R&D Policy In A Volatile Economy

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The R&D-based growth literature establishes that market equilibrium is inefficient due to several types of market failures and derives optimal R&D policy. An important aspect of such normative analysis is that steady state is assumed, largely motivated by analytical convenience. This paper questions this steady state approach of normative analysis, introducing the possibility of endogenous cycles as long-run equilibria. Several interesting results emerge: (i) cycles arise in a very standard R&D-based model once it is framed in discrete time, (ii) those cycles are inefficient in the sense that they prevent welfare maximization, (iii) steady state optimal R&D policy fails to eliminate cycles, and can create inefficient cycles, (iv) a trade-off between growth and volatility exists when R&D subsidy is applied, (v) optimal R&D policy in a fluctuating economy is oscillatory and state-dependent, which generalizes steady state optimal R&D policy. These results represent an important qualification to the standard steady state welfare analysis of R&D-based models.