Dynamical system of Solow model and the the Hamiltonian systems theory

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Abstract: The objective of the paper is to develop an Hamiltonian system for the Dynamical System of Solow Model, DSSM, that will exhibit some important properties in growth models. In fact, the system obtained can be considered of as an Hamiltonian system with a perturbation term. Contrary to Solow's original result, saving not only determines the accumulation but also plays a crucial role in the stability analysis of the model. The three economic elements α, s and δ are the key elements in the bifurcation analysis. These results depend on the assumption that the two growth rates (technological progress and labour) must reflect on the accumulation of some kind of knowledge.

Keywords: Dynamical System of Solow Model, nonhyperbolic equilibrium points, bifurcations, quasi-Hamiltonian system.