On the effectiveness of behavioural-based course materials to improve financial literacy and reduce the myopic bias in insurance and investment decisions[1] [2]

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Thursday 2 September, 11:30-13:00 BST

Using a randomized experiment, this paper examines the effectiveness of gamified online course materials in improving financial literacy and reducing the bias 'myopia' from behavioural economics. Financial illiteracy affects considerably the decision-making of individuals, leading to sub-optimal outcomes and lower financial welfare. One of the most common approaches to improve the financial literacy is financial education. Although financial education has been shown to improve financial knowledge, the gains to financial behaviour are limited with few evidences of long-lasting effects in the society. One of the possible reasons behind this is the existence of behavioural and cognitive biases, which have also been linked to poorer decisions. One of the particular biases that has been linked to sub-optimal decisions is myopia, which impacts the financial well-being in decisions across sectors such as investments, insurance and pensions. In a large scale RCT among secondary school students in the Flemish region of Belgium, we test the effectiveness of course materials that aim to explicitly mitigate the impact of similar cognitive biases, teaching children about insurance and investment decisions. We measure the effectiveness of the materials using as baseline the group without financial education classes, and three intervention groups: one with a regular class about financial education and two other groups that received a modified version of the class which also teach children about the myopic bias in addition to financial education.

One of the behavioural biases that can affect financial outcomes is myopia. This bias is related to the short-sightedness of economic and financial decisions, with myopic-biased people presenting short-time preferences for short-term gains over greater long-term benefits and focus on their close surroundings in the decision-making process. The myopic bias is also associated with the underestimation and underweighting of risks, and the unawareness or disinformation regarding hidden costs of a product or blurred lines in a contract. The literature has shown evidence of the harmful effects of myopia in insurance, investment, debt-taking and pension-planning decisions. Possible policies to mitigate myopia can be

[1] This work was supported by the Research Foundation Flanders (FWO) (through fundamental research fellowship under grant 11K4621N), and by the 'Baloise Insurance Research chair to financial well-being'. We would like to thank Johan Mestdagh and Lieve Lammens for the preparation of the course materials and for their invaluable help during the review process of the pre and post-tests. We are also grateful to Kaat Iterbeke and Joana Maldonado for their help and insights in the experiment design and methodology of the paper.
[2] This experiment was registered in the American Economic Association's registry for randomized controlled trials on December 14, 2020 (Pitthan & De Witte, 2020).

centred in sharing publicly the real threats of risky events to combat underestimation of risks and reduce taxes for long-term decisions such as retirement-planning.

The objective of this paper is to test the effectiveness of gamified course materials to both reduce the impact of the myopic bias and improve financial literacy levels, while being able to teach the main learning objectives of Flemish financial education, teaching children about insurance, investment decisions and behavioural biases. This was done using a large scale RCT among 765 secondary school students in the Flemish region of Belgium in over 42 different schools. We measure the effectiveness of the materials using as baseline the group without financial education classes, and three intervention groups: one with a regular class about financial education and two other groups that received a modified version of the class which also teach children about the myopic bias in addition to financial education. As secondary outcomes, we observed if the courses had an impact to the effect of other biases (e.g. affection, overconfidence).

The main contributions of the paper are twofold. First, it is the first paper to our knowledge that uses a financial education program as an RCT-based intervention to mitigate the myopic behavioural bias. The literature applied debias techniques to biases such as framing effects, confirmation bias and herding bias, but to our knowledge it did not yet venture to debias myopia, nor to use financial education programs centred in increasing awareness to behavioural components as a debias technique. Second, our paper endeavours to improve financial literacy with financial education materials centred in cognitive biases. Although some financial education programs also focus on financial behaviour elements, those programs tend to be scarce and more focused on illustrating the good behaviour, to the best of our knowledge no trials incorporated the awareness to cognitive pitfalls or automatic thought process that individuals may fall caused by behavioural biases as part of financial education programs.

The results suggest that the intervention groups had significant better results for both the financial literacy (between 0.31 and 0.60 standard deviations) and myopic (between 0.22 and 0.39 standard deviations) post-test scores in comparison to the baseline condition, which were stronger for the materials with myopic bias content. This remained true by also being able to teach secondary school students about the course learning objectives. For myopia and the course knowledge the effect was more evident to the treatment groups which received materials about myopia, while all treatment groups had comparable effect sizes to improve financial literacy.

Keywords. Financial literacy; Gamified online learning, Behavioural finance; Debiasing; Myopic bias
JEL-classification. G53; G52; G51; D91