

Procyclical R&D cycle in a fully-endogenous growth model with population growth

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Abstract

This paper presents that there exists a fully-endogenous procyclical R&D cycle in a R&D growth model with exogenous labor growth and without knowledge externalities. Assuming two heterogeneous R&D: horizontal R&D (uses capital) and vertical R&D (uses labor), there is a period 2 cycle in which the economy faces a high growth rate with high R&D expenditures and low growth rate with low R&D expenditures reciprocally. The source of this cyclical behavior is the market structures in intermediates sector. The long-run average growth rate in the cycle, however, is determined by the labor growth rate and vertical R&D intensity measured by ratio of engineers over labor. In addition, there exists a R&D promotion policy which increases long-run growth rate.

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