The Wobbly Economy*

Tomohiro Hirano, University of Tokyo, Japan
Joseph E. Stiglitz, Columbia University, USA

First Version: February 26, 2017,
This version: January 16, 2019

Abstract:

This paper explores the standard life-cycle model, showing that under not implausible conditions, multiplicity of momentary equilibria can arise. Multiplicity of momentary equilibria can generate an infinity of rational expectation equilibria, leading to “wobbly” macro-dynamics; this may occur even when under myopic expectations, there is a unique dynamic path. Nonetheless, one can provide a full characterization of the possible patterns of economic dynamics. In particular, we identify four possible patterns, providing a characterization of the parameter values under which each may occur. Most interestingly, under some configurations of the parameter values, bubble-like macro dynamics occur. That is, the economy endogenously approaches a critical state with a high level of investment and output where there are multiple momentary equilibria. Once the economy reaches that critical state, the system suddenly becomes unstable and may experience a large scale collapse, followed by a stagnation trap. Moreover, we show that a productivity increase can cause a phase transition from a stable state to an unstable state. That is, a productivity increase may generate a fragile economic boom that is followed by a stagnation trap. Finally, we show how government policy can affect the equilibrium path, demonstrating that an appropriately chosen government policy mix can ensure that the rational expectations equilibrium is unique, preventing wobbly macro-dynamics and improving social welfare.

Keywords: Multiplicity of momentary equilibria, Wobbly dynamics, Bubble-like macro dynamics, Stagnation trap, Stabilizing policy, Policy mix

JEL Classification: C61 (Dynamic Analysis), E32 (Business Fluctuations, Cycles), O11 (Macroeconomic aspects of economic development)

---

* Tomohiro Hirano, tomohih@gmail.com; Joseph E. Stiglitz, jes322@gsb.columbia.edu. We are grateful to George Akerlof, Behzad Diba, Yoichi Gokan, Katsuhito Iwai, Nobuhiro Kiyotaki, Kiminori Matsuyama, Juan Antonio Montecino for their discussions. We also thank seminar participants at INET meeting at Columbia U, American U, Georgetown U, Aoyama Gakuin U, Kanazawa U, Hitotsubashi U.