

A Circular Economy Model of Sustainable Growth

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Abstract: The concept of circular economic activities has been increasingly and widely recognized as crucial for promoting economic growth and environmental sustainability. From the perspective of linear economic activities, i.e. the conventional wisdom, the output is measured at its final value and output waste has zero value. In a circular economy, output waste in essence is instrumental for the emergence of new products and, accordingly, valuable for furthering economic growth (George et al., 2015). The purpose of this paper is to provide a general-equilibrium model of a circular economy in which the recycling of output waste is endogenously determined. In this regard, our model not only analyzes the characteristic of regenerative capital but also presents long-run growth path and short-run transitional dynamics in a circular economy. This paper shows that the regenerative property of physical capital accumulation is the key factor in the determination of the long-run level of economic growth. Furthermore, we show that the government can impose a negative income tax and a positive pollution tax to meet the Pareto-optimal conditions in a circular market economy.

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Reference

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