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Altruism, incomplete markets, and tax reform ☆

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Abstract

We compute the welfare effects of different revenue-neutral tax reforms that eliminate capital income taxation in two general equilibrium models calibrated to the U.S. economy. In our dynastic model, the reform with the largest welfare gain is the one that eliminates all income taxation and increases the consumption tax to 35%; 75% of the population alive at the time of the reform benefit from it. Individuals use intervivos transfers and bequests to redistribute the long-run benefits. In a pure life-cycle economy that lacks this redistribution technology, we find that the same reform would benefit only 9% of the population.

JEL classification: E6; D52; C68; H55

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1. Introduction

There is a large literature on optimal tax structure following the seminal work by Judd (1985) and Chamley (1986). The main message of this Ramsey approach in the standard one-sector growth model with complete markets is to drive the capital income tax rate to zero in the long-run; it is optimal not to distort capital accumulation. When markets are incomplete, however, Aiyagari (1995) finds it optimal to tax capital income which prevents over-accumulation of capital due to self-insurance. Domeij and Heathcote (2004) take into account the transition to a reformed steady state and show that both heterogeneity and market incompleteness are quantitatively important for the welfare effect of tax changes. In a pure overlapping generation with complete markets, Erosa and Gervais (2002) show that the Ramsey solution calls for non-zero capital income taxation and tax rates that vary over the life-cycle to enhance efficiency in the face of age-varying earnings and

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saving profiles. In overlapping generations and incomplete markets settings, İmrohoroğlu (1998), Garriga (2003), and Conesa et al. (2006) also find that it might be optimal to tax capital income.

In the Ramsey literature, the government is typically restricted to linear taxes that are functions of only current observables and it can observe the effort and earnings of the agents. A recent approach to the optimal taxation problem uses a class of dynamic economies with private information and allows the government to design its tax code in a nonlinear or history-dependent fashion. Golosov et al. (2003), Albanesi and Sleet (2006), and Kocherlakota (2005) explore the nature of constrained Pareto optimal allocations and their implementation in dynamic, informationally constrained economies.

A related literature tries to quantify the impact of tax reform on the U.S. economy by simulating general equilibrium models with various features. Summers (1981) and Auerbach et al. (1983) use life-cycle models to estimate the impact of tax reform. The seminal work by Auerbach and Kotlikoff (1987) develops a general equilibrium model with overlapping generations and complete markets, and quantitatively explores the welfare effect of various tax reforms. Their base case results indicate significant capital deepening when the tax base is changed from a 15% income tax to a 20.1% wage tax or a 17.6% consumption tax. Using a fictitious tax-transfer authority to compensate welfare losses along the transition to the final steady state, they find that there is an overall efficiency loss with a switch to wage taxation and an efficiency gain when the income tax is replaced with a consumption tax.[1] İmrohoroğlu (1998) uses a pure OG model with incomplete markets and finds that a positive capital income tax maximizes long-run welfare as the shift in the tax burden from the younger and liquidity constrained years in the life-cycle enhances self-insurance against the idiosyncratic shock. In the context of social security reform that alters the tax structure in the economy, De Nardi et al. (1999) find large long-run gains in privatization but substantial losses to the transitional generations, making privatization politically very difficult. Building on the earlier Auerbach and Kotlikoff work, Altig et al. (2001) obtain a similar result in the context of tax reform in the U.S. Despite long-run gains in output and "average" welfare, certain groups experience welfare losses.

This paper examines the welfare impact of various tax reform proposals. Instead of formulating a Ramsey problem, we follow the tradition of Auerbach and Kotlikoff (1987) and cast our question taking the actual U.S. government institutions as given. Starting from given initial conditions that represent the current U.S. economy and the tax code, we compute an equilibrium transition to a new balanced growth path, describe the welfare effects, and show the percentage of population for or against tax reform. We ask 'Using a carefully calibrated model based on uninsurable idiosyncratic earnings risk, (i) what are the welfare effects of changing the current U.S. tax code on individuals taking into account the transitional effects, and, (ii) what are the characteristics of the households that benefit or lose from tax reform?' In our setup, there is a realistic pension system with retirement benefits that are partially linked to contributions and financed with a payroll tax that distorts labor supply decisions and may also hurt borrowing constrained individuals. We calibrate the model to the U.S. data and numerically characterize transition paths from the current tax system to a reformed system. All our experiments are revenue-neutral. Starting from the current tax code, we allow for transitions to reformed steady states in which the capital income taxation or labor income taxation is eliminated, with the lost revenues replaced by a higher labor income or consumption tax.

A contribution of this paper is to provide a framework where the welfare implications of tax reform are examined both in a pure overlapping generations model and a dynastic environment populated with individuals who otherwise face similar uninsurable permanent and temporary income shocks and mortality risk. Our results indicate that there are significant differences in how tax reform will impact different individuals depending on the framework adopted. When altruistic links across generations are allowed to operate, both family members and households that belong to the same dynasty help insure the members of the same household and dynasty against ability, income and mortality shocks. Bequests and intervivos transfers are used as instruments to provide these insurance demands. A pure life-cycle model, however, provides a very different environment as the individuals can only self-insure against these shocks, and furthermore, have no links to any other generation. In addition, they also have a significant desire to save for retirement. These differing motives to save result in quantitatively different responses to tax reform in the two economies.

[1]See their Tables 5.7 and 5.8.