

DEVELOPING MARKETS IN THE WORLD ECONOMY: PROBLEMS OF SAVING GROWTH

**B. Sorvirov,
A. Nikiforov**Francisk Skorina Gomel State University
Belarus
246019, Gomel, Sovetskaya str. 104**Abstract**

In current work were suggested other possible ways to increase amount of savings in emerging markets and overcome attentional bias. Using conception of mental accounting in banking, increasing of financial literacy and change in rational expectation can lead to improvement of saving behaviour. The main goal of this work is to analyse effect of attentional bias on saving decision in emerging markets. This analysis cannot be done in the frame of traditional economic theory and lies in the field of behavioral economics.

Keywords: attentional bias, decision-making research, modest effect, external effects, implement policies, rent-oriented behavior, imperfect information.

Introduction

In the absence of effective credit and insurance markets, household savings are a vital component contributing to a welfare in emerging economies. Traditional theory suggests individuals have full information and are able to process it, so they make rational decisions, and their preferences are well-defined and don't change over time. However, these assumptions are questioned by behavioral economists and decision-making researchers. They are interested in a process of decision making in the context of incomplete information, limited cognitive resources, and behavioral. A lot of research in the areas of judgment and decision making and behavioral economics provide empirical evidences suggesting that individuals often act in ways that are economically suboptimal [1].

On the one hand, households without savings have very limited capacity to smooth out unexpected fluctuations in their income, and shocks can therefore leave lasting consequences, such as slowing down the accumulation of human capital at an early age. On the other hand, since savings are one of the few sources for accumulation of assets considering the inefficiency of financial markets, the ability to save becomes a major determinant

of both social mobility and the potential for future income generation. Furthermore, while there are controversies regarding the relationship between savings and economic growth, there is a general consensus that once savings begin to grow, possibly as a result of higher incomes, they increase the potential to finance investment and create additional opportunities in the economy.

Main part

Psychological aspects of attentional bias as well as methods of its measurement are analysed in the first part of this work. Analysis of features of this phenomenon is done in third part as well as evidences and examples from banking sector of emerging markets which prove sufficiency of attentional bias are provided. Moreover, third part includes analysis of experiments from banking sector and other sectors of economy which were done in order to overcome negative effect of attentional bias on saving decision. Part 4 includes

ideas which may possibly contribute to improvement of saving behaviour and increase of amount of savings.

"Attentional bias means that a person selectively attends to a certain category or certain categories of stimuli in the environment while tending to overlook, ignore, or disregard other kinds of stimuli". (2, p. 78)

It is the way in which people don't take into consideration all available possibilities making a decision because attention is often only focused on limited factors. Emotional state often affects the focus of attention and there is a tendency to pay more on factors that stimulate us on an emotional levels. The stronger the emotional arousal is, whether it is in a positive or negative manner, the greater the shift in focus on it over any other aspect available to people will be.

Attentional bias influences brain in present moment of time but it also manipulates memory. It makes likely to recall a moment of the past in a biased manner, memorizing events as a set of emotions and feelings. Principally, people often retain the emotion felt over anything else. This cognitive bias sometimes leads people to wrong decisions or skewed memories.

Attentional bias was found during a series of experiments named the "Stroop test". This test consists of a list of words printed in different colours and giving to participants, who need to speak out loud what the colour is, regardless word itself. It showed that it was more difficult to participants to focus on colour (it took more time and effort to name the right one) while the words evoked emotions. It was clearly seen, for instance, when participant with spider phobia had problem to focus on colour of the card with the word "spider" on it because attention was already shifted to the emotional stimulus. Thus, attentional bias can be associated with phenomenon of hyperattention to threatening material.

Psychologists used four main paradigms to measure attentional bias. Every test has own specific characteristics and is used to capture different features of attentional bias. First one is Stroop paradigm which was described above. However, the gold standard in attentional bias research is dot-probe paradigm [2]. Two stimuli, one of which is neutral and one of which is threatening, are presented simultaneously for predetermined length of time. The probe then replaces one of

the two stimuli to which participants must respond – by classifying the probe or responding to a location.

The Posner paradigm or Posner cueing task is similar to the dot-probe paradigm. This test measures the ability of individuals to switch and focus on different stimuli presented [2-3].

The visual search is a less used way of measuring attentional bias. It includes the measurement of the ability to detect and distinguish specific objects among other objects.

People behave in suboptimal way making savings decision. It is caused by many factors: one of them is imperfect information. Moreover, imperfect information often distorted by processing by individuals in biased manner. As was shown in first chapter, attention bias is the cause of cognitive distortion. This happens when a person does not think about all possible scenarios for making decision.

A simple example can illustrate such behaviour. For instance, you have decided to go to trip to some island and bought a plane tickets 3 months in advance. However, you have no money left to cover accommodation and daily expenditures. You already expect consumption shock in 3 months. In a perfect situation, you need to smooth your consumption and save money from date of travel decisions to date before departure. However, inattentiveness can cause the situation when you forget about your plans and decide consume instead to save. Then, in a day of departure you will face situation when you need either significantly reduce your consumption or finance your trip by borrowing money and reduce future consumption. Third option, not to go travel, will lead to losing tickets. It is just one example from many possible situations and it can be not significant. However, over the life time such situations can add up and lead to serious consequences.

Such sort of distortion was implemented in a model of savings and consumption in a work of D. Karlan et. Al [4]. Individual's aggregate utility consists of utility of "routine" consumption ($u(c_t)$) and on exceptional expenditure (x_t) which gives additional extra utility (u). Exceptional expenditure has a unit cost 1 (x_t is a binary dummy variable and can be either 1 or 0) and can vary across time (travel expenditure in one period, medical expenditure in next and so on). So, anticipated expenditure is equal to keeping in mind future consumption goals [4-6]

Initial and final wealth is equal to zero so individuals can either save or borrow money, but they need to repay it till the end of lifetime.

There are two different type of individuals "fully attentive" and "inattentive". Fully attentive individuals will have perfect plan and smooth their "routine" consumption. They will be indifferent in financing one unit of exceptional consumption or additional marginal unite of ordinary consumption.

$$\sum_{t=1}^T (u(c_t) + x_t \bar{u}) \quad (1)$$

$$w_{t=1} = w_t = y - c_t - x_t \forall t \quad (2)$$

subject to:

$$w_1 = 0 \text{ and } w_{t+1} = 0 \quad (3)$$

In reality, individuals are not fully attentive regarding exceptional expenditures in future (but they attend in both type of consumption in current period) and will use opportunity to get extra utility from it with probability:

$$u(c_t) + x_t \bar{u} + \sum_{t=1}^T (\theta u(c_t) + x_t \bar{u} + (1 - \theta) u(c_t)) \quad (4)$$

Inattentive individuals face problem each period either to increase ordinary consumption or to consume one unite of exceptional consumption only in current period in order to maximize total utility. So, they are unaware of their inattention and the underforecast the number of expenditure opportunities [1]. Inattentiveness is a reason for individuals to reoptimize their saving-consumption plan every period with new realization of total number of future exceptional expenditures opportunities in period t \tilde{k}_t . Individuals don't save fixed amount of money every period.

They decide how much to save in period t with respect to wealth in this period and plan of future exceptional consumption. However, \tilde{k}_t is changing over time and in some periods, individuals attend in unanticipated consumption consequently they are changing their save-consumption plan. When unanticipated exceptional consumption is sufficiently high, individuals have to drastically cut consumption in this period, borrow money and smoothly cut consumption in future periods, or forgo some exceptional expenditures.

Savings of inattentive individuals is:

$$\tilde{s}_t = \frac{\tilde{k}_t + \tilde{x}_t}{T - t + 1} - \tilde{x}_t \quad (5)$$

So, savings in period t depend on difference between "routine" consumption in period t and sum of current expenditure (\tilde{x}_t) and future expenditures (\tilde{k}_t) divided by number of future periods till the end of lifetime when individuals will face decision to attend in exceptional consumption. So, consumers can only plan to spent periodically less money than the future exceptional spending opportunities they predict. Difference between inattentive and fully attentive individuals here that for inattentive individuals savings can turn negative and they will have to borrow or forego some consumption.

For example, evidence from developing countries help to conclude that even if future expenditures are predicted, individuals tend to undersave and overborrow even with high interest rate.

Student-loan provider Navient conducted a research (Navient.com 2018) of more than 3,000 adults, aged 22 to 35. It reports that only 30% of respondents are saving for retirement, and that almost 40% believe they can safely put it off. Study concludes, that it happened because people prioritize short-term consumption like home ownership, vacation, paying down debt or building an emergency fund.

Reasons in first and second example are different because financial behaviour and motivation to save money are not the same in developed and emerging markets countries. However, it is clear, that the farther

consumption goal is the more difficult to concentrate attention on it. Since individuals in developing and emerging markets have less income and consequently their purchasing power is lower than in developed countries with high incomes, they need more time to reach their consumption goals which have long-term status. Thus, the problem of becomes apparent in developing countries.

Mobilization of savings plays an important role for individuals and societal welfare. At the individual level, savings is an instrument for smoothing consumption and finance investments in human or entrepreneurial capital. At the macroeconomic level, savings rates help predict future economic growth. In developing countries, saving is an important financial tool while access to credit for private consumers and small business is very limited.

However, there exist many barriers to savings, especially in emerging markets. Among them are transaction costs, lack of trust, regulatory barriers, problem of supply of savings products. As was found in study of Demirgüç-Kunt, A. and Klapper, L. [7], only 22 percent of adults worldwide have a savings at a formal financial institution in the past 12 months, and 77 percent of adults living on less than \$2 a day and don't have an account at a formal financial institution. It is obvious, that situation is even worse if count only for developing countries. Thus, 61% of the population in emerging market countries have a bank account, but only 21% save in it [8]. Many evidences suggest that there are various constraints from demand-side which depress saving even among those individuals who have no problem with access to saving products. For instance, social climate, lack of knowledge, and/or behavioral biases may lead to sub-optimal saving decision. Attentional bias may have significantly negative affect on saving behaviour. Such distortion in savings is more problematic in developing countries because reasons mentioned above are more tangible there.

Attention bias is one of the most studied distortions of savings in modern literature. There are plenty experiments which prove that inattentiveness reduces amount of savings of households in emerging markets. Messaging is the most used way to overcome attention bias, however it is possible to suggest other methods.

Mental accounting is well studied concept, however, there were done not many experiments based on it. For example, online banks or fintech start-ups as Revolut and N26 in EU or Tinkoff in Russia gain popularity and compete with traditional banks for customer savings. They provide with easy and good tools based on mental accounting concept to increase amount of savings. One of this tools was called "Spaces". It gives opportunity to divide your account into different "spaces" like account for current expenditures, account for monthly payments, and saving-goals account. This accounts are visualised what give people opportunity to see amount of money on every account, statistics from previous periods and, for saving accounts, percentage of fullness to achieve goal. It helps rationalize consumption-saving behaviour. Moreover, good features is possibility to automatically distribute incomes between different spaces and distinguish savings account among

others. Thus, when consumer withdrawal cash or pay in shop, than money is withdrawn from the "space" intended for these payments and saving "space" remain untouched. So, automatization of amount of savings can reduce inattentiveness and visualisation can help to see full picture of assets and focus on future expenditure.

Advantages of "Spaces" are obvious; however this concept can be implemented only on markets with high level of development of IT technologies. There are some emerging markets where IT infrastructure corresponds to the required level but it cannot be implemented in less developed countries.

It is a commonly known, that individuals pay more attention to what they count as important. The importance of different things is perceived in different ways by people with different levels of knowledge and education. Thus, financial literacy will likely influence attention bias. Financial literacy is now globally recognized as an important element of economic and financial stability and development, however not many research has been done to estimate effect of financial literacy on behavioural biases in general. One reason for that is complexity of measurement of financial literacy itself. It is highly possible that increase of financial literacy lead to increase of responsibility for financial decisions and consequently attention to future financial statement.

Different age and gender groups have own features of attention bias and different saving behavior. Especially, this situation is interesting in traditional economies most of them are also emerging markets. There are studies that claim that young people are overconsume and undersave and old generation otherwise. However, most of this research was done in context of developed economies. Evidences from emerging markets can be different, especially in case of gender issues. For example, evidences from Turkey suggest, that male investors tend to overestimate their knowledge and be over- confident in their decisions, while female are less tend to behave like that. These features can be relevant for analysis of saving behavior in context of attention bias.

As was mentioned in first part of this paper, attention bias depends on past experiences. Thus, it is possible to combine it with rational expectation of agents. Attention of individuals can be affected by today's state of the world and can be changed by appropriate change in policy. For example, individuals, who experienced hyperinflation will consider possible expenditures in future, even after overcoming of crisis, differently from those who used to stable currency. So, it is possible to conclude that attention bias tomorrow can be affected by macroeconomic policy today.

In order to compare the results of studies on personality from different regions one should take into account a possible mismatch in personality traits. In other words, personality traits can represent different features of personality in different cultures or environments because of different biases. In spite of the fact that stability and reliability of personality traits using the Big Five model was proven in many studies, there is an open

question how reliable this model is in developed countries and especially in rural regions. Most studies on personality traits with the use of the Big Five model were made

across western, educated, industrialized, rich, and democratic (WEIRD) populations, while using of this model outside WEIRD populations is unclear and some evidences only recently came up in the literature. Since the current study is aimed to capture relationship between personality traits in the frame of developing economy using data of Thailand's Socio Economic Panel from rural regions of the country, it is necessary to understand how well the chosen model can serve the aims of this paper.

T. Church (2017) analyzed evidences on cultural differences and proved that the Big Five Model is valid for cross-cultural analysis [9]. However, it can be difficult to replicate it in low-educated rural regions. R. Laajaj et al. (2019) found that on the one hand, the Five Factor Model is validated across cultures and languages; on the other hand, capturing personality traits in low-income countries can be challenging because of different biases inherent to the population of non-WEIRD societies as well as cultural and language features playing more important role in such environment [10]. Difference in level of education and cognitive abilities are also significant factors of mismatch.

Cross-cultural analysis in developing countries on the validity of FFM has shown that it is impossible to validate personal traits questions in developing countries using surveys and the standard analytical approach (Gurven et al., 2013; Laajaj et al., 2019) [10,11]. It is necessary to take into account features of every country or relatively homogeneous regions. However, findings across most of the developing countries have shown systematic problems to capture Conscientiousness and Agreeableness, what means that these traits have little predictive power in the surveys data (Laajaj and Macours, 2017) [12].

Overall it is impossible to point out a single factor that can significantly explain reliability of the Big Five model across all developing countries. If research on personality traits is made across non-WEIRD populations, it is necessary to validate the Big Five model in homogeneous regions to classical Big Five model using factor analysis.

Conclusions

Attention bias is one of the significant distortion of consumption-saving decisions of individuals in emerging markets. In this paper was analysed psychological nature of attention bias as well as importance of this phenomenon in behaviour economics.

Moreover, in this paper was considered the way to include attention bias in inter- temporal consumption-saving model and explained nature of difference in influence of this kind of behavioural bias on individuals from developed and emerging markets in context of mental accounting and endowment effect. It is possible to conclude, that attentional bias has more significant impact on emerging markets.

There were done a lot of research in economic literature regarding attentional bias and various ways to overcome it were tasted. Summing up outcomes from different experiments conducted in emerging markets and in developed countries, messaging is one of the best solutions to overcome attention bias in saving decisions. However, in spite of strong positive influence on saving behaviour, reminders and feedbacks don't lead to great increase in amount of savings in emerging markets.

References:

1. Banerjee, A., Dean K. and Jonathan Z. (2015) Six randomized evaluations of microcredit: Introduction and further steps // *American Economic Journal: Applied Economics*. № 7 (1). P. 1–21.
2. Fadardi, J. S., Cox, W. M. & Rahmani, A. (2016) Neuroscience of attentional processes for addiction medicine: from brain mechanisms to practical considerations // *Progress in brain research*. № 223. P. 77–89.
3. Jamison, J. C., Karlan, D. & Zinman, J. (2016) Financial education and access to savings accounts: Complements or substitutes? // *Evidence from Ugandan youth clubs*. National Bureau of Economic Research. № w20135.
4. Karlan, D., McConnell, M., Mullainathan, S. and Zinman, J. (2010) Getting to the Top of Mind: How Reminders Increase Saving // *SSRN Electronic Journal*.
5. Karlan, D., Morten, M., & Zinman, J. (2012) A personal touch: Text messaging for loan repayment // *National Bureau of Economic Research*. № w17952.
6. Karlan, D., Ratan, A. L., & Zinman, J. (2014) Savings by and for the Poor: A Research Review and Agenda // *Review of Income and Wealth*. № 60(1). P. 36–78.
7. Kast, F., Meier, S., & Pomeranz, D. (2012) Under-savers anonymous: Evidence on self-help groups and peer pressure as a savings commitment device // *National Bureau of Economic Research*.
8. Mogg, K., Bradley, B., De Bono, J. and Painter, M. (1997) Time course of attentional bias for threat information in non-clinical anxiety // *Behaviour Research and Therapy*. № 35(4). P. 297–303.
9. Church, A. T. (2017): *The Praeger Handbook of Personality Across Cultures* [3 volumes], ABC CLIO
10. Laajaj, R., K. Macours, D. A. P. Hernandez, O. Arias, S. D. Gosling, J. Potter, M. Rubio-Codina, and R. Vakis (2019): "Challenges to capture the big five personality traits in non-WEIRD populations," *Science advances*, 5, eaaw5226
11. Gurven, M., C. Von Rueden, M. Massenkoff, H. Kaplan, and M. Lero Vie (2013): "How universal is the Big Five? Testing the five-factor model of personality variation among forager-farmers in the Bolivian Amazon." *Journal of personality and social psychology*, 104, 354
12. Laajaj, R. and K. Macours (2017): *Measuring skills in developing countries*, The World Bank.