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COMPETITION OF COMMODITIES FOR THE STATUS OF MONEY: A MODEL STUDY

The money origin itself can be explained within an agent-based computational economics model, as it has been shown by Yasutomi (1995). In the model, a number of agents producing different types of commodities, exchange them searching for wanted goods which are then consumed. The exchange rules are not only governed by individual agent's demands but also rely on the view on each particular commodity. This view is in a way derived from previous exchange transactions of the ensemble of agents. Thus some commodities may become relatively more desirable and widely recognized as an universal mean of exchange for substantial length of time, before another commodity overtakes the status of commodity based money.

Górski et al. (2010) discussed further the notion of money and the criteria of money emergence in such a model, as well as the money switching phenomena, whereby different commodities overtake the status of money on the model market. Recent study by Drożdż et al. (2013) have shown some interesting features of the model, which are typical to real financial markets. In particular, near the critical threshold, when the onset of a stable money phase occurs, the time series of fluctuating money lifetimes exhibits signatures of multiscaling behavior.

The goal of present contribution is to study mechanisms of commodity competition for the status of money within the model market. The main research interest is focused on statistical signatures accompanying spontaneous emergence of money and its alternation where just a few commodities, typically a pair of them, are in rivalry. The time series of money lifetimes is corresponding to the problem of the waiting-time distribution between events, like change of the money status or change of currency exchange rates.

References

- Drożdż S, Gębarowski R, Górski AZ, Kwapien J, Oświęcimka P, arXiv:1312.4803v1 (2013).
Górski AZ, Drożdż S, Oświęcimka P, Acta Phys. Pol. A117, 676 (2010).
Yasutomi A, Physica D82, 180 (1995).