On the Euler Equation of Macroeconomic Dynamics

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Abstract

In this paper, we consider the traditional capital accumulation model with continuous time, and derive the Euler equation for a necessary condition and the Euler equation with the transversality condition for a sufficient condition of overtaking (or, weakly overtaking) optimality. In addition, we try to solve this model with AK technology, and show both that the necessary and sufficent condition of the existence of overtaking optimal solution and that the form of this solution. In particular, we solve the case in which the utility function is CRRA, and show that this solution has a finite value.

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Keywords: capital accumulation, overtaking optimality, Euler equation, transversality condition, AK model, CRRA utility function.

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