Public Debt, Endogenous Growth Cycles and Indeterminacy

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Abstract

This paper presents a theoretical setup for studying nonlinear effects of public debt in an endogenous growth model with cycles. Our results are threefold. (i) From a long-run perspective, our model exhibits multiplicity, i.e. a high-growth and a low-growth balanced growth path (BGP), due to the interaction between the government’s budget constraint and households optimal saving behavior. (ii) Turning to local dynamics, while the high equilibrium is saddle-path stable, the topological behavior of the low equilibrium is more complex. Indeed, the low BGP can be locally determined, over-determined, or under-determined. In the latter case, a supercritical Hopf bifurcation occurs, leading to limit-cycles. (iii) As regards global dynamics, three typical configurations arise: local and global determinacy; local determinacy and global indeterminacy; local and global indeterminacy. Specifically, global bifurcations can emerge, in relation with the degree of social acceptance to reduce non-distorsive components of government budget.

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