

Laisons dangereuses between economics and physics. The econophysics from Pareto to Mantegna

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Abstract

The Mainstream economy is in a paradoxical situation. On the one hand, we have the Micro which adopts the classical physics – characterized by equilibrium, determinism and "laws". In turn, the Macro is not the sum of the micro, i.e. of the individual behavior. This is the procedure of micro-foundations. In this context the Homo oeconomicus is the Laplace' demon and the agents are atoms - without strategies and learning- in Walras, but not in Pareto.

The Heterodoxy (one of the many, in reality) considers the economy as a complex evolutionary system, where the Macro is derived from (as a first approximation) statistical physics - statistical equilibrium, emergence and interaction, are its characteristics.

The econophysics of Mantegna and Stanley introduces - among other things - the Meso analysis (an intermediate level of aggregation) and experimental verification. But the Physics is not the economy, i.e. to "social science" that evolves. Complexity, structural dynamics and non-probabilistic uncertainty have prompted an increasing number of scholars to analyze the economy as a complex system - where innovation is creative destruction, the future is risky, and interaction shapes its regularities - through the agent-based tool.