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# Partial fiscal decentralization and demand responsiveness of the local public sector: Theory and evidence from Norway

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ABSTRACT

This paper provides an empirical test of a principal tenet of fiscal federalism: that spending discretion, when granted to localities, allows public-good levels to adjust to suit local demands. The test is based on a simple model of partial fiscal decentralization, under which earmarking of central transfers for particular uses is eliminated, allowing funds to be spent according to local tastes. The greater role of local demand determinants following partial decentralization is confirmed by the paper's empirical results, which show the effects of the 1986 Norwegian reform.



## 1. Introduction

With fiscal decentralization, subnational governments gain autonomy in the provision and financing of public goods. Such autonomy has been a longtime feature of fiscal arrangements in the United States, Canada and a few other countries. A greater degree of central management of the public sector, however, is common elsewhere, especially in developing countries. But partly in response to advice from the World Bank and other international agencies, many countries are embracing fiscal decentralization by attempting to devolve spending and taxing authority to subnational governments. This movement is motivated in part by the lessons of the Tiebout (1956) model, which show that local control of spending allows the public sector to better respond to heterogeneous demands for public goods.

Despite these developments, the fiscal decentralization pursued in other parts of the world often fails to match the North American pattern, being only partial in nature. Rather than gaining autonomy to set both spending and taxes, subnational governments often must rely on transfers from the central government to finance the provision of public goods.[1] With fixed transfers, subnational governments often have little latitude in choosing the levels of public goods, especially when transfers are accompanied by mandates that specify how the money is to be allocated across spending categories. This reliance on transfers, and the lack of discretion it entails, is often a result of a lack of tax capacity at the subnational level. For either historical or constitutional reasons, subnational governments may not have access to taxes capable of generating substantial revenue, in contrast to the situation in North America, where subnational income, sales and property taxes generate enormous revenue. Alternatively, productive subnational taxes may exist but their rates may be centrally controlled.[2]

Despite its relevance in much of the world, partial fiscal decentralization has received only limited treatment in the public economics literature. One purpose of the present paper is to offer a simple new model that compares public-good provision under partial decentralization to the outcomes under centralized provision and, alternatively, "full" decentralization, where subnational governments gain complete fiscal autonomy. The model yields clear-cut predictions showing how a movement from centralization to partial decentralization affects public-good provision, and these predictions are then tested using data from Norway. A 1986 Norwegian reform gave local governments more control over spending decisions while maintaining their reliance on central transfers as a source of funds, and the empirical work investigates the effect of this reform.

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[1] For example, figures presented by Shah and Shah (2006) show that, in a sample of ten lower-income countries, local governments relied on intergovernmental transfers for 51% of their revenue, in contrast to a smaller transfer share of 34% for OECD countries. In a larger sample of developing countries analyzed by Shah (2004), 42% of subnational revenue (local and provincial) came from transfers.

[2] Although the Shah studies cited in footNote 1 do not present evidence on tax autonomy for the sample countries, a separate OECD study (1999) shows that, for one sample country (Mexico), subnational governments had effective control over only 14% of their tax revenue, with this limited control enjoyed only at the state rather than local level.

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The model builds on the analysis of Brueckner (2009), which also compared outcomes under centralization, partial, and full decentralization. In a model like Brueckner's that has only a single public good (denoted $z$), a local government relying on a fixed central transfer under partial decentralization would ordinarily have no discretion in its choices, with the $z$ level automatically determined by the transfer amount. However, public-good levels in Brueckner's model are determined both by spending and by the "effort" level of local governments, breaking the direct link between the transfer and $z$.[3] The present model differs fundamentally by assuming provision of two distinct public goods ($x$ and $z$) rather than one, with local-government effort dropped as an input. Local discretion under partial decentralization now exists despite the fixed transfer because local governments are free to choose the mix of the two public goods, varying the levels of $x$ and $z$ to suit local preferences while holding total spending constant at the amount of the transfer. The simple prediction of the model is that, with per capita spending held fixed, moving from centralization (where the center sets uniform levels of the two public goods) to partial decentralization leads to heterogeneity in the levels of the goods. Under partial decentralization, the $x$ and $z$ levels in different localties diverge from the common level under centralization, reflecting local demand differences, even though total spending is held constant.

The model thus predicts that, following partial decentralization, local characteristics affecting the demand for public goods play a greater role in determining provision levels than before. Evidence for this enhanced role comes from studying the effects of the 1986 Norwegian reform, which relaxed the spending mandates for individual public goods that were part of the previous system of intergovernmental grants. This change allowed new local discretion in the choice of the public-good mix while keeping the size of grants constant, representing the kind of partial decentralization envisioned in the model. In effect, the 1986 reform offers a natural experiment that allows a rare test of the effects of local discretion. Pre- and post-reform demand estimates show that local characteristics gained explanatory power following the reform, indicating that the reform allowed public-good provision to adjust in response to demand heterogeneity across jurisdictions. By allowing greater local discretion, the reform may have also raised the incentives for the sorting of the population according to preferences for public goods. The paper offers evidence that intercity migration increased following the reform, which may reflect greater sorting incentives.

The paper's demonstration of the enhanced role of local demand determinants following the reform offers support for a fundamental tenet of fiscal federalism, namely, that local fiscal discretion enables the public sector to better respond to consumer preferences for public goods. Despite this idea's central importance in the vast literature on the Tiebout hypothesis, empirical work designed to explicitly test it is scarce. In one study, Ahlin and Mork (2008) exploit a similar natural experiment in Sweden that allowed greater local discretion in the determination of school spending, although they find mixed results that lend little support for the hypothesis. Earlier work by Borge and Rattsø (1993) also explored the effects of the Norwegian reform, but their approach did not deliver clearcut findings like those presented below. In contrast, Faguet (2004) found that when a Bolivian reform raised central-government transfers and gave localities more control over investment projects, investment levels changed in ways that reflected local characteristics.[4] With only one prior empirical study establishing such a conclusion, more evidence is needed, and this paper provides it. Note also that the current evidence relates to public-service provision, not public investment.

Instead of addressing the role of local demand determinants and exploiting such natural experiments, most previous work in the Tiebout tradition has investigated the foundational aspects of the theory. Oates (1969) and the vast ensuing literature on capitalization validates the premise that public goods matter to consumers and that interjurisdictional mobility registers these preferences, with house prices high in places with high public-good levels. Another foundational notion, that consumers vote with their feet in pursuing ideal levels of public spending, is tested in various studies. Some papers, including Pack and Pack (1978), Eberts and Gronberg (1981) and Rhode and Strumpf (2003), carry out tests for convergence toward a homogeneous community structure (an implication of voting with one's feet), while Banzhaf and Walsh (2008) look more explicitly for evidence of such behavior. A related literature explores intercommunity residence patterns using more-sophisticated econometric methods, with the goal of inferring the existence of consumer sorting across jurisdictions (see, for example, Bayer and Timmins (2007)). The present paper complements all of this previous work by providing a more-direct test of a core idea of fiscal federalism.

The paper also adds to a recent resurgence of theoretical research on fiscal decentralization, which builds on the classic treatment of Oates (1972) (see also Wildasin (1986)). Recent papers include Lockwood (2002), Besley and Coate (2003), Brueckner (2004), Lorz and Willmann (2005), and Arzaghi and Henderson (2005), among others. The models of Besley and Coate and Lockwood offer a contrast to the present approach by assuming that, when it exercises control, the central government can differentiate the provision of public goods across local jurisdictions, blurring the distinction between the centralized and decentralized cases.

In addition to Brueckner (2009), recent work that explicitly focuses on partial fiscal decentralization includes an earlier paper by Schwager (1999), who analyzes what he calls "administrative federalism".[5] Peralta (2012) constructs a related model with imperfect information and rent-seeking politicians, where partial decentralization allows more scope for this activity than full decentralization.[6] The analysis of Hatfield and Padró i Miguel (2012) reflects a different view of partial decentralization. In their model, which has a continuum of public goods, partial decentralization emerges when a portion of the continuum is provided locally, with the remainder provided by the central government.[7] In addition to these papers

[3] This decoupling allows public-good provision to respond under partial decentralization to heterogeneity in the demands for $z$ despite a common transfer level for all localities. The response is narrower, however, than under full decentralization.

[4] Sigman (2007) offers a test for the effects of decentralization that does not rely on a natural experiment. Her empirical results show that variation in environmental quality is higher within federalist countries than within non-federal states, evidently reflecting variation in the restrictiveness of local environmental policies within the former set of countries.

[5] With full decentralization, jurisdictions in his model choose both the investment level in individual public projects and the number of projects to implement, in a setting with interjurisdictional spillovers. The central government can improve the outcome by specifying the level of project investment while still allowing localities to choose the number of projects undertaken, a partial-decentralization outcome that shares the spirit of the current approach.

[6] It does so because spending is then fixed at the level of the central transfer regardless of whether the uncertain unit cost of the public good turns out to be high or low (rather than adjusting to reflect this cost). As a result, rent-seeking politicians who wish to masquerade as benevolent can more easily extract rents under partial decentralization without revealing their type. While this conclusion affirms the superiority of full decentralization, Brueckner (2009) (in a variant of his basic model) offers a different result by showing that partial decentralization instead limits the options of rent-seekers, making it potentially superior to full decentralization.

[7] While local governments use nonredistributive and nondistortionary head taxes in a desire to avoid tax competition, a redistributive capital tax, which also distorts the economy by depressing capital supply, funds central provision of public goods. Facing a tradeoff between efficiency and redistribution in the choice of local versus central provision, voters choose the optimal share of public goods to be provided locally, thus determining the extent of partial fiscal decentralization. Panizza (1999) and Jametti and Joanis (2011) use similar models in empirically oriented papers.