

#32 Topic: The Economy as Complex System and Model Validation

Leading researcher: Sebastiaan Tieleman

Abstract:

Modeling the economy as complex system through the use of agent-based models (ABMs) has become an increasingly popular approach in macroeconomics. Unresolved issues regarding the validation of these models, however, remain. My research seeks to shed light onto the validation of ABMs in macroeconomics by starting from the notion of the economy as a complex system. In particular two aspects of validation of macroeconomics will be discussed. First, due to fundamental uncertainty in complex systems, ABMs have abandoned the "homo oeconomicus" approach. This has implied a shift from a unitary theoretical approach towards a pluralistic theoretical approach. This shift, albeit an approach towards more realism presents ABMs in economics with a problem of undetermination to a greater degree than the neoclassical economics approach. Second, due to the existence of emergence, explanations in macroeconomic ABMs usually entail multiple relevant levels of analysis. This implies a separation in the relationship between input- and output validation on the one hand and explanandum and explanans validation on the other hand.