Chapter 1

The role of intergovernmental fiscal institutions: The case of tax sharing

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In the literature on fiscal decentralisation – both the first generation and second generation theories – a critical assumption made is that local governments have taxing power over local taxes. Another assumption is that a clear distinction exists between local taxes and intergovernmental grants. Tax sharing, which is widely adopted in the world except in a few countries such as the United States and Canada, makes such assumptions invalid. Tax sharing links the budgets of the central and local governments in a complicated way and creates conflicts of interest among different levels of government. It also may lead to an inefficient tax mix and higher national debt. Compared with the cases where the assignment of tax and expenditure responsibilities are clear cut, understanding the interrelationship between tax sharing, fiscal institutions, and the political system is critical for the success of fiscal decentralisation.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

1. Introduction

In the traditional literature on fiscal federalism (Tiebout, 1956; Oates, 1972), the roles of central and local governments are clear-cut: The central government collects its own taxes and provides national public goods; local governments collect their own taxes and are responsible for local public services whose benefits accrue within geographical boundaries.[1] In the case where local public services create spillover benefits, the central government may provide matching grants to local governments to internalise those spillover benefits. As Oates (2008, p. 317) puts it, intergovernmental fiscal institutions in the traditional fiscal federalism literature are "neat and tidy."

In the so-called Second Generation Theory (SGT) of the fiscal federalism literature, local governments are not benevolent and the provision of public goods is determined by the political process. According to Oates (2005, 2008), in the first strand of the SGT literature, local governments try to maximise their claim to the "fiscal commons" and accumulate debt with the expectation of bailouts. From the perspective of this theory, the problems of soft budget constraints and transfer dependency created by the strategic behavior of local governments should be controlled by fiscal rules on local budget deficits and debt. Intergovernmental grants, which play a positive role in the First Generation Theory (FGT) of the fiscal federalism literature, only worsen the problems of bailouts and transfer dependency. To avoid this, the size of intergovernmental grants should be reduced and preferably replaced by local taxes. Thus this first strand of the SGT literature, as Oates (2008, p. 318) puts it, focuses on a "dark side" to fiscal decentralisation.

According to Oates (2005, 2008), in the second strand of the SGT literature, the focus is on the trade-off between centralisation and decentralisation. In this type of literature, the emphasis is put on the legislative structure and electoral processes, which generate different kinds of fiscal outcomes under centralised and decentralised systems. Unlike the first strand of the SGT, the second strand considers fiscal decentralisation as a mechanism to efficiently allocate resources across local governments. As Lockwood (2006) discusses, a variety of political economy models in the second strand of the SGT literature show that fiscal decentralisation is more responsive to the preferences of citizens than fiscal centralisation.

Even though the SGT literature departs from the normative stance of the FGT literature, it maintains the assumption that the roles of central and local governments are clearly separated. No less is true of the second strand of the SGT literature. In the first strand of the SGT literature, which emphasises the undesirability of intergovernmental grants, the difference between intergovernmental grants and local taxes is clear cut, and it is argued that intergovernmental grants that create transfer dependency ought to be replaced by local taxes.

In the literature on fiscal decentralisation – both the FGT and the SGT – a key assumption made is that there is a clear distinction between grants and local taxes, which is a necessary condition for the clear separation of central and sub-national responsibility. In many countries, however, the majority of local revenues comes from "shared taxes" rather than own taxes or intergovernmental grants. Moreover, the revenue from shared taxes is often legally regarded as the same as the revenue from own taxes. This begs the following question: If a country follows the advice of the SGT literature and replaces intergovernmental grants with shared taxes, does such a fiscal reform improve the fiscal performance of the public sector?

To answer this question, it is necessary to investigate the nature of tax sharing and its interrelationship with fiscal institutions and the political system. It should also be recognized that tax sharing is a widely adopted fiscal arrangement in many countries, and often it is a source of intergovernmental tensions and conflicts. As will be discussed in this paper, unless there is an effective mechanism of intergovernmental co-operation, it is likely that the composition of a central government's tax revenue will likely become biased towards taxes not shared among different levels of government. In addition, under the system of tax sharing the central government has an incentive to rely on debt financing rather than increase the revenue of shared taxes.

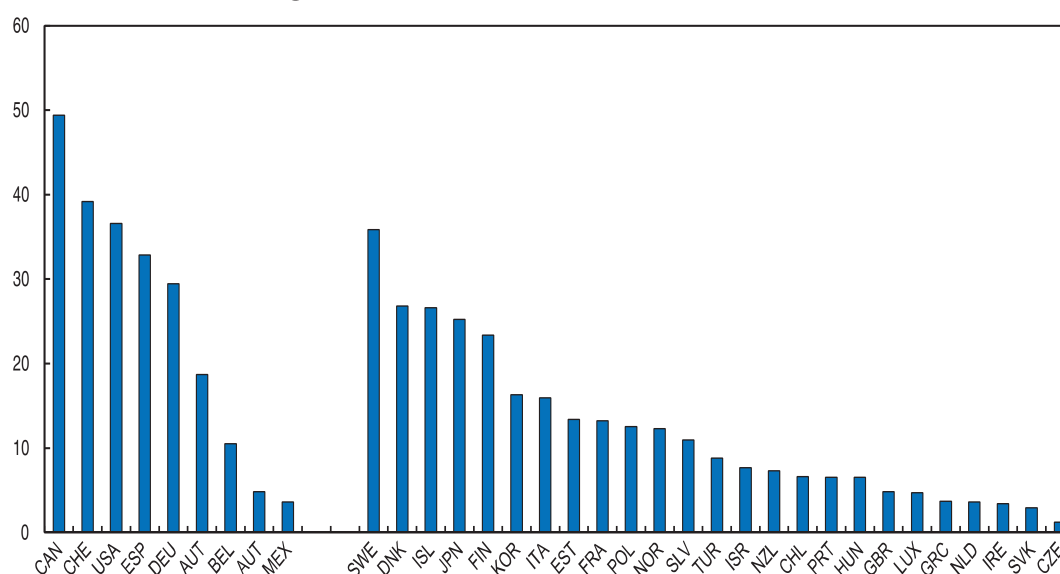
The paper is organised as follows. In Section 2, the structure of sub-national revenues and the importance of tax sharing as a major source of sub-national revenues are discussed. In Section 3, the intergovernmental budget linkage created by tax sharing and the resulting complications of intergovernmental fiscal relations are discussed. In Section 4, the relationship between tax sharing, fiscal institutions, and political systems is discussed. Section 5 concludes.

2. The main sources of sub-national revenue: An international comparison

2.1. An overview

According to OECD Revenue Statistics (2013), the share of sub-national taxes in total tax revenue is among the highest in federal or quasi-federal countries such as the United States, Canada, Spain, and Switzerland, where sub-national taxes account for more than 30% of total tax revenue (including social security contributions). In unitary countries, the share of local taxes is among the highest in the Nordic countries (Sweden, Denmark, and Finland) and Japan, where local taxes account for more than 25% of total tax revenue. In countries such as the United Kingdom, Ireland, and the Netherlands, local taxes account for less than 10% of total tax revenue. Countries such as France, Italy, Korea, Poland, and Norway are mid-level countries, where the local tax share is between 12% and 17%.[2]

Figure 1.1. The share of sub-national tax revenue



Source: OECD Revenue Statistics, 2013.

2.2. The significance of tax sharing

The numbers in Figure 1.1 are based on the OECD Revenue Statistics database, which contains sub-national tax revenues reported by OECD member countries. In interpreting these numbers, it is important to note that the definition of sub-national tax varies widely from country to country. Some countries define sub-national taxes as the taxes whose rates and/or bases sub-national governments have the right to change. Other countries define sub-national taxes regardless of sub-national taxing power. In order to measure the different levels of sub-national taxing power, OECD (1999) and Blöchliger and Nettley (2015) suggest a categorisation of sub-national taxes into five different types.[3] According to this categorization, the sub-national taxes that belong to types "a," "b," and "c" are "autonomous" taxes. The sub-national taxes that belong to type "e" are effectively federal (central) taxes or intergovernmental transfers. The most controversial case is type "d" – a tax sharing arrangement. According to the OECD Revenue Statistics, some countries classify a type "d" tax as a sub-national tax (e.g. Germany), while other countries classify it as a kind of intergovernmental transfer (e.g. Australia). The inconsistency in the definition of sub-national taxes is problematic because, according to Blöchliger and Nettley (2015), a significant amount of sub-national revenue comes from tax sharing in many OECD member countries such as Australia, Austria, the Czech Republic, Belgium, Germany, Italy, Poland, Turkey, and Spain.

In addition to these OECD countries, there are many non-OECD countries in Central and Eastern Europe, Asia, and Latin America, where tax sharing is a major source of sub-national revenue. According to Dabla-Norris (2006), in almost all countries in Central and Eastern Europe, tax sharing is a major source of local revenue. The situation is similar in Asia. As reported by Vo (2008), in China, India, Vietnam, Indonesia, Pakistan, and Thailand, tax sharing is a major source of sub-national revenue. This is also true in Latin American countries such as Brazil, Argentina, and Colombia (see Gomes, 2012). As will be discussed in more detail in the next section, general grants in Korea and Japan are a kind of tax sharing. Moreover, in some countries local taxes are *de facto* shared taxes, as found in Japan (Mochida, 2015), Korea (Kim, 2015), and Norway (Borge, 2015).

Table 1.1. The main source of sub-national revenue

Country	Tax Sharing		Local Tax	Grants
	Constitutional & Legal	*De facto*		
Europe (OECD)	Austria, Germany, Spain, Italy, Belgium, Australia, Estonia, Poland, Hungary, Czech Republic, Turkey	Norway	Finland, Denmark, Sweden, Switzerland	United Kingdom, the Netherlands
North America	Mexico		United States, Canada	
Asia	China, Vietnam, Indonesia, Thailand, Japan (general grants), Korea (general grants), India, Pakistan	Japan (local taxes), Korea (local taxes)		New Zealand, Malaysia
Latin America	Brazil, Argentina, Colombia			Chile
Central and Eastern Europe	Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, Georgia, Kazakhstan, Kyrgyz, Latvia, Moldova, Poland, Romania, Russia, Tajikistan, Ukraine, Yugoslavia,			

Source: Blöchliger and Nettley (2015); Dabla-Norris (2006); Kim et al. (2015); Gomes (2012); Vo (2008).

2.3. Tax sharing, revenue sharing and grants: Typological issues

Blöchliger and Petzold (2009) observe that part of the reason for the lack of a consistent definition of sub-national taxes is because there is no internationally agreed guideline that distinguishes between tax sharing and intergovernmental transfers, although some harmonisation has been reached with the 2010 revision of the National Accounts database.[4] They propose a set of criteria which determine the characteristics of tax sharing as follows: i) risk sharing;[5] ii) un-conditionality;[6] iii) formula stability;[7] and iv) individual proportionality.[8]

Among these four criteria, the most controversial one is "individual proportionality." The question is whether sub-national revenues that satisfy the first three criteria but not the fourth should be categorised as revenues from tax sharing. In countries such as Germany take this position. The sub-national tax sharing revenues in Germany do not satisfy the condition of individual proportionality, but are reported as the revenues from sub-national taxes in the OECD Revenue Statistics. On the other hand, Australia classifies VAT revenue sharing between federal and state governments as a kind of intergovernmental transfer – the reason why the sub-national tax share in Australia shown in Figure 1.1 is relatively low. The cases of Korea and Japan are noteworthy because, in these countries, a share of revenue from many national taxes is distributed to local governments based on a distribution formula. These local revenues are classified as general grants, but they do satisfy the first three criteria proposed by Blöchliger and Petzold (2009): They are directly linked with national taxes by law, unconditional, and are distributed based on a formula.[9] It may be argued that since their distributional effects are so strong, their nature is quite different from the tax sharing arrangements found in Germany and Australia. However, the challenging question here, as Blöchliger and Petzold (2009) aptly asked, is where we draw the line between tax sharing and grants.

In the literature, many scholars use the term *tax sharing* only to describe the case where the distribution of the revenues from shared taxes does not involve horizontal equalisation. In the case where vertical tax sharing is combined with horizontal equalisation, the term *revenue sharing* is often used. For example, McLure (2001, p. 342) differentiates tax sharing and revenue sharing in this way, noting that Germany and Australia have adopted the system of *revenue sharing*. Weingast (2009) strongly emphasizes the incentive effects of tax sharing in China, which he argues have significantly contributed to that country's economic growth. It is noteworthy that the most important characteristic of tax sharing according to Weingast (2009) is individual proportionality. But the tax sharing arrangement without individual proportionality, such as that found in Germany, makes this argument invalid.

It seems reasonable, then, to use the terms *tax sharing* and *revenue sharing* to imply, respectively, individual proportionality and horizontal equalisation. However, in countries such as Germany and Austria, the shared taxes with the element of horizontal equalisation are officially classified as sub-national taxes rather than intergovernmental transfers, as reflected in the OECD Revenue Statistics. On the other hand, Australia classifies the VAT sharing between federal and state governments as an intergovernmental grant, which is also reflected in the OECD Revenue Statistics. Faced with the diverse interpretations of the term "tax sharing," Blöchliger and Petzold (2009) propose using the term "tax sharing" for cases where shared taxes involve horizontal equalisation and "strict tax sharing" where shared taxes satisfy individual proportionality. However, the terminology of tax sharing remains largely unsettled in the literature. In this paper, an eclectic view is taken and the term *tax sharing* is used in its most broad sense,

encompassing both individual proportionality and horizontal equalisation. Tax sharing with individual proportionality is called *strict tax sharing*. Tax sharing with horizontal equalisation is called *revenue sharing*.

Notably, in discussing the typology of tax sharing, McLure (2001) argues that even *strict tax sharing* is essentially the same as an intergovernmental grant because it does not allow sub-national governments to exercise taxing power.[10] By the same logic, *revenue sharing* is regarded as a kind of intergovernmental grant (e.g. Oates (1999)). In the economic analysis of the local public sector, the interest of researchers tends to focus on local decision-making – such as the decisions on the local tax burden and local spending. From this point of view, there is indeed not much difference between the economic effects of tax sharing and intergovernmental grants because their sizes cannot be changed at the margin by local governments.

However, when the focus of analysis is shifted to fiscal institutions and their effects on budget allocation, a clear difference between tax sharing and intergovernmental grants emerges. In the case of intergovernmental grants, the amount and its distribution across sub-national governments are usually determined in the annual budget process. In contrast, tax sharing is based on constitutions and laws that provide a legal foundation for linking central and sub-national budgets. So the two types of sub-national revenue differ not only in how they are determined, but also in aspects of political economy and incentive structure. In other words, in the case where tax sharing is a dominant source of sub-national revenue, understanding the nature of fiscal institutions and the political system, which is primarily country-specific, is much more important than in the case of intergovernmental grants.

2.4. Literature on tax sharing

Even though tax sharing is the main source of sub-national revenue for the majority of countries around the world, there are relatively few studies that deal with tax sharing. In the few cases where tax sharing is discussed, it is usually treated as the same as intergovernmental grants (e.g. Oates, 1999; McLure, 2001). Wildasin (2004) suggests that this is because much of the academic research on sub-national government finance has focused on the United States and Canada, where tax sharing does not exist or is a small source of sub-national revenue. More importantly, as Wildasin (2004) notes, the issues of tax assignment and expenditure assignment are relatively in the United States and Canada, but this is not the case in many other countries where tax sharing plays an important and sometimes controversial role in the area of tax assignment.

Among the few studies that deal with tax sharing, the studies by OECD (1999), Blöchliger and Nettley (2015) and Blöchliger and Petzold (2009) have contributed to the typology of tax sharing. In particular, these studies have had an important impact on empirical research that investigates the effect of fiscal decentralisation based on international data. Many recent empirical studies that employ the OECD’s data on sub-national taxing power have produced results that differ from previous studies. For example, Stegarescu (2005) extends the database of OECD (1999) and shows that the common measures on fiscal decentralisation usually employed – such as those based on the IMF GFS data – overestimate the extent of fiscal decentralisation considerably. Thornton (2007) shows that, when the extent of fiscal decentralisation is measured by the OECD's tax autonomy data (cross-section data of 19 OECD member countries in 1995), its impact on economic growth is not statistically significant. Baskaran and Feld (2013)

construct a panel data set of sub-national taxing power of OECD countries from 1995 to 2008, and find a significant negative statistical relationship between fiscal decentralisation and economic growth. Foremny (2014) also uses tax autonomy data for the years between 1995 and 2008 and shows that for federal countries, higher autonomy over sub-national taxes is a key to preventing large deficits at the sub-national level.[11]

As the discussions in Kim et al. (2013) and Sorens (2010) show, the issue of measuring the extent of fiscal decentralisation is far from settled. Given the unresolved issues and dominant presence of tax sharing in many countries, the correct measurement and understanding of sub-national governments' fiscal power are particularly important. In order to fully understand the nature of tax sharing, then, it is necessary to go beyond the classification of sub-national taxes and investigate the political economy forces behind the determination of tax sharing.

3. Tax sharing and intergovernmental budget linkages

An important characteristic of tax sharing that makes it different from intergovernmental grants is the incentive it creates for the central government to avoid taxes whose tax bases are shared with sub-national governments and to rely instead on other tax bases over which it has exclusive taxing power. This incentive effect of tax sharing, a bias in the tax mix, has been previously noted by Ter-Minassian (2012), Tanzi (2010), and Rao (2007). However, what should be further investigated is that this tax-mix bias is deeply intertwined with the intergovernmental fiscal institutions specific to each country. For example, if tax sharing is based on broad tax bases such as the personal income tax, corporate income tax or VAT, the tax-mix bias can be mitigated, but this is then likely to create an incentive for the central government to rely on debt financing. Therefore, what is critical for the countries where tax sharing is an important source of sub-national revenue is to identify the intergovernmental co-ordination mechanism that resolves the innate conflicting interests of different levels of government over tax sharing. In the sections below, the budget linkage created by tax sharing and its effect on the fiscal structure are discussed in detail.

3.1. A basic framework of government budgets

There are two levels of government: a central government and sub-national governments that are assumed to be identical. The central and sub-national governments share a tax base, denoted TB^S. The central government applies – with the consent of sub-national governments or unilaterally depending on fiscal institutions and the political system of a country – a tax rate τ^S on the shared tax base, collecting the revenue of T^S. The central government takes θ_C of T^S and the sub-national governments take θ_L of T^S. Both central and sub-national governments respectively collect their own taxes, T_C^O and T_L^O, by applying tax rates t_C^O and t_L^O on their own tax bases TB_C^O and TB_L^O. They also issue bonds, b_C and b_L, respectively. Denoting revenues of central and sub-national governments as R_C and R_L, respectively, the budgets of central and sub-national governments are expressed as follows:

(Central government) $$R_C = \theta_C \cdot T^S + T_C^O + b_C$$

$$= \theta_C(\tau^S \cdot TB^S) + t_C^O \cdot TB_C^O + b_C. \qquad (1)$$

(Sub-national governments) $$R_L = \theta_L \cdot T^S + T_L^O + b_L$$

$$= \theta_L(\tau^S \cdot TB^S) + t_L^O \cdot TB_L^O + b_L. \quad (2)$$

3.2. Incentives of sub-national governments

Taking total differentials of Eq. (2),

$$\Delta R_L = \Delta\theta_L \cdot T^S + \theta_L \cdot \Delta T^S + \Delta T_L^O + \Delta b_L. \quad (3)$$

From Eq. (3), an increase in sub-national spending may be financed in four ways: an increase in the sub-national governments' share in tax sharing revenue ($\Delta\theta_L$), an increase in shared tax bases (ΔT^S), an increase in sub-national governments' own tax revenue (ΔT_L^O), and bond issuance (Δb_L). In principle, among these four ways of raising sub-national revenue, sub-national own tax revenue, T_L^O, is the most desirable fiscal resource from the normative viewpoint of fiscal responsibility. However, politicians of sub-national governments prefer to increase sub-national expenditure without imposing an additional tax burden on their voters. This can be done by increasing the sub-national share of tax sharing revenue. In other words, increasing θ_L (decreasing θ_C) is a more attractive policy choice for sub-national governments than increasing T_L^O. In order to decrease θ_C, sub-national governments face the following central government budget constraint, which is obtained by taking total differentials of Eq. (1):

$$\Delta R_C = \Delta\theta_C \cdot T^S + \theta_C \cdot \Delta T^S + \Delta T_C^O + \Delta b_C. \quad (4)$$

From this, $\Delta\theta_C$ is derived as follows:

$$\Delta\theta_C = \frac{1}{T^S}(\Delta R_C - \theta_C \cdot \Delta T^S - \Delta T_C^O - \Delta b_C).$$

$$= \frac{1}{T^S}(\Delta R_C - \theta_C(\Delta\tau^S \cdot TB^S + \tau^S \cdot \Delta TB^S) - (\Delta t_C^O \cdot TB_C^O + t_C^O \cdot \Delta TB_C^O) - \Delta b_C). \quad (5)$$

Sub-national governments' strategy to increase their revenues with the least political cost is to have θ_C decreased ($\Delta\theta_C < 0$). Assuming that central government's revenue, R_C, is to be maintained at the same level ($\Delta R_C = 0$), this policy objective can be achieved by making the central government do either or all of the following: increase the tax rate of the shared tax ($\Delta\tau^s > 0$), increase the tax rate of its own tax ($\Delta t_C^O > 0$), and increase its debt financing ($\Delta b_C > 0$).

3.3. Incentives of the central government

To raise its revenue, the central government may, like sub-national governments, consider the possibility of transferring fiscal resources from sub-national governments to itself ($\Delta\theta_L < 0$). Eq. (3) shows that when such a transfer is made, either sub-national expenditure should be decreased or sub-national own fiscal resources (sub-national own tax revenue or sub-national debt) should be raised to keep the sub-national budget in balance. However, all these options may not look desirable to the central government, especially when sub-national governments provide not only pure local public goods but also redistributive social services. Under such circumstances, sub-national governments are likely to raise sub-national debt rather than take the fiscal responsibility of raising their own tax revenue (Wildasin, 2004). In other words, unlike sub-national governments, the central government, which bears the ultimate political burden of raising shared tax revenue and maintaining sovereign fiscal sustainability, is likely to regard the transferring of sub-national fiscal resources to itself as an undesirable option for raising its revenue, at least for the long term.

As such, the central government is left with three types of revenue sources at its disposal: shared tax (T^S), own tax (T_C^O), and government bond issuance (b_C). However, as the central government budget constraint Eq. (1) shows, the contributions of each of these different revenue sources to its budget are not the same. Taking partial derivatives of Eq. (1) with respect to the three variables yields the following:

$$\frac{\partial R^C}{\partial T^S} = \theta_C < 1. \qquad (6)$$

$$\frac{\partial R^C}{\partial T_C^O} = \frac{\partial R^C}{\partial b_C} = 1. \qquad (7)$$

Clearly, Eq. (6) shows that the marginal contribution of an increase in the shared tax revenue to the central government budget is less than 1 due to the transfer of part of its revenue to sub-national governments. On the other hand, Eq. (7) shows that the marginal contribution of the central government's own tax and bond issuance to its budget is 1 because revenues from these fiscal sources are not directly tied to sub-national revenues. As a result, the central government has an incentive to increase the tax rates of the taxes not subject to tax sharing (tax-mix bias) and debt financing (debt bias).

3.4. Tax sharing and horizontal equalisation

In many countries with a tax sharing system, vertical tax sharing is combined with horizontal equalisation (e.g. Germany). Therefore suppose now that there are n sub-national governments with different levels of regional income and tax bases. Let subscript i denote the ith sub-national government. Let TB_i^S denote the tax base of the shared tax in the ith sub-national government so that $TB^S = \sum_{i=1}^{n} TB_i^S$. Let δ_i denote the share of the shared tax revenue that belongs to sub-national government i. Then the revenue of the ith sub-national government, R_L^i, is written as follows:

$$R_L^i = \delta_i \cdot \theta_L \cdot (\tau^S \cdot \textstyle\sum_{i=1}^{n} TB_i^S) + T_L^O + b_L. \qquad (8)$$

In Eq. (8), strict tax sharing means that δ_i is the same as the share of TB_i^S in the total shared tax base TB^S. That is, with strict tax sharing, $\delta_i = TB_i^S / \sum TB_i^S$. In this case, Eq. (8) is the same as

$$R_L^i = \theta_L \cdot (\tau^S \cdot TB_i^S) + T_L^O + b_L. \qquad (9)$$

Thus, under the system of strict tax sharing, an increase in sub-national government revenue is proportional to an increase in its tax base – the effect of tax sharing Weingast (2009, 2014) strongly advocates as an incentive for regional development. It can be seen from equation (9) that the richer a sub-national government, the stronger its desire to increase the sub-national share of shared tax revenue (θ_L). On the other hand, under the system of tax sharing combined with horizontal equalisation (revenue sharing), the revenue share of a poorer sub-national government is greater than its tax base share. Under this circumstance, poor sub-national governments have a strong incentive to lobby for its own share of shared tax revenue (δ_i). So compared to strict tax sharing which creates vertical conflicts of interest between central and sub-national governments, revenue sharing adds another dimension of horizontal conflict between richer and poorer sub-national governments.

4. Tax sharing and the role of constitutions and the political system

As seen in the previous section, one of the main characteristics of tax sharing is that it creates conflicting forces among central and sub-national governments. Under a tax sharing system, sub-national governments are able to increase their revenue not just by imposing a higher tax burden on their residents, but also by increasing the sub-national share of tax sharing. This creates an incentive for sub-national governments to put political pressure on the central government to obtain an increase in tax sharing.[12] Similarly, the central government has an incentive to put pressure on sub-national governments for a decrease in the sub-national share of tax sharing or to shift its own expenditure responsibilities to sub-national governments in the form of unfunded or partially funded mandates.

A political economy question that arises with respect to a tax sharing system is how such conflicting political forces among different levels of government affect the outcomes of fiscal decentralisation. In many countries such as Germany, China, Spain, Korea and Japan where tax sharing is a dominant source of sub-national revenue, heated debates over tax sharing often take place especially after economic and fiscal shocks. As discussed in the previous section, the political conflict over the share of tax sharing tends to change the fiscal structure of a country, and, unless the centripetal and centrifugal forces of tax sharing are balanced, it is likely to result in an inefficient tax mix or accumulated of government debt. Moreover, in a country where sub-national governments have strong political power and enjoy a high share of tax sharing, the centrifugal force of tax sharing may result in a further deterioration of fiscal conditions.

So what type of intergovernmental fiscal institutions better manage the conflicting and destabilising forces? Searching for an answer to this question forces on to look beyond fiscal institutions and to investigate the role of constitutions and political systems because the conflicts over tax sharing are inherently constitutional and political. Although not directly addressing the issue of tax sharing, the empirical research into the relationship between political institutions and fiscal decentralisation provides some interesting insights into the political economy question of tax sharing. For example, Enikolopov and Zhuravskaya (2007) empirically test Riker's hypothesis (1964) that the results of fiscal decentralisation depend on the extent to which countries are politically centralized. In their study, they use the data of 75 developing and transition countries to confirm Riker's hypothesis that political centralisation improves the effect of fiscal decentralisation on growth and public goods provision.

The measurement of fiscal decentralisation used by Enikolopov and Zhuravskaya (2007) is the share of sub-national revenue in total government revenue as well as the share of taxes in sub-national revenues. Given that in many developing and transition countries sub-national governments do not have taxing power, it is possible that what Enikolopov and Zhuravskaya capture in their measurement of fiscal decentralisation is the effect of tax sharing (both *de facto* and *de jure*). So, their study indirectly implies that, in the case of developing and transition countries, the centrifugal force created by fiscal decentralisation combined with tax sharing needs to be counterbalanced with the centripetal force of political centralisation. This line of reasoning is also suggested by Blanchard and Shleifer (2001) and Weingast (2014) in their investigations on the economic success of China. These studies argue that the key reason why China, unlike Russia, has succeeded in sustaining strong economic growth since the early 1980s is the combination of fiscal decentralisation (strict tax sharing) and political centralisation (communist party).

Enikolopov and Zhuravskaya (2007), Blanchard and Shleifer (2001), and Weingast (2014) all explore the interesting hypothesis that a successful model of decentralisation is the combination of fiscal decentralisation and political centralisation, and this has an important implication for understanding the multi-dimensional nature of decentralisation. But it should be noted that they apply this hypothesis mainly to developing and transition countries, such as China and Russia. In contrast to these studies, a recent paper by Filippetti and Sacchi (2014) shows that fiscal decentralisation in OECD countries leads to higher rates of economic growth with institutional complementarities, that is, when fiscal decentralisation is coupled with political decentralisation. Their result based on the sample of OECD countries, therefore, is in direct contrast with the results of Enikolopov and Zhuravaskaya (2007) based on a sample of developing and transition countries.

In the papers discussed above, federalism is not considered as a distinct variable of political institutions. Enikolopov and Zhuravaskaya (2007) use the term federalism interchangeably with fiscal decentralisation. Weingast (2009, 2014) puts much emphasis on the merit of (market-preserving) federalism, but, by treating federalism as almost identical to decentralisation, he does not regard the federal system as a distinct political system.[13] The lack of interest in the public finance literature about federalism as a political system is perhaps due to Oates' definition of fiscal federalism.[14] But, there is a view even in the political science literature that federalism as a political system does not much matter. For example, Riker (1975) famously claimed that "[n]othing happens in a federation because of the federal constitutional arrangements that could not happen otherwise in fundamentally the same way" (as cited in Voigt and Blume, 2012). On the other hand, Voigt and Blume (2012) find that federalism does affect economic performance.

Thus, whether the distinctive properties of federalism as a political system affect the performance of fiscal decentralisation is an unsettled issue and is certainly beyond the scope of this paper. However, when attention is confined to the issue of tax sharing, an interesting pattern is observed: In the majority of federal countries – almost all federal countries except the United States, Canada, and Switzerland – tax sharing is a dominant source of sub-national revenue. In addition, quasi-federal countries such as Spain and Italy also apply tax sharing. Among OECD unitary countries, Korea's and Japan's major sources of local revenue (both local taxes and general grants) derive from tax sharing. Also, as discussed in Section 2, the tax sharing is found in Turkey and Poland. It is notable that the OECD unitary countries that have adopted the tax sharing systems are relatively large with a population greater than 50 million (except Poland which has a population of 35 million).

As discussed previously, there is not yet consensus in the literature on whether there are different relationships between constitutions and fiscal decentralisation. However, given that tax sharing creates conflicting forces among levels of government, and is likely to result in tax-mix bias and debt accumulation, coordination across levels of government is much more important in countries with a tax sharing system than in the countries where tax assignment and expenditure assignment are relatively clear-cut. A hypothesis worth considering in this regard is that the intergovernmental coordination mechanism is better developed in mature federal countries (such as Germany and Austria) than in large unitary countries that rely heavily on tax sharing (such as Italy, Spain, Korea and Japan). It would be interesting to empirically test whether there is a difference between federal and unitary countries in the effectiveness of coordinating conflicting forces of tax sharing.

5. Conclusion

The literature on fiscal federalism – both traditional and new – generally takes the view that sub-national revenues consist of own taxes and intergovernmental grants. When tax sharing is recognized, it is usually regarded as the same as intergovernmental grants. The implication of this view is that the economic effects of tax sharing and grants are similar, and that the intergovernmental fiscal institutions governing tax sharing and grants are similar as well.

In this paper, the characteristics of tax sharing that are distinctly different from own taxes and intergovernmental grants have been examined: tax sharing is a system for assigning sub-national revenues much more widely than recognized in the literature; it is much more deeply rooted in political institutions than intergovernmental grants; and it creates conflicting political interests among levels of government, often creating a tax-mix bias and debt accumulation. Therefore, understanding the institutional characteristics of tax sharing as well as its economic effects is important in analysing the effects of fiscal decentralisation.

Tax sharing is prevalent in almost all federal countries and some quasi-federal countries. Moreover, *de facto* tax sharing is found in many developing and transition countries. However, the fiscal performance of tax sharing system varies across countries. Given that tax sharing creates political conflicts, it is likely to be more effective in mature federations. However the relationship between the political system and tax sharing needs to be further explored. For example, it is not fully accounted for in the theoretical literature on fiscal decentralisation why the system of tax sharing exists in the first place. How tax sharing operates under different political systems and institutions also needs to be investigated.

Notes

1. In this paper, the terms “local” and “sub-national” are used interchangeably.
2. If social security contributions are excluded in the calculation of total tax revenue, sub-national tax shares in high-level, low-level and mid-level countries are, respectively, between 40% to 50%, below 10%, and around 20%.
3. “Type a: The recipient SCG sets the tax rate and any tax relief (without or with consulting a higher level of government); type b: The recipient SCG sets the tax rate (without or with upper and/or lower limits set by a higher level of government); type c: The recipient SCG sets tax relief (tax allowances and/or tax credits); type d.1: A tax-sharing arrangement in which the SCGs determine the revenue split; type d.2: A tax-sharing arrangement in which the revenue split can be changed only with the consent of SCGs (d.2); type d.3: A tax-sharing arrangement in which the revenue split is determined in legislation, and where it may be changed unilaterally by a higher level government, but less frequently than once a year; type d.4: A tax-sharing arrangement in which the revenue split is determined annually by a higher level government; type e: Other cases in which the central government sets the rate and base of the SCG tax” (Blöchliger and Nettley, 2015).

4. The National Accounts (NA), the European System of National and Regional Accounts (ESA), the Government Finance Statistics (GFS), the Revenue Statistics (RS), and the Council of Europe (CE) all provide some guidance on the "tax sharing versus grants" issue. Criteria vary across manuals and there are no specifics on drawing a line between tax sharing and grants (Blöchliger and Petzold, 2009).
5. "The amount of revenue allocated to the sub-central level is strictly related to total tax revenue."
6. "The revenues are unconditional (non-earmarked)."
7. "The revenue share between the central and the sub-central government is predetermined in advance and not changed in the course of a fiscal year."
8. "The revenue share of each sub-central government is strictly related to what it generates on its own territory (no horizontal redistribution or fiscal equalisation across sub-central governments)."
9. Interestingly, the general grants in Korea and Japan are called "Local Allocation Tax."
10. "Since individual lower level governments have no control over any of the four basic questions of tax assignment, tax sharing is essentially a form of grant, and not a method of tax assignment" (McLure, 2001, p. 342).
11. See the papers in Kim, Lotz and Blöchliger (2013) for further detailed discussion on the issues related to the measurement of fiscal decentralisation.
12. This is the case even in relatively "mature" federations such as Austria (see Matzinger, 2014).
13. "Federalism, and decentralisation more generally, encompasses a wide range of different political-economic systems, not one" (Weingast, 2009, p. 280).
14. "This economic use of the term 'federalism' is somewhat different from its standard use in political science, where it refers to a political system with a constitution that guarantees some range of autonomy and power to both central and decentralised levels of government. For an economist, nearly all public sectors are more or less federal in the sense of having different levels of government that provide public services and have some scope for de facto decision-making authority (irrespective of the formal constitution)" (Oates, 1999, p. 1120).

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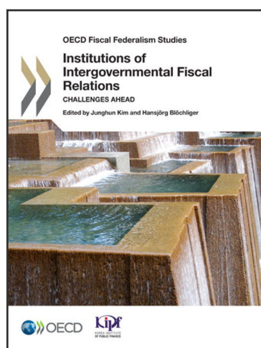

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