Fundamental Uncertainty about "How the Economy Works"

Existing (macro)economic models assume that agents – in their roles as consumers, managers, financial market participants, and politicians – know how the economy "works". This does not preclude the possibility of surprise "shocks"; yet agents are generally assumed to know the true distributions of random variables. While convenient, this is a strong informational assumption, and it is increasingly recognized that it would be desirable to relax it, particularly for the study of economic crises.

What is more, societies committed to liberal democracy and capitalism are unrivaled "discovery engines". According to Karl Popper, liberal democracy is an incubator for innovative policy ideas; and capitalism is a force that "incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one" (in the words of Joseph Schumpeter). Many discoveries are associated with a move into "uncharted territory", i.e., lead to what we call fundamental uncertainty: data from the past do not allow for a conclusive assessment of future prospects, implying a lack of objective criteria for forming "correct" beliefs. This induces important "degrees of freedom" for real-world beliefs as they may not be closely tied to reality. It is precisely for this increased scope of a mismatch between beliefs and reality why the study of economies under fundamental uncertainty is important for better understanding the emergence of economic crises – and how to potentially prevent them.

In this project, we explore ways to incorporate fundamental uncertainty, i.e., uncertainty about the distribution of economic fundamentals, into the macroeconomic framework. This requires an adequate state-space model that incorporates this type of uncertainty. In such an environment, individual beliefs play a dominant role for behavior and array of psychological phenomena may have an influence in shaping these beliefs. We suggest to build upon the framework of "motivated beliefs" and "affective cognition" as outlined in **BT_MinfdulEcon**. Furthermore, *narratives* may play an essential role, as discussed in Shiller (2017). Overall, the objectives of this research are to derive:

1. A theoretical framework of a state space under fundamental uncertainty and of a corresponding belief formation process, together with a suitable model of intertemporal preferences;

2. Analytical and simulation-based results about the properties of economic time series in an environment of fundamental uncertainty and about the possibility of an early "crisis warning system";

3. Insights into what regulation, stabilization and crisis mitigation policies can possibly achieve under fundamental uncertainty.

Some related literature

Roland Bénabou and Jean Tirole (2016). "Mindful Economics: The Production, Consumption, and Value of Beliefs". *Journal of Economic Perspectives* 30.3, pp. 141–164

Johannes Binswanger and Manuel Oechslin (2015). "Disagreement and Learning about Reforms". *The Economic Journal* 125, pp. 853–886

Markus K. Brunnermeier et al. (2014). "A Welfare Criterion for Models with Distorted Beliefs". *Quarterly Journal of Economics* 129.4, pp. 1753–1797

Lawrence J. Christiano et al. (2018). "On DSGE Models". *Journal of Economic Perspectives* 32.3, pp. 113–140

Itzhak Gilboa (2009). *Theory of Decision under Uncertainty*. Cambridge University Press

Sendhil Mullainathan et al. (2008). "Coarse Thinking and Persuasion". *Quarterly Journal of Economics* 123.2, pp. 577–619

Mervyn King (2017). *The End of Alchemy. Money, Banking and the Future of the Global Economy*. W.W.Norton

Robert Shiller (2002). "Bubbles, Human Judgment, and Expert Opinion". *Financial Analysts Journal* 58.3, pp. 18–26

Robert Shiller (2017). "Narrative Economics". *American Economic Review* 107.4, pp. 967–1004

Michael Woodford (2018). "Monetary Policy Analysis when Planning Horizons are Finite". NBER Working Paper 24692