

ECONOMIC GROWTH AND HUMAN CAPITAL ACCUMULATION: A DISCRETE TIME ANALYSIS

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Abstract. This paper reformulates the classical Razin model of economic growth and human capital accumulation by representing time as a discrete variable. In addition, the model is developed in a more general framework of the Ramsey neoclassical model of optimal economic growth. The study examines the optimal trajectories in human and physical capital and consumption showing the existence of a unique steady state which stability is analyzed. The paper compares the results with the original study of Razin.

Keywords. economic dynamics; human capital; economic growth model; URL model; discrete time

AMS (MOS) subject classification: 91B55; 91B62

1 Introduction

Modern macroeconomics is founded on the Neoclassical Growth Model (NGM), and owes its origins to the developments of Ramsey [49], Solow [56], Swan [58], Cass [21], and Koopmans [38]. This model has the virtue of representing in a simple framework the most relevant stylized facts of economic growth, which were pointed out by Kaldor [37] and more recently improved by Jones and Romer [36]. Among its main simplifying assumptions, the NGM builds on the assumption that growth occurs (solely) through the accumulation of physical capital. To think only about the investment of physical capital was an important assumption in the first neoclassical model. It was probably correct, because of the central role of accumulation itself fifty or sixty years ago. From those years to the present, growth theorists have worked hard over