

# The Explicit Short-Run Dynamics of Growth

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This paper explores the prospects for constructing explicit short-run solutions to the aggregative growth model which apply for quite general specifications of preferences and technology. The paper constructs an aggregative growth model from the microfoundations of an intertemporal optimising representative consumer/firm under conditions which allow specifications of non-homothetic preferences and non-constant returns to scale technology. Utilising the concept of the economy-wide profit function, the paper demonstrates that the Hamilton-Jacobi equation for dynamic optimisation may be recast in a form which allows the derivation of an explicit short-run solution for the value of the costate variable as a function of the state and other variables.

**Keywords:** Short-run dynamics; growth; Hamilton-Jacobi equation; representative agent; duality theory; profit function

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