Taxation, human capital and growth [☆]

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Abstract

This paper builds an overlapping generations model of endogenous growth by introducing human capital accumulation into the Blanchard overlapping generations model. In this model, the growth rate of consumption is increasing both in the after-tax interest rate and in the share of human wealth in total wealth. A higher rate of taxation reduces the after-tax interest rate, but at the same time it raises the share of human wealth in total wealth. If the horizon is short and the elasticity of factor substitution is high, the latter effect dominates the former and a higher rate of taxation increases long run growth. © 2002 Elsevier Science B.V. All rights reserved.

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1. Introduction

A number of recent studies have investigated the effect of taxation on long-run growth in the framework of endogenous growth models. Most studies in this literature adopt an infinitely lived representative agent structure. And studies

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based on the representative agent model unanimously suggest that taxation has a negative effect on long-run growth though they disagree on the magnitude of the effect.[1]

This paper builds an overlapping generations model of endogenous growth by introducing human capital accumulation into the Blanchard (1985) overlapping generations model. The death rate in this model can roughly be interpreted as the degree of broken linkages in the chain of intergenerational altruism. The effective horizon of an agent, which is given by the inverse of the death rate, can be varied from zero to infinity, covering the infinite horizon model as a special case. This feature of the model provides a very convenient framework for the purpose of this paper: evaluating the role of the horizon in the relationship between taxation and long-run growth.

The introduction of the finite horizon significantly alters the relationship between taxation and growth, both qualitatively and quantitatively. In an infinitely lived representative agent model, the growth rate of consumption is tied to the after-tax interest rate. Thus, any shock that lowers the after-tax interest rate also lowers long-run growth since the growth rate of output is equal to that of consumption in steady state. This property is the key to the common result among studies based on infinite horizon models, that taxation reduces long-run growth. In contrast, our overlapping generations model predicts that the growth rate of consumption is increasing both in the after-tax interest rate and in the share of human wealth in total wealth. Thus, a higher rate of taxation that lowers the after-tax interest rate can increase the growth rate of consumption if it raises the share of human wealth at the same time. We find that a higher rate of taxation increases long run growth if the horizon is short and the elasticity of factor substitution is high.

This paper does not argue that a higher rate of taxation will indeed stimulate long-run growth. It rather suggests that the length of the horizon and the elasticity of factor substitution should be considered seriously along with other variables. In a recent study, Stokey and Rebelo (1995) argue that the growth effects of taxation are likely to be very small because labor supply is inelastic, human capital accumulation is lightly taxed, and it is a highly labor-intensive activity. This paper suggests another reason that one may be skeptical about a sizable growth effect of taxation: the finiteness of the horizon.

The paper proceeds as follows. Section 2 sets up the model. Section 3 examines the growth effects of taxation when labor alone is used for learning. Section 4 discusses the case where both labor and physical capital are used for learning. Section 5 concludes.

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[1] See Stokey and Rebelo (1995) for the survey of this literature.