Non-Self Averaging in Macroeconomic Models: Rejoinder to Prof.Seater's Comment on Discussion Paper 2007-49, No.26,2007

Masanao Aoki and Hiroshi Yoshikawa

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1) A typical response of traditional macroeconomist! We are afraid that comments made by Professor Seater miss the major point of our paper. Standard micro-founded macroeconomics ?? growth theory, business cycle analysis, search theory ?? begins with the analysis of (dynamic) optimization of micro agent such as household or firm. Why? Because micro behavior explored in such optimization analysis is believed to provide us with the good basis for macroeconomic prediction. Surely, every economist recognizes that the micro agents are all different. However, idiosyncratic shocks are assumed to be cancelled out so that macro behavior is nothing but a homothetic enlargement of micro behavior of the representative agent. This is the case with self-averaging. However, this is actually a very special case. Non-self-averaging is a generic prosperity. Thus, to analyze micro agents optimizing behavior in detail is useless for the purpose of macroeconomics. That is our point. It is extremely useful for understanding our point to read, for example, Ijiri and Simon(1975, Proceedings of the National Academy of Science of the United States of America, Vol. 72, No.5: http://www.pnas.org/cgi/reprint/72/5/1654). The paper concerns city sizes and growth. To be sure, immigration is a purposeful behavior resulted from some sort of optimization. Nonetheless, the paper demonstrates that stochastic property of the system as a whole rather than precise behavior of each agent is the key to understanding the macro outcome ?? city size distribution in this particular case. In our paper, we pointed out that the same holds true for macroeconomics. We do not deny the merit of micro exercises in general. They are, of course, useful for the purpose of analyzing a micro system such as an industry. Industrial organization (IO) would certainly need micro optimization analysis. Similarly, symmetric equilibrium may make sense in IO; Firm A and firm B may be indeed in symmetric equilibrium. However, to say that electric machinery industry and agriculture are symmetric is a nonsense. IO and macroeconomics are different. And to pursue precise behavior of micro agent is meaningless for the purpose of macroeconomics. Macroeconomics needs a different approach just as statistical physics is an independent approach for analyzing macro system in physics.

2) On his coment on continuity, there is no worry that he expresses. We

note that for a small positive value of α, we have an approximate expression

$$C.V \approx \alpha/\sqrt{(\theta)} > 0.$$

This indicates that the standard error of output could be a substantial proportion of the mean. For example, with $\alpha = \theta = 0.1$, the coeff. of variation is about .3, that is the variance is about 30 per cent of the mean, which is large.