

Employment, Production and Consumption Model: Patterns of Phase Transitions

H. Lavička

FNSPE, Czech Technical University

We have simulated the model of Employment, Production and Consumption (EPC) using Monte Carlo. The EPC model is an agent-based model that mimics very basic rules of industrial economy. From perspective of physics, the nature of the interactions in the EPC model represents multi-agent interactions where the relations among agents follow the key laws for circulation of capital and money. Monte Carlo simulations of the stochastic model reveal phase transition in the model economy. The two phases are the phase with full unemployment and the phase with nearly full employment. The economy switches between these two states suddenly as a reaction to a slight variation in the exogenous parameter, thus the system exhibits strong non-linear behavior as a response to the change of the exogenous parameters.