

Quasi-Hyperbolic Utility Function in Dynamic General Equilibrium Models

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Abstract

This thesis investigates the implications of non-rational consumer behavior in dynamic general equilibrium models, focusing on the use of quasi-hyperbolic utility functions. Empirical research has shown that consumers often display time-inconsistent preferences, favoring immediate rewards over future gains. I examine whether such preferences can be integrated into standard growth models and what macroeconomic effects they produce.

Two classical frameworks are considered: the Ramsey model and the Overlapping Generations (OLG) model. In the Ramsey model, quasi-hyperbolic preferences have no significant effect on steady-state outcomes. However, in the OLG model, three versions are explored: a benchmark, a multiple-selves approach, and a pre-commitment strategy (Dhami, 2019). These represent varying degrees of rationality in individual decision-making.

The findings show that deviations from rational behavior distort macroeconomic outcomes in different ways. The greater the degree of irrationality, the further the economy deviates from traditional model predictions. A comparative static analysis, supported by Taylor approximations and numerical simulations (via Wolfram Mathematica), confirms that increased impatience reduces both growth and the speed of convergence to equilibrium.

Further simulations explore temporary vs. permanent increases in the exogenous growth rate, interpreted as one-off innovations or sustained technological progress. The results confirm: greater consumer rationality leads to faster and more stable convergence.

Overall, the study demonstrates that even small deviations from full rationality can have measurable effects on long-run growth and macroeconomic dynamics.