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Review of Economic Dynamics 9 (2006) 52–67
Review of Economic Dynamics
www.elsevier.com/locate/red

Human capital investment and debt constraints ☆

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Received 22 December 2004
Available online 29 September 2005

Abstract

When young individuals face binding debt constraints, their human capital investments will be insufficiently financed by private creditors. If generations overlap, then a well-designed fiscal policy may be able to improve human capital investments by replacing missing capital markets with an intergenerational transfer scheme. The optimal (balanced budget) fiscal policy in this context entails the joint provision of an education subsidy for the young and a pension program for the old, financed with a tax on those in their peak earning years. We demonstrate, however, that the desirability of such a cradle-to-grave policy depends crucially on the assumption of an exogenous debt constraint. If debt constraints arise endogenously for reasons of limited commitment, then the optimal (balanced budget) fiscal policy looks radically different. Furthermore, we find that cradle-to-grave type policy interventions may actually lead to lower levels of human capital investment as altered default incentives induce private creditors to contract the supply of student loans by an amount greater than the subsidy. In some cases, the constrained-optimal policy entails zero intervention. These results highlight the importance of taking seriously the reasons for why debt constraints exist.

JEL classification: E62; H52; I28; J24

Keywords: Education; Fiscal policy; Debt constraints

☆ Both authors gratefully acknowledge financial support from the Social Sciences and Humanities Research Council of Canada. Gervais gratefully acknowledges financial support from the CIBC human capital and productivity project and the Economic Policy Research Institute, both located at the University of Western Ontario.
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1094-2025/$ – see front matter
doi:10.1016/j.red.2005.08.002

1. Introduction

Government programs to subsidize the human capital investments of young adults are common in many countries. In the United States, for example, students enrolled in post-secondary institutions during the 2001–2002 academic year received nearly $90 billion in financial aid of various forms.[1] The justification behind such programs presumably rests on the belief that left on their own, a significant number of individuals are prone to under-invest in their human capital. The prominent reason given for such under-investment is the presence of debt constraints that arise owing to the inalienability of human capital—an institutional feature that makes it difficult (if not impossible) to collateralize loans with securities backed by claims to future labor earnings.

The question we pursue in this paper is a theoretical one.[2] In particular, there is more than one way in which to model a debt constraint. In this paper, we are interested in examining whether the standard justification for policy intervention is robust to a reasonable perturbation in the way one views the operation of private credit markets. We find that policy implications are highly sensitive to the way in which one models the source of financial market imperfections.

The standard way in which to model a debt constraint is simply to assume that individuals face an exogenous borrowing limit (e.g., Aiyagari, 1994, Huggett, 1993). The specification of an exogenous debt constraint essentially boils down to assuming that optimal behavior on the part of creditors is invariant to the structure of the economy. In particular, lending practices are assumed to be invariant to policy changes that may affect the incentive structure for debt repayment. Such a specification has the virtue of simplicity and, for some applications, may turn out to be a relatively innocuous assumption. However, from a theoretical perspective, it makes more sense to think of debt limits as being determined by creditors as a part of their optimal lending practices and that these practices may change in response to various policy regimes (e.g., Krueger and Perri, 2001). Empirically, there is considerable evidence to suggest that lending practices do vary across policy regimes (e.g., Gropp et al., 1997 and Pagano, 2001). Accordingly, a careful theoretical treatment concerning the effects and desirability of government education subsidies should be performed in the context of a model that endogenizes the debt constraint.

Because we are concerned primarily with policies directed at subsidizing the human capital investment expenditure of young adults, we adopt as a framework of analysis a deterministic overlapping generations model with endogenous human capital formation. We endogenize the debt constraint in a manner suggested by Kehoe and Levine (1993, 2000). In this setup, debt constraints arise owing to the inalienability of certain types of assets (primarily human capital, but also various government entitlements). We assume that such assets are beyond the reach of private creditors, but not necessarily beyond the reach of the government; in particular, individuals are not free to default on their current and future tax obligations. Unsecured private credit is extended only to the extent that the act of default imposes some costs. Following Kehoe and Levine, we assume that the act of default precludes any subsequent access to financial markets, inhibiting one's ability to smooth consumption over the remainder of the life-cycle. In this environment, the amount of credit extended to some individuals may be less than the amount that would be extended if debt contracts could be costlessly enforced. In these circumstances, the cost and benefit of any act of default is exactly balanced. As in Krueger and Perri (2001), these costs

[1] See *Trends in Student Aid*, published by the College Board.

[2] The issue concerning the empirical relevance of debt constraints in limiting the accumulation of human capital is the subject of a current debate in the literature; see, for example, Kane (1994), Card (2001), and Cameron and Heckman (1998, 2001).