

AN ENVIRONMENTAL PUBLIC GOOD GAME IN THE OLG FRAMEWORK

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Abstract

John and Pecchenino(1994) studied the complex interplay, empirically observed, between growth and environment quality in an overlapping generation model. In their model agents live for two periods, working while young and consuming while old; the young decide how to allocate their wages between investment in capital and investment in the environment, a public good. The environmental quality is degraded by consumption and improved by investment in environmental quality. Finally, agents derive utility from consumption and environment quality in their second period of life. In Zhang(1999), the John-Pecchenino(1994) model is deeply studied from the dynamical point of view; it is showed that when preference for the environment quality is relatively high there is the possibility of cyclical and chaotic behaviour. In this paper we extend John-Pecchenino(1994) model in two ways; firstly, environmental externalities arising from production are considered. Secondly, we consider each agent acting strategically when choosing the contribution for the environmental public good. With the last extension we define the best response functions and the Nash equilibrium; then, we perform the analysis of the dynamical behaviour of the system based on the capital accumulation mechanism.

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