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# Political economy of Ramsey taxation

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ABSTRACT

We study the dynamic taxation of capital and labor in the Ramsey model under the assumption that taxes and public good provision are decided by a self-interested politician who cannot commit to policies. We show that, as long as the politician is as patient as the citizens, the Chamley–Judd result of zero long-run taxes holds. In contrast, if the politician is less patient than the citizens, the best (subgame perfect) equilibrium from the viewpoint of the citizens involves long-run capital taxation.



## 1. Introduction

Atkeson et al. (1999) summarize the main result of the Ramsey paradigm of dynamic optimal taxation—taxing capital income is a bad idea. When taxes on labor and capital are restricted to be linear and when the government is benevolent and can commit to a complete sequence of tax policies, Chamley (1986) and Judd (1985) result holds—the optimal dynamic tax sequence involves zero capital taxes in the long run. The result is surprisingly general and robust in a variety of settings, including models with human capital accumulation (Jones et al., 1997), models where capital-holders are distinct from workers (Judd, 1985), and certain overlapping generations models (Atkeson et al., 1999; Garriga, 2001; Erosa and Gervais, 2002). Similar results hold in stochastic versions of the neoclassical growth model (e.g., Zhu, 1992; Chari et al., 1994).[1] These prescriptions of the Ramsey taxation are used to guide policy not only in developed countries but also around the world.

An obvious shortcoming of this paradigm, and of the results that it implies, is that, in practice, taxes are not set by benevolent governments, but by politicians who have objectives different from citizens. Moreover, these politicians are typically unable to commit to complete sequences of future taxes. These two frictions, self-interest and lack of commitment, are at the center of many political economy models (see, e.g., Persson and Tabellini, 2004; Besley and Coate, 1998) and are also the cornerstone of the public choice theory (see, e.g., Buchanan and Tullock, 1962). From a practical viewpoint, it then seems natural to expect that these frictions should also affect equilibrium taxes and what types of tax structures are feasible. A major question for the analysis of dynamic fiscal policy is whether the key conclusions of the Ramsey paradigm generalize to more realistic environments with self-interested politicians and no commitment. This paper presents a simple answer to this question.

The answer has two parts. To start with, our analysis reveals a simple but intuitive economic mechanism that makes positive capital taxes optimal from the viewpoint of the citizens; positive capital taxes reduce capital accumulation and thus the incentives of politicians to deviate from the policies favored by the citizens. Thus, starting from an undistorted allocation a small increase in capital taxes is typically beneficial because it relaxes the political economy constraints. Despite this first-order effect, we also show that the result that capital taxes should be equal to zero in the long run generalizes to some political economy environments. That is, even when taxes are set by self-interested politicians with no commitment power to future tax sequences, the best sustainable equilibrium may involve zero taxes.

More specifically, we model the political economy of taxation using a version of the political agency models by Barro (1973) and Ferejohn (1986). In this model, taxes are the outcome of a dynamic

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[1] A notable exception is the New Dynamic Public Finance literature, which studies dynamic nonlinear taxes and characterizes conditions under which capital taxes need to be positive to provide intertemporal incentives to individuals with private information (see, e.g., Golosov et al., 2003; Kocherlakota, 2005; Golosov et al., 2006).

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game between politicians and citizens. While politicians have the power to set taxes, they are potentially controlled by the citizens, who can remove them from power using elections or other means. We analyze a neoclassical growth model, where self-interested politicians decide on linear taxes on labor and capital income and manage government debt. The amount that is left after servicing debt and financing public goods constitutes the rents for the politician in power. The interactions between citizens and politicians define a dynamic game. We characterize the best subgame perfect equilibrium (SPE) of this game from the viewpoint of the citizens.[2] We show that this problem is similar to the dynamic taxation problems in the literature except for the addition of a sequence of sustainability constraints for politicians, which ensure that politicians are willing to choose a particular sequence of capital and labor income taxes.

Our first result is that despite the self-interested objectives (rent-seeking behavior) of politicians and the lack of commitment to future policies, the best equilibrium will involve zero capital taxes as in the celebrated Chamley–Judd result, provided that politicians are as patient as the citizens. The intuition for this result is that the society can structure dynamic incentives to politicians in such a way that, in the long-run, rents to the politicians can be provided in a non-distortionary way. This result shows that the Chamley–Judd conclusion concerning the desirability of zero capital taxes in the long run has wider applicability than previously considered.

Our second result, however, delineates a specific reason for why positive capital taxes might be desirable. If politicians are more impatient than the citizens (which may be a better approximation to reality than the politicians having the same patience as the citizens, for example, because of exogenous turnover), the best equilibrium involves long-run capital taxes as well as additional distortions on labor supply. The reason for the presence of positive long-run capital taxation in this case is that, when politicians are less patient than the citizens, the political sustainability constraint remains binding even asymptotically. This increases the marginal cost of saving (and also of supplying labor for the citizens) because any increase in output must now also be accompanied with greater payments to politicians to provide them with the appropriate incentives. Intuitively, starting from a situation with no distortions (and zero capital taxes), an increase in capital taxation has a second-order effect on the welfare of the citizens holding politician rents constant, but reduces the capital stock of the economy and thus the rents that should be provided to politicians by a first-order amount. Consequently, positive capital taxes will be beneficial to citizens when political sustainability constraints are binding. It is also important to emphasize that such an allocation indeed requires distortionary taxes. If capital taxes were equal to zero, each individual would have an incentive to save more and the capital stock would be too high relative to the one that maximizes the utility of the citizens. Therefore, the "second-best allocation" can be decentralized only by using distortionary (linear) taxes.

Overall, our results suggest that the conclusions of the existing literature may have wider applicability than the framework with a benevolent government typically considered in the literature. But, they also highlight a new reason for why positive capital taxes might be useful, and thus suggest caution in applying these results in practice, especially when politicians are short-sighted either because electoral controls are imperfect or because of exogenous turnover or other reasons.

Important precursors to our paper include Brennan and Buchanan (1980) and Wilson (1989), who argue for distortionary taxes to be used to curb the negative political economy effects. In a more recent contribution, Becker and Mulligan (2003) argue that inefficient taxes may be beneficial as a way of reducing excessive spending by politicians and provide empirical evidence consistent with this view. Besley and Smart (2007) emphasize the importance of fiscal restraints in political agency models where politicians are controlled by elections. None of these papers consider the implications of political economy concerns for long-run capital taxation. Persson and Tabellini (1994) study a political model of capital taxation and show that necessary commitment under representative democracy corresponds closely to that provided by the actual institutions of most democracies. Bassetto (1996) explores how to sustain debt in an economy of renters and voters.

Our analysis builds on earlier work by Chari and Kehoe (1990, 1993), who study dynamic fiscal policy as a game between a benevolent (potentially time-inconsistent) government and citizens, and on Acemoglu et al. (2008, 2010). Acemoglu et al. (2008) develop a benchmark framework for the analysis of government policy in the context of a dynamic game between a self-interested government and citizens, but focus on situations in which there are no restrictions on tax policies. Acemoglu et al. (2010) use this framework for the analysis of the political economy of taxation and dynamic Mirrlees economies — the restrictions on taxes in that paper are endogenous and result from incentive compatibility constraints due to incomplete information. In our paper, we focus on the canonical Ramsey setup, where government is limited to linear (distortionary) taxes.

Most closely related to our paper is the recent work by Yared (2010), who studies dynamic fiscal policy in a stochastic general equilibrium framework with linear taxes under political economy constraints similar to ours. The main difference is that Yared's analysis does not incorporate capital, which is the focus of the present paper. In a political economy setup similar to ours, Caballero and Yared (2010) also study the dynamics of taxes, though they focus on a stochastic environment with aggregate shocks and ignore the role of capital taxation.

Our paper is also related to Benhabib and Rustichini (1997) and to recent work by Reis (2007) on optimal policy with benevolent government without commitment.[3] Albanesi and Armenter (2007a,b) provide a unified framework for the study of intertemporal distortions, though their framework does not incorporate explicit political economy considerations or allow the planner (politicians) and the agents to have different discount factors. Aguiar and Amador (2009) provide a tractable model for the effects of dynamic political economy on policy and capital accumulation. Several papers study Markov perfect equilibria in models of dynamic fiscal policy with time inconsistency or with political economy elements. Hassler et al. (2008), for example, show the possibility of positive long-run taxation and cycles in an environment with age-dependent capital depreciation rates. Aguiar et al. (2007, 2009) characterize optimal taxes and debt policy in a small open economy. Hassler et al. (2005), Song et al. (2009) and Battaglini and Coate (2008) study dynamic taxation in the presence of different political economy elements. Armenter (2007) shows that in a two-class, stochastic economy similar to that in Judd (1985), the standard Ramsey policy sequence can be sustained if policy revisions require unanimity to be approved. Farhi and Werning (2008) and Sleet and Yeltekin (2006, 2008) study dynamic fiscal policy in an environment with private information and lack of commitment or political economy constraints, and show that constrained optimal policies in these environments can be characterized as a solution to an

[2] Our focus on the best SPE is motivated by our attempt to understand what the best feasible tax structures will be in the presence of political economy and no-commitment constraints. Naturally, the dynamic game we specify has other equilibria, and many of these exhibit greater inefficiencies than the best SPE characterized here. We believe that focusing on the best SPE highlights the dynamic economic forces affecting capital taxes in the clearest possible way.

[3] There is also a large quantitative literature on time-inconsistent tax policies with benevolent politicians (social planners). For example, Klein et al. (2008) focus on time consistent Markovian equilibria, while Phelan and Stacchetti (2001) study more general sustainable equilibria in such environments.