

SOE 5: YSA Award Session: Young Scientist Award for Socio- and Econophysics 2017

Time: Monday 15:00–17:00

Location: HSZ 01

Invited Talk

SOE 5.1 Mon 15:00 HSZ 01

Complexity in Economics and Finance — ●CEES DIKS — University of Amsterdam, CeNDEF

We discuss how expectations feedback and heterogeneity among agents can generate complex dynamics in economic and financial systems. The qualitative predictions of the resulting nonlinear models are very different from standard linear benchmarks, with important policy implications. For instance, the fundamental price can become unstable when interest rates are set too low, giving rise to multiple non-fundamental equilibria and/or global instability. This is illustrated in a central application, where we introduce heterogeneous expectations in a standard housing market model linking housing rental levels to fundamental buying prices. Using quarterly data we estimate the model parameters for eight different OECD countries. We find that the data support heterogeneity in expectations, with temporary endogenous switching between fundamental mean-reverting and trend-following beliefs based on their relative performance. Finally, a stochastic CUSP model is estimated for the same housing data to study the effect of time-varying mortgage rates in a stochastic setting.

Presentation of the Award to the Awardee

Prize Talk

SOE 5.2 Mon 16:00 HSZ 01

Climate Change and Global Governance in an Uncertain World — ●FRANCISCO C. SANTOS^{1,2}, VÍTOR V. VASCONCELOS^{1,2}, SIMON A. LEVIN³, and JORGE M. PACHECO^{4,2} — ¹INESC-ID &

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When attempting to avoid global warming, individuals often face a social dilemma in which, besides securing future benefits, it is also necessary to reduce the chances of future losses. We propose a simple population dynamics approach to this type of dilemmas, in which the risk of failure plays a central role in individual decisions. This model can be shown to capture some of the essential features discovered in recent key experiments, while allowing one to extend the experimental conditions to regions also of practical interest. Our results suggest that global coordination for a common good should be attempted through a polycentric structure of multiple small-scale agreements, in which perception of risk is high and uncertainty in collective goals is minimized. Whenever the perception of risk is low, our results indicate that sanctioning institutions may significantly enhance the chances of coordinating to tame the planet's climate, as long as they are implemented in a decentralized manner. Finally, we also discuss the impact on public goods dilemmas of heterogeneous political networks, growing agreements, and wealth inequality, including a distribution of wealth representative of existing inequalities among nations.

After the Award Session, there will be an informal get-together with beer and pretzels at the poster session