed to change oneself.

Most of the population is not aware of those behavioral barriers that impede them to have a healthy life. Lack of money or poor planning of spending can lead to mental stress, anxiety and losing control of one's life.

The correlation between a healthy financial behavior, financial education and discipline, as well as having a ground base of knowledge could help consumers turn around their lives through the repeating processes that are found in building a personal or family budget.

The findings in this paper show that behavioral barriers can be overcome if financial education programs are well-made and tailored for the target groups' needs.

REFERENCES

1. Andrei Shleifer, *Inefficient Markets: An Introduction to Behavioral Finance,* Clarendon Lectures, Oxford University Press, 2000
2. Antony Elliott, Paul Dolan, Ivo Vlaev, Thomas Adriaenssens, Robert Metcalfe, *Transforming Financial Behaviour: Developing Interventions that Build Financial Capability,* Consumer Financial Education Body, Consumer Research Report 01, 2010
3. Daniel Kahneman, *Maps of Bounded Rationality: Psychology for Behavioral Economics*, The American Economic Review, 93(5), pp. 1449-1475, 2003
4. Daniel Kahneman, Amos Tversky, *Prospect Theory: An Analysis of Decision under Risk*, Econometrica vol. 47 (2), pp 263-91, March 1979
5. Daniel Kahneman, Amos Tversky, *Judgement Under Uncertainty: Heuristics and Biases*, Science, v. 185, pp. 1124-31, 1974
6. Financial Literacy & Education Russia Trust Fund, *Evaluating Financial Education Programmes: OECD/INFE Stocktake and Framework*, 2013
7. Herbert Simon, *A Behavioral Model of Rational Choice*, Quarterly Journal of Economics, 66, pp. 99-118, February 1955
8. Richard Thaler, Cass Sunstein. *Nudge: Improving Decisions about Health, Wealth, and Happiness,* New Haven & London. Yale University Press, 2008
9. Richard Thaler, Shlomo Benartzi, *Save more Tomorrow: Using Behavioral Economics to Increase Employee Saving.* Journal of Political Economy 112, pp. 164–87, 2004
10. Richard Thaler, *Mental Accounting and Consumer Choice*, Marketing Science. Vol. 4 (3). pp. 199-214, Summer 1985.
11. Sandra Ambuehl, Douglas Bernheim, Fulya Ersoy, Donna Harris, *Social Transmission of Financial Decision Making Skills. A Case of the Blind Leading the Blind*, Rotman School of Management Working Paper No. 2891753, 2017