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Progressive taxation in a dynastic model of human capital ☆

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Abstract

We develop a quantitative theory of economic inequality to investigate the effects of replacing the current U.S. progressive income tax system with a proportional one. The cross-sectional implications of the theory are used to discipline the assessment of the effects of tax policy and circumvent the lack of conclusive micro-evidence on the parameterization of the human capital production technology. We find that the elimination of progressive taxation increases steady state level of output by 12.6%, capital by 21.8%, and consumption by 13.2%. Moreover, it increases economic inequality and its persistence across generations.

JEL classification: E62; H24; J24; 041

Keywords: Taxation; Human capital; Heterogeneity; Intergenerational mobility

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1. Introduction

Despite the fact that income is taxed progressively in the U.S., most quantitative analyses of U.S. income taxation focus on proportional income taxation. Scholars in public finance are thus faced with the following question: does the progressivity of the tax code matter for evaluating the aggregate and distributive effects of U.S. income taxation? In this paper, we develop a quantitative theory of economic inequality in order to evaluate the effects of replacing the progressive income tax system in the U.S. economy with a proportional one. Building a theory of inequality is the first necessary step for assessing the consequences of progressive income taxation: since marginal tax rates increase with income under a progressive tax system, income taxation has a differential effect on individuals across the income distribution and, therefore, the distribution of income matters for the impact of taxation on the economy. Building a theory of economic inequality is also important for evaluating the effects of income taxation on human capital accumulation.

While economists consider human capital as a crucial component of aggregate wealth, they have conflicting views about how human capital accumulation is affected by taxation. While King and Rebelo (1990) and Rebelo (1991) have found large negative effects of taxation on human capital accumulation, other studies have found negligible effects; see, for instance, Heckman (1976) and Davies and Whalley (1991). In an influential paper, Trostel (1993) showed that the consequences of income taxation hinge crucially on the specification of the human capital production technology. When time is the only input in the education technology, the reduction of the net wage due to an increase in the income tax rate equally affects the benefits and costs of human capital investment; in this case, income taxation does not affect human capital accumulation. However, when goods are an input to the human capital production, income taxation has an important effect on human capital because the cost of these goods is not reduced by income taxation. The conflict in the views about the impact of taxation on human capital accumulation has remained due to the lack of conclusive micro-evidence on the parameters of the human capital technology.

In light of these difficulties, our paper provides a novel approach to studying the impact of income taxation on human capital accumulation. We build a model with heterogeneous individuals, which allows the cross-sectional implications of the theory to be used in parameterizing the human capital technology. Motivated by the empirical studies of Neal and Johnson (1996) and Keane and Wolpin (1997), we focus on investments that take place 'early' in the life of an individual and formulate a model of parental investments in the human capital of their children. In the model, individual labor productivity is jointly determined by education and an uninsurable market luck shock (which is iid over time and individuals). The model's main novelty relative to the previous work in the area is the inclusion of a production technology for human capital which takes expenditures and (quality-adjusted) parental time as inputs. Because the relative importance of these inputs determines how much of the cross-sectional earnings inequality is transmitted to the next generation, the intergenerational correlation of earnings is used to pin down the shares of time and expenditure inputs in the human capital production function.

We find that modeling parental investments in human capital substantially increases the aggregate effects of replacing progressive income taxation with a proportional one. For the benchmark economy, this change in tax policy increases the steady state levels of output by 12.6%, capital by 21.8%, and consumption by 13.2%, while for an economy without