Product Cycles and Growth Cycles

Tatsuro Iwaisako and Hitoshi Tanaka

April 23, 2012

Abstract

This paper explores the equilibrium path in a product cycle overlapping generations model with international knowledge spillovers. We show that an increase in imitation in the South reduces the stock values of Northern firms, and this directs a larger proportion of saving to research and development (R&D) in the North. However, this results in turn in an increase in the stock values of Northern firms, thereby crowding out Northern R&D in the next period. Because of this process, the equilibrium path of this North–South two-country economy exhibits perpetual fluctuation, including period-2 cycle, even if the preference and production settings are conventional, e.g. utility of a Cobb–Douglas form. Importantly, when the equilibrium path exhibits perpetual fluctuation, the growth rate continues to fluctuate, though the economy grows. This finding suggests that the product cycle can be a source of endogenous economic fluctuation.

Keywords: Product cycles; Imitation; Innovation; Endogenous cycles

JEL classification: E32, O31, O34, O40

*The authors would like to thank Takao Asano, Tetsugen Haruyama, Yoichiro Higashi, Ryo Horii, Kazutoshi Miyazawa, Akira Momota, Makoto Nirei, Koki Oikawa, Koki Sugawara, Akira Yakita and seminar participants at Hitotsubashi University Institute of Innovation Research, Nagoya City University, Okayama University and Tohoku University for helpful suggestions and comments on an earlier version of this paper. This research is partly supported by a Grant-in-Aid for Scientific Research from the Ministry of Education, Culture, Sports, Science, and Technology (No. 18730136). The usual disclaimer applies.

1Corresponding Author. Tel: +81-6-6850-5232, Fax: +81-6-6850-5274

2Graduate School of Economics, Osaka University, 1-7 Machikaneyama, Toyonaka, Osaka 560-0043, Japan. E-mail: iwaisako@econ.osaka-u.ac.jp

3Faculty of Economics, Hokkai-Gakuen University, 4-1-40, Asahi-machi, Toyohira-ku, Sapporo 062-8605, Japan. E-mail: tanaka_h@hgu.jp