



Optimal fiscal decentralization: Redistribution and welfare implications



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ABSTRACT

The literature has been inconclusive regarding the welfare effects of fiscal decentralization (FD), defined here as the extent to which local governments collect and spend local tax revenues. We present an original model to investigate formally the distributional and welfare implications of FD. In contrast to the standard approach that compares the implications of full FD with that of centralization, we consider that the central government chooses the level of FD to maximize welfare in a heterogeneous country. Noncooperatively, local governments choose their tax collection effort to maximize local utility. We show that an increase in the tax rate leads optimal FD to increase so as to compensate for the welfare loss from decreasing optimal local tax effort. Hence, welfare and income distribution improve in FD at its intermediate, rather than extreme, levels. We coin this result as the *decentralization-Laffer curve*. As regional spillovers increase, FD is less desirable as it deteriorates welfare and income distribution. This finding provides a novel support for the decentralization theorem and contributes to the fiscal policy debate.

1. Introduction

Fiscal decentralization (FD), defined as the devolution of fiscal power and responsibilities to sub-national governmental units, has been argued to improve democratic governance practices and thus to contribute to economic efficiency.¹ Heterogeneity in local preferences, combined with asymmetric or incomplete information, that put local fiscal activity in a favorable position constitute the main rationale of this argument. The main policy implication that follows is that decentralizing public good provision is welfare-enhancing especially when regions are heterogeneous and spillovers are small, which is coined by Oates (1972) as the decentralization theorem. Notwithstanding the considerable attention the literature has paid to the efficiency and welfare implications of FD,

the findings are hitherto somewhat inconclusive.² Investigating the optimal level of FD vis-à-vis its redistributive, as well as efficiency, implications seems essential for prudent fiscal policy design. This paper aims to contribute to the literature in this regard.

Recent studies debated the argument that FD is a mechanism of increasing efficiency in public good delivery, however, on the basis that local governments usually do not fully internalize the externalities of their actions and they face various forms of capacity constraints.³ To increase efficiency and welfare, it is therefore argued that FD has to be complemented by additional institutional mechanisms that ensure accountability and transparency of sub-national fiscal activity. Those mechanisms mainly entail improving governance and implementation of fiscal rules.⁴ Empirical findings also suggest that it is neither possible

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¹ An inspection of the Fiscal Decentralization Indicators of the World Bank reveal the following stylized facts: i) federal systems generally have greater degrees of FD than the rest; ii) developed countries are associated with higher levels of FD than less developed countries (see Neyapti (2010)); iii) expenditure decentralization is higher than revenue decentralization in both developed and developing countries; and iv) there are varying degrees of vertical and horizontal imbalances in each country.

² Following Tiebout's (1956) seminal work, there has been a growing literature on FD. See, for example, Oates (1972, 1998, 1999), Prud'homme (1995), and Diamond (1999) to name a few.

³ See, for example, Prud'homme (1995), Stein (1998), Alesina et al. (1999), Rodden (2002), Tanzi (1994), and Fisman and Gatti (2000).

⁴ See, for example, Burki et al. (1999), Tanzi (2000), De Mello and Barenstein (2001) and Neyapti (2010, 2013), on the importance of various attributes of governance mechanisms for FD to be associated with improved economic outcomes. Using the IMF measures of fiscal rules across countries, Neyapti (2013) demonstrates that increasing FD is associated with lower fiscal deficits in case of fiscal rules. Sanguinetti and Tomassi (2004), Stöwhase and Traxler (2005), Akin et al. (2014), and Neyapti and Bulut-Cevik (2014) all show that rule-based transfer mechanisms improve fiscal efficiency.

nor desirable to decentralize public activity entirely; hence an intermediate level of FD is preferable for improving welfare or fiscal discipline.⁵

The existing studies that formally model FD generally compare the outcomes of fully centralized and decentralized fiscal structures. Lockwood (2002), for example, investigates the effects of distributive policies in a political economy model with externalities, and argue that, in contrast with Oates (1972), weaker externalities may not increase the efficiency gains from decentralization, depending on the nature of heterogeneities.⁶ Also in a political economy framework, Besley and Coate (2003) investigate the roles of spillovers and homogeneity for public good provision in cases of centralized and decentralized systems. They show that, due to cost sharing, decentralization may be superior to centralization even when spillovers are small and regions are homogeneous. Belofatto and Besfamille (2015) compare the cases of partial and full decentralization with a focus on local fiscal and administrative capacity. Koethenbueger (2008) investigates the welfare differentials of FD and centralization under spillovers and state the conditions that support the decentralization theorem. An important exception is Janeba and Wilson (2011) who state, also in a political economy model, that tax competition restricts the efficiency of decentralization, and show that an intermediate level of decentralization is optimal.

To our best knowledge, the literature has not yet provided a formal study of the welfare and redistributive implications of the optimal choice of the degree of FD in view of heterogeneous localities and spillover effects. The current study presents a framework where the extent to which the local revenue base is to be utilized locally is decided optimally by the central government, in a strategic interaction with local governments. It also investigates how structural and economic factors, specifically the prevailing tax rate and the share of the public sector vis-à-vis the private sector in the utility function affect optimal FD.

The model assumes three types of goods in each locality: local private good, local public good and pure public good. Assuming that the economy is closed, the central government (G) maximizes social welfare by choosing the degree of FD, which is assumed to be uniform across localities.⁷ The model is solved as a non-cooperative game between local governments (LGs) and G, where a representative LG chooses its relative tax collection effort, which determines the level of local public good. Given the complexity of the set-up, output is assumed to be given exogenously and the model is static.

The solution of the model reveals that an increase in the tax rate leads to an increase in optimal FD, but a decrease in the optimal tax collection effort, as well as in the effective tax rate. Given the feasible range of parameter values, maximum values of welfare and tax revenue correspond to a medium range of optimal FD values. In addition, income distribution improves for the medium range of optimal FD values. Hence, the paper's findings caution the policy makers against a full-fledged and unconditional fiscal decentralization.

As an extension of the benchmark model, we investigate the optimal choice of FD when local public good provision has positive or negative spillover effects. The solution of the model reveals that spillovers have a

⁵ See, for example, Neyapti (2010). The non-linear effects of FD are also demonstrated by Wang (2013) in the context of the FDI flows to China. While there are numerous studies on the macroeconomic effects of FD in China, Qichun (2014), for example, investigates the effects of FDI flows on FD in China and finds a positive association; Zhang and Zou (1998) demonstrate the negative effects of FD on growth in China. Mah (2013) observes that FD does not have a significant effect on income distribution. Gradstein (2016) explains the incentive for non-democratic governments to adopt fiscal decentralization, mainly to avoid the hold-up problem.

⁶ Among the recent studies, Crivelli and Staal (2013), for example, investigate the bailout policy of the government vis-à-vis the optimal size of the local public good and conclude that the size of districts matter for the decision making. Hatfield (2015) demonstrates that tax policy is chosen optimally to promote growth under decentralization and not under centralization.

⁷ Oates (1972) refers to it as policy uniformity. See, also Cremer and Palfrey (1996).

positive effect on optimal FD and negative effect on tax collection effort, which appear to challenge the main argument of the decentralization theorem that state that spillovers reduce the welfare gains of FD. However, simulations also show that, when both income distribution and welfare effects are taken into account, lower rates of FD is preferable than in the case of no spillovers.

The structure of the rest of the paper is as follows. Section 2 describes the model as a strategic game between the central government and the local governments, Section 3 provides the comparative statics and simulation results, Section 4 extends the model to incorporate spillover effects, and Section 5 concludes.

2. The model

We consider a closed economy where the initial income of each region (Y_i) is predetermined. We treat the private sector as a passive agent so as to focus on the interrelationship between the central and local governments. The level of spending in locality i , denoted by \tilde{Y}_i ,⁸ is given by the sum of private (C_i) and public spending that is composed of local and central government spending, denoted by G_i^L and G_i^C , respectively.⁹ Because G_i^C is pure public good, it can be written that $G^C = G_i^C$. The current framework is static; hence C_i is equal to the after tax income as there is no capital accumulation:

$$\tilde{Y}_i = C_i + G_i^L + G_i^C \quad (1)$$

where

$$C_i = (1 - t_i)Y_i; \quad G_i^L = \phi a_i t_i Y_i; \quad \text{and} \quad G_i^C = (1 - \phi)t \sum_i Y_i. \quad (2)$$

For the tractability of the model, we assume that the only tax base is income, from which both the local and the central governments collect taxes. t_i is the tax rate faced by region i ($i=1, \dots, n$) and it is equal to the sum of taxes collected by the local and the central governments:

$$t_i = [a_i t \phi + t(1 - \phi)] \quad (3)$$

where a_i is the relative tax collection effort (or capacity) of LG vis-à-vis the central government in region i . ϕ is the level of fiscal decentralization ($\phi \in [0, 1]$) that stands for the share of the local government in both total tax-revenue collection and public spending.¹⁰ The first component of t_i , $a_i \phi t$, is the portion of tax revenue that is collected by LG_i and constitutes the sole source of financing for local public spending (G_i^L)¹¹; given ϕ , $a_i t$ is the effective tax rate of LG_i . The second component of t_i , $(1 - \phi)t$, the portion of local taxes that is collected by G and spent as G^C , is consumed in equal amounts by each locality. Hence, G_i^C stands for a positive transfer to region i if $(1 - \phi)t Y_i < G^C$.¹² All variables are expressed in per capita terms. t is the constant average income tax faced by a representative agent in each region, and is assumed to be given exogenously.¹³

The regions are assumed to be homogeneous in all respects other than their initial incomes, hence, the model focuses on a representative LG. There is no tax competition. We first solve for the benchmark case of $n=2$, where G and LGs act non-cooperatively to determine the optimal levels of ϕ and a_i , respectively, given t .

⁸ Total spending (\tilde{Y}_i) differs from income (Y_i) by the amount of (positive or negative) transfers made by the central government. However, for the whole economy, the government budget is in balance, hence: $\sum_i \tilde{Y}_i = \sum_i Y_i$.

⁹ One may consider G_i^L as the local public good.

¹⁰ For simplicity, ϕ is assumed to be invariant across regions.

¹¹ One could model local spending to result from joint projects of the local and central governments. The large extent of nonlinearities already existing in the model, however, lead us to exclude this option for purposes of clarity in presentation.

¹² Both regions receive positive transfers when $t > 0$ and $Y_i > 0$ for all i .

¹³ No explicit solution can be found to the problem where G optimizes both ϕ and t due to the highly non-linear constraints of the model. An optimal solution for both ϕ and t can be found, however, under the leader-follower type game as the corner solution, where $\phi^* \cong 1$; $a_i^* \cong 0$; and $t^* \cong 0$. This solution, however, is not economically intuitive.

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