

Monetary policy, Fiscal policy, Policy communication

Rethinking macroeconomics through experimental analyses

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Abstract

What are the macroeconomic implications of the various bounded rational behaviors found through recent advances in behavioral and experimental economics? Under what conditions, these individual bounded rational behaviors do not cancel each other out through interactions among them and have macroeconomic impact? By answering these questions, we show the need for development of behavioral macroeconomic analyses that explicitly incorporate various behavioral biases of decision makers to design more effective macroeconomic policies.

Background & Results

Recent advances in behavioral and experimental economics has revealed various biases in decision making. The insights gained from these strands of research are now widely known not among researchers but ray people, and have begun to be applied, for example, through Nudge, to design better choice architectures or to better communicate various policies to improve people's decision-making. While the need to re-thinking macroeconomics by incorporating insights from behavioral economics has been acknowledged by some policymakers, many macroeconomists have remained skeptical of such a need. This is because these economists believed that individual-level biases that behavioral research has revealed will cancel each other out through interactions, whether it is via market or not, among many decision-makers, and thus, the macroeconomic phenomena can be well approximated by rational behavior. I have shown, in the series of research reviewed by Hanaki (2020), that when there exists complementarity among people's behavior, instead of individual biases canceling each other out, they get amplified and have large macroeconomic impacts. Figs 1-2 compare the deviation of choices made by participants to the experiment from the rational expectations equilibrium (i.e., the prediction of the model without behavioral biases) with (blue) and without (red) complementarity when two players in a group (Fig 1) and eight players in a group (Fig 2). It shows that when a group is large, the deviation from the model's prediction is larger under complementarity.

Notice that our economy and society are characterized by strategic complementarities. For example, in financial markets, if people believe that the price of a stock will rise in the future, they buy it now making its price to indeed rise. Similarly, if people believe that the economy will boom, they start investing and thus contribute to the economy's boom.

Significance of the research and Future perspective

My research has showed, contrary to the skeptics, the need for developing behavioral macroeconomic analyses. In parallel to my research, many researchers have started developing behavioral macroeconomic models based on models of expectation formations that differ from the one assumed in the dominant rational expectations paradigm. However, so far, different research teams are proposing different behavioral expectation formation models, without rigorously verifying which one is the most representative of the actual expectation formation process. Currently, I am focusing on experimentally testing various behavioral expectation formation models to contribute to establish a good behavioral foundation for behavioral macroeconomic analyses that allows us to better design macroeconomic policies in the future.



Fig 1: The distribution of the deviations of choices (X) from the rational expectations equilibrium (60). Two players in one group. Red: under substitutability. Blue: under complementarity

Source: Hanaki et al., (2019, Fig. 3)



Fig 2: The distribution of the deviations of choices (X) from the rational expectations equilibrium (60). Eight players in one group. Red: under substitutability. Blue: under complementarity

Source: Hanaki et al., (2019, Fig. 3)

Comparing Figs 1 and 2, we observe the larger deviation of the choices from the prediction of the model without behavioral biases (i.e., the rational expectations equilibrium) under complementarity when the group size is larger (8 players in one group).



Fig 3: Photographs of the laboratory

P a t e n t Hanaki, Nobuyuki. Cognitive ability and observed behavior in laboratory experiments: implications for macroeconomic theory. Japanese Economic Review. 2020, 71, 355-378. doi: 10.1007/s42973-019-00018-7 Hanaki, Nobuyuki et al. The strategic environment effect in beauty contest games. Games and Economic Behavior. 2019, 113, 587-610. doi: 10.1016/j.geb.2018.11.006 Akiyama, Eizo; Hanaki, Nobuyuki; Ishikawa, Ryuichiro. It is not just confusion! Strategic uncertainty in an experimental asset market. Economic Journal. 2017, 127, F563-F580. doi: 10.1111/ecoj.12338 U R L https://sites.google.com/view/nhanaki/home Keyword experimental economics, behavioral economics, macroeconomics, finance, game theory