

Reconstructing Macroeconomics

Hiroshi Yoshikawa

Faculty of Economics, The University of Tokyo,
7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan
yoshikawa@e.u-tokyo.ac.jp

Macroeconomics has gone astray. In the past 30 years, macroeconomics has become less relevant. Events in the world economic crisis since fall 2008 have unmistakably demonstrated this fact.

The mainstream macroeconomics today begins with optimization of the representative consumer. In contrast, statistical physics begins by giving up the pursuit of the precise behavior of individual units, and grasps the system as a whole by statistical methods. This approach, which is nothing but common sense in natural sciences, is indeed in stark contrast to the method underlying the modern *micro-founded* macroeconomics. I will argue that there is no fundamental reason why the method so successful in natural sciences cannot be applied to economics.

A new approach to macroeconomics based on statistical physics has gradually emerged. Meanwhile, a closely related research area has come to be broadly dubbed *econophysics*. It is fair to say that econophysics has established itself in finance. (See, for example, Mantegna and Stanley (2000) and Stanley *et. al.* (2006)). However, the research in the areas of economics is still in its infancy. So far, the major achievements are important empirical findings that many economic variables obey the Pareto distribution, or the *power-laws*. Despite of their importance, so far the impact of these empirical studies on economics has been rather limited, to say the least; They are often ignored by a majority of economists. The reason is that their relation to the mainstream economic *theory* is by no means clear. I believe that time has come to integrate the new approach based on statistical physics or econophysics into macroeconomics (Aoki and Yoshikawa (2007)). In my talk, I attempt to narrow the existing gap between the new approach and the mainstream macroeconomics, and let more macroeconomists become aware of the significance of the new approach.

Specifically, I maintain that *it is the distribution of marginal productivity that matters from the view point of economic theory*. I will explain the recent works on productivity dispersion and their significance in macroeconomics.

Reference

- Aoki M. and H. Yoshikawa, (2007), *Reconstructing Macroeconomics: A Perspective from Statistical Physics and Combinatorial Stochastic Processes*, Cambridge, U.S.A., Cambridge University Press.
- Mantegna R. and H. E. Stanley (2000), *An Introduction to Econophysics : Correlations and Complexity in Finance*, Cambridge, Cambridge University Press.
- Stanley H. E., P. Gopikrishnan, and V. Plerou (2006), “Statistical Physics and Economic Fluctuations”, in M. Gallegati et. al. (eds.), *The Complex Dynamics of Economic Interaction*, New York: Springer.