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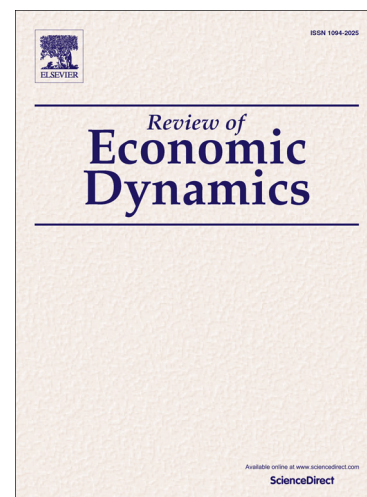
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Optimal Growth Through Product Innovation*

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Abstract

In Lentz and Mortensen (2008), we formulate and estimate a market equilibrium model of endogenous growth through product innovation. In this paper, we provide quantitative equilibrium solutions to the model based on our parameter estimates, and compare them with a social planner’s solution. We find that the socially optimal growth rate is double that of the market equilibrium growth rate when firm differences in the ability to create productive products are highly persistent as a consequence of the “business stealing” externality present in the model. The welfare loss of the decentralized economy relative to that of the planner is equivalent to a 21% tax on the planner consumption path. The planner’s solution differs from the decentralized economy in that it discourages innovation by low ability innovators as well as entry.

We introduce two mechanisms that temper the strength of the negative externality: Transitory firm types and the possibility of buyouts. We show that both sharply reduce the inefficiency due to innovation by low ability innovators. But with caveats: If firm types are completely transitory, then the notion of firm heterogeneity is for practical purposes lost. Buyouts improve efficiency, but the efficiency gain depends significantly on the strength of the innovator’s ability to extract rents from incumbents through the buyout.

Keywords: Optimal growth, planner’s problem, product innovation, innovation spill overs, creative-destruction externality.

JEL codes: E22, E24, J23, J24, L11, L25.

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[‡]Dale T. Mortensen passed away on January 9th, 2014. He is greatly missed.

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