OECD Fiscal Federalism Studies

Measuring Fiscal Decentralisation

CONCEPTS AND POLICIES

Edited by Junghun Kim, Jorgen Lotz and Hansjörg Blöchliger

OECD

KIPF
KOREA INSTITUTE OF PUBLIC FINANCE

OECD Fiscal Federalism Studies

Measuring Fiscal Decentralisation

CONCEPTS AND POLICIES

Edited by Junghun Kim, Jorgen Lotz and Hansjörg Blöchliger

OECD
BETTER POLICIES FOR BETTER LIVES

KIPF
KOREA INSTITUTE OF PUBLIC FINANCE

This work is published on the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the Organisation or of the governments of its member countries, or those of the Korea Institute of Public Finance (KIPF).

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Please cite this publication as:
OECD/Korea Institute of Public Finance (2013), *Measuring Fiscal Decentralisation: Concepts and Policies*, OECD Fiscal Federalism Studies, OECD Publishing.
http://dx.doi.org/10.1787/9789264174849-en

ISBN 978-92-64-17483-2 (print)
ISBN 978-92-64-17484-9 (PDF)

Series: OECD Fiscal Federalism Studies
ISSN 2225-403X (print)
ISSN 2225-4056 (online)

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.

Photo credits: Cover © iStockphoto.com/Enkophotography.

Corrigenda to OECD publications may be found on line at: *www.oecd.org/publishing/corrigenda*.

© OECD, Korea Institute of Public Finance (KIPF) 2013

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgement of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to *rights@oecd.org*. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at *info@copyright.com* or the Centre français d'exploitation du droit de copie (CFC) at *contact@cfcopies.com*.

Foreword

The decentralisation of public services and their financing is high on the political agenda and has triggered a growing interest in measurement issues. Appropriate indicators can help governments compare, diagnose and reform intergovernmental fiscal frameworks as well as assess the outcome of past reforms. They can help assess whether and to what extent decentralisation fosters economic growth, raises efficiency of the public sector or contributes to macroeconomic stability. For that purpose, the OECD Network on Fiscal Relations Across Government Levels has, over the past decade, established a database of decentralisation indicators, extending beyond the traditional spending and revenue ratios. These include measures of tax autonomy, the spending power of sub-central governments, or the stringency of regulations attached to intergovernmental grants.

This book brings together a collection of papers that deal with indicators of fiscal decentralisation. Taking the OECD Fiscal Decentralisation Database as the starting point, the chapters address the measurement of tax autonomy or taxing power; the intricacies of tax sharing systems and their difference with respect to intergovernmental grants; and the measurement of true spending power when sub-central spending is influenced by central government. Some authors compare decentralisation indicators in order to assess their relative significance in determining fiscal and economic outcomes. Several authors then set the OECD indicators against more detailed and informed country-specific analysis. The first chapter of this book summarises the common findings, concluding that – although revenue decentralisation and tax autonomy emerge as the cornerstones of fiscal decentralisation – there is no single "true" indicator but that measuring intergovernmental fiscal frameworks requires a multi-dimensional approach.

The book and its chapters are based on a conference held in Paris in spring 2011 on "Taxonomy of Grants and the Measurement of Decentralisation". I am grateful to the authors who revised their conference presentation to make this publication possible. I am also thankful to the delegates of the OECD Fiscal Network for participating actively in the conference, and engaging in very interesting discussions. Special thanks go to Susan Gascard for assistance in editing the conference papers. Financial support from Korea to cover the cost of this publication is gratefully acknowledged.

Pier Carlo Padoan
Chief Economist and Deputy Secretary-General

Table of contents

Foreword……..... 3

Summary…….… 9

Chapter 1 **Measuring decentralisation: The OECD fiscal decentralisation database** …….. 15
By Hansjörg Blöchliger

Chapter 2 **On grant policy and the OECD-taxonomy of grants** ……... 37
By Jorgen Lotz

Chapter 3 **Measurement of decentralisation: How should we categorise tax sharing?** 47
By Junghun Kim

Chapter 4 **The role of decentralisation indicators in empirical research** ……..… 61
By Nobuo Akai

Chapter 5 **Measuring the extent of fiscal decentralisation: An application to the United States** ……... 71
By Yongzheng Liu, Jorge Martinez-Vazquez and Andrey Timofeev

Chapter 6 **Measuring decentralisation of public sector activities: Conceptual issues and the case of Germany** ……... 89
By Paul Bernd Spahn

Chapter 7 **Taxonomy of grants and local taxes: The Norwegian case** ……..... 101
By Lars-Erik Borge

Chapter 8 **Measuring decentralisation: The challenge of the Danish story** …... 117
By Jens Blom-Hansen

Chapter 9 **From transfers to tax "co-occupation": The Italian reform of intergovernmental finance** …….. 127
By Ernesto Longobardi

Annex A **Contributors** …… 151

Tables

1.1. Taxonomy of taxing power …… 17
1.2. Taxing power of sub-central governments ……..... 18
1.3. Tax autonomy of sub-central governments by type of tax …… 20

1.4. Tax sharing arrangements 22
1.5. Grants by donor and recipient sub-sector, 2006 24
1.6. Grant revenue by type of grant, 2006 26
1.7. Grants by government function, 2006 27
1.8. Coding for low-level indicators 32
2.1. Local government statistics for Denmark with or without agent functions 43
3.1. OECD classification of local taxes 50
3.2. Tax sharing as percentage of local tax revenue 52
3.3. Test criteria of tax sharing 54
5.1. Relative authority of different levels of government over total state-local finances in Georgia, USA, 2002 74
5.2. Informational limitations of different decentralisation measures used in the literature 75
5.3. Coefficients of pair-wise correlation 79
5.4. Explanatory power of a pair of decentralisation indicators (adjusted R-Squared) 81
5.A1. Variables description and sources 88
5.A2. Variables descriptive statistics 88
6.1. Criteria used for adjusting revenue-oriented decentralisation measures 91
6.2. The allocation of shared taxes in Germany (2009) 92
6.3. Outline of a composite decentralisation index with pre-defined weights 97
7.1. The financing of the local public sector 104
7.2. The composition of the local tax base 105
8.1. Denmark's score on selected OECD indicators of local fiscal autonomy 118
8.2. Central government regulation of personal income taxation of Danish local government 121
8.3. Indicators in the Marks/Hooghe/Schakel index of regional authority 123
9.1. Expenditure by level of government 129
9.2. Expenditure for levels of local government (2008) 129
9.3. Regions: total revenue 130
9.4. Regions with an ordinary statute (RSO): tax revenue 130
9.5. Municipalities in ordinary statute regions: total revenue 131
9.6. Municipalities in ordinary statute regions: tax revenue composition..... 131
9.7. Municipalities in ordinary statute regions: transfers from the state and the region 131
9.8. Provinces in ordinary statute regions: total revenue 132
9.9. Provinces in ordinary statute regions: tax revenue 132
9.10. Provinces in ordinary statute regions: transfers from the state and the region 132
9.11. A taxonomy of tax autonomy 134
9.12. A classification of Italian SCGs main tax revenue items according to the OECD taxonomy 136
9.13. The forms of tax co-occupation in the new system of financial intergovernmental relations 142
9.14. An evaluation of the effects of the reform in terms of effective tax autonomy of Italian SCGs 144

Figures

1.1. Taxonomy of grants ……..... 25
1.2. The revenue mix of sub-central governments ……... 30
1.3. Spending power: sample indicator tree …….. 32
1.4. Comparing SCG expenditure shares and SCG spending power indicators 34
3.1. Sub-national governments' share in general government revenues and expenditures ……..... 49
3.2. Share of central and local tax revenue in China ……. 53
3.3. Tax base of tax sharing: partial proportionality and inverse proportionality.. 56
4.1. A taxonomy of transfers ……..... 64
5.1. Principal component biplot for decentralisation indicators in the United States in 1992 ……..... 78
6.1. The share of sub-central government revenues in total public revenues, 2005 ……..... 90
7.1. Municipal service sector spending …… 103
7.2. County service sectors ……..... 103
7.3. Local tax revenues, general purpose grants and VAT compensation ……... 112
8.1. Denmark's score on OECD indicators of local fiscal autonomy …….. 119
8.2. A scatterplot of the Marks/Hooghe/Schakel index of regional authority and the fiscal autonomy indicator ……..... 123

Summary

Junghun Kim and Jorgen Lotz

The OECD Network on Fiscal Relations across Levels of Government has made significant progress in creating international statistics on regional and local government finances and the OECD staff has produced a number of thoughtful papers offering interpretations of what can be revealed by these data.[1]

To identify what issues deserve the attention of the Network, the OECD, with the support of the Korean Institute of Public Finance arranged an expert meeting in Paris on 10-11 March 2011. This volume contains the papers presented at the meeting.

The invitations to the meeting laid out two specific issues for the workshop. The first was the taxonomy of intergovernmental grants. In the literature a consensus has not yet been reached on the taxonomy of intergovernmental grants. The participants in the workshop were expected to identify the shortcomings of the existing classifications and discuss ways on how this situation can be improved so that an internationally shared terminology could be agreed upon.

The second and related issue was on measuring fiscal decentralisation. International statistics on local finances would be useless, if they did not measure the degree of decentralisation that could be tested against presumed advantages of decentralisation such as enhancing economic growth, public sector efficiency, or citizens' satisfaction. In this regard, the data produced by the OECD, especially the measure of taxing power and the beginning of a measure of spending power of sub-national governments, has made contributions.[2] However, the current measurement of fiscal decentralisation, especially on expenditure decentralisation and intergovernmental grants, are not yet very satisfactory, as discussed in Rodriguez-Pose and Ezcurra (2010) and Baskaran (2010).[3] The lack of consensus on a taxonomy of intergovernmental grants surely compounds this problem. Methodologically, there has been some effort to improve the accuracy of measuring fiscal decentralisation (see, *e.g.* Martinez and Timofeev, 2010). However, as an original source of useful international data, the OECD Fiscal Network faces challenges and opportunities to improve the situation.

In summary, the workshop was expected to discuss two topics: *i)* internationally accepted and understood definitions like the distinction between grants and tax sharing, or the distinction between general grants, block grants, and non-conditional earmarked grants; and *ii)* the issues related to measuring and comparing indicators of fiscal decentralisation.

Hansjörg Blöchliger of the OECD reviews in his paper the Network's statistical work which he sees as serving the objective of comparing sub-central governments' power to shape their own budget across countries. He presents 2005 data on local tax revenues for 30 OECD countries, describing both the types of taxes used by sub-central governments

(SCG) and the composition of tax sources entering tax sharing arrangements.[4] He identifies problems of comparability that are not easily resolved in two cases. In some countries, SCGs have the right to vary tax rates but actually set the same rate (see also *Borge* in this volume). On tax sharing revenues, he concludes that institutional arrangements that are country-specific have made it difficult to agree on a definition as to whether an arrangement is tax sharing or a grant (see also *Spahn* in this volume).

He then turns to the "flowering garden" of intergovernmental grants that has evolved. He first presents 2006 National Accounts data for grants by sector and recipient sub-sector for 30 countries. He then presents 2006 Fiscal Network data for 19 OECD countries that are supplemented with information on the government functions for the grants. He proceeds by summarising the many Network discussions on the dividing line between tax sharing and grants. He concludes that the issue has not yet been resolved and "what counts as tax sharing in one country may count as intergovernmental grant in another". *Blöchliger* also refers to a recent study on sub-dividing tax sharing revenues – "strict tax sharing" and "redistributive tax sharing" – the former being the case when the revenue is strictly proportional to what is generated in sub-national jurisdictions, while the latter involves redistributive elements. The empirical estimates show that more tax sharing arrangements pass under "redistributive tax sharing" than under "strict tax sharing."

Finally *Blöchliger* describes a pilot study by the Network on local spending power from 2009. He first observes that the local share of general government spending does not reflect differences in the degree of local governments' decision-making power on local expenditure. He identifies five categories that affect local spending power such as policy autonomy, budget autonomy, etc., and measures the degree of autonomy in each category based on survey results provided by five countries. The results "support the view that simple expenditure ratios often poorly reflect effective sub-central spending power".

All taxonomies for grants to sub-central governments are structured around the distinction between earmarked and general grants. The purpose is to distinguish grants according to the freedom they allow SCGs in shaping their budgets. But though it is generally accepted that local freedom is to be preferred, available data suggest that earmarking is – if anything – on the increase. Why is that? *Jorgen Lotz* in his paper identifies the drivers for policies of earmarking, and the strongest driver he finds is the desire for "marginal equalisation", *i.e.* the desire to compensate SCGs for the costs of new competences in such a way that the compensation is allocated to those suffering the largest costs from the new competence.

Lotz next asks: How good is the Network's taxonomy of grants to measure the degree of local freedom? He lists five problems with the grants taxonomy used by the Fiscal Network. First, the distinction between own tax revenues and tax sharing depends not only on the power of SCGs to set local taxes but also on whether the SCGs utilise the freedom they have to set tax rates (*Borge* and *Blom-Hansen* in this volume). Second, if there is a correlation between reforms to replace earmarked with general grants and a tendency to increase the stringency of regulations, the shift to general grants does not necessarily result in more local freedom. Third, the imprecise definition of "block grants" means that it is interpreted differently by different respondents to the OECD questionnaire.[5] Fourth, results-based matching grants that give incentives to a more efficient local allocation of spending need to be distinguished from matching grants that lead to inefficiency. Fifth, agent functions delivered by SCGs with no local discretion and financed by 100% matching grants are better classified as expenditure at the central level:

when agent functions are described as a local expenditure financed by matching grants, it paints a picture of a very different policy (see also *Spahn* in this volume). After identifying these problems of the OECD's current grants classification, he discusses ways to overcome these problems.

Junghun Kim, stresses in his paper the importance of measurement of fiscal decentralisation with consistent criteria across countries. Understanding the effect of fiscal decentralisation is very important since it is one of the most important fiscal institutions and affects economic performance and welfare of the citizens. In particular he emphasises the need to describe more appropriately the differences between the many different models of tax sharing. Tax sharing is one of the largest local revenue sources in many countries. A discussion of the merits of tax sharing must take into account that tax sharing in China has been held to serve as an effective fiscal incentive for local economic growth, and the general grants in Japan and Korea are – according to the OECD classification – tax sharing revenues. A discussion of tax sharing, *Kim* adds, also needs to include the more fundamental question regarding its role as a local tax. Tax sharing does not provide any price signals for the delivery of public services to the local population (*Longobardi* in this volume). Recognising the work already done by the Network (*Blöchliger* in this volume), he observes that the different tax sharing practices leave many unanswered questions that require more research.

Nobuo Akai focuses on the problems of creating an index of fiscal decentralisation that can be used to test the relationship between the degree of decentralisation and economic growth or other effects. He presents a brief survey of the problems in using the revenue share, the expenditure share or combinations of these as indices of decentralisation. He describes how, in the Network taxonomy of grants, the effects on local incentives depend on whether the grant is classified as earmarked or general. The latter do not affect local decisions since they do not change relative prices. *Akai* points out that this is not always correct since general grants may result in incentive effects when they are designed in such a way as to result in soft budget constraints. If the transfer is designed and allocated *ex post*, after local governments have undertaken specific actions, the *ex post* lump sum transfer may be regarded as a conditional transfer and result in a soft budget constraint. He gives two examples of this. One is the problem created by adverse selection based on hidden information: if the higher level of government has the authority to start the project and an incentive to bail out the local government *ex post* because of the importance of continuity of local services, the local government may have an incentive to misrepresent the costs of the project. His other example is the problem created by moral hazard: If the higher level of government has an incentive to rescue a relatively poor local government in order to reduce regional disparity, the poor local government may have an incentive to decrease its efforts to provide local services *ex ante*. He concludes that a taxonomy of transfers is complicated and indices of fiscal decentralisation should be designed taking into account how the transfers are designed from the *ex ante* or the *ex post* points of view.

Liu Yongzheng, *Jorge Martinez-Vazquez* and *Andrey Timofeev* develop the discussion further and survey a number of cross-country studies from the literature. Their survey concludes that aggregating many dimensions of decentralisation leads to a loss of information in the form of lower explanatory power. Empirical studies show that the introduction of more variables like the importance of grant financing, fragmentation of local government and other non-fiscal variables improves the decentralisation indicator, but the main point is that there is no single best measure of decentralisation. The choice

of the indicator of fiscal decentralisation matters. The point is illustrated with an analysis of the US states.

Paul Bernd Spahn illustrates the inadequacy of simple indicators of fiscal decentralisation by comparing the local revenue shares of Germany and Uzbekistan. While the revenue ratio is higher in Uzbekistan, the country has a strict vertical command structure from top to bottom and no local discretion, while in Germany local authorities are self-governing and strong. A comparison based on simple ratios therefore is deficient. There is a need to include also local democracy and citizens' participation, regulatory powers, and the like. One way to improve the simple ratios would be, he proposes, to give weights to the individual items in the OECD classification of taxes: 1 for pure own taxes and 0 for pure tax sharing arrangements. He argues, referring to the ample discussions in the Network, that the definition of taxes versus grants "cannot simply reflect an idiosyncratic legal interpretation by one country's lawyers". The answers must depend on what we want to measure, and the rationale of the revenue-oriented index is to indicate the degree of local tax autonomy while the expenditure related index should take account of whether local expenditure are autonomous or mandated. All spending mandated by the central government should therefore be excluded from the local budgets (*Lotz* in this volume). He expresses the view that a more comprehensive approach is needed, and points at the need to draw in policy outcomes, institutional aspects, and macro-fiscal indicators together with weighted fiscal measures.

Lars Erik Borge discusses some shortcomings of the Network revenue classification seen from the Norwegian perspective. Here the rate of the local income tax is free but subject to an upper limit, and since 1979, all municipalities have applied the maximum rate. Should the classification, as done by the OECD, follow the formal rule that there is local autonomy or follow the practical interpretation that there is no variation? *Borge* argues that it should be classified as a tax sharing arrangement to distinguish from the data for the other Nordic countries, but he declines to classify it as a general grant because it is allocated according to origin and hence leaves incentives for municipalities for the development of their local tax base. A particular point he raises is the Network classification of VAT-compensation as an earmarked grant, which he argues convincingly it is not. And finally *Borge* argues that, when an indicator is used to test the effects of fiscal decentralisation on economic growth, the index should reflect the local incentives for improving their own tax base.

Jens Blom-Hansen applauds in his paper the focus of the Network statistics on the degree of local autonomy. But he warns that the concept that the local authorities have the right to set their own tax rates is more complicated than generally believed. He describes the efforts of the Danish government to limit local taxation freedom gradually without changing the income tax law that stipulates such a freedom for the local authorities. He concludes that "taxation rights of Danish local governments today are effectively controlled by the central government and only marginal adjustments are possible". He concludes that "as the Danish case shows, the effective central regulation of local taxation rights can be quite complex". So it is not, he argues, enough to focus on official rules in national tax codes. Referring to a recent study on the political autonomy of regions, he adds that a valid measure of local taxation power has been shown to be "intimately connected to local autonomy in general".

Ernesto Longobardi provides analytical insights into the status of the ongoing reform of intergovernmental fiscal relations in Italy. The reform is mainly characterised by the movement from grants towards tax financing intended to improve accountability. When

applied to the Network taxonomy on taxing power, he shows that the effective increase in infra-marginal tax autonomy due to the reform will be quite modest, but at the margin, where autonomy really matters, there will be enough room for accountability to improve. The main problem in Italy is that both the centre and the local governments fear the introduction of local tax autonomy: the former out of fear that the electorate will fail to properly distinguish the different fiscal responsibilities and the latter because they would prefer not to have to tax their inhabitants.

Altogether the papers in this volume recognise the merits of classifying grants and producing fiscal decentralisation indices currently used, but also indicate the limits of their applicability. In particular, country-specific variables such as hidden regulations of the central government, the inefficient design of general grants, and the degree of autonomy in general seem to make cross-country comparisons of grants and the degree of fiscal decentralisation quite challenging and often bring about misleading interpretations. Future challenges therefore lie in incorporating diverse dimensions of fiscal decentralisation such as the legal, political and regulatory structure into grants classifications and measures of fiscal decentralisation.

Notes

1. Recent examples of such papers are: Blöchliger and King (2007); Bergvall *et al.* (2006); Charbit (2010); and Blöchliger and Petzold (2009).
2. See Blöchliger in this volume and, for example, Stegarescu (2005) and Thornton (2007).
3. It is worth noting that, in a recent study on the effect of fiscal decentralisation on economic growth, Rodriguez-Pose and Ezcurra uses Government Finance Statistics of the IMF since there is "no reliable alternative".
4. The classification of local tax revenues basically conforms to the definitions of OECD (1999).
5. The definition of block grants in Bergvall *et al.* (2006) was "mandatory and non-earmarked grants" with the additional explanation that it is given for a specific purpose (or purposes), but its actual use is not controlled. The OECD Network tried to reduce the confusion involved in the definition and in 2011 changed it to "earmarked, mandatory, non-matching grants". But, since there are so many different types of "block grants", the issue of uncertainty still remains (see Kim, Lotz and Mau, 2010).

References

Baskaran, T. (2010), "On the Link between Fiscal Decentralization and Public Debt in OECD Countries", *Public Choice*, 145, pp. 351–378.

Bergvall, D., C. Charbit, D.-J. Kraan and O. Merk (2006), "Inter-governmental Transfers in Decentralized Public Spending", *OECD Journal of Budgeting*, Vol. 5, pp. 111-158, *10.1787/budget-v5-art24-en*.

Blöchliger, H. and D. King (2007), "Less than You Thought: the Fiscal Autonomy of Sub-central Governments", *OECD Economic Studies*, 2006/2, OECD Publishing, *10.1787/eco_studies-v2006-art12-en*.

Blöchliger, H. and O. Petzold (2009), "Finding the Dividing Line between Tax Sharing and Grants: A Statistical Investigation", *OECD Working Papers on Fiscal Federalism*, No. 10, OECD Publishing, *10.1787/5k97b10vvbnw-en*.

Charbit, C. (2010), "Explaining the Sub-national Tax-grants Balance in OECD Countries", *OECD Working Papers on Fiscal Federalism*, No. 11, OECD Publishing, *10.1787/5k97b10s1lq4-en*.

Kim, J., J. Lotz and N.J. Mau (eds.) (2010), *General Grants vs. Earmarked Grants: Theory and Practice – The Copenhagen Workshop 2009*, Korea Institute of Public Finance and Danish Ministry of Internal Affairs and Welfare.

Lotz, J. (1986), "Policies with Regard to Grants to Local Authorities", *Study Series Local and Regional Authorities in Europe 36,* Strasbourg.

Martinez, J.-V. and A. Timofeev (2010), "Decentralization Measures Revisited", *Public Finance and Management*, 10, pp. 99–100.

OECD (1999), "Taxing Powers of State and Local Government", *Tax Policy Studies,* No. 1, OECD Publishing, *10.1787/9789264174030-en*.

Rodriguez-Pose, A. and R. Ezcurra (2010), "Is Fiscal Decentralization Harmful for Economic Growth? Evidence from the OECD Countries", *Journal of Economic Geography*, 10, pp. 619–644.

Stegarescu, D. (2005), "Public Sector Decentralization: Measurement Concepts and Recent International Trends", *Fiscal Studies*, 26, pp. 301–333.

Thornton, J. (2007), "Fiscal Decentralization and Economic Growth Reconsidered", *Journal of Urban Economics*, 61, pp. 64–70.

Chapter 1

Measuring decentralisation: The OECD fiscal decentralisation database

Hansjörg Blöchliger

Fiscal decentralisation is notoriously difficult to measure. The common indicators such as the share of sub-central in general government spending or revenue often provide an imprecise or even misleading picture of intergovernmental fiscal frameworks. Since discretion over the budget is a central aspect of fiscal autonomy, the OECD has developed a more refined set of decentralisation indicators over the last decade. This chapter first presents the indicator on sub-central tax revenue autonomy, followed by the indicators which reflect the restrictions attached to intergovernmental grants. The third section establishes the criteria that should help find the dividing line between tax sharing and intergovernmental grants, two fiscal arrangements that are often difficult to disentangle. For illustrative purposes, results are presented for the year 2005. Finally, the results of a pilot study developing a set of spending power – or spending autonomy – indicators for a few OECD member countries are presented.

Introduction

State and local governments in OECD countries have access to various fiscal resources. Discretion over them varies considerably, and so does sub-central governments' power to shape their budget and to determine outcomes like public sector efficiency, equity in access to public services or long-term fiscal sustainability. However, current indicators insufficiently reflect the way state and local budgets are funded. The most frequently used indicator is the ratio of SCG to total tax revenue or spending, which is a poor measure for assessing the true autonomy SCGs enjoy. Since the power over fiscal revenue is a critical determinant for government finance, a set of more refined indicators for assessing fiscal autonomy should be developed.

This chapter provides an overview of new datasets developed by the OECD Network on Fiscal Relations across Government Levels aimed at finding better indicators of fiscal decentralisation. The chapter is organised as follows: the first section develops an indicator set for measuring sub-central tax revenue autonomy. The second section develops an indicator set for intergovernmental grants and the different conditions attached to them. The third section tries to establish a dividing line between tax sharing and intergovernmental grants, two fiscal arrangements that are often difficult to disentangle. For illustrative purposes, results are presented for the years 2005 or 2006.

Taxing power

A taxonomy of tax autonomy

The term "tax autonomy" captures various aspects of the freedom sub-central governments (SCGs) have over their own taxes. It encompasses features such as sub-central governments' right to introduce or to abolish a tax, to set tax rates, to define the tax base, or to grant tax allowances or reliefs to individuals and firms. In a number of countries taxes are not assigned to one specific government level but shared between the central and sub-central governments. Such tax sharing arrangements deny a single SCG any control over tax rates and bases, but collectively SCGs may negotiate the sharing formula with central government. The wealth of explicit and implicit institutional arrangements has to be encompassed by a set of indicators that are simultaneously appropriate (they capture the relevant aspects of tax autonomy), accurate (they measure those aspects correctly) and reliable (the indicator set remains stable over time).

The framework consists of five main categories of autonomy (Table 1.1). Categories are ranked in decreasing order from highest to lowest taxing power. Category "a" represents full power over tax rates and bases, "b" power over tax rates (essentially representing the "piggy-packing" type of tax), "c" power over the tax base, "d" tax sharing arrangements, and "e" no power over rates and bases at all. Category "f" represents non-allocable taxes. In order to better capture the more refined institutional details the five categories were further divided into subcategories: two for the "a" and "b" categories, and three for the "c" category. Special attention was paid to tax sharing arrangements, where the four "d" subcategories are thought to represent the various rules and institutions for governments to determine and change their own share. Since category "f" or "non allocable" was hardly used, the taxing power universe seems to be well reflected in this taxonomy. The indicators do not take account of which level of government actually collects the tax, as this is not relevant to the concept of tax autonomy. More detail can be found in Blöchliger and King (2007).

Table 1.1. **Taxonomy of taxing power**

a.1	The recipient SCG sets the tax rate and any tax reliefs without needing to consult a higher level government.
a.2	The recipient SCG sets the rate and any reliefs after consulting a higher level government.
b.1	The recipient SCG sets the tax rate and a higher level government does not set upper or lower limits on the rate chosen.
b.2	The recipient SCG sets the tax rate, and a higher level government does set upper and/or lower limits on the rate chosen.
c.1	The recipient SCG sets tax reliefs – but it sets tax allowances only.
c.2	The recipient SCG sets tax reliefs – but it sets tax credits only.
c.3	The recipient SCG sets tax reliefs – and it sets both tax allowances and tax credits.
d.1	There is a tax-sharing arrangement in which the SCGs determine the revenue split.
d.2	There is tax-sharing arrangement in which the revenue split can be changed only with the consent of SCGs.
d.3	There is 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.
d.4	There is a tax-sharing arrangement in which the revenue split is determined annually by a higher level government.
e	Other cases in which the central government sets the rate and base of the SCG tax.
f	None of the above categories a, b, c, d or e applies.

Source: OECD Fiscal Decentralisation database.

Results: Taxing power in 2005

Table 1.2 reports taxing powers of SCGs in 2005. The first two columns report the traditional measure of sub-central tax revenue as a percentage of GDP and of total tax revenues. The remaining columns report the proportion of the revenues of state/regional (where applicable) and local governments that fall into each of the autonomy categories. The stylised facts on taxing power of state and local governments can be summarised as follows:

- First, although tax autonomy varies widely across countries, most sub-central governments have considerable discretion over their own taxes. On average, the tax revenue share with full or partial discretion (categories a, b and c) amounts to more than 50% for states and almost 70% for local governments. In many countries, permitted maximum tax rates (not shown in the table) are often double the minimum rate.
- Second, state and regional governments have less discretion over their tax revenue (measured by the combined share of categories a, b and c than local governments, since their tax revenue is often embedded in tax sharing arrangements. On the other hand, the state level has a higher share of its revenue in the most autonomous taxes (category a), while local governments are often allowed to levy a supplement on selected regional or central taxes only (category b).
- Third, the c category (representing control over the tax base but not the tax rate) plays a very small role in OECD countries. This probably points to a policy of gradually banning tax reliefs and abatements as a tool for local and regional economic development, particularly in the European Union.

Table 1.2. **Taxing power of sub-central governments**

As share of sub-central tax revenue, 2005

	Sub-central tax revenue		As share of sub-central tax revenues										
	As % of GDP	As % of total tax revenue	Discretion on rates and reliefs	Discretion on rates		Discretion on reliefs	Tax sharing arrangements				Rates and reliefs set by CG	Other	Total
				Full	Restricted		Revenue split set by SCG	Revenue split set with SCG consent	Revenue split set by CG, pluriannual	Revenue split set by CG, annual			
			(a)	(b1)	(b2)	(c)	(d1)	(d2)	(d3)	(d4)	(e)	(f)	
Australia	5.3	17.8											
States	4.4	14.8	100.0	-	-	-	-	-	-	-	-	-	100.0
Local	0.9	2.9	100.0	-	-	-	-	-	-	-	-	-	100.0
Austria	2.0	4.8											
Länder	0.7	1.6	38.7	-	-	-	-	-	-	-	45.2	16.1	100.0
Local	1.4	3.3	7.6	-	16.0	-	-	-	-	-	59.7	16.7	100.0
Belgium	4.4	9.8											
States	2.3	5.1	99.5	-	-	-	-	-	-	-	0.5	-	100.0
Local	2.1	4.7	9.3	-	90.4	-	-	-	-	-	0.4	-	100.0
Canada[1]	15.7	47.0											
Provinces	12.8	38.5	90.9	-	-	-	-	1.0	-	-	-	8.0	100.0
Local	2.8	8.5	1.8	95.2	-	-	-	-	-	-	1.8	1.2	100.0
Chile[1]	-	-											
Local													
Czech Republic	0.4	1.1											
Local	0.4	1.1	-	-	100.0	-	-	-	-	-	-	-	100.0
Denmark	16.9	33.2											
Local	16.9	33.2	-	85.8	4.8	-	-	-	3.3	-	6.1	0.0	100.0
Estonia	4.0	13.0											
Local	4.0	13.0	0.8	-	7.3	-	-	-	91.9	-	-	-	100.0
Finland	9.1	20.7											
Local	9.1	20.7	-	86.7	5.1	-	-	-	-	8.1	0.2	0.1	100.0
France	5.1	11.5											
Local	5.1	11.5	67.5	-	8.3	10.2	-	-	-	7.7	4.4	1.9	100.0
Germany	10.2	29.2											
Länder	7.5	21.4	-	2.9	-	-	-	87.7	-	-	9.5	-	100.0
Local	2.7	7.8	-	17.0	42.9	-	-	39.2	-	-	-	0.9	100.0
Greece	-	-											
Local													
Hungary	2.3	6.3											
Local	2.3	6.3	-	-	77.5	-	-	-	-	22.2	-	0.3	100.0
Iceland[1]	9.3	22.9											
Local	9.3	22.9	-	-	92.7	-	-	-	-	-	-	7.3	100.0
Ireland	-	-											
Local													
Italy	6.8	16.6											
Regions	4.6	11.3	-	-	58.7	-	-	25.2	16.1	-	-	-	100.0
Local	2.2	5.3	20.4	-	53.3	-	-	-	19.9	-	6.5	-	100.0
Japan	6.9	25.2											
Local	6.9	25.2	0.2	50.8	33.2	-	-	-	-	-	15.8	-	100.0
Korea	4.2	17.4											
Local	4.2	17.4	-	-	75.7	-	-	-	6.4	-	16.1	1.8	100.0
Luxembourg	1.7	4.4											
Local	1.7	4.4	5.7	-	91.3	-	-	-	-	-	1.1	1.9	100.0
Mexico	0.6	3.2											
States	0.4	2.1	100.0	-	-	-	-	-	-	-	-	-	100.0
Local	0.2	1.1	100.0	-	-	-	-	-	-	-	-	-	100.0
Netherlands[1]	1.5	3.9											
Local	1.5	3.9	-	73.6	26.4	-	-	-	-	-	-	-	100.0
New Zealand	1.9	5.3											
Local	1.9	5.3	99.0	-	-	-	-	-	-	-	1.0	-	100.0
Norway	5.8	13.4											
Local	5.8	13.4	-	-	98.0	-	-	-	-	-	2.0	-	100.0
Poland	4.1	12.6											
Local	4.1	12.6	-	-	40.4	-	-	-	56.0	-	-	3.6	100.0
Portugal	1.6	5.1											
Local	1.6	5.1	-	-	63.6	-	-	-	36.4	-	-	0.0	100.0
Slovak Republic	0.8	2.7											
Local	0.8	2.7	5.8	-	94.0	0.2	-	-	-	-	-	-	100.0

Table 1.2. **Taxing power of sub-central governments** (continued)

As share of sub-central tax revenue, 2005

	Sub-central tax revenue		As share of sub-central tax revenues										
	As % of GDP	As % of total tax revenue	Discretion on rates and reliefs	Discretion on rates		Discretion on reliefs	Tax sharing arrangements				Rates and reliefs set by CG	Other	Total
				Full	Restricted		Revenue split set by SCG	Revenue split set with SCG consent	Revenue split set by CG, pluriannual	Revenue split set by CG, annual			
			(a)	(b1)	(b2)	(c)	(d1)	(d2)	(d3)	(d4)	(e)	(f)	
Slovenia	2.8	7.4											
Local	2.8	7.4	14.6	-	-	-	-	-	-	67.8	12.1	5.6	100.0
Spain	11.0	30.8											
Regions	7.9	22.0	57.8	-	4.7	-	-	37.4	-	-	0.1	0.0	100.0
Local	3.1	8.8	27.7	-	49.5	-	-	21.7	-	-	1.0	0.0	100.0
Sweden	15.7	32.2											
Local	15.7	32.2	-	100.0	-	-	-	-	-	-	-	-	100.0
Switzerland	11.9	40.8											
States	7.3	25.1	100.0	-	-	-	-	-	-	-	-	-	100.0
Local	4.6	15.6	3.0	-	97.0	-	-	-	-	-	-	-	100.0
Turkey[1]	1.9	7.6											
Local	1.9	7.6	-	-	-	-	-	-	84.4	-	15.6	-	100.0
United Kingdom	1.7	4.8											
Local	1.7	4.8	-	-	100.0	-	-	-	-	-	-	-	100.0
United States	9.3	34.3											
States	5.5	20.1	100.0	-	-	-	-	-	-	-	-	-	100.0
Local[2]	3.8	14.1	-	-	-	-	-	-	-	-	-	100.0	100.0
Unweighted average													
States[3]	5.3	16.2	68.7	0.3	6.3	-	-	15.1	1.6	-	5.5	2.4	100.0
Local	4.0	10.6	15.1	16.4	43.9	0.3	-	2.0	9.6	3.4	4.6	4.6	100.0

1. 2002 figures.
2. Local governments in the United States show a wide variety of taxing powers but it is not possible to identify the share of each.
3. Including Italy and Spain (regional data).

Source: OECD Fiscal Decentralisation database.

In some countries, SCGs have the right to vary tax rates but actually set the same rate across the country (*e.g.* in Norway, Korea or Japan). Such "unused taxing power" invites a deeper look into fiscal institutions and the incentives they generate for setting different tax rates across jurisdictions.

Tax sharing arrangements account for a large part of sub-central tax revenue in many federal/regional countries and some unitary countries. Tax sharing is often considered as providing a balance between granting local/regional fiscal autonomy and keeping the overall fiscal framework stable. In such an arrangement a single SCG cannot set tax rates and bases, but SCGs together may have the power to negotiate their common share. This power varies considerably across countries, from arrangements where sub-central governments are in full control over their share, to arrangements where the share is unilaterally set and modified by the central government. Often the distribution formula is enshrined in the constitution and can only be changed with the consent of all or a majority of sub-central governments. In other countries amendments to the sharing formula are easier to obtain, either with or without prior negotiation involving sub-central governments. In some cases the institutional set up makes it difficult to decide whether an arrangement is tax sharing or intergovernmental transfer; this issue will be dealt with in the next section.

Tax autonomy across tax category

The data on tax autonomy by tax type reveals that autonomy varies according to tax type, in both SCG levels (Table 1.3). Property taxes are usually assigned more discretion than other taxes, with almost all tax revenue in category a and b. Around a quarter of income tax revenue is embedded in tax sharing systems, which restrict a single SCG's control over this tax. Taxes on goods and services are even more embedded in tax sharing arrangements than income taxes, and so provide a relatively small part of the tax revenues under the full control of SCGs.

Table 1.3. **Tax autonomy of sub-central governments by type of tax**

a) State/regional level, per cent of tax revenue of that level

	Discretion on rates and reliefs		Discretion on rates		Discretion on reliefs	Tax sharing arrangements				Rates and reliefs set by CG	Other	Total
			Full	Restricted		Revenue split set by SCG	Revenue split set with SCG consent	Revenue split set by CG, pluri-annual	Revenue split set by CG, annual			
	a.1	a.2	b.1	b.2	c	d.1	d.2	d.3	d.4	e	f	
1000 Taxes on income, profits and capital gains	21.4	-	-	3.7	-	-	8.7	4.4	-	0.9	0.3	39.3
1100 Of individuals	17.8	-	-	2.6	-	-	8.4	3.3	-	-	0.3	35.8
1200 Corporate	3.6	-	-	1.1	-	-	0.3	0.8	-	0.8	-	6.5
1300 Unallocable between 1100 and 1200	0.0	-	-	-	-	-	-	0.2	-	0.1	0.0	0.4
2000 Social security contributions	0.5	-	-	-	-	-	-	-	-	0.0	-	0.5
2100 Employees	0.5	-	-	-	-	-	-	-	-	-	-	0.5
2200 Employers	-	-	-	-	-	-	-	-	-	0.0	-	0.0
2300 Self-employed or non-employed	-	-	-	-	-	-	-	-	-	-	-	-
2400 Unallocable between 2100, 2200 and 2300	-	-	-	-	-	-	-	-	-	-	-	-
3000 Taxes on payroll and workforce	2.4	-	-	-	-	-	-	-	-	-	-	2.4
4000 Taxes on property	9.5	-	-	0.3	-	-	-	0.0	-	0.3	-	10.2
4100 Recurrent taxes on immovable property	1.2	-	-	-	-	-	-	-	-	-	-	1.2
4200 Recurrent taxes on net wealth	1.6	-	-	-	-	-	-	-	-	0.0	-	1.6
4300 Estate, inheritance and gift taxes	1.3	-	-	-	-	-	-	0.0	-	0.3	-	1.6
4400 Taxes on financial and capital transactions	5.3	-	-	0.3	-	-	-	0.0	-	-	-	5.6
4500 Non-recurrent taxes	0.1	-	-	-	-	-	-	-	-	-	-	0.1
4600 Other recurrent taxes on property	-	-	-	-	-	-	-	-	-	-	-	-
5000 Taxes on goods and services	15.0	-	-	1.2	-	-	13.5	5.1	5.2	0.8	0.0	40.7
5100 Taxes on production, sale, transfer, etc	11.2	-	-	0.5	-	-	13.5	4.8	5.2	0.2	0.0	35.4
5200 Taxes on use of goods and perform activities	3.8	-	-	0.7	-	-	-	0.3	-	0.6	-	5.3
5300 Unallocable between 5100 and 5200	-	-	-	-	-	-	-	-	-	-	-	-
6000 Other taxes	0.0	-	-	4.2	-	-	-	1.4	-	-	1.2	6.9
6100 Paid solely by business	-	-	-	-	-	-	-	-	-	-	-	-
6200 Other	-	-	-	-	-	-	-	-	-	-	0.2	0.2
Total	48.8	-	-	9.4	-	-	22.1	10.8	5.2	2.0	1.6	100.0

Note: For Canada data refer to the year 2002.

Source: OECD Fiscal Decentralisation database.

Table 1.3. **Tax autonomy of sub-central governments by type of tax** (continued)

b) Local level, per cent of tax revenue of that level

	Discretion on rates and reliefs		Discretion on rates		Discretion on reliefs	Tax sharing arrangements				Rates and reliefs set by CG	Other	Total
			Full	Restricted		Revenue split set by SCG	Revenue split set with SCG consent	Revenue split set by CG, pluriannual	Revenue split set by CG, annual			
	a.1	a.2	b.1	b.2	c	d.1	d.2	d.3	d.4	e	f	
1000 Taxes on income, profits and capital gains	3.8	-	10.6	15.5	-	-	1.2	7.4	0.3	0.2	0.4	39.3
1100 Of individuals	0.5	-	10.6	12.6	-	-	1.2	5.7	-	0.1	0.2	31.0
1200 Corporate	3.3	-	-	2.8	-	-	-	1.6	0.3	0.0	0.2	8.2
1300 Unallocable between 1100 and 1200	0.0	-	-	-	-	-	-	0.1	-	-	-	0.1
2000 Social security contributions	-	-	-	0.0	-	-	-	-	-	0.0	0.1	0.2
2100 Employees	-	-	-	0.0	-	-	-	-	-	0.0	0.1	0.1
2200 Employers	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0
2300 Self-employed or non-employed	-	-	-	-	-	-	-	-	-	-	-	-
2400 Unallocable between 2100, 2200 and 2300	-	-	-	-	-	-	-	-	-	-	-	-
3000 Taxes on payroll and workforce	0.0	-	-	0.3	-	-	-	-	-	0.8	-	1.0
4000 Taxes on property	8.7	0.0	6.8	14.0	0.4	-	-	0.3	0.5	2.1	6.1	38.8
4100 Recurrent taxes on immovable property	5.3	0.0	6.6	11.5	-	-	-	0.0	-	0.7	6.1	30.2
4200 Recurrent taxes on net wealth	0.0	-	-	0.7	-	-	-	-	-	0.5	-	1.2
4300 Estate, inheritance and gift taxes	0.0	-	-	0.0	-	-	-	0.0	0.1	0.0	0.0	0.1
4400 Taxes on financial and capital transactions	0.1	-	0.0	1.4	0.4	-	-	0.3	-	0.9	-	3.1
4500 Non-recurrent taxes	0.0	-	0.2	0.2	-	-	-	-	0.4	-	-	1.2
4600 Other recurrent taxes on property	-	-	-	-	-	-	-	-	-	-	-	-
5000 Taxes on goods and services	1.5	0.0	0.6	5.5	0.0	-	0.8	5.1	-	3.0	0.9	17.8
5100 Taxes on production, sale, transfer, etc	1.1	-	0.1	2.8	0.0	-	0.8	4.9	-	2.8	0.6	13.3
5200 Taxes on use of goods and perform activities	0.4	0.0	0.6	2.7	-	-	-	0.3	-	0.2	0.3	4.4
5300 Unallocable between 5100 and 5200	-	-	-	-	-	-	-	0.0	-	-	0.0	0.0
6000 Other taxes	1.3	0.0	0.1	0.4	-	-	-	0.2	-	0.1	0.6	2.9
6100 Paid solely by business	0.9	-	0.1	-	-	-	-	0.0	-	0.1	0.1	1.3
6200 Other	0.0	0.0	-	0.4	-	-	-	0.2	-	0.1	0.0	0.7
Total	15.3	0.0	18.2	35.5	0.4	-	2.0	13.2	1.0	6.1	8.2	100.0

Note: 2002 figures for Canada, Iceland and Poland, data refer to the years 2002 and 2004 for Portugal.

Source: OECD Fiscal Decentralisation database.

A comparison of the two panels of Table 1.4 reveals the differences between state/regional governments on the one hand and local governments on the other. The two levels of government receive approximately equal revenue shares from income tax but with different levels of autonomy: state/regional governments have more discretion over both rates and reliefs while local governments have more discretion over rates. Both are subject to approximately the same level of tax sharing. Taxes on property are a much more important revenue source for local governments than for state/regional governments but they are less likely to have complete discretion over rates and reliefs. Finally, state/regional governments are more reliant on taxes on goods and services (mainly sales taxes) than are local governments.

Tax sharing arrangements

Tax sharing is an arrangement where tax revenue is divided vertically between the central and sub-central governments as well as horizontally across sub-central governments. In a tax sharing arrangement, the individual SCG has no power to set tax rates or bases; however SCGs may collectively negotiate a change to the sharing formula or to the tax rates. Often tax sharing arrangements contain an element of horizontal fiscal equalisation. Tax sharing has become a means to provide fiscal resources to sub-central governments while maintaining central control over fiscal aggregates. Tax sharing typically involves less autonomy on the part of sub-central governments than autonomous taxes, and it may also change SCGs' fiscal behaviour and fiscal outcomes. For both statistical and analytical reasons, a careful distinction between both forms of sub-central tax revenue allocation is therefore necessary.

Tax sharing arrangements can be analysed along various dimensions: the type of tax that is shared, the legal procedures involved in changing the formula, and the frequency of an adjustment to the formula (Table 1.4). One could also analyse whether the sharing formula contributes to an equalising objective; this will be done in detail in section 4.

Table 1.4. **Tax sharing arrangements**

Country	Tax type shared	Procedure for formula changes	Frequency of formula changes	Horizontal equalisation objective
Australia	VAT	Parliament, States need to approve	Every four years	Yes
Austria	PIT, CIT, property tax, VAT	Parliament, Law on Fiscal Equalisation	Every four to six years	Yes
Belgium	PIT	Special Financing Law		No
Czech Republic	PIT, CIT, VAT	Government, Law of Tax Assignment	Irregularly	Yes
Denmark	PIT, CIT	Government, Law on Tax Sharing	Very rarely	No
Finland	CIT	Government, Law on Tax Sharing		No
Germany	PIT, CIT, VAT	Parliament (Bundestag and Bundesrat)	13 changes since 1970	Yes
Hungary	Property taxes	Act on Local Tax	None since 2002	Yes
Italy	PIT, VAT, excise duties	Financial Law		No
Mexico	VAT, CIT, PIT, specific product and service taxes	Central government, Law on Tax Sharing (Fiscal Coordination)	Very rarely	No
Spain	VAT, excise duties	Parliament	Rarely	No
Switzerland	PIT	Parliament, Tax Law	Rarely	No
Turkey	Most taxes	Parliament, Law on local tax revenue shares	Rarely	Yes

Note: PIT=Personal Income Tax, CIT=Corporate Income Tax, VAT=Value Added Tax.

Source: National Sources.

Most tax sharing arrangements cover major taxes such as personal income taxes, corporate income taxes or value added taxes. Their high yield makes them attractive for SCGs, and the pooling tackles potential drawbacks of local taxation, such as mobility of the tax base. The procedure for changing the sharing formula is mostly laid down in laws on tax sharing, fiscal equalisation or the like. For the countries under scrutiny, decisions on the tax sharing arrangements seem to be taken at the parliamentary level; in some countries the share is defined in the constitution and adjustments require a qualified majority in parliament. Consultation of SCGs is quite frequent, but their explicit consent for adjustments is needed in some federal countries only. The frequency and regularity of formula adjustment varies across countries, from irregular to never, but it appears that tax

sharing arrangements are a comparatively stable item in national fiscal policy. Finally, some countries redistribute tax revenue from affluent to poorer jurisdictions; hence those countries combine tax sharing and fiscal equalisation in one single arrangement.

Intergovernmental grants

Intergovernmental transfers (or grants) provide sub-central governments with additional financial resources, thus filling the gap between own tax revenue and expenditure needs. The main objectives for intergovernmental grants can be roughly divided into subsidisation of SCG services and the equalisation of fiscal disparities; often these reasons overlap. A flowering garden of intergovernmental grants has evolved, with grants having different purposes and different effects on sub-central governments' behaviour. Rules and conditions attached to intergovernmental grants vary widely, ranging from transfers that grant full autonomy and come close to tax sharing, to grants where central government retains tight control. The following paragraphs give an overview on grants from a donors' perspective, a classification of the various strings attached to grants, and the policy areas for which grants are used.

Donors and recipients of grants

Table 1.5 shows a simplified version of the National Accounts donor/recipient matrix of intergovernmental grants, with five donor levels (central, state, local, international and social security) and – depending on the country type – one or two recipient levels (local, or state and local). The category "international" displays funds directly allocated to SCGs in some countries. On average, grants account for around 25% of total government tax revenue, with Korea having the largest grant system and Iceland the smallest in relative terms. With 86% for the state level and 67% for the local level, central government provides the overwhelming part of grants, although in most federal countries (Belgium, Canada, Germany and Switzerland) states are the main source for local governments. Around 2% of all grants flow across states/regions and 5% across local governments. However, such horizontal arrangements are not always recorded properly and may be underestimated.

Table 1.5. **Grants by donor and recipient sub-sector, 2006**

As per cent of total grant revenue

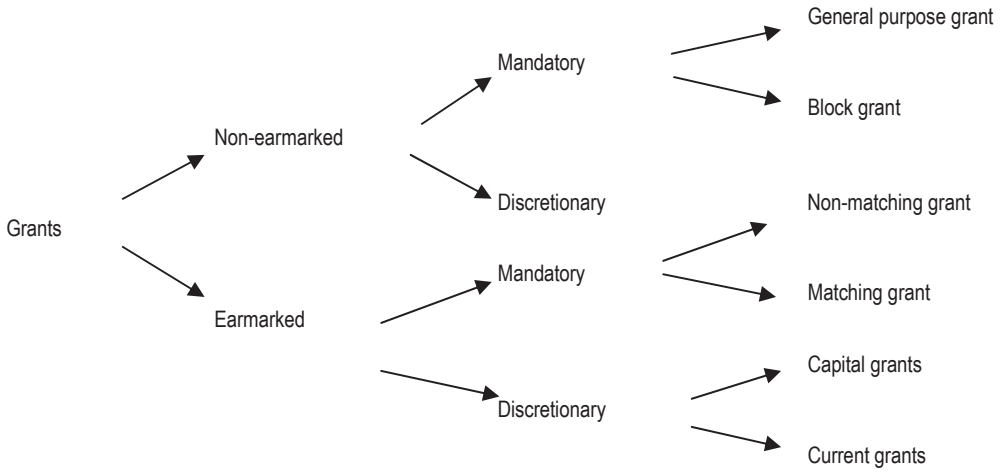
	As % of GDP	As % total tax revenue	Central level	State level	Local level	International	Social Security	Total
Australia	2.9	9.6						
States	2.7	8.9	100.0	-	-	-	-	100.0
Local	0.2	0.6	100.0	-	-	-	-	100.0
Austria	7.2	17.2						
Länder	5.4	12.9	60.9	14.1	4.5	0.2	20.2	100.0
Local	1.8	4.3	48.0	11.7	19.3	0.2	20.8	100.0
Belgium	7.5	16.8						
States	4.4	10.0	98.1	-	0.9	0.8	0.2	100.0
Local	3.0	6.8	20.7	78.9	-	-	0.4	100.0
Canada								
Provinces								
Local								
Czech Republic	4.0	10.9						
Local	4.0	10.9	98.6	-	-	1.4	-	100.0
Denmark	12.8	25.9						
Local	12.8	25.9	100.0	-	-	0.0	-	100.0
Finland	5.5	12.7						
Local	5.5	12.7	99.7	-	-	0.3	0.0	100.0
France	4.0							
Local	4.0	8.5	100.0	-	-	-	-	100.0
Germany	4.5	12.6						
Länder	2.0	5.6	78.2	-	14.4	7.4	-	100.0
Local	2.5	7.0	1.5	98.4	-	-	0.1	100.0
Greece	1.7	5.5						
Local	1.7	5.5	100.0	-	-	-	-	100.0
Hungary	6.4	17.1						
Local	6.4	17.1	69.2	-	3.6	1.6	25.6	100.0
Iceland								
Local								
Ireland	4.3	13.4						
Local	4.3	13.4	100.0	-	-	-	-	100.0
Italy	7.8	18.5						
Regions	5.4	12.8	95.9	-	-	4.1	-	100.0
Local	2.4	5.7	50.6	49.4	-	-	-	100.0
Japan	2.5	8.8						
Local	2.5	8.8	82.7	-	17.3	-	-	100.0
Korea	9.2	34.4						
Local	9.2	34.4	84.4	-	15.6	-	-	100.0
Luxembourg	2.3	6.5						
Local	2.3	6.5	100.0	-	-	-	-	100.0
Mexico	9.3	45.4						
States	7.9	38.6	100.0	-	-	-	-	100.0
Local	1.4	6.8	52.7	47.3	-	-	-	100.0
Netherlands	5.3	13.4						
Local	5.3	13.4						
New Zealand								
Local								
Norway	4.7	10.6						
Local	4.7	10.6	100	-	-	-	-	100.0
Poland								
Local								
Portugal	3.2	8.9						
Local	3.2	8.9	69.3	-	19.7	10.7	0.3	100.0
Slovak Republic								
Local								
Spain	8.0	21.5						
Regions	5.8	15.7	73.3	-	15.4	6.1	5.3	100.0
Local	2.2	5.8	63.7	33.6	-	0.9	1.8	100.0
Sweden	5.2	10.6						
Local	5.2	10.6	99.7	-	-	0.3	-	100.0
Switzerland (2005)	6.7	22.8						
States	4.6	15.9	73.9	5.6	20.5	-	-	100.0
Local	2.0	6.9	0.1	79.4	20.5	-	-	100.0
Turkey	0.5	2.0						
Local	0.5	2.0	100.0	-	-	-	-	100.0
United Kingdom	8.8	23.6						
Local	8.8	23.6	100.0	-	-	-	-	100.0
United States	6.1	21.9						
States	2.7	9.6	94.3	-	5.7	-	-	100.0
Local	3.5	12.4	5.8	94.2	-	-	-	100.0
Unweighted average								
States	4.6	14.4	86.1	2.2	6.8	2.1	2.9	100.0
Local	4.0	10.8	72.8	20.5	4.0	0.6	2.0	100.0

Source: OECD Fiscal Decentralisation database.

Taxonomy of grants

The grants taxonomy aims at reflecting the variety of grants (Figure 1.1). The main dividing line separates earmarked from non-earmarked grants; a distinction crucial for assessing sub-central fiscal autonomy. Both types of grants can be divided further into mandatory and discretionary transfers, reflecting the legal background that governs their allocation. Earmarked grants may be further subdivided into matching and non-matching grants, *i.e.* whether the transfer is linked to SCG own expenditure or not, a distinction important for sub-central incentives to spend. A final subdivision is between grants for capital expenditure and grants for current expenditure. On the non-earmarked side grants may be further subdivided into block and general purpose grants, where the latter provide more freedom of use; since both forms are unconditional, the distinction often collapses. The taxonomy is consistent with the one established by the Council of Europe. More detail can be found in Bergvall *et al.* (2006).

Figure 1.1. **Taxonomy of grants**



Source: OECD Fiscal Decentralisation database.

With each category accounting for around 50%, earmarked and non-earmarked grants make up around the same share of intergovernmental grants (Table 1.6). It is slightly surprising to see that earmarked grants, and hence central control, are more important for state and regional governments than for local governments. Almost 30% of earmarked grants are matching, *i.e.* linked to SCG own expenditure. Through lowering the price of sub-central public services matching grants are thought to foster SCG spending, but by doing this may put some pressure on both central and sub-central budgets. More than three quarters of all earmarked grants are mandatory, giving SCG more revenue security but leaving less scope for central governments to adjust expenditure rapidly to overall fiscal conditions. Only less than one quarter of earmarked transfers can be – at least from a legal, if not political, point of view – adjusted within short notice. Whether discretionary transfers fluctuate more than mandatory grants remains to be analysed once data for a longer time period are available.

Table 1.6. **Grant revenue by type of grant, 2006**

As percentage of total grant revenue

	Earmarked								Non earmarked			Total
	Mandatory				Discretionary				Mandatory		Discretionary	
	Matching		Non-Matching		Matching		Non-matching		General purpose	Block grants		
	Current	Capital	Current	Capital	Current	Capital	Current	Capital				
Australia												
State	-	-	-	-	47.5	9.2	32.4	4.9	5.9	-	-	100.0
Local	-	-	-	-	15.6	-	2.8	0.0	81.6	-	-	100.0
Austria												
State	48.4	2.4	12.1	17.3	0.9	-	0.3	-	10.9	0.2	7.5	100.0
Local	36.5	3.3	11.5	28.7	1.8	-	0.2	-	18.0	0.1	0.0	100.0
Belgium												
State	1.0	0.3	-	-	-	0.0	-	-	97.1	1.6	-	100.0
Local	45.0	5.0	-	-	-	-	-	-	49.9	-	-	100.0
Canada												
State												
Local												
Czech Republic												
Local	12.4	-	-	-	-	-	72.3	15.3	-	-	-	100.0
Denmark												
Local	0.1	71.8	-	0.0	0.3	0.6	0.0	0.1	26.8	-	0.2	100.0
Finland												
Local	5.8	-	-	-	-	-	1.9	1.7	14.2	75.8	0.6	100.0
France												
Local	6.8	-	0.1	-	-	2.0	1.7	1.8	80.9	6.7	-	100.0
Germany												
State												
Local												
Greece												
Local	40.9	36.1	-	-	-	-	-	-	23.0	-	-	100.0
Hungary												
Local	36.2	10.5	-	-	-	-	5.3	10.6	36.2	-	1.1	100.0
Iceland												
Local												
Ireland												
Local	-	-	-	-	-	-	14.8	73.5	11.7	-	-	100.0
Italy												
State	-	4.5	-	5.1	-	-	14.7	5.6	70.2	-	-	100.0
Local	-	-	-	-	-	-	30.5	31.5	38.0	-	-	100.0
Japan												
Local												
Korea												
Local	-	-	-	-	12.7	14.7	-	-	72.6	-	-	100.0
Luxembourg												
Local	86.3	13.6	-	-	-	-	-	-	-	-	-	100.0
Mexico												
State	-	-	49.0	-	-	-	5.7	-	45.4	-	-	100.0
Local	-	-	42.3	-	-	-	-	-	57.7	-	-	100.0
Netherlands												
Local	48.4	-	-	-	-	-	-	-	51.6	-	-	100.0
New Zealand												
Local												
Norway												
Local	9.6	0.0	-	-	-	-	33.5	-	-	56.9	-	100.0
Poland												
Local												
Portugal												
Local	-	-	-	-	-	-	16.1	-	83.9	-	-	100.0
Slovak Republic												
Local												
Spain												
State	0.3	0.4	8.5	4.4	1.3	0.8	1.1	0.9	82.4	-	-	100.0
Local	17.1	17.8	2.1	-	-	-	-	-	62.9	-	-	100.0
Sweden												
Local												
Switzerland												
State	74.3	-	-	-	-	-	-	-	25.7	-	-	100.0
Local												
Turkey												
Local	-	-	-	-	-	-	-	57.0	-	-	43.0	100.0
United Kingdom												
Local												
United States												
State												
Local												
Unweighted average												
State[1]	17.7	1.1	9.9	3.8	7.1	1.4	7.7	1.6	48.2	0.2	1.1	100.0
Local	18.2	8.3	2.9	1.5	1.6	0.9	9.4	10.1	37.3	7.3	2.4	100.0

Source: OECD Fiscal decentralisation database.

Grants by government function

Grants are used for different policy areas or government functions (Table 1.7). The National Accounts divide government activities into ten functions in the so-called Classification of Functions of Government (COFOG), and this division is also applied to intergovernmental grants. Data are available only for earmarked grants because unconditional grants are not tied to specific government functions. While National Accounts data are available for eight countries, the questionnaire asked all countries to provide data with the same precision as provided by the National Accounts. In the end the data of fifteen countries could be used to assess and compare the functional structure of intergovernmental grants.

Table 1.7. **Grants by government function, 2006**

In per cent of total earmarked grants

	Defence	Economic affaires	Education	Environment protection	General public services	Health	Housing and community amenities	Public order and safety	Recreation, culture, religion	Social protection	Total
Australia	-	14.9	36.5	-	-	37.1	3.6	0.2	0.0	7.8	100.0
Austria											
Belgium	-	-	55.6	-	-	3.9	22.2	-	-	18.3	100.0
Canada											
Czech Republic											
Denmark	0.0	-	0.1	0.0	3.9	-	0.2	-	0.3	95.5	100.0
France	0.2	5.9	2.8	1.0	79.0	0.2	4.4	1.3	4.6	0.5	100.0
Germany											
Greece	-	22.4	-	6.3	43.1	-	6.1	-	7.9	14.2	100.0
Hungary	0.1	3.8	7.5	7.3	18.8	4.4	32.6	-	5.7	19.7	100.0
Iceland											
Ireland	-	45.5	4.8	0.4	0.0	-	48.7	0.5	-	0.0	100.0
Italy	-	46.9	8.1	2.8	12.4	27.0	2.9	-	-	-	100.0
Japan											
Korea											
Luxembourg	-	2.2	7.0	0.5	72.8	-	6.0	0.5	6.3	4.8	100.0
Mexico	-	-	63.8	1.8	5.7	10.3	-	8.7	-	9.6	100.0
Netherlands	-	0.6	12.7	10.1	3.4	-	6.0	0.1	9.3	57.7	100.0
New Zealand											
Norway	-	4.6	1.8	-	22.9	17.6	-	0.1	0.1	53.0	100.0
Poland											
Portugal											
Slovak Republic											
Spain	-	28.9	16.3	-	23.9	5.2	3.9	7.9	0.5	13.2	100.0
Sweden											
Switzerland	0.4	51.3	13.1	2.7	-	0.0	-	1.0	0.2	31.3	100.0
Turkey											
United Kingdom											
United States[1]	0.8	3.6	10.4	1.1	11.0	48.9	11.7	1.1	-	6.5	95.1
Unweighted average	0.1	15.4	16.0	2.3	19.8	10.3	9.9	1.4	2.3	22.2	99.7

1. Not including the heading "Other grants" that could be classified in one of the above categories.

Source: OECD Fiscal decentralisation database.

Education and social protection are the largest category, pointing at the weight of local and regional governments in providing those services, with central government retaining considerable control over funding and regulation. "General public services" is the second largest, rather unspecific share of intergovernmental transfers. "Economic affairs" is the third largest category, largely reflecting the weight of shared responsibilities in local and regional development policy. Again the grant structure varies widely, reflecting the different responsibility assignments and funding arrangements in

countries. In general, except for "defence" and "public order and safety", some degree of responsibility sharing and overlapping characterises most government functions. However, the low number of country responses does not yet allow to draw strong conclusions.

The dividing line between tax sharing and grants

Why delineating tax sharing from grants?

Both tax sharing arrangements – defined as category "d" in the tax autonomy classification (Blöchliger and King, 2007) – as well as intergovernmental grants provide resources for sub-central governments. Drawing the dividing line between the two fiscal arrangements proves difficult, however. On the one hand, many tax sharing formulae have become complex and break the link between what a SCG generates on its territory, what it sends into the common pool and what it finally gets back. On the other hand, policy reforms have made some intergovernmental grants look more like a share in the national tax yield. What counts as tax sharing in one country may count as intergovernmental grant in another; in some countries, different central government bodies have even adopted different views on how to classify SCG revenue arrangements.

Why is it important to distinguish different SCG revenue arrangements? The reasons are both fiscal and economic in nature. From a fiscal autonomy point of view, resources emanating from tax sharing are thought to convey more power and autonomy to SCGs than intergovernmental grants. Also in a tax sharing system, SCGs tend to bear more financial risk in terms of tax revenue losses or fluctuations than if their revenue was based on grants. From an economic point of view, SCGs' incentives – *e.g*. to develop their own tax base – may differ considerably depending on how revenues are allocated across individual SCGs. SCGs may adopt different economic and fiscal policies to the extent that their fiscal revenues are the result of economic activities on their territory. The current lack of clarity both limits the comparability of fiscal autonomy indicators and reduces the strength of fiscal impact analysis across countries.

Current practice

Although databases such as the OECD National Accounts, the OECD Revenue Statistics or the IMF Government Finance Statistics (GFS) provide some guidance on the "tax sharing versus grants" issue, the criteria applied do not always help disentangle different arrangements. *First*, the criteria differ across manuals, so the different databases may treat the same fiscal arrangement differently. *Second*, some criteria are rather vague, making an evaluation of fiscal arrangements cumbersome in some countries. *Third*, some guidance requires that criteria be *cumulatively* fulfilled (logical "and"), while others require that only one criterion be fulfilled (logical "or"), which can lead to inconsistent results. *Fourth*, most manuals lack a clear criterion on *individual* proportionality, *i.e.* whether an individual SCG's share is closely related to what it generated on its territory or whether there is some in-built redistribution. Since the redistribution of tax revenue may both change SCG fiscal autonomy and SCG's behaviour, individual proportionality is an important criterion for drawing a dividing line between different arrangements.

A test to classify SCG revenue arrangements

What follows is a test that helps classify the various SCG revenue arrangements. The test has a double purpose: Its first purpose is to assess whether the current dividing line between tax sharing and grants – as established by National Accounts and Revenue Statistics – is still accurate. Its second purpose is to classify different variants of tax sharing and to establish the dividing line between them. The test uses four criteria that examine how a certain fiscal arrangement generates and distributes revenue across SCGs. The four test criteria – and the underlying questions – are as follows:

1. *Risk sharing*: Is the amount of revenue allocated to the sub-central level strictly related to total tax revenue (*e.g.* as a given share of annual tax revenue), *i.e.* does the sub-central level of government fully bear the risk of tax revenue slack and fluctuations?
2. *Un-conditionality:* Is sub-central government free to use the revenue allocated, *i.e.* are the revenues unconditional (non-earmarked)?
3. *Formula stability:* Is the revenue share between the central and the sub-central government predetermined in advance and not changed in the course of a fiscal year?
4. *Individual proportionality:* Is the revenue share of each sub-central government strictly related to what it generates on its own territory, *i.e.* is there no horizontal redistribution or fiscal equalisation across sub-central governments?

The first three criteria refer to the relationship between central and sub-central government (vertical relationship), the fourth criterion refers to the relationship between sub-central governments (horizontal relationship). The test should be applied to all arrangements classified under the "d" category in the tax autonomy classification and to all intergovernmental grants in the grants classification. Taxes classified under categories "a", "b" and "c" are *always* considered sub-central taxes and not grants. Taxes under the "e" category are *always* considered tax sharing fulfilling the individual proportionality criterion.

Arrangements are classified as follows:

- If an arrangement fulfils all four criteria, it will be referred to as *strict tax sharing*.
- If an arrangement fulfils the first three criteria but not the fourth (individual proportionality), it will be referred to as *redistributive tax sharing*.
- If an arrangement does not fulfil the first three criteria, it will be referred to as *intergovernmental grant*.

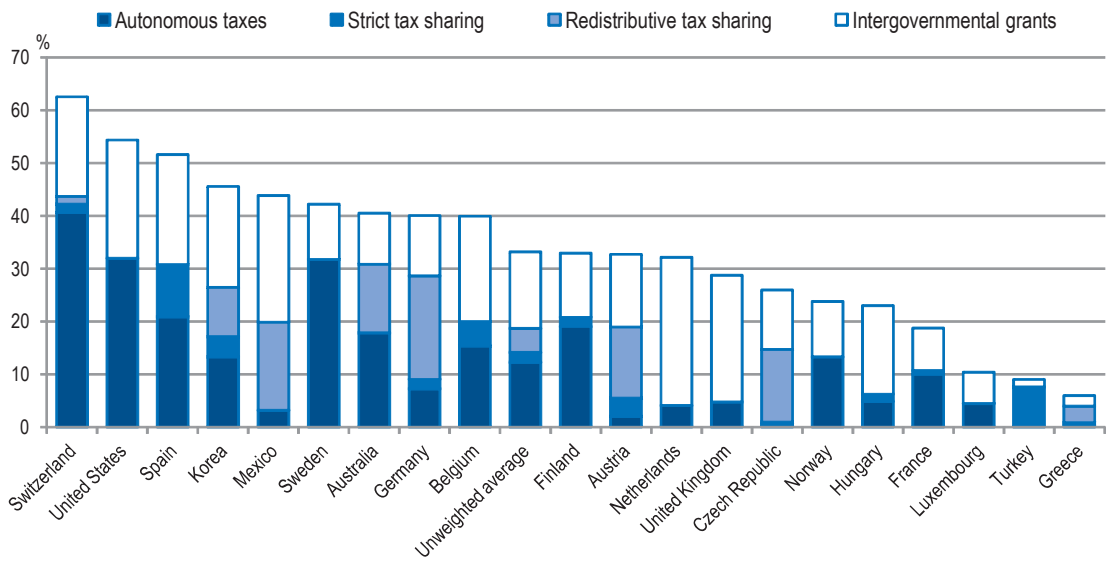
Results: the revenue mix of sub-central governments

Results for a test carried out with 2005 data are presented in Figure 1.2, showing the revenue composition (or revenue mix) of sub-central governments. Results indicate that more tax sharing arrangements pass under "redistributive tax sharing" than under "strict tax sharing". Surprisingly, under the new test slightly more arrangements are classified as tax sharing than under the definitions currently applied, following a reclassification of grants as "tax sharing" in two countries. Altogether, on average and for the countries under scrutiny, sub-central revenue is composed of 33% of autonomous taxes, 8% of

strict tax sharing, 14 of redistributive tax sharing and 45% of intergovernmental grants. More detailed results and descriptions of test runs can be found in Blöchliger and Petzold (2009).

Figure 1.2. **The revenue mix of sub-central governments**

In per cent of general government revenue, 2005 or latest available year[1]



Note: The classification results from the test described above.

1. 2001 for the United States and 2006 for Spain.

Source: Blöchliger and Petzold (2009), "Finding the Dividing Line Between Tax Sharing and Grants: A Statistical Investigation", *OECD Working Papers on Fiscal Federalism*, No. 10, OECD Publishing, 10.1787/5k97b10vvbnw-en.

Spending power

A common way to assess sub-central spending power – defined as the extent of control sub-central governments (SCGs) exert over the budget – is the sub-central share of government expenditure in general government spending. However, sub-central spending may be strongly influenced by upper level government regulation, reducing SCG discretion over various budget items. An analysis of SCG spending power based on simple expenditure shares may therefore be misleading. To allow for better policy analysis, more refined autonomy indicators would be useful. Once established, such indicators could help assess how decentralisation affects policy outcomes like public sector efficiency, the fiscal stance or long-term sustainability. This section provides an overview, based on a pilot study carried out in 2009.

Definition and scope

The term "spending power" describes the extent to which SCGs are able to determine their spending policy. In order to capture the idea of spending power, it is probably best to consider SCGs as service providers. SCGs spend money on various services, from local public transport and garbage collection, through the police and judiciary, to health care, education and regional development. A set of rules and regulations governs each of these services, and the more sub-central expenditures are shaped and influenced by

upper-level intervention, the smaller is effective SCG power to determine the size and structure of the budget. Conceptually, rules and regulations may be grouped into five categories relating to major facets of autonomy:

- **Policy autonomy**: To what extent do sub-central governments exert control over main policy objectives and main aspects of service delivery (*e.g.* are sub-central governments obliged to provide certain services)?
- **Budget autonomy:** To what extent do sub-central governments exert control over the budget (*e.g.* is expenditure autonomy limited by earmarked grants or expenditure limits)? The stringency of fiscal rules could also be assessed here if linked to individual policy areas.
- **Input autonomy:** To what extent do sub-central governments exert control over the civil service (staff management, salaries) and other input-side aspects of a service (*e.g.* right to tender or contract out services)?
- **Output autonomy**: To what extent do sub-central governments exert control over standards such as quality and quantity of services delivered (*e.g.* the right to define school curricula, the right to set up a hospital, the right to set prices for local public transport etc.)?
- **Monitoring and evaluation:** to what extent do sub-central governments exert control over evaluation, monitoring and benchmarking (*e.g.* financial control, school tests, etc.)?

The five categories of autonomy could in theory be applied to every policy area for which spending power is assessed. According to the National Accounts Classification of Functions of Government, Level II (COFOG II), this would mean assessing 69 policy areas. Evaluating all categories would be very elaborate, however. Therefore, for practical reasons, a spending power database should cover the main SCG expenditure items, likely to contain around 8 to 10 policy areas eventually. In the underlying pilot study, four policy areas representing large sub-central expenditure shares were analysed.

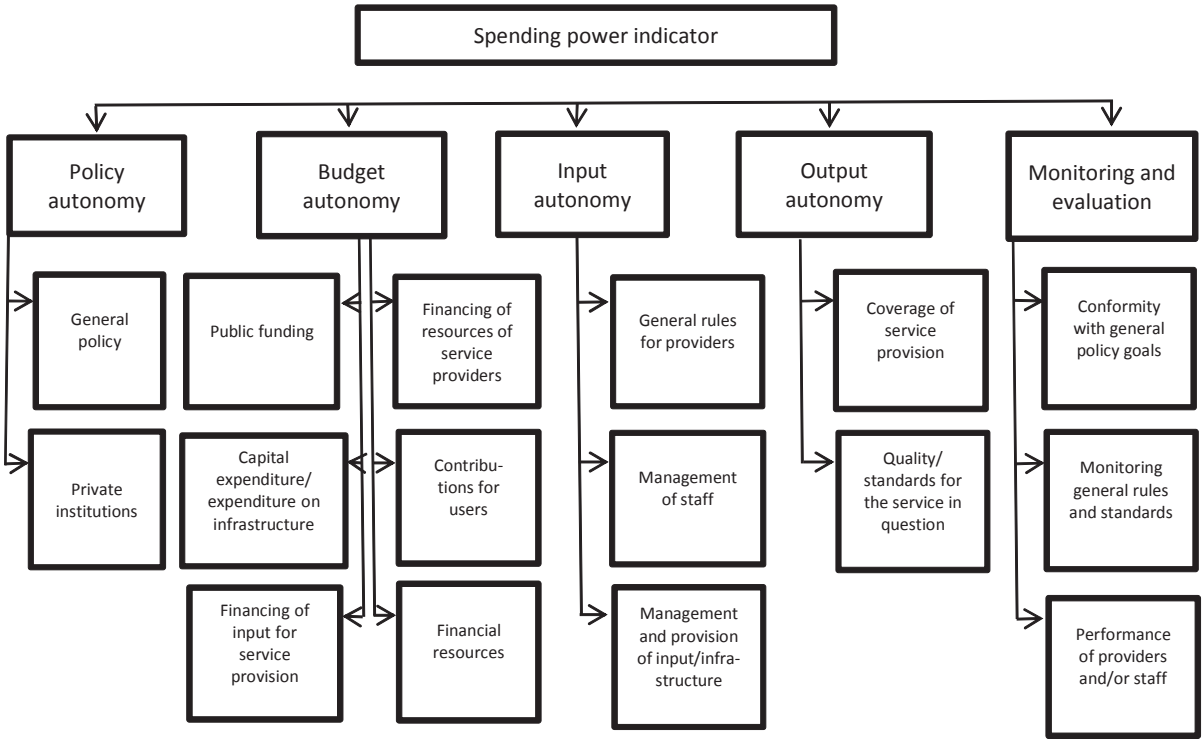
Measuring spending power: a case for institutional indicators

Sub-central spending power will be measured by means of *institutional indicators* and are based on a questionnaire. Institutional indicators assess policy arrangements in quantitative terms, *i.e*. they attach a number to the degree of autonomy SCGs have over their public services. Spending power indicators as developed here are intended to be purely descriptive and contain no explicit or implicit evaluation of the effectiveness of a given arrangement. Four policy areas are selected, namely "primary and secondary education", "public transportation", "childcare" and "elderly care". Five countries participated in the pilot study, of which two – Germany, Switzerland – are federal and three – Denmark, Portugal, Slovak Republic – are unitary countries. In addition, Ireland returned a questionnaire on "primary and secondary education".

Indicators are calculated based on an indicator tree, as shown in Figure 1.3. The indicator tree consists of low-level indicators (LLI), medium-level indicators (MLI) and the high-level indicator. Indicator construction starts with LLIs that describe one specific facet of autonomy. LLIs are then aggregated using the random-weights technique to form five MLIs representing the five autonomy categories shown above. The MLIs are finally aggregated to yield a single high-level indicator (HLI) portraying spending power in one

sub-central policy area. More detail including the questionnaire for the four policy areas, is shown in Bach *et al.* (2009).

Figure 1.3. **Spending power: sample indicator tree**



Source: Bach, S., H. Blöchliger and D. Wallau (2009), "The Spending Power of Sub-central Governments: A Pilot Study", *OECD Economics Department Working Papers, No. 705, OECD Publishing,* *10.1787/223123781022*.

Coding is relatively simple. Each answer to the questionnaire is transformed into a LLI using the codes shown in Table 1.8. The lower the level to which a certain responsibility, role or task is assigned, the more decentralised the spending power and the higher the indicator value. Indicator values are scaled between 0 and 10 and can easily be transformed into percentages. If answers to the questionnaire indicated shared responsibilities, the arithmetic mean of the indicator values for the government levels involved is used.

Table 1.8. **Coding for low-level indicators**

Federal countries		Unitary countries	
Level of government responsible	Indicator value	Level of government responsible	Indicator value
Central	0	Central	0
State	3	Local	5
Local	7	Service provider	10
Service provider	10		

Source: Bach, S., H. Blöchliger and D. Wallau (2009), "The Spending Power of Sub-central Governments: A Pilot Study", *OECD Economics Department Working Papers*, No. 705, OECD Publishing, *10.1787/223123781022*.

Two points are noteworthy with respect to coding:

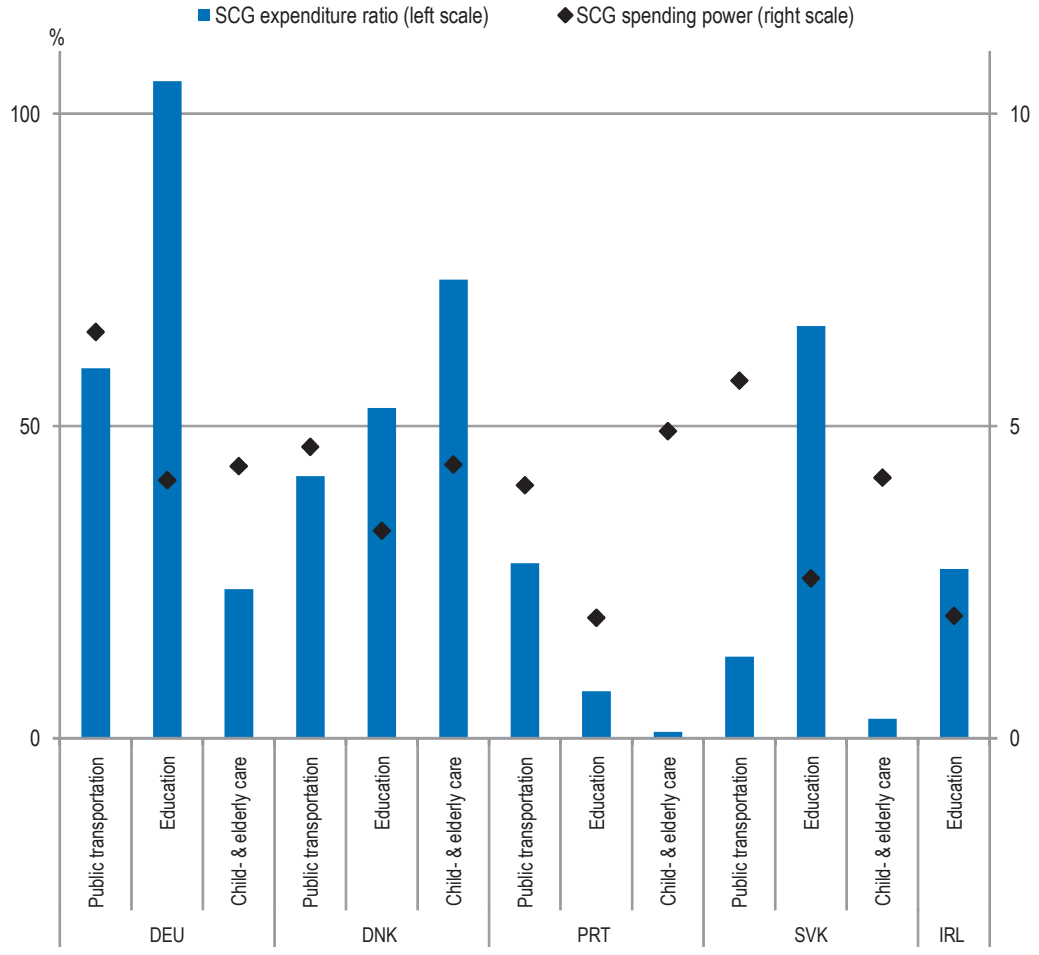
- Providers – schools, hospitals, transport companies etc. – are considered a separate government level receiving the highest indicator value. This implies that a move of spending responsibilities from a state or local government to providers increases sub-central autonomy.
- Local governments in unitary countries were given the value five (5) which is the average of the regional (3) and the local level (7) in federal countries. This arbitrary assignment can be interpreted as local governments in unitary countries partially fulfilling tasks which are incumbent on state governments in federal countries.

Results: Spending power of sub-central governments

Results for the high-level indicator are shown in Figure 1.4, which also sets the spending indicator against the conventional sub-central spending ratio. Set against each other, they can provide an encompassing picture of sub-central budget autonomy. Figure 1.6 compares spending power indicator values for each of the four policy areas to the sub-central expenditure ratios for the respective COFOG I function. More specifically, public transportation was compared to COFOG I function "economic affairs", education was compared to COFOG I function "education", and elderly care and childcare were compared to COFOG I function "social protection". Details of aggregation techniques and more results are shown in Bach *et al.* (2009).

Figure 1.4 supports the view that simple expenditure ratios often poorly reflect effective sub-central spending power. Whereas expenditure ratios frequently exceed the 50% threshold, the corresponding spending power indicator is rarely above the value 5, indicating that sub-central spending power is more limited than expenditure shares suggest. This is particularly true for education. By contrast, in the area of economic affairs spending power is relatively high compared to expenditure shares. For most policy areas the results suggest that SCGs often function as agencies funded and regulated by the central government rather than autonomous and independent policy makers. The power of SCGs over their own budget is limited, pointing at potential difficulties once they have to set spending priorities or to enforce spending cuts.

Figure 1.4. **Comparing SCG expenditure shares and SCG spending power indicators**



Note: Expenditure shares are for 2005. Spending power indicators are derived from a questionnaire sent to selected countries during 2007-08.The spending power indicator for "public transportation" is compared to the expenditure ratio for "economic affairs". The spending power indicator for (primary and secondary) "education" is compared to the expenditure ratio for "education". The mean of the spending power indicators for "child- and elderly care" is compared to the expenditure ratio for "social protection". Switzerland is not represented due to lack of COFOG I data. National Accounts data are unconsolidated.

Source: Bach *et al.* (2009), "The Spending Power of Sub-Central Governments: A Pilot Study", *OECD Economics Department Working Papers*, No. 705, OECD Publishing, *10.1787/223123781022*.

References

Bach, S., H. Blöchliger and D. Wallau (2009), "The Spending Power of Sub-central Governments: A Pilot Study", *OECD Economics Department Working Papers*, No. 705, OECD Publishing, *10.1787/223123781022*.

Bergvall, D., C. Charbit, D. Kraan and O. Merk (2006), "Intergovernmental Grants and Decentralized Public Spending", *OECD Journal of Budgeting*, 5, OECD Publishing, *10.1787/budget-v5-art24-en*.

Blöchliger, H. and D. King (2007), "Less than You Thought: the Fiscal Autonomy of Sub-central Governments", *OECD Economic Studies*, 2006/2, OECD Publishing, *10.1787/eco_studies-v2006-art12-en*.

Blöchliger, H. and O. Petzold (2009), "Finding the Dividing Line between Tax Sharing and Grants: A Statistical Investigation", *OECD Working Papers on Fiscal Federalism*, No. 10, OECD Publishing, *10.1787/5k97b10vvbnw-en*.

OECD (2008), *National Accounts of OECD Countries 2008, Vol. 1, Main Aggregates*, OECD Publishing, *10.1787/na_vol_1-2008-en-fr*.

OECD (2009), *Revenue Statistics 2009*, OECD Publishing, *10.1787/rev_stats-2009-en-fr*.

Chapter 2

On grant policy and the OECD-taxonomy of grants

Jorgen Lotz

The chapter addresses two issues. One is to explain why earmarking, so much criticised, still is so much used. The second is to examine whether international grant statistics compare the degrees of local autonomy in a correct way. The distinction between earmarked and non-earmarked grants is the basic feature of the OECD classification of grants. The drivers of earmarking are listed. Among these are the desire of the centre to implement merit wants, and the demand for precise compensation for the costs of new local competences. Next a number of problems in the OECD classification of grants is described. Among these are the unclear treatment of tax sharing revenues, the negative correlation between earmarking and regulation, the need for a grey zone between earmarking and non-earmarking, and the – in some cases large – grants for agent functions. The chapter ends with a summary of issues for improvements of the OECD statistics.

Introduction

This chapter has two objectives. One is to explain why earmarking of grants to local governments, so much criticised, still is so much used. For this purpose the chapter draws on material from the proceedings of the Copenhagen Workshop on Grants Policies in September 2009[1] that brought together the contemporary thinking on the subject of earmarked grants. The second is to examine whether international statistics on the composition of grants compares the degrees of local autonomy in a correct way. To do so, the chapter draws on the comprehensive article written by experts associated with the OECD Network[2] (referred to in the following as "*Bergvall*") and on recent OECD documents.

Section 2 presents the drivers for policies of earmarking of grants to local government. Section 3 identifies areas where the definitions used for the OECD statistics do not result in internationally comparable results. The final section 4 of the chapter presents the conclusions for future work on improving the international statistics of grants.

What are the drivers for earmarking?

The earmarking/non-earmarking split and the Council of Europe Charter

The most commonly mentioned concern when speaking of grants policy is the degree left for local autonomy. The OECD-classification of grants to sub-national governments builds on the difference between earmarked grants, defined as those that can only be used for specific purposes, and general purpose grants that can be spent as if they were own sub-national tax revenues (Bergvall *et al*., 2006, p. 116). This dividing line between earmarked/non-earmarked grants also formed the basis for the first international classification from 1985 by the Council of Europe (Lotz, 1986). To use earmarking as the main dividing line was an obvious choice for the Council of Europe (CoE) whose members had just in 1985 signed the Charter of Local Self-Determination recommending in legal terms that: "As far as possible, grants to local authorities shall not be earmarked for financing of specific projects. The provision of grants shall not remove the basic freedom of local authorities to exercise policy discretion within their own jurisdiction". (CoE, 1985, paragraph 9.7).

However, available data (Blöchliger, 2010) and a recent CoE-survey (Lotz, 2008a) shows that earmarking has, in spite of much criticism, if anything increased over recent decades. There are several reasons for this.

Merit wants: Musgrave on earmarking and merit wants

Realising that earmarking was much used, though non-earmarked grants seem superior resulting in optimal allocation, already Musgrave (1959, p. 183) formulated the justification for earmarking as cases where "… fiscal federalism is interpreted to be an assurance to each citizen of the federation that special social needs such as elementary education will be provided for adequately in all states". These social needs "may include social wants belonging to the sub-national government, but recognised as merit wants at the national level. Here we have the rationale for earmarked grants and for matching grants". The existence of merit wants, most often based on a desire of equity, has in many European countries been one of the major policy objectives leading to earmarking of grants and to regulation.

Cost efficiency: Result-based matching grants

But also the concern for cost efficiency plays a role in grant design. Open ended matching grants have for more than forty years been seen as fostering distorted and undesirable increases in spending. But recently there has been a growing awareness of the potential benefits in cost efficiency by using result-based grants, linking grant finance with service delivery. It is held that such grants "… respect local autonomy and budgetary flexibility while providing incentives and accountability mechanisms to improve service delivery performance." (Boadway and Shah, 2009, p. 314; see also Shah, 2010 and Smart and Bird, 2010).

Matching grants as a second best solution: Grants for investment purposes

A third driver for earmarking policies is that earmarked matching grants may be a second best solution when the objective of the grant is to very precisely compensate for certain local spending needs. General grants are normally allocated according to some general, objective criteria for spending needs, but where no satisfactory objective indicators of needs are available matching grants are often used as a second best solution, in spite of the risk that they drive up costs to undesirable levels (Smart and Bird, 2010[3], Mau, 2010). The most common example of this is the allocation of grants for investment purposes.[4] Grants for investment purposes are often matching (though close-ended in the sense that they are granted after prior examination and approval of projects (Solé-Ollé, 2010). Another case is when lack of suitable indicators of needs has become one of the major drivers of earmarking because of political demands for very precisely targeted "marginal equalisation".

Marginal equalisation as driver for earmarking of grants

Bergvall found (p. 115) that over recent decades there had been a trend towards increasing the share of local expenditure financed by grants, and recent studies have, as said, shown that the use of earmarking has in many member countries been increasing. This way the CoE member countries failed to act in conformity with the CoE guidelines, but nearly all of them explained this by their need to use earmarking for compensating grants when new local competences were introduced, and the increasing use of earmarking was really a sign of more decentralisation, they argued. Apparently, the political demands for 100% exactness in compensation for new competences are in most countries very strong, and earmarked matching grants are in many cases seen as the only way to ensure that the compensation for new local competences is allocated to those local authorities who are hit by the costs of the new competence. A CoE study (Lotz, 2008a*)* revealed that this has turned out to be one of the strongest drivers for earmarking because the political pressure to give full "equalisation at the margin" is so strong (see also Bergvall, *et al*., 2006, pp. 130-32).[5]

Does the OECD classification give a clear picture of grant instruments?

The distinction between own tax revenues and tax sharing revenues

The distinction between own tax revenues and tax sharing revenues depends on whether or not the local authorities have full or partial local discretion over their own taxes (*i.e.* the local authorities can set their own tax rates and tax reliefs, and the higher level does not set upper or lower limits on the rate chosen (OECD, 2006). But the absence of control and limitations do not always result in local tax autonomy. Examples of such

cases are a policy to freeze local tax rates by introducing financial fines for local tax increases as has been seen in Sweden, and is the case in Denmark. Another unresolved case is a temporary freeze for local taxes as has been seen in Sweden. For one or two years of freeze it may still be regarded as temporary and the local tax accepted as an own tax, but if the temporary freeze is prolonged for more years the classification becomes less convincing. Finally there may be cases of considerable variation between upper and lower limits set for the tax rate when the band is wide enough for local authorities to behave in nearly the same autonomous way as if no limits were being imposed. Such problems cannot be ignored but they are probably not frequent enough to be a major source of lack of comparability in the statistics.

The definition of grants vs. tax-sharing

The issue of a statistical distinction between general grants and tax-sharing revenues has been on the table of the OECD Network since its creation. Those who want to use the distinction between local taxes and grants as a measure of accountability find it irrational that transfers are described as tax-sharing arrangement when they do not allocate the revenues to the authorities of origin but re-allocate the revenue according to objective criteria of needs (in the words of Blöchliger and Petzold, 2009: do not fulfil the criterion of individual proportionality). Such arrangements are by most users seen as grants and not tax revenues. The Network has spent considerable effort to sort out this issue, but constitutional constraints in some members have prevented it from agreeing on a classification that satisfies everybody. However, this problem could be reduced if only data on tax-sharing revenues were published separately, as it has been done on an ad hoc basis by the Tax Centre of the OECD. This would permit users of the statistics to choose to lump all tax sharing revenues – including those fulfilling the criterion of proportionality – either with local taxes or with grants, depending on their own analytical needs.[6]

The relationship between earmarking and regulatory policy

Grants and regulation are often used for the same objectives. To evaluate the effect of grants system on local autonomy it is important to know also about the use of regulation. In particular this is important if governments, when they switch from earmarked to general purpose grants, tend to introduce legal regulation to replace the control function previously performed by the earmarking. Such a casual relationship has been observed (Blom-Hansen, 2010) in the development of Danish regulation of primary schools. He shows that "… the question [of earmarked or general grants] disappears to be a minor detail in a larger regulatory complex", and he concludes that "it would be highly misleading to conclude from the abolishment of conditional school grants [ ] that this is an area where local autonomy has been on the rise." The same observation is reported on the recent Dutch shift away from narrow earmarking to more broadly defined grants that was made possible by strengthening the regulatory framework (Boerboom and Huigsloot, 2010).

Block grants, the grey zone

The experience from many meetings in international organisations has been that countries often find that the international statistics fail to describe differences in local autonomy in a clear way. A main problem is that there are many degrees and forms of control, both within the headline earmarking and in different combinations of grants and

regulation. This is what the OECD-Network attempts to handle by the introduction of the item *block grants* in the typology of grants.

A recent textbook describes the concept of block grants as follows: "General purpose transfers are termed block transfers when they are used to provide broad support in a general area of sub-national expenditure, while allowing recipients discretion in allocating the funds among specific uses. Block grants are a vaguely defined concept. They fall in the grey area between general-purpose and specific-purpose transfers, as they provide budget support with no strings attached in a broad but specific area of sub-national expenditures." (Boadway and Shah, 2009, p. 307). Such a "vaguely defined concept" seems well suited to appeal to the political concerns of member countries in international organisations, but it is not easy to use as basis for an international statistical definition. The OECD guideline *(*Bergvall *et al*., 2006, p. 118*)* for this classification goes as follows: "block grants are given by the grantor for specific purposes." However, "since the grant is not earmarked, the grantee's actual use of the grant is not controlled. Instead, the output could be regulated through, for example, a set of minimum standards that the sub-national government would have to provide." It is difficult to be convinced that this definition can serve as a uniform statistical distinction between matching grants and block grants. The failure to reach a uniform application of the criteria for "block grants" is illustrated by the use of the term by Bergvall. Though in the Network-statistics only two countries, Finland and Norway, have block grants, the chapter uses two other countries for examples of block grants (Denmark, p. 133 and the Netherlands, p. 132), none of which in the statistical tables are shown to use block grants.

But the problem that in the real political life earmarking is more or less broadly defined needs to be addressed. And if "block grants" are not a useable statistical concept we are left without a measure of the grey zone which the block grant-definition was intended to measure. A recent discussion of this issue in the CoE observed "… a perceived growing international tendency over recent decades towards greater freedom within earmarked grants. Traditional statistics fail to register the increases in local spending freedom resulting from reductions in the degree of detail of earmarking, or from the introduction of more broad-based earmarked grants." (Lotz, 2008a). Countries do in different ways try to encourage sub-national governments to allocate resources for particular purposes. And even if the attempts by the centre to control local behaviour fail, the governments may for political reasons still prefer to have documentation showing to the public how they have acted to influence local government allocations in a desired way.

Result-based matching grants

Traditional matching grants are signals to sub-national governments to increase expenditure for the subsidised function. But also result-based grants influence the production of services in the sense that only if the individual local institutions produce more, grants will follow. Result-based grants invite the councils to introduce internal budget procedures that give incentives to the managers of service production to produce more, and perhaps to let salaries for management and further down depend on productivity. The systems can be designed so that expected and demanded annual improvements in efficiency are incorporated by annual reductions in the grant per unit produced (Mau, 2010). Ideally, the grant should not be earmarked so that surplus grants, if local costs are brought down below the standard rate, can be made freely available for other purposes. Such grants furthermore serve the political purpose of demonstrating political engagement and hence "… appear to provide a better explanation of grants than

is to be found in the traditional fiscal federalism literature." (Smart and Bird; see also Borge, 2010).

The CoE 1986-classification divided the group of matching grants into those based on standard costs and those based on actual costs, the difference being that the standard cost version caps the costs per unit eligible for refund (for instance a maximum for the refundable cost per student in primary schools) while the actual cost version allows for refund of the full sub-national expenditure. The same distinction is made by Bergvall *et al*. (2006, p. 117), but the Network has not included this distinction in its classification.

The use of the classification of result-based grants may result in another problem for a clean typology: If the law defines the grant per unit (client) the total size of the grant only depends on how many units qualify. But if the number is non-variable (for instance, the number of children of a certain age) the grant assumes the properties of a lump-sum grant. In other words, the definition of "matching" becomes, in cases of capped grants, empty.[7] This leads to the next issue: the question of agent functions.

Agent functions

Matching grants covering 100% of the total refundable amount are probably mostly found where the sub-national level performs "agent functions". These are functions administered by the sub-national level but circumscribed in all detail by the law so that there is no sub-national discretion in any aspect of the service.

From an analytical point of view, when the purpose is to describe local autonomy, the right solution is not to accept the central financing of agent functions as a grant for a local function, but instead to reclassify the function to be shown as expenditures of the budget of the higher level authority, as it was done by the CoE (Lotz, 1986). This will be a departure from the functional classification of the SNA manual, but the SNA distinction serves other purposes and is not based on the degree of local autonomy which the OECD classification seeks to describe.

An example to illustrate the effect of the placement of agent functions is the Danish national old age pension. The citizens have a right to exactly an amount of the pension set out in the law when they meet the legal criteria for receiving it. All is described in detail by law, and the item no longer appears in the local budgets. But the SNA and the OECD treat it as a local function because the payment of old age pension for administrative reasons is handled by the local authorities. Table 2.1 illustrates the difference it makes in the statistics. In the OECD column the SNA classification is followed, in the CoE column the spending on pensions is classified as central government expenditure.

This practice has had analytical consequences for other OECD work. In OECD (2008, p. 26) countries are grouped in four classes describing degrees of local autonomy on the revenue side. The study counts agent functions as local expenditure (as in Table 2.1, column 2) with the result that Denmark ends up in the same group as Spain and Australia, a characterisation that seems difficult to understand for a Danish reader. If the agent function is reclassified to be a central government expenditure (column 1), Denmark would be grouped with the other Nordic countries.

We do not know how important the issue of agent functions is in other countries, but among cases that may be looked into are the education grants in Korea, and in England there used to be agent functions for housing policy purposes.

Table 2.1. **Local government statistics for Denmark with or without agent functions**

Local government budgets 2006	Without agent functions (CoE) (1)	With agent functions (OECD) (2)
Local total expenditure (per cent of GDP)	23	29
Composition of grants (per cent):		
Matching	38	70
Non-matching	62	30
Total	100	100
Composition of revenues (per cent)		
Own taxes	70	54
Tax sharing	1	1
Grants	29	45
Total	100	100

Source: Author's calculations.

Conclusions

The OECD Network deserves praise for establishing international statistics on grants to local governments. Grants statistics have several benefits. In the literature the role of earmarking is used to measure the degree of local autonomy. And the *Charter on Local Self-Determination* from the Council of Europe sets legal demands against earmarking. But this article identifies on several accounts the needs for more work to be done in order to make the data on the mix of non-earmarked/earmarked grants comparable across countries, and to reveal comparable degrees of local autonomy vs. controls by higher levels.

International comparisons are useful if they permit comparisons of the use of clearly defined instruments aimed at national objectives between countries and over time. But Bergvall *et al.* (2006, p. 150) notes that the usefulness of international comparisons depends on "a reflection on the objectives of the central government and the separation of the grant instruments" and acknowledges that, if drawing up a complete list of efficient instruments is attempted, the instruments should include both grants and regulatory elements.

So some supplementary notes to the statistics are needed. To evaluate the effectiveness of a grant system, a more nuanced picture of national objectives and instruments is needed as supplements to the statistics. Descriptions of the national objectives of the grant system should include up-dated information on at least the following issues:

- The priority given to equity concerns and merit wants;
- The interplay between earmarking and the regulatory framework;
- The role of earmarking as second best solution, and funding of new local competences ("marginal equalisation").

Turning to the issue of the statistical measure of tax sharing revenues the definition is unclear on two accounts: Some ambiguities exist as to when, for a given tax, local freedom is enough to classify it as an own local tax or as a tax sharing revenue. And also the distinction between grants and tax sharing revenues is blurred.

On the role of regulation, the empirical findings of a causal negative relationship between earmarking and regulation, as has been found in several countries, poses a

difficult problem for the interpretation of the OECD data. This is a serious problem, and it is probably difficult to solve without extensive supplementary notes.

On the grey zone between earmarking and grants, the OECD Network has introduced the concept "block grants" in the classification of grants. But block grant is a vaguely defined concept, and the Network itself seems to have difficulties in deciding in concrete cases, which grants are to be deemed as block grants. But there is a political need – expressed both in the OECD and the CoE – for a classification that reflects nuances of earmarking and is interpreted the same way in different countries. Considering this, it is probably advisable to be less ambitious and replace the "earmarked/non-earmarked" split with a "conditional/non-conditional" split for comparisons of degrees of local autonomy until a more nuanced way of measuring the degree of earmarking is found.

On the definition of matching grants, the recent literature has shown renewed interest in a distinction between result-based grants and other matching grants, *i.e.* to divide matching grants into those based on standard costs and those based on actual costs.

On the failure to separate agent functions from other local spending, it is shown how this may lead to seriously misleading results. When it comes to the issue of agent functions the SNA definition is not geared to analytical comparisons between local governments autonomy. Where agent functions are large, there is a risk that the resulting statistics become seriously misleading.

Notes

1. Kim *et al.* (2010).
2. Bergvall *et al.* (2006).
3. Smart and Bird argues that "In the presence of imperfect information about cost drivers – the real and necessary unit costs of government services at the local level – it may be difficult for the centre to design a lump sum (block) grant" and as a second best solution they suggest that matching grants can be an alternative.
4. The Council of Europe guidelines accept earmarking in these cases; see Lotz (2008a).
5. The CoE study showed that compensation for new competences was by nearly all countries done with earmarked grants and only in a few cases as block grants, contrary to Bergvall *et al.* (2006, p. 132).
6. An analysis of the role of tax sharing for the local finances would ideally also require publication of the shares of property taxes, income taxes or sales taxes, etc., as each such type of tax sharing revenue will react differently to the cycle and pose different problems for the local finances.
7. I owe Junghun Kim thanks for making this point to me.

References

Bergvall, D., C. Charbit, D.-J. Kraan and O. Merk (2006), "Intergovernmental Transfers and Decentralised Public Spending", *OECD Journal on Budgeting*, Vol. 5, No. 4, OECD Publishing, *10.1787/budget-v5-art24-en*.

Blöchliger, H. and C. Vammalle (2010), "Intergovernmental Grants in OECD Countries: Trends and some Policy Issues", in J. Kim, J. Lotz, and N.J. Mau (eds.), *General Grants Versus Earmarked Grants*, Korea Institute of Public Finance and Danish Ministry of Interior and Health.

Blöchliger, H. and O. Petzold (2009), "Finding the Dividing Line between Tax Sharing and Grants: A Statistical Investigation", *OECD Working Papers on Fiscal Federalism*, No. 10, OECD Publishing, *10.1787/5k97b10vvbnw-en*.

Blom-Hansen, J. (2010), "The Fiscal Federalism Theory of Grants: Some Reflections from Political Science", in J. Kim, J. Lotz, and N.J. Mau (eds.), *General Grants Versus Earmarked Grants*, Korea Institute of Public Finance and Danish Ministry of Interior and Health.

Boadway, R. and A. Shah (2009), *Fiscal Federalism*, Cambridge University Press, Cambridge.

Boerboom, H. and P. Huigsloot (2010), "Earmarked Grants and General Earmarked Grants in the Netherlands", in J. Kim, J. Lotz, and N.J. Mau (eds.), *General Grants Versus Earmarked Grants*, Korea Institute of Public Finance and Danish Ministry of Interior and Health.

Borge, L.E. (2010), "Growth and Design of Earmarked Grants: The Norwegian Experience", in J. Kim, J. Lotz, and N.J. Mau (eds.), *General Grants Versus Earmarked Grants*, Korea Institute of Public Finance and Danish Ministry of Interior and Health.

Bosch, N. and A. Olé-Sollé (eds.) (2011), *IEB's World Report on Fiscal Federalism* '10, Institut d'Economia de Barcelona, Barcelona.

Charbit, C. (2010), "Explaining the Sub-National Tax-Grants Balance in OECD Countries", *OECD Working Papers on Fiscal Federalism*, No. 11, OECD Publishing, *10.1787/5k97b10s1lq4-en*.

Council of Europe (1985), "European Charter of Local Self Government", *European Treaty Series*, No. 122, 1 October 1985, Strasbourg.

Kim, J. (2010), "General Grants vs. Earmarked Grants: Does Practice Meet Theory?" in J. Kim, J. Lotz, and N.J. Mau (eds.), *General Grants Versus Earmarked Grants*, Korea Institute of Public Finance and Danish Ministry of Interior and Health.

Kim, J., J. Lotz, and N.J. Mau (eds.), *General Grants Versus Earmarked Grants*, Korea Institute of Public Finance and Danish Ministry of Interior and Health.

Lotz, J. (1986), "Policies with Regard to Grants to Local Authorities", Council of Europe, Study Series Local and Regional Authorities in Europe, 36, Strasbourg.

Lotz, J. (2008a), "Draft Report on the Member States' Practices for Funding of New Local Competences of Local Authorities", CDLR(2008)48, Council of Europe, Strasbourg.

Lotz, J. (2008b), "Final Draft report on the Pilot Study Concerning the Degree of Conformity of Member States' Policy and Practice with Council of Europe Guidelines for Local Finance", CDLR(2008)47, Council of Europe, Strasbourg.

Mau, N.J. (2010), "Grant Design in Denmark", in J. Kim, J. Lotz, and N.J. Mau (eds.), *General Grants Versus Earmarked Grants*, Korea Institute of Public Finance and Danish Ministry of Interior and Health.

Musgrave, R. (1959), *The Theory of Public Finance*, McGraw-Hill Book Company.

Shah, A. (2010), "Sponsoring a Race to the Top: The Case for Results-Based Intergovernmental Finance for Merit Goods", in J. Kim, J. Lotz, and N.J. Mau (eds.), *General Grants Versus Earmarked Grants*, Korea Institute of Public Finance and Danish Ministry of Interior and Health.

Smart, M. and R. Bird (2009, "Earmarked Grants and Accountability in Government", in J. Kim, J. Lotz, and N.J. Mau (eds.), *General Grants Versus Earmarked Grants*, Korea Institute of Public Finance and Danish Ministry of Interior and Health.

Solé-Ollé, A. (2010), "Inter-governmental Transfers to Local Governments in Spain", in J. Kim, J. Lotz, and N.J. Mau (eds.), *General Grants Versus Earmarked Grants*, Korea Institute of Public Finance and Danish Ministry of Interior and Health.

Chapter 3

Measurement of decentralisation: How should we categorise tax sharing?

Junghun Kim

The empirical studies of the economic effects on fiscal decentralisation depend critically on the correct measurement of decentralisation. And yet the various decentralisation measures conventionally used by researchers do not reflect the complex nature of sub-central fiscal frameworks. In particular, the sub-central share of revenue suffers from the fact that revenue arrangements in many countries consist of tax sharing, with or without in-equalisation. To overcome this problem, the OECD (2009) has developed a set of criteria that identify two types of tax sharing: one with strict tax base proportionality and the other without it. However, this definition still needs further refinement since it does not capture the different degrees of fiscal equalisation embedded in tax sharing arrangements. This chapter suggests a refinement of the tax sharing definition that captures the degree of (inverse) proportionality between local tax base and revenue from tax sharing.

Introduction

Fiscal decentralisation is an important aspect of fiscal institutions in both developing and developed countries. The development of economic theory on fiscal decentralisation goes back to Tiebout (1956) and since this pioneering work, much theoretical progress has been made, as recently surveyed by Oates (1999, 2005, 2008). Many challenging questions on fiscal decentralisation, however, remain despite the theoretical progress. In particular, the effects of fiscal decentralisation on economic growth and inter-regional disparities are quite controversial, often providing conflicting answers.

For example, empirical studies on the effects of fiscal decentralisation on economic growth have generated all possible answers: positive, negative, and zero relation between fiscal decentralisation and economic growth.[1] What is the cause of such diversity in the results from the research on the effects of fiscal decentralisation? It may be due to the fundamental problem of empirical studies relying on international data, which generally suffer from measurement errors and heterogeneity due to political, cultural, and institutional factors of each country. The examination of international data on revenue and expenditure assignments between the central and local governments shows that such problems are by no means negligible in the analysis of fiscal decentralisation.

Another reason why empirical studies on fiscal decentralisation are so difficult is due to its unclear definition. In empirical studies on fiscal decentralisation, the shares of sub-central revenue or expenditure are often regarded as the degree of fiscal decentralisation. However, these measures of fiscal decentralisation have been criticised by some researchers since they fail to differentiate between the size and the fiscal decision-making power of local governments. To overcome this problem, the OECD (1999) has developed a concept of "taxing power", which is defined as local tax revenue excluding tax sharing and other types of local taxes for which local governments do not control the tax base and tax rate.

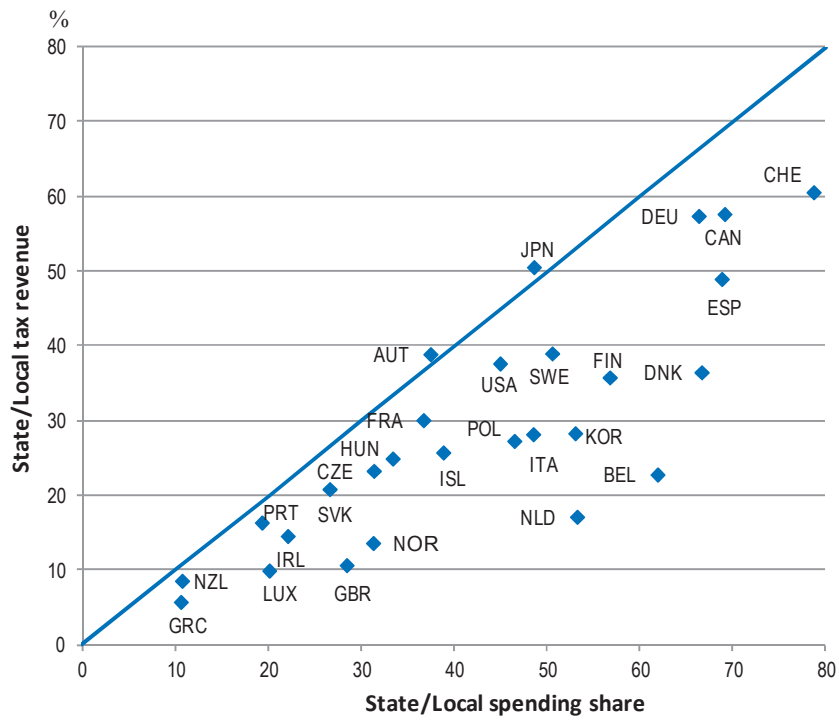
Since taxing power better reflects the fiscal decision-making power of local governments, it has filled a gap between theoretical and empirical research on fiscal decentralisation. However, there still remain challenging issues to be resolved with regard to the measurement of fiscal decentralisation. One such issue is the definition of tax sharing used by the OECD (1999). In defining taxing power, local revenue from tax sharing is completely excluded. However, in many developed and developing countries, local governments depend significantly on the revenue from tax sharing between central and local governments. Virtually all federal and regional countries of the OECD, except the US and Canada, rely on a tax sharing system in the distribution of fiscal resources across levels of government. Given the fact that tax sharing is widely used across the world, the literature on the role and effects of tax sharing is surprisingly scarce. A study by the OECD (Blöchliger and Petzold, 2009) addresses this issue, and suggests test criteria to be used to differentiate tax sharing and grants. However, this approach still needs further refinement since it does not clearly differentiate different types of tax sharing that are observed worldwide. This chapter will therefore discuss the current status of the taxonomy of tax sharing, and a method to refine its definition. In section 2, measures of fiscal decentralisation used in the empirical literature are surveyed. In section 3, different types of tax sharing that are implemented worldwide will be examined. In section 4, a method to refine the definition of tax sharing is suggested to better identify the degree of proportionality of tax sharing to the local tax base. Section 5 concludes.

Measurement of fiscal decentralisation

The most widely used statistics in the empirical studies that investigate the effects of fiscal decentralisation are the shares of sub-central government revenue and expenditure in total revenue or spending. In an early study on the effect of fiscal decentralisation on economic growth, Zhang and Zou (1998) use the ratio of provincial spending to central spending in per capita terms in measuring the degree of fiscal decentralisation. Likewise, Davoodi and Zou (1998), Xie, Zou and Davoodi (1999), and Iimi (2005) have used the sub-central share of total government spending to measure fiscal decentralisation. Akai and Sakata (2002) also use fiscal decentralisation indices such as the shares of local government revenue and expenditure in total state budget.

It should be noted that in many countries the shares of sub-central expenditure and revenue are significantly different from each other due to a large amount of intergovernmental grants. In OECD countries, for example, these two measures are similar only for Japan, Austria, Portugal, and New Zealand, as can be seen in Figure 3.1.[2] In most other countries, the share of sub-central expenditure is larger than that of sub-central revenue. For countries such as Denmark, Korea, Belgium, the Netherlands, Norway and the United Kingdom, the difference between the two measures is sizable. Therefore a choice between these two measures is likely to significantly affect the empirical analysis of fiscal decentralisation.

Figure 3.1. **Sub-national governments' share in general government revenues and expenditures**



Source: OECD (2009), *Government at a Glance*, OECD Publishing, 10.1787/9789264075061-en.

Apart from the issue of having to choose between the shares of sub-central revenue and expenditure, the use of these measures has been criticised to incorrectly capture the sub-central government's fiscal decision-making power, which is theoretically more

consistent with the concept of fiscal decentralisation. The defects of the conventional measures of fiscal decentralisation come from the fact that the central government can fiscally influence local governments with intergovernmental grants and regulations. Since local expenditure are partially subsidised by intergovernmental grants, the share of sub-central expenditure tends to overestimate the degree of fiscal decentralisation. On the revenue side, local tax revenue often consists of nationally determined tax base and tax rates. Therefore, the share of sub-central revenue is likely to overestimate the true fiscal power of local governments.

Recognising this problem, the OECD (1999) developed the concept of "taxing power" by categorising local taxes into five types, as shown in Table 3.1. According to this definition, a local government's taxing power is defined by the size of its local taxes for which it can control either the tax base or tax rate (type a, b and c). What is left out in this definition is, therefore, "tax sharing" for which central government determines the tax base and tax rate either unilaterally or jointly with local governments (type d). Local taxes for which central government determines the tax base and tax rate are also excluded (type e).

Table 3.1**. OECD classification of local taxes**

a.1	SCG sets the tax rate and tax relief
a.2	SCG sets the tax rate and tax relief after consulting CG
b.1	SCG sets the tax rate with no bounds set by CG
b.2	SCG sets the tax rate with bounds set by CG
c.1	SCG sets tax allowances
c.2	SCG sets tax credits
c.3	SCG sets both tax allowances and tax credits
d.1	SCGs determine revenue split of tax sharing
d.2	SCGs have to agree with revenue split of tax sharing
d.3	CG determines tax-sharing arrangement by legislation
d.4	CG determines tax-sharing arrangement annually
e	CG sets the rate and base of the SCG tax
f	None of the above categories (a, b, c, d or e)

Source: OECD (1999), "Taxing Powers of State and Local Government", *Tax Policy Studies*, No. 1, OECD Publishing, *10.1787/9789264174030-en*.

The OECD's definition of taxing power is viewed by many researchers as a better alternative to the conventional measures of fiscal decentralisation. Criticising empirical studies that use sub-central shares of revenue or expenditure to measure the degree of fiscal decentralisation, Ebel and Yimaz (2003) show that the result of previous studies on the effect of fiscal decentralisation, such as that of Davoodi and Zou (1998), is reversed when instead taxing power is used. Stegarescu (2005) also discusses the problems of using sub-central revenue or expenditure shares as the measure of fiscal decentralisation. He argues that the common spending or revenue shares tend to considerably overestimate the extent of fiscal decentralisation. Thornton (2007) also uses a taxing power index and shows that the effect of fiscal decentralisation on economic growth is statistically insignificant, contrary to the results of many previous studies.

Although the possibility of measurement error of the share of sub-central expenditure or revenue is recognised, these measures are still used by many researchers due to the lack of alternatives. Even though the taxing power index might be recognised as a better alternative, the data on taxing power is available only for OECD countries over a limited

time span. For an empirical study based on a broader sample of countries for a longer period, the share of sub-central expenditure or revenue is still the only available data to measure fiscal decentralisation. In a recent study on the effects of fiscal decentralisation on economic growth and interregional disparity, Rodríguez-Pose and Krøijer (2009), Rodriguez-Pose and Ezcurra (2010), and Rodriguez-Pose and Ezcurra (2011) use sub-central shares in total government expenditure and revenue as the measure of fiscal decentralisation.[3]

As discussed previously, failure to differentiate a local government's budget size and its independent fiscal power may result in an overestimation of the degree of fiscal decentralisation. The OECD's taxing power partially solves this problem by excluding revenues from tax sharing and local taxes that are legally under the control of the central government from local tax revenue. However, as will be discussed in more detail in the next sections, this approach decisively changes the share of sub-central revenue for some countries, especially those of federal/regional countries. For example, the shares of sub-central revenue of Germany, Austria, Australia, Spain, and China drop significantly when the OECD's taxing power data are used. For Germany and China, most notably, the shares of state/provincial revenue become almost zero. This is clearly unsatisfactory for two reasons. First of all, few people in these countries are likely to reckon that the share of their sub-central revenue is close to zero. More fundamentally, the current definition of OECD's taxing power does not differentiate among many different types of tax sharing that are found worldwide.

Tax sharing in practice

Tax sharing is used in many countries as a system of allocating national tax revenues across levels of government. According to the OECD surveys on local governments' tax revenue structure (OECD, 1999; OECD, 2002; Blöchliger and Petzold, 2009), it is a dominant source of local tax revenue for several OECD countries. In Austria, the Czech Republic, Germany, Mexico, and Turkey, the shares of tax sharing in local tax revenue are respectively 89%, 97%, 75%, 84% and 100%.[4] Besides these countries, the shares of tax sharing are also quite significant in such countries as Australia, Belgium and Spain, which are respectively 42%, 46% and 32%.

Tax sharing also plays an important role in some Eastern European countries. According to an OECD survey in 2002, the shares of tax sharing in local tax revenue in Bulgaria, Hungary, Estonia, Latvia, Lithuania, Romania, Slovenia are 100%, 70%, 90%, 100%, 100%, 87% and 82%, respectively.

The importance of tax sharing is found not only in Europe but also in South America and Asia. In Argentina, intergovernmental fiscal relations are based on a system of tax sharing between federal and provincial governments (*Coparticipación Federal de Impuestos*). By law, 42% of national tax revenue goes to federal government, and 57% to provinces. The tax sharing pool is then divided among provinces by fixed proportions such as 19.93% for Buenos Aires, 2.86% for Catamarca, etc.[5] Brazil's federal constitution stipulates that 22.5% of income tax and the tax on industrial products is the tax share of local governments, of which 84.6% is distributed to non-capital municipalities according to a population-based formula.[6]

Table 3.2. **Tax sharing as percentage of local tax revenue**

	Own tax revenue			Tax sharing[1]				Tax sharing[2]
	a	b	c	d1	d2	d3	d4	
Developing/transition countries								
Bulgaria	0	0	0	0	41	59	0	
Czech Republic	2	5	3	0	90	0	0	
Hungary	0	30	0	0	0	0	70	
Poland	0	45	1	0	54	0	0	
Estonia	0	9.8	0	0	90.2	0	0	
Latvia	0	0	0	0	0	0	100	
Lithuania	0	0	0	0	0	0	100	
Romania	0	8.6	4.6	0	0	66.9	19.9	
Slovenia	16.85	0.6	0.26	0	82.29	0	0	
Slovak Republic	7.4	28.2	0	0	0	64.4	0	
Developed countries								
Australia								42.25
Austria	5.9	6	0	88.1	0	0	0	88.68
Belgium	5.1	49.1	0	45.3	0.4	0.2	0	46.13
Czech Republic								96.76
Denmark	0	95.2	0	0	2.7	0	2.1	-
Finland	0.01	88.6	0	0	11.4	0	0	8.21
Germany	0.3	13.2	0	86.5	0	0	0	74.8
Iceland	8	92	0	0	0	0	0	-
Japan	0.1	89.8	0	0	0	0	10.1	15.61
Korea								22.18
Mexico	0	0	0	74.6	18.8	0	6.6	84.11
Netherlands	0	100	0	0	0	0	0	0
New Zealand	98	0	0	0	0	0	2	-
Norway	0	3.7	0	0	0.6	95.7	0	0
Portugal	30.1	8.6	0	0	0	0	61.3	-
Spain	26.7	35.4	0	37.9	0	0	0	32.33
Sweden	0.3	99.7	0	0	0	0	0	0
Switzerland	51.8	40.8	0	3.2	4.2	0	0	0
Turkey								100
United Kingdom	0	100	0	0	0	0	0	0

1. Numbers from OECD (1999) and OECD (2002).

2. Numbers from OECD (2009).

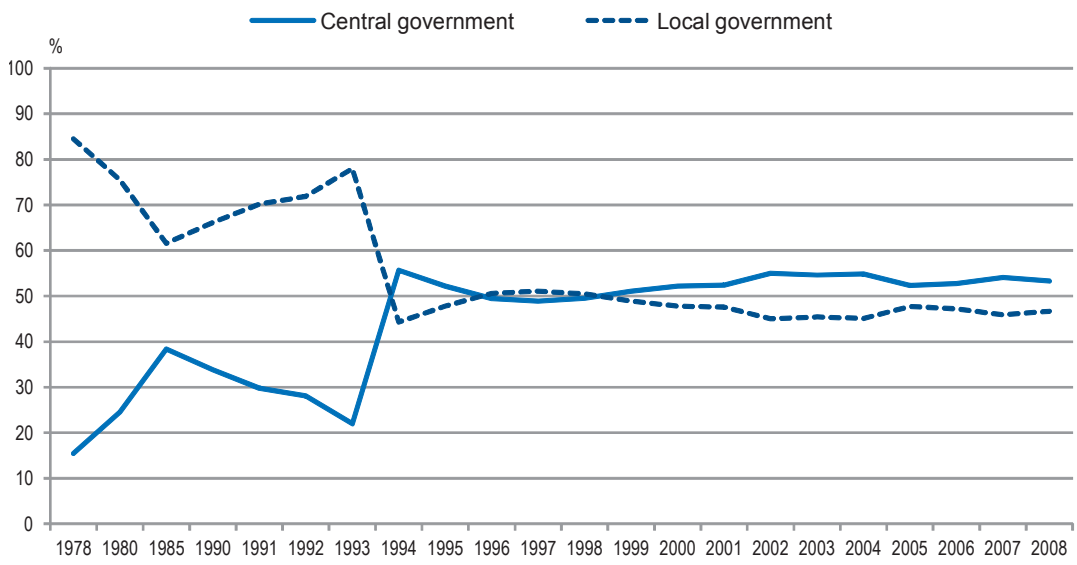
Source: OECD (1999), "Taxing Powers of State and Local Government", *Tax Policy Studies*, No. 1, OECD Publishing, *10.1787/9789264174030-en*; OECD (2002), "Fiscal Design Surveys Across Levels of Government", *OECD Tax Policy Studies*, No. 7, OECD Publishing, *10.1787/9789264195530-en;* Blöchliger and Petzold (2009), "Finding the Dividing Line Between Tax Sharing and Grants: A Statistical Investigation", *OECD Fiscal Network Working Papers*, No. 10, OECD Publishing, *10.1787/5k97b10vvbnw-en*.

What seems to be the most interesting case of tax sharing is China. It is well known that China has enjoyed a long period of high growth rates. Its economic performance has been remarkable since China has risen to the world's second largest economy, surpassing that of Japan. It would therefore be interesting to ask why China's economy has been so successful. To some economists, one important reason is due to fiscal decentralisation. According to Weingast (2009), "China's strategy in promoting economic reform was

decentralisation: the devolution of economic policymaking and fiscal authority to the provinces." Blanchard and Shleifer (2001) also argue that fiscal decentralisation is a key factor for China's economic success, with a caveat that China has maintained the system of political centralisation. There have been several empirical studies that seek to find the link between fiscal decentralisation and economic growth in China. In an early work on the issue, Zhang and Zou (1998) used the share of sub-central expenditure as the measure of fiscal decentralisation, and found a negative relationship between fiscal decentralisation and economic growth in China during 1978 and 1992. Therefore Zhang and Zou's result was contrary to Weingast's and Blanchard and Shleifer's arguments. However there are other studies that have found a positive relationship between fiscal decentralisation and economic growth in China. Feltensteina and Iwata (2005), for example, use the share of sub-central expenditure and revenue as the measure of fiscal decentralization and have found a positive relationship between fiscal decentralisation and economic growth in China during 1952 and 1996.

What needs to be noted in these empirical studies on China's fiscal decentralisation is the fact that the provincial share of tax sharing is often used as the measure of fiscal decentralisation. In China, the system of tax sharing between the central and provincial governments has undergone a major change in 1994. Before 1994, most taxes were collected by local governments and the tax share of local governments was much higher than that of the central government, as can be seen in Figure 3.2. However the tax reform in 1994 reduced the local tax share significantly and at the same time increased the "marginal retention rate" of tax sharing revenue of local governments.[7] Using the marginal retention rate to measure fiscal decentralisation, Lin and Liu (2000) and Jin *et al*. (2005) find a positive relationship between fiscal decentralisation and economic growth in China.

Figure 3.2. **Share of central and local tax revenue in China**



Source: Zhang (2010), "How will China's Central–local Governmental Relationships Evolve? An Analytical Framework and its Implications" in R. Garnaut, J. Golley and L. Song (eds.), *China: The Next Twenty Years of Reform and Development*, ANU E Press, pp. 53–71.

Among the many empirical studies on the effect of fiscal decentralisation surveyed so far, the use of the marginal retention rate as the measure of fiscal decentralisation is exceptional in the analysis of China's fiscal decentralisation. However, applying the OECD's taxing power indicator, revenue from tax sharing, regardless of the marginal retention rate, is excluded. Therefore, if we apply OECD's criteria, taxing power of sub-central governments and the degree of fiscal decentralisation in China becomes close to zero. This interpretation is problematic since it is inconsistent with most of the literature on China's economic performance, such as Weingast (2009) and Blanchard and Shleifer (2001), which take for granted that China is a fiscally, if not politically, decentralised country.

Categorisation of different types of tax sharing

Although tax sharing is a system of revenue allocation between the central and local governments used worldwide, the treatment of tax sharing in the taxonomy of local revenue and in measuring fiscal decentralisation is surprisingly simplistic. In the taxonomy of grants discussed in Bergvall *et al.* (2006), tax sharing is not defined as a grant, implying that it is a kind of local tax.[8] But since tax sharing is excluded from the OECD's taxing power definition, it is implicitly defined as a general grant when the degree of fiscal decentralisation is measured by taxing power. This notion has changed since the introduction of "test criteria" of tax sharing in OECD (Blöchliger and Petzold, 2009). In an effort to find the dividing line between tax sharing and grants, two sets of test criteria were employed in this study. The first set was to find out "strict tax sharing", which satisfies the four test criteria: risk sharing, un-conditionality, formula stability and individual proportionality. In these criteria, risk sharing means that tax sharing is based on a national tax revenue pool and individual proportionality means that local revenue from tax sharing is determined without horizontal redistribution or fiscal equalisation across sub-central governments. In OECD-member countries, however, few countries determine tax sharing purely based on individual proportionality. On the other hand, tax sharing with horizontal redistribution is not regarded as general grants in countries which adopt the tax sharing system, such as Germany, Australia and Austria. Therefore, a second set of test criteria, which excludes individual proportionality, was also introduced by the OECD (Blöchliger and Petzold, 2009), Table 3.3.

Table 3.3. **Test criteria of tax sharing**

Strict tax sharing	Tax sharing
• Risk sharing (resource pooling)	• Risk sharing (resource pooling)
• Un-conditionality	• Un-conditionality
• Formula stability	• Formula stability
• Individual proportionality	

Source: Blöchliger, H. and O. Petzold (2009), "Finding the Dividing Line between Tax Sharing and Grants: A Statistical Investigation", *OECD Working Papers on Fiscal Federalism*, No. 10, OECD Publishing, 10.1787/5k97b10vvbnw-en.

This second set satisfies all tax sharing schemes of OECD countries. However, this weak version of test criteria introduces a new problem since, in some countries, general grants can be categorised as tax sharing according to this criteria. A notable example can be found in general grants of Korea and Japan. In these countries, general grants are non-earmarked (un-conditionality), distributed by formula (formula stability), and the

revenue pool of general grants is defined by law (risk sharing).[9] Therefore, general grants in these countries are classified as tax sharing rather than grants, according to the weak version of the test criteria.[10]

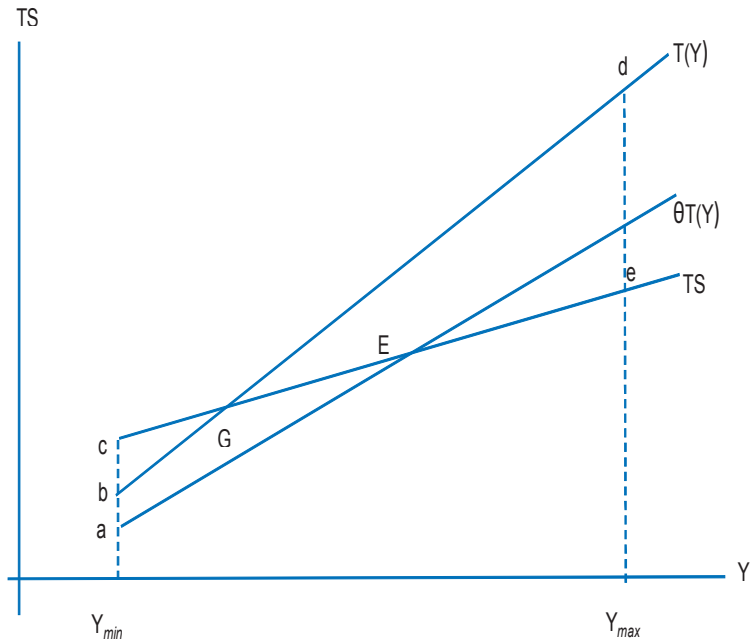
What seems to be lacking in these tax sharing definitions is the recognition of three types of tax sharing: *i)* tax sharing that is strictly proportional to the local tax base, and therefore to local income; *ii)* tax sharing that is partially proportional; *iii)* and tax sharing that is inversely proportional to the local tax base. If we stick to the strong version of the OECD's test criteria, only the first type can be defined as tax sharing. If the weak version of the test criteria is used, tax sharing that is not inversely proportional to the local tax base is treated equally with tax sharing that is partially or even approximately proportional to the local tax base. Put differently, an increase in the marginal retention rate of tax sharing in China and an increase in general grants of Korea and Japan will be regarded as the change in the same direction in the degree of fiscal decentralisation, as far as the weak version of test criteria is used to determine tax sharing. This paradoxical interpretation can be avoided by using only the strong version of the test criteria, but then tax sharing in Germany and many other federal countries will need to be categorised as general grants.

A fundamental problem with the current classification of tax sharing is that the degree of proportionality is not identified. However, in some of the literature on fiscal decentralisation and economic growth, the degree of proportionality of local taxes to local income is the most important fiscal incentive for local economic performance. Weingast is one of the well-known proponents of such a view. Weingast (2009) argues that a very high marginal retention rate of tax sharing for local governments in China has been an important factor for a high growth rate in the country. This view is not without criticism. Treisman (2006), for example, makes the opposite argument: assigning local governments a large share of tax sharing does not promote economic growth.[11]

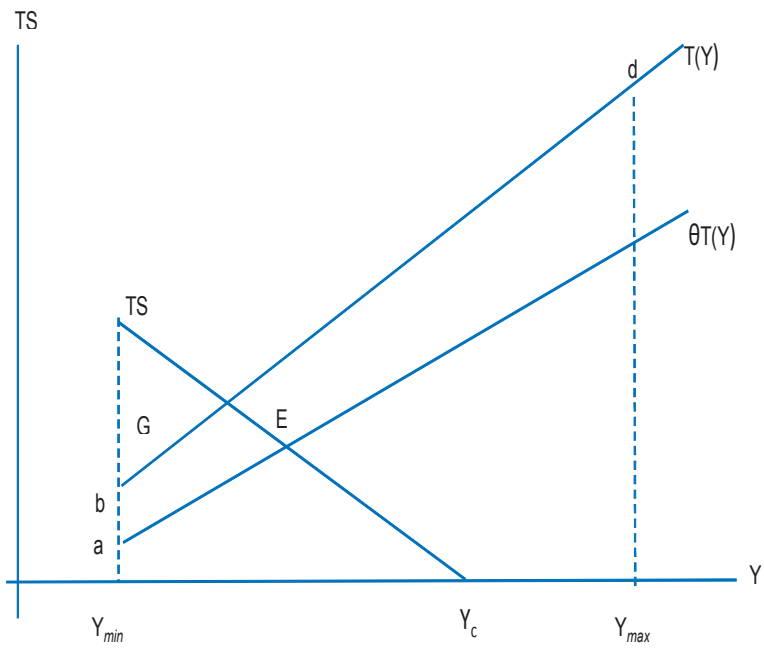
Regardless of one's own view on this issue, what seems to be important is to identify the degree of proportionality of tax sharing, which can be used in empirical investigation of the effect of tax sharing. Since tax sharing in most countries consists of two parts – one proportional to the local tax base and the other with horizontal equalisation – calculating the degree of proportionality of tax sharing is not very complicated. In Figure 3.3(a), total tax revenue subject to tax sharing is denoted by T, a function of local income Y, which is distributed from Y_{min} to Y_{max}. The amount of tax sharing received by local governments depends on the marginal retention rate θ, which is represented by θT(y) assuming a linear relationship. If tax sharing is strictly proportional to local tax base, it will be the same as θT(y). More generally, the revenue from tax sharing, TS, will have a lower slope than θT with respect to the level of local income due to horizontal transfers. The amount of horizontal transfers for recipient governments is calculated by the difference between TS and θT(y), and is denoted by area G (ΔacE). Therefore, the amount of tax sharing that is proportional to local income is area $Y_{min}aEeY_{max}$, which is computed by subtracting horizontal transfers (ΔacE) from total tax sharing revenue of local governments (area $Y_{min}cEeY_{max}$). Therefore the degree of proportionality of tax sharing to local income is determined by two factors: *i)* the marginal retention rate θ and *ii)* the degree of redistribution of tax sharing (slope of TS).[12]

Figure 3.3. **Tax base of tax sharing: partial proportionality and inverse proportionality**

Panel A. Tax base proportionality of partially proportional tax sharing



Panel B. Tax base proportionality of inversely proportional tax sharing



Source: Author's calculations.

Tax sharing that is inversely proportional to local income, as in the case of general grants in Korea and Japan, is depicted in Figure 3.3(b). In these countries, general grants are calculated based on the difference between "standard" local expenditure and "standard" local tax revenue. The larger the difference, the larger the size of general

grants, the total amount of which is determined by a fixed percentage of central government's tax revenue.[13] For rich and large local governments such as Seoul or Tokyo, the difference between "standard" local expenditure and "standard" local tax revenue is not greater than zero, consequently these local governments do not receive general grants. In Figure 3.3(b), the minimum level of income of those local governments is denoted by Y_c, and the amount of tax sharing proportional to local income by $Y_{min}aEY_c$. Therefore, when tax sharing for local governments is inversely proportional to local income, its size is significantly smaller than the total tax revenue subject to tax sharing, $Y_{min}bdY_{max}$.

In sum, the current definition of taxing power developed by the OECD (Blöchliger and Petzold, 2009) can be modified with the concept of "tax base proportionality", which is defined as tax sharing subtracted by horizontal grants. This approach has two advantages. Firstly, it will prevent the degree of fiscal decentralisation in many federal/regional countries from becoming close to zero. Secondly, the dichotomous nature of the current definition of the OECD (Blöchliger and Petzold, 2009) can be overcome by calculating the contribution of the local tax base to tax sharing revenue on a continuous basis.

Conclusions

Fiscal decentralisation is influenced by many country-specific factors such as politics, history and culture. Therefore the measurement of fiscal decentralisation with consistent criteria across countries is a challenging task. On the other hand, understanding the effect of fiscal decentralisation is very important since it is one of the most important fiscal institutions that affects economic performance and welfare of the citizens.

Among the many challenges involved with the measurement of fiscal decentralisation, tax sharing, which constitutes a large share of local revenue in many developed and developing countries, needs a more systematic approach for a better understanding of its nature. Currently, the economic characteristic of tax sharing is discussed in each individual case. Tax sharing is a type of general grant, which is prone to moral hazard, as is discussed in the case of Germany (Rodden, 2006). On the other hand, it can be an effective fiscal incentive for local economic growth, as can be seen in the case of China (Weingast, 2009). According to a recent taxonomy put forward by the OECD (Blöchliger and Petzold, 2009), general grants in Korea and Japan can be regarded as "tax sharing". Therefore, we need a more comprehensive and coherent definition and taxonomy of tax sharing to understand the nature of one of the largest local revenue sources in many countries.

Apart from the issue of measuring fiscal decentralisation, tax sharing poses a more fundamental question regarding its role as a local tax. In order to give residents a choice between the levels of local public services, the local tax should have a price signal. This is why tax sharing is excluded from the OECD definition of taxing power. This approach implies that tax sharing is similar to grants. But, as discussed in Roy (2008), grants and tax sharing are not really the same. It is also notable that tax sharing in developing countries tends to be viewed more positively. The case of China, as discussed in Weingast (2009), is one such example. Tanzi (2011) recently recommended tax sharing as a local revenue option for Pakistan. Thus somewhat opposing views on tax sharing exist in the theoretical literature. Further research on the nature of tax sharing is required.

Notes

1. Davoodi and Zou (1998), Zhang and Zou (1998), and Rodriguez-Pose and Ezcurra (2011) find a negative relationship; Ebel and Yimaz (2003), Lin and Liu (2000), Jin *et al.* (2005) find a positive relationship; Stegarescu (2005) finds an inverse U-shaped relationship; and Thornton (2007) finds a statistically insignificant relationship.
2. This figure, based on the OECD's *Government at a Glance* (2009), is an updated version of a similar figure shown in Bergvall *et al.* (2006).
3. This data are available in *Government and Finance Statistics* published by the IMF.
4. The survey results of OECD (1999) and Blöchliger and Petzold (2009) are somewhat different. The most notable case is Norway where the share of tax sharing was 96.3% in the 1999 survey, but 0% in the 2009 survey. This is because local income tax was interpreted as tax sharing in the 1999 survey because local income tax rates are all equal in Norway. But, since this result is not due to a law that governs tax sharing, the local income tax in Norway was not interpreted as tax sharing in the 2009 survey.
5. Besfamille *et al.* (2003).
6. Centro de Estudos da Metropóle (2010).
7. Currently, sub-national governments in China keep 25% of the proceeds of the Value Added Tax (VAT) and 40% of the enterprise income taxes and the personal income tax. See Shen *et al.* (2006) for more detail.
8. In Bergvall *et al.* (2006), grants are categorised into four criteria: earmarked vs. non-earmarked; mandatory vs. discretionary; matching vs. non-matching; and general vs. block grants.
9. This type of general grant is also found in other Asian countries such as Thailand and Indonesia.
10. Interestingly, general grants in Korea and Japan are called "Local Allocation Tax", implying that it is a tax rather than a grant.
11. He argues that a larger share of tax sharing for local governments worsens the fiscal incentive of the central government, making the net effect indeterminate.
12. The nature of the tax subject to tax sharing also affects the degree of proportionality to local income. Local income tax, for example, has a higher proportionality than VAT.
13. In the case of Korea, revenue from all central government taxes excluding earmarked taxes is the revenue pool for general grants, and the share of general grants in the revenue pool is currently 19.24%. Another 20% is for local education grants, which is administered separately.

References

Akai, N. and M. Sakata (2002), "Fiscal Decentralization Contributes to Economic Growth: Evidence from State-Level Cross-Section Data for the United States", *Journal of Urban Economics*, 52, pp. 93-108.

Bergvall, D., C. Charbit, D.-J. Kraan and O. Merk (2006), "Intergovernmental Transfers and Decentralised Public Spending", *OECD Journal on Budgeting*, 5, *10.1787/budget-v5-art24-en*.

Besfamille, M. and P. Sanguinetti (2003), "Formal and Real Fiscal Federalism in Argentina", *CSGR Working Paper,* No. 115/03, Centre for the Study of Globalisation and Regionalisation (CSGR), University of Warwick.

Bird, R. (2011), "Subnational Taxation in Developing Countries: A Review of the Literature", *Journal of International Commerce, Economics and Policy* 2(1), pp. 139-161.

Blanchard, O. and A. Shleifer (2001), "Federalism with and without Political Centralization: China Versus Russia", *IMF Staff Papers*, 48, pp. 171-179.

Blöchliger, H. and O. Petzold (2009), "Finding the Dividing Line between Tax Sharing and Grants: A Statistical Investigation", *OECD Working Papers on Fiscal Federalism*, No. 10, OECD Publishing, *10.1787/5k97b10vvbnw-en*.

Centro de Estudos da Metropóle (2010), "Revenue and Spending Data for Subnational Governments in Brazil", 30 April, São Paulo.

Davoodi, H. and H. Zou (1998), "Fiscal Decentralization and Economic Growth: A Cross-country Study", *Journal of Urban Economics,* 43, pp. 244-257.

Ebel, R.D. and R. Taliercio (2005), "Subnational Tax Policy and Administration in Developing Economies", *Tax Notes International*, 7 March, pp. 919-936.

Ebel, R.D. and S. Yilmaz (2003), "On The Measurement and Impact of Fiscal Decentralization", in J. Alm and J. Martinez-Vazquez (eds.), *Public Finance in Developing and Transition Countries: Essays in Honour of Richard M. Bird*, Edward Elgar Press, Cheltenham, pp. 101-120.

Feltensteina, A. and S. Iwata (2005), "Decentralization and Macroeconomic Performance in China: Regional Autonomy has its Costs", *Journal of Development Economics*, 76, pp. 481-501.

Iimi, A. (2005), "Decentralization and Economic Growth Revisited: An Empirical Note", *Journal of Urban Economics*, 57, pp. 449–461.

Jin, H., Y. Qian and B.R. Weingast (2005), "Regional Decentralization and Fiscal Incentives: Federalism, Chinese Style", *Journal of Public Economics*, Vol. 89(9-10), pp. 1719-1742.

Lin, J.Y. and Z. Liu (2000), "Fiscal Decentralization and Economic Growth in China", *Economic Development and Cultural Change*, 49(1), pp. 1-21.

OECD (1999), "Taxing Powers of State and Local Government", *Tax Policy Studies*, No. 1, OECD Publishing, *10.1787/9789264174030-en*.

OECD (2002), "Fiscal Design Surveys Across Levels of Government", *OECD Tax Policy Studies*, No. 7, OECD Publishing, *10.1787/9789264195530-en*.

OECD (2009), *Government at a Glance*, OECD Publishing, *10.1787/9789264075061-en*.

Rodden, J. (2006), "Achieving Fiscal Discipline in Federations: Germany and the EMU, in P. Wierts, S. Deroose, E. Flores and A. Turrini, (eds.), *Fiscal Policy Surveillance in Europe*, Palgrave MacMillan, pp. 137-160.

Rodríguez-Pose, A. and A. Krøijer (2009), "Fiscal Decentralization and Economic Growth in Central and Eastern Europe", *Growth and Change*, Vol. 40(3), pp. 387-417.

Rodriguez-Pose, A. and R. Ezcurra (2010), "Does Decentralization Matter for Regional Disparities? A Cross-country Analysis", *Journal of Economic Geography*, 10(5), pp. 619-644.

Rodriguez-Pose, A. and R. Ezcurra (2011), "Is Fiscal Decentralization Harmful For Economic Growth? Evidence from the OECD Countries", *Journal of Economic Geography*, 11 (4), pp. 619-643.

Roy, G. (2008), "Grants versus Tax Sharing: The Extent of Central Government Control", *The IUP Journal of Public Finance*, 6(4), pp. 7-28.

Shen, C., J. Jin and H.-F. Zou (2006), "Fiscal Decentralization in China: History, Impact, Challenges and Next Steps", *CEMA Working Papers*, No. 273, China Economics and Management Academy, Central University of Finance and Economics.

Stegarescu, D. (2005), "Public Sector Decentralization: Measurement Concepts and Recent International Trends", *Fiscal Studies*, 26, pp. 301-333.

Tanzi, V. (2011), "Revenue Sharing Arrangements: Options and Relative Merits", paper presented at the meeting of the Pakistan Society of Development Economists (PSDE), 28 December 2010, Islamabad.

Thornton, J. (2007), "Fiscal Decentralization and Economic Growth Reconsidered", *Journal of Urban Economics,* 61, pp. 64-70.

Weingast, B.R. (2009), "Second Generation Fiscal Federalism: the Implications of Fiscal Incentives", *Journal of Urban Economics*, 65, pp. 279-293.

Xie, D., H. Zou and H. Davoodi (1999), "Fiscal Decentralization and Economic Growth in the United States", *Journal of Urban Economics*, 45, pp. 228-239.

Zhang, Y. (2010), "How will China's Central–local Governmental Relationships Evolve? An Analytical Framework and its Implications", in R. Garnaut, J. Golley and L. Song (eds.), *China: The Next Twenty Years of Reform and Development*, ANU E Press, pp. 53–71.

Zhang, T. and H. Zou (1998), "Fiscal Decentralization, Public Spending, and Economic Growth", *Journal of Public Economics*, 67, pp. 221-240.

Chapter 4

The role of decentralisation indicators in empirical research

Nobuo Akai

This chapter examines the role of decentralisation indicators and their use for empirical research. The chapter reviews first the conventional approach for capturing the degree of fiscal decentralisation. Second, in order to capture the effects of fiscal decentralisation in empirical research, the data and estimation issues are discussed. Third, the construction of indicators to capture the degree of fiscal decentralisation should be informed by recent incentive theory. Even if a transfer is a lump sum, incentive effects may still exist. The concept of the soft budget constraint is useful for understanding the incentive structure behind lump sum transfers. The design and the timing of transfers are important. If the transfer is designed and allocated ex post after local government has undertaken specific actions, the transfer should not be regarded as a lump sum transfer ex post. The theoretical models suggest that a taxonomy of transfers is complicated and indicators of fiscal decentralisation should be carefully designed.

Introduction

Fiscal decentralisation has occurred in various countries as the world's economies have grown and matured and as national needs have diversified over the past 20 years. In the relevant research literature, various arguments have been made about the factors through which fiscal decentralisation operates and their impact. However, the research has not resulted in a clear conclusion about the impact of decentralisation on economic or fiscal outcomes. As a result, the measurement of the indicators of decentralisation has evolved. While expenditure or revenue shares have been used as indicators, a clear theory supporting certain measures did not exist. Various features should be considered in determining such measures.

In response to these issues, the OECD (1999; Blöchliger and King, 2007; Blöchliger and Rabesona, 2009) is continuing research that creates an indicator of the degree of decentralisation, paying attention to taxing powers. This research offers one viewpoint. When local governments are collecting tax revenues, it is important to consider how much flexibility there is in the design of tax revenue that will underpin economic growth. When deciding upon an indicator, it is important to consider whether it can be used effectively for the analysis of the factors that shape decentralisation. This chapter examines the role of decentralisation indicators and their use for empirical research. The chapter is constructed as follows. In section 2, we introduce indicators indices of fiscal decentralisation (conventional and adjusted) that have been proposed in the previous literature and discuss their ability to capture the degree of decentralisation. Section 3 makes suggestions for improving the indicators to enable their effective use for research, focusing on data characteristics and the potential estimation bias in empirical research. Section 4 considers the link between decentralisation indicators and economic theory.

Indicators of fiscal decentralisation

This section summarises indicators of fiscal decentralisation proposed in the literature. The conventional approach for capturing the degree of fiscal decentralisation is to use the following simple indicators.

Expenditure share

The first measure focuses on the expenditure side and captures the share of expenditure of the local government level as a proportion of total government expenditure. This measure can be regarded as effective when all expenditures are not earmarked or controlled by the higher level of government. This situation arises when all expenditure is financed by the local government's own taxes or charges and does not depend on any transfer or subsidy from the higher level of the government. On the other hand, when part of the expenditure at the local level are transferred from or subsidised by the higher level of government, the resources created by the transfer or subsidy are earmarked because the higher level of government has the power to determine how the resource is allocated at the local level because it controls the amount of transfers. Therefore, in this situation, the share of expenditure measure may not be an effective measure for capturing the degree of fiscal decentralisation.

Revenue share

Given the problems in relation to the expenditure share measure discussed above, an alternative conventional approach is to focus on the revenue side in measuring fiscal

decentralisation. The second measure focuses on the revenue side and captures the share of own revenue of the local government as a proportion of total government revenue. Revenue collected at the local level is normally used to fund local expenditure, and one can assume that the local government has full discretion over the use of these revenues, unlike on revenues stemming from intergovernmental grants.

Hybrid

The difference between the two measures above, the expenditure share and the revenue share, is the amount of transfers from the higher level of government. If the amount of transfers is small, the difference between the two measures will be small. Which measure is suitable for capturing the degree of fiscal decentralisation depends on the characteristics of the transfers. If the transfers involve a lump sum that the local government can use freely in responding to local needs, then the discretion of the local government is large and so is the degree of fiscal decentralisation. In this case, the expenditure share is better suited as the measure of fiscal decentralisation. On the other hand, if transfers are tied to a special purpose set by the higher level of government, the local government's authority and the degree of decentralisation become small. Then, the revenue share is more suitable as a measure of fiscal decentralisation. As a result, the appropriate measure is expressed as the following function, involving a hybrid model of the two shares above:

$$\textit{Hybrid measure} \equiv f(\text{Expenditure share, revenue share})$$

When the freedom of the local government to utilise transfers is around 50%, this hybrid measure becomes $\frac{\text{Expenditure share} + \text{Revenue share}}{2}$.

Various other measures are discussed in Martinez and Timofeev (2010), including a measure that takes into account the territorial aspects of decentralisation.

Autonomy

Another approach to capture the degree of fiscal decentralisation is to focus on autonomy. Autonomy is defined as the freedom or discretion to determine expenditure. In this case, the simple measure used in the existing literature is $\frac{\text{Local own revenue}}{\text{Local expenditure}}$.

If all expenditure is financed by the local government's own revenue, then autonomy is equal to one and the degree of fiscal decentralisation becomes high. In addition, this share is related to the amount of transfers as indicated in the following equation:

$$\frac{\text{Transfer from the higher level of government}}{\text{Local expenditure}} = \frac{\text{Local expenditure - Local revenue}}{\text{Local expenditure}}$$

$$= 1 - \frac{\text{Local revenue}}{\text{Local expenditure}} = 1 - \textit{Autonomy measure}$$

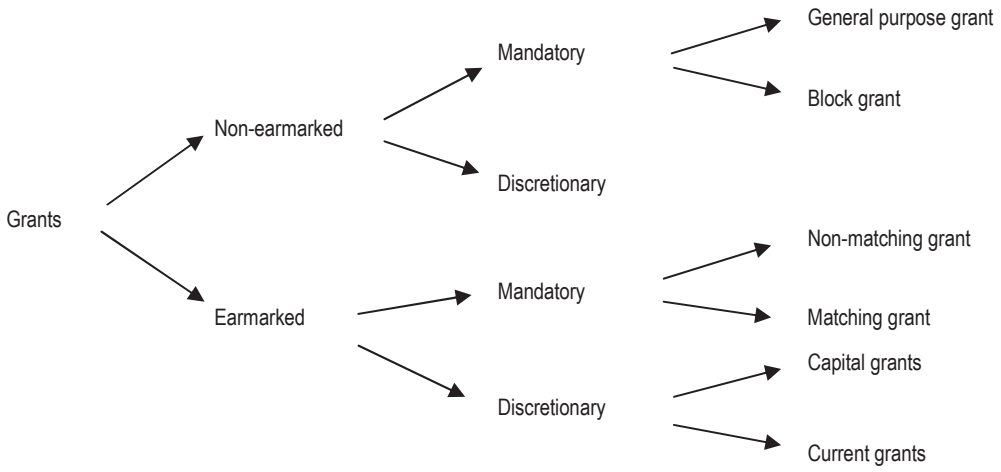
Compared with the conventional measures, namely expenditure share and revenue share, it should be noted that the measure of autonomy may be high even if both the conventional measures are very low, because the autonomy indicator relates to a given level of spending. The characteristics of transfers have a crucial role in assessing autonomy.

Taxonomy of transfers

As described above, it is essential to recognise the characteristics of transfers for evaluating the real degree of fiscal decentralisation. Intergovernmental transfers (or grants) provide additional financial resources to fill the gap between a local government's own tax revenue and its expenditure. Intergovernmental transfers can be set based on various objectives, such as the funding of services at the local level, the subsidisation of local services, and the equalisation of fiscal disparities among regions. Rules and conditions attached to intergovernmental transfers vary widely, ranging from transfers that grant full autonomy and come close to tax sharing or equalisation transfers, to transfers where the higher level of government retains tight control over their use. Bergvall *et al.* (2006) and Blöchliger and King (2007) consider the taxonomy of transfers. The transfers are mainly divided into two categories: earmarked transfers, which the local governments have to use for a specific purpose, and non-earmarked transfers, which they may spend freely.

Both types of transfers can be divided further into two categories: mandatory transfers and discretionary transfers. Earmarked grants may be further subdivided into two categories: matching and non-matching grants. This taxonomy is shown in Figure 4.1 below. Data are provided by Blöchliger and King (2007, Tables 9 and 10).

Figure 4.1. **A taxonomy of transfers**



Source: Blöchliger, H. and D. King (2007), "Fiscal Autonomy of Sub-Central Governments", *OECD Fiscal Network Working Papers*, 2006/2, OECD Publishing, 10.1787/5k97b127pc0t-en.

Tax power decentralisation

This new measure, which was created by the OECD (1999), focuses on the degree of control that the state and local levels of government have over taxes. This report classifies taxes in terms of the kind of autonomy that they provide to local governments. The conventional approach based on the revenue side implicitly assumes that the central government has full control over all local taxes, while sub-central governments do not. This report categorises fiscal discretion as being greatest if local governments are free to determine both the tax base and the rates of a particular tax, without any aggregate limits on revenues, the base, or the rate enforced by the higher level of government. At the other extreme, the higher level of government may decide both the tax base and the rate collected by local governments. Similarly, the system of "tax sharing" between

government levels must be considered carefully because the discretion for the formula adjustment varies. Finally, the report proposes the following categories, which are ranked in decreasing order in terms of the control that the local government can exercise over the revenue source:

a) SCG (Sub-Central-Government) sets tax rate and tax base.

b) SCG sets tax rate only.

c) SCG sets tax base only.

d) Tax-sharing arrangements.

d.1) SCG determines revenue split.

d.2) Revenue split can only be changed with consent of SCG.

d.3) Revenue split fixed in legislation, may be changed unilaterally by the central government.

d.4) Revenue split determined by the central government as part of the annual budget process.

e) Central government sets the rate and base of SCG tax.

The OECD (1999) reports results based on 1995 data. Subsequently, Blöchliger and King (2007) and Blöchliger and Rabesona (2009) provide updates for the years 2002 and 2005, respectively. Based on these data, Stegarescu (2005) calculates annual tax autonomy indicators for the time period between 1965 and 2001 for 23 OECD countries.

Suggestions for improving decentralisation indicators to enable their effective use in research

Effective use of fiscal decentralisation measures for empirical research

Changes of the fiscal system, including fiscal decentralisation, affect decision-making processes and resource allocation by administrations and residents. While the mechanisms through which the fiscal system affects outcomes has not been formulated sufficiently on a theoretical basis, measures of fiscal decentralisation have often been used for empirical research in order to clarify the effect of fiscal decentralisation on the economy. The empirical research can be divided into four broad lines:

a) *Growth*: First, there is an effect on growth. Recent work on this topic include Akai, Sakata, and Nishimura (2007), Thornton (2007), Baskaran and Feld (2009), Rodriguez-Pose *et al.* (2009) and Rodriguez-Pose and Ezcurra (2010). While these papers focus only on growth, Akai, Hosoi, and Nishimura (2009) are unique in focusing on economic volatility. The existing literature on this topic is summarised in Rodriguez-Pose and Ezcurra (2010, Table 1).

b) *Deficits and debt*: Second, decentralisation can influence government deficits and thereby the accumulation of public debt. Recent papers on this topic include Freitag and Vatter (2008), Schaltegger and Feld (2009) and Baskaran (2010).

c) *Inequality*: Third, decentralisation may affect inequality, with papers focusing on the effect on regional inequality or regional income differences (Akai and Hosoi, 2009 and Sepúlveda and Martinez-Vazquez, 2010).

d) *Size of the public sector*: Fourth, public choice issues have been investigated, focusing on the size of the government sector. The recent literature on this topic includes Cassette and Paty (2010).

Data characteristics and suggestions for improving estimations

The data for calculating the measures of fiscal decentralisation in previous empirical studies have various characteristics in terms of periods of availability and relevant levels of government to which the data apply, which creates obstacles for comparative analysis.

The first issue is data availability. The previous literature uses three types of data: 1) time series data, 2) cross-sectional data, and 3) panel data. If time series data only are available, it is necessary to have a long period for estimating the effect of fiscal decentralisation on outcomes. If cross-sectional data only are available, it is difficult to control the fixed characteristics among countries or regions. If panel data are available, it is possible to control for fixed country/regional and time effects. A rich data set is crucial for estimating the effect of fiscal decentralisation on fiscal or economic outcomes

The second issue is the level of government data. Some previous literature has used international data, which include various countries, such as OECD countries, and developed or developing countries. However, because the stages of development differ between countries, using data from various countries makes estimation difficult because the effect of fiscal decentralisation may differ subject to the development stage. This obstacle can be solved by adopting data from countries at the same development stage, such as grouping developed and developing countries. However, even for countries at the same development stage, there still exist country-specific characteristics and a panel data set is needed. Part of the existing literature focuses on one country only or on the jurisdictions within a country, *i.e.*, states or metropolitan regions in one country. In a federal country, states have their own fiscal systems and a measure of fiscal decentralisation for local governments can be calculated for each state. Then the differing development stages and the country-specific characteristics do not matter because the data are used for only one country.

The third issue is the endogeneity of the measure of fiscal decentralisation. The measure of fiscal decentralisation may be affected by dependent variables (*e.g.*, growth, debt, deficits), and then the measure is not exogenous. The estimation result may reflect causation operating in the opposite direction, *e.g.*, rather than reflecting the causes of fiscal decentralisation, it may reflect the effect of economic growth on fiscal decentralisation.

In order to tackle this problem, one can adopt two methods.

a) The first method is to insert the lagged dependent variable as an explanatory variable. In order to remove the effect of economic growth on decentralisation and capture the effect of fiscal decentralisation on growth, the growth measure calculated for the previous period should be used because it can be regarded as exogenous.

b) The second method is to use the instrumental variable approach. By using instrumental variables, the endogenous factor can be removed from the measure of fiscal decentralisation.

The fourth issue relates to the economic theory behind the data. In almost all the empirical literature, the effect of fiscal decentralisation is captured by the direct simple effect on economic growth. However, the fiscal system has various effects in terms of the economic behaviour and incentives of agents. Regression analysis should be based on theoretical models. Theoretical models logically show how fiscal decentralisation changes the incentives and behaviour of consumers or governments. It is necessary to develop theoretical models to enable the effective use of fiscal decentralisation measures for empirical research.

Incentive effects of lump-sum transfers

The classification of intergovernmental transfers may change, if the incentive effects of lump-sum transfers are taken into account, and fiscal decentralisation indicators might have to be adapted. Even if a transfer is a lump sum and may be entirely unconditional, incentive effects may still exist. The recent theoretical models on intergovernmental grants provide ideas for improving fiscal decentralisation indicators.

The concept of the soft budget constraint is useful for understanding the incentive structure behind the lump sum transfer. Normally, the lump sum transfer is regarded as the most flexible type of transfer, with high discretion retained by the local government. However, the design process and the timing of transfers are important. If the transfer is designed and allocated *ex post* after a local government has undertaken specified actions, then the transfer *ex post* should not be regarded as a lump sum transfer. If the *ex post* lump sum transfer is regarded as a conditional transfer, this distorts the incentive of the local government and affects the local behaviour *ex ante*. Following Kornai (1986), this incentive problem is referred to as the soft budget constraint.

Soft budget problems created by *ex post* lump sum transfers can be divided into two categories.

a) The first category is the problem created by adverse selection, based on hidden information (Akai and Silva, 2009). Consider the case where asymmetric information exists between the higher level of government and the local government in relation to the cost of the project. If the higher level of the government has the authority to start the project and an incentive to bail out the local government *ex post* because of the importance of the continuity of local services, the local government may have an incentive for misrepresenting the cost of the project. That is, the local government may represent the project as socially valuable from the perspective of cost-benefit analysis whereas, in reality, the cost is huge and the project would fail. However, the project could be bailed out by the higher level of government through additional lump sum transfers *ex post*. This situation might be better for the local government even if the project is inefficient from the social viewpoint. This type of bailout transfer is not allocated into any categories in Figure 4.1.

b) The second category of soft budget problems is the one created by the moral hazard based on hidden actions (Akai and Sato, 2008, 2011).[1] Consider the case where local governments have to provide local public services.

However, if the higher level of government has an incentive to rescue a relatively poor local government in order to reduce regional disparity, the poor local government may have an incentive to decreasing its efforts to provide local services *ex ante*. As a result, this region will become poorer and the higher level of government will allocate an additional lump sum transfer to it in order to decrease regional disparity among local government regions. This additional type of transfer is not allocated into any categories in Figure 4.1.

Even if transfers are general, they might be conditional grants, in the sense that these general transfers are designed from the *ex post* viewpoint, reflecting the behaviour of local governments *ex ante*. These two examples developed in the theoretical models suggest that a taxonomy of transfers is complicated and indicators of fiscal decentralisation should be designed by carefully considering how the transfers are designed from the *ex ante* as well as the *ex post* viewpoint.

Note

1. This problem is also caused by the fact that the cost of hidden actions is sunk. Therefore, even if the action is not hidden, this incentive problem arises. For ease of understanding, we use the term "moral hazard".

References

Akai, N. and E. Silva (2009), "Interregional Redistribution as a Cure to the Soft Budget Syndrome in Federations", *International Tax and Public Finance*, 16, pp. 43–58.

Akai, N. and M. Hosoi (2009), "Fiscal Decentralization, Commitment, and Inter-County Inequality in US States", *Journal of Income Distribution*, 18(1), March, pp. 113–129.

Akai, N. and M. Sato (2008), "Too Big or Too Small? A Synthetic View of the Commitment Problem of Interregional Transfers", *Journal of Urban Economics*, 64(3), November, pp. 551–559.

Akai, N. and M. Sato (2011), "A Simple Dynamic Decentralized Leadership Model with Private Savings and Local Borrowing Regulation", *Journal of Urban Economics*, forthcoming.

Akai, N., M. Hosoi and Y. Nishimura (2009), "Fiscal Decentralization and Economic Volatility – Evidence from State-level Cross-section Data of the United States", *Japanese Economic Review*, 60(2), June, pp. 223–235.

Akai, N., M. Sakata and Y. Nishimura (2007), "Complementarity, Fiscal Decentralization, and Economic Growth", *Economics of Governance*, 8, pp. 339–362.

Baskaran, T. (2010), "On the Link between Fiscal Decentralization and Public Debt in OECD Countries", *Public Choice*, 145, pp. 351–378.

Baskaran, T. and L.P. Feld (2009), "Fiscal Decentralization and Economic Growth in OECD Countries: Is there a Relationship?", *CESifo Working Paper Series*, 2721, CESifo Group, Munich.

Bergvall, C.C., D.-J.K. Danial and O. Merk (2006), "Intergovernmental Transfers in Decentralized Public Spending", *OECD Journal of Budgeting*, 5, pp. 111–158, OECD Publishing, *10.1787/budget-v5-art24-en*.

Blöchliger, H. and D. King (2007), "Fiscal Autonomy of Sub-Central Governments", *OECD Working Papers on Fiscal Federalism*, 2006/2, OECD Publishing, *10.1787/5k97b127pc0t-en*.

Blöchliger, H. and J. Rabesona (2009), "The Fiscal Autonomy of Sub-central Governments: An Update", *Working Papers on Fiscal Federalism*, No. 9, OECD Publishing, *10.1787/5k97b111wb0t-en*.

Cassette, A. and S. Paty (2010), "Fiscal Decentralization and the Size of Government: A European Country Empirical Analysis", *Public Choice* 143(1), April, pp. 173–189.

Ebel, R.D. and S. Yilmaz (2002), "On the Measurement and Impact of Fiscal Decentralization", *Policy Research Working Paper*, 2809, World Bank.

Freitag, M. and A. Vatter (2008), "Decentralization and Fiscal Discipline in Subnational Governments: Evidence from the Swiss Federal System", *Publius: The Journal of Federalism*, 38(2), pp. 272-294.

Kornai, J. (1986), "The Soft Budget Constraint", *Kyklos*, 39(1), pp. 3–30.

Martinez, J.-V. and A. Timofeev (2010), "Decentralization Measures Revisited", *Public Finance and Management*, 10, pp. 99–100.

OECD (1999), "Taxing Powers of State and Local Government", *Tax Policy Studies*, No. 1, OECD Publishing, *10.1787/9789264174030-en*.

Rodriguez-Pose, A. and R. Ezcurra (2010), "Is Fiscal Decentralization Harmful for Economic Growth? Evidence from the OECD Countries", *Journal of Economic Geography*, 10, pp. 619-644.

Rodriguez-Pose, A., S.A.R. Tijmstra and A. Bwire (2009), "Fiscal Decentralization, Efficiency, and Growth", *Environment and Planning A*, 41(9), September, pp. 2041-2062.

Schaltegger, C. and L.P. Feld (2009), "Are Fiscal Adjustments Less Successful in Decentralized Governments?", *European Journal of Political Economy*, 25(1), pp. 115–123.

Sepúlveda, C. and J. Martinez-Vazquez (2010), "The Consequences of Fiscal Decentralization on Poverty and Income Inequality", *International Studies Program Working Paper Series*, GSU Paper 1002, International Studies Program, Andrew Young School of Policy Studies, Georgia State University.

Stegarescu, D. (2005), "Public Sector Decentralization: Measurement Concepts and Recent International Trends", *Fiscal Studies*, 26, pp. 301–333.

Thornton, J. (2007), "Fiscal Decentralization and Economic Growth Reconsidered", *Journal of Urban Economics*, 61, pp. 64–70.

Chapter 5

Measuring the extent of fiscal decentralisation: An application to the United States

Yongzheng Liu, Jorge Martinez-Vazquez and Andrey Timofeev

The goal of this chapter is to develop a taxonomy of decentralisation measures and how they are related to each other. In addition to introducing a common language for the different strands of literature, this taxonomy is instrumental for studying the outcomes of decentralisation. Using cross-state data from the United States, we show that aggregating distinct dimensions of fiscal decentralisation into a single indicator inevitably leads to a loss of information in the form of lower explanatory power. We conclude that the distinct aspects of decentralisation should enter regression analyses separately, in the most flexible functional form possible. In particular, we find that revenue autonomy is virtually orthogonal to the subnational share of revenues and expenditures, suggesting that it carries additional information. In this chapter we show also how the conventional measures of decentralisation can be modified to account for the differing dependence on external grants.

Introduction

For almost half a century, decentralisation of government has been approached from different angles by scholars in different fields of social sciences: public finance, public administration, and political science. This suggests that decentralisation, called rescaling in some fields, is a multifaceted process. In particular, at least three different dimensions jointly constitute this concept: the scope of authority, the degree of autonomy and the direction of accountability.

Despite the multiplicity of approaches, it appears that various definitions of decentralisation have as the common denominator the notion of transferring "power, resources, and authority" away from the central government (Schneider, 2003, p. 33). The literature however differs in the measurements of the kinds of power and resources transferred and the recipients of this power and resources. Essentially what is transferred can be classified into fiscal matters, such as the power to tax and spend, and non-fiscal matters, including autonomy and accountability. Concerning the recipients of the transferred powers and resources, the literature can be generally broken down into two categories: 1) traditional state/regional and local authorities, and 2) other cases, such as semi-autonomous government agencies, as in the case of New Public Management, or non-government entities, such as community schools, for-profit providers and so on.

The case of decentralisation to traditional local authorities has been discussed and measured in the literature along the three main dimensions: fiscal, political and administrative (*e.g.* Schneider, 2003). Going back to Philip (1954), the public finance literature commonly merges political and administrative aspects under one category labelled as the "regulation powers" while splitting the fiscal aspect into the powers of financing and delivery of public services.

Very recently, Blume and Voigt (2011) attempted to condense through factor analysis 25 commonly used indicators of decentralisation and federalism, including political, fiscal and administrative aspects (with the number of countries varying from 33 to 136 depending on the variable). When applying the Kaiser rule to drop all factors with eigenvalues under 1.0, their factor analysis suggests that the information captured by these indicators can be condensed to a dataset of seven dimensions, accounting for 70% of the variation in the original variables. Furthermore, the scree plot of the eigenvalues appears to level off after the fourth dimension, indicating that each additional dimension adds little marginal difference in the variance explained. These four leading dimensions, accounting for half of all variation in the dataset are: 1) election of local executives; 2) share of public resources raised/spent locally; 3) transfer dependence; 4) and election of local councils. The other three dimensions jointly explain an additional 20% of the variation in the original variables. These three other factors capture unconditional sharing of national tax revenue, veto power of the house of regional representatives and political fragmentation in the parliament.

One has to note that the reduction of dimensionality achieved through factor analysis does not imply that conceptually all aspects of decentralisation can be defined in terms of those seven principal components. Rather, the results mean that, in this cross-country sample, various manifestations of decentralisation would appear to be driven by these seven forces, which Blume and Voigt (2011) call "latent variables". However, this regularity might not hold in other contexts.

This taxonomy of decentralisation dimensions does more than just introduce a common language for the parallel discussions in different strands of literature. It is

believed to be instrumental for measuring and studying the outcomes of decentralisation. Thus almost a decade ago this was eloquently stated by Schneider (2003, p. 35):

> If there are multiple dimensions, then decentralisation along one dimension could be related to one set of causes and effects, and decentralisation along another dimension could relate to a different or opposite set of causes and effects. Alternatively, decentralisation along one dimension could interact or combine with decentralisation along another dimension (to produce outcomes). Researchers who do not explicitly look at each dimension or haphazardly aggregate dimensions will mismeasure the type and degree of decentralisation and draw incorrect inferences about the relationship between decentralisation and other phenomena.

Both theoretical and empirical studies have identified specific instances of lumping opposite sets of causes and effects under one decentralisation measure. Thus, the commonly used share of subnational expenditures lumps together in one explanatory variable two opposite effects: 1) that of tax competition resulting from revenue decentralisation and 2) that of over-fishing of the common revenue pool resulting from grant-financed expenditure decentralisation (Rodden, 2003). On the empirical side, Kyriacou and Roca-Sagalés (2011) find that fiscal decentralisation is positively correlated with governance quality, as measured by the World Bank's World Governance Indicators, while different measures of political decentralisation (such as regional elections or bicameralism) are negatively correlated with the governance quality.

The common caveat in the empirical studies of decentralisation is that regulation, while being the most common form of government power, cannot be measured by any indicator constructed from fiscal data.[1] However, even setting aside the regulation aspect, using cross-country data from IMF's GFS, Martinez-Vazquez and Timofeev (2010) point out the importance of separately measuring different aspects of fiscal decentralisation. They show that aggregating distinct dimensions of fiscal decentralisation into a single indicator inevitably leads to a loss of information in the form of lower explanatory power. They conclude that in a multivariate framework the distinct aspects of decentralisation should enter regression analyses separately, in the most flexible functional form possible. In particular, they find that revenue autonomy is virtually orthogonal to the sub-national share of revenues and expenditure, suggesting that it carries information complementary to that contained in the decentralisation ratios. Similarly in their cross-country study, Blume and Voigt (2011) find that revenue autonomy is uncorrelated not only with the revenue and expenditure shares but also with political aspects, such as local elections. They come to a similar conclusion that "finer-grained indicators should aim at keeping conceptually separate the different dimensions of federalism."

This chapter aims to further corroborate these findings by showing the validity of these points in a completely different context: decentralisation within the US states. In addition, we suggest how the traditional measures of decentralisation can be modified to account for an additional aspect of decentralisation, namely the dependence on grants external to the state-local relations.

Dimensions of state-local decentralisation in the United States

Existing measures of fiscal decentralisation essentially boil down to a few core concepts: locally raised revenues, locally decided expenditure, locally spent intergovernmental grants, and the number and relative size of local government units. To visualise the essence of specific measures and the relationship among them, we use the tabular representation suggested by Martinez-Vazquez and Timofeev (2010). In Table 5.1 we apply this tabular visualisation to state-local finances in Georgia, USA. With this table, the structure of the total state-local finances in Georgia can be analysed, on the one hand, by the level of government generating public revenues (horizontal axis) and, on the other hand, by the level of government spending these resources (vertical axis).

The combination of three sources (federal, state and local) and two uses (state and local) breaks the total state-local finances into six parts or quadrants. For example, Table 5.1 shows that in the state of Georgia, 40% of total state-local expenditures fall into the most decentralised category of being both locally financed and locally administered (Quadrant VI). At the same time 39% of total state-local expenditure fall into the most centralised category of being both centrally financed and centrally administered (Quadrants I-II). An additional 21% represents an intermediate case of expenditure, which are locally administered but centrally financed (Quadrants IV-V).

Table 5.1. **Relative authority of different levels of government over total state-local finances in Georgia, USA, 2002**

			Revenue-raising authority	
		Federally financed **21%**	State financed **39%**	Locally financed **40%**
Expenditure responsibilities	State administered **39%**	(Quadrant I) **19%**	(Quadrant II) **20%**	(Quadrant III) **<0.2%**
	Locally administered **61%**	(Quadrant IV) **2%**	(Quadrant V) **19%**	(Quadrant VI) **40%**

Note: Over one fifth of local own revenue derives from piggybacking on state sales and excise taxes.

Source: Prepared by authors based on data from the Bureau of Census.

Because the shares of the six quadrants in the total add up to one, it suffices to know only five out of the six numbers to have a complete picture of the composition. Moreover, in states where state governments do not receive grants from local authorities, only four numbers are required to describe the vertical break-down of public finances (as Quadrant III is empty). Obviously, no single indicator among those used in the literature can relay all the information that requires four separate numbers to describe. Indeed, the expenditure ratio captures the combined share of grant-financed (Quadrants IV-V) and self-financed (Quadrant VI) expenditure by local governments but conveys no information on the size of these two parts relative to each other. This limitation is easily identifiable in each of the measures used in empirical decentralisation literature as summarised in Table 5.2.

Furthermore, given the insignificant share of federal transfers by-passing states and flowing directly to local authorities (on average 4% of state-local finances across all states), Quadrant IV could be also ignored, thus requiring only three numbers to describe state-local decentralisation. Indeed, as summarised in Table 5.2, any single indicator among those used in the literature, can be expressed as a rational function of the expenditure ratio (ER), revenue ratio (RR) and the share of federal grants in the state-local finances, DF=I +IV:

CR= (1-DF)*RR/ (1-ER),

RA= (1-DF)*RR/ER, and

VI=1-RA.

Table 5.2. **Informational limitations of different decentralisation measures used in the literature**

Measure	Graphical representation	Application
Expenditure ratio (ER)	IV+V+VI	Oates (1972), Woller and Phillips (1998), Zhang and Zou (1998), Davoodi and Zou (1998), Akai and Sakata (2002)
Revenue ratio (RR)	(III +VI)/(QIII+VI+ II +V)	Oates (1972), Akai and Sakata (2002)
Average ratio (AR)	(ER+RR)/2	Akai and Sakata (2002)
Revenue autonomy (RA)	(III+ VI)/ (IV+V+VI)	Akai and Sakata (2002),Habibi *et al*. (2003)
Vertical imbalance (VI)	(IV+V – III)/ (IV+V+VI)	DeMello (2000), Ebel and Yilmaz (2002)
Composite ratio (CR)	VI/(I + II)	Martinez-Vazquez and Timofeev (2010)

Note: Capital roman figures denote the share of each quadrant in the total state-local public finances.

Source: Authors' calculations.

It has to be acknowledged that the sufficiency of the three indicators stems from neglecting differences in local discretion when it comes to levying different local taxes and spending at the local level. In particular, Quadrant VI lumps together revenue from sources over which local governments have almost complete control, such as property taxes, with piggybacks on the state taxes, such a local option sales tax (LOST), often earmarked for specific local or area projects. In the state of Georgia, the LOST revenue accounts for 21% of local own-source revenue compared to one third accounted for by property taxes.

Besides the shares of different levels of government in total public revenues and expenditure, some empirical studies have also measured decentralisation by the number and average size of jurisdictions at each level.[2] Furthermore, when there are several tiers of local government, the territorial fragmentation of different tiers is weighted by their relative roles in the public finance (Breton and Scott, 1978).[3] To capture the fragmentation of different types of local authorities in the United States, we follow the approach of Martinez-Vazquez and Timofeev (2010), which is essentially Breton and Scott's indicator but without the normalisation by population or land area. The second modification of Breton and Scott's indicator is that different tiers of government are also weighted according to their role in generating public revenues (the R-Scale indicator) as an alternative to weighing according to their role in spending public resources (the E-Scale indicator). Below we illustrate the computation of the scale indicators using the example of the state of Georgia.

Formula: R-Scale = {[State government revenue] + [general purpose authorities' revenue]/# of general purpose authorities + [special purpose districts' revenue]/# of special purpose districts}/ State-local revenue.[4]

Example: R-Scale measure in the state of Georgia

1 jurisdiction at the state scale	State government revenue share = 42%
693 general purpose jurisdictions at the local tier	General purpose jurisdictions' revenue share = 24%
604 special purpose jurisdictions at the local tier	Special purpose jurisdictions' revenue share = 34%

R-scale = 0.42+ 0.24/693 + 0.34/604 =0.424.

Single indicator

As remarked above, a single decentralisation ratio is unlikely to capture the entirety of powers assigned to the sub-national level. This is because different aspects of government activities (regulation, financing, and delivery) cannot be captured with the same indicator. This has been previously pointed out in the literature, for example by Schneider (2003, p. 42): "No single indicator can capture the decentralisation concept fully, and no simple combination of indicators, such as an average or an index, can capture the multidimensionality of the concept."

However, sometimes a single indicator is needed that would at a glance show us a general trend in fiscal decentralisation, and also reveal relationships to other variables, in either a tabular or graphical form. While no single indicator can capture all aspects of decentralisation, some indicators might be more inclusive and informative than others. Thus, some indicators can be affected by and therefore carry information about other indicators but not the other way around. This can make some indicators more informative than others. For example, taxing authority usually requires political legitimacy for the local government in the form of being locally elected. Therefore, larger taxing powers can signal larger political autonomy. By contrast, having local elections does not necessarily require taxing powers as it is not unheard of that elected local councils being kept on a short leash by the national authorities by making them entirely dependent on the revenue transferred from the central government. Similarly, higher revenue-raising powers are usually necessitated by higher expenditure responsibilities and can therefore signal this feature. By contrast there are countries where local governments are responsible for major expenditure items, such as education and healthcare, without raising any significant amount of revenue locally.

While it would be impossible to capture a multi-dimensional process of decentralisation with a single indicator, we nevertheless can attempt to measure more than just one aspect, that is not only revenue or expenditure based. Thus, out of the various decentralisation measures summarised in Table 5.2, AR and CR can be expected to contain information on both revenues and expenditure, as both AR and CR are rational functions of the ER and RR indicators. However, collapsing the multi-dimensional fiscal space into a scalar indicator requires judgment (weighting) regarding the relative importance of different aspects of decentralisation. Furthermore, choosing specific – implicit or explicit weights – is not just about quantification. If there is a positive "progress" along all dimensions of decentralisation, we can confidently call it an increase in decentralisation and that would be reflected in higher values of the AR and CR indicators. But what if we have a significant increase in grant-financed local expenditure with a slight reduction of locally-generated revenues? Depending on how we weight these changes relative to each other, we might have an aggregate measure to show either an increase in the decentralisation or a decrease, that is qualitatively different assessments.

Notwithstanding this shortcoming, the aggregate indicators (AR and CR) are still more informative than either ER or RR alone. Indeed, devolving responsibility for only the administration of some services but not for their financing will raise CR by decreasing its denominator.[5] However, devolving the responsibility for both administration and financing of this service will both decrease the denominator and increase the numerator of CR thus resulting in a larger increase in the ratio than in the first case. Thus, the CR indicator weights more heavily comprehensive decentralisation than just the decentralisation of administration. The same holds for the AR indicator.

Empirical evidence on the relative performance of the decentralisation measures for the state-local finances in the United States

In the previous discussion, we have pointed out conceptual differences among various decentralisation indicators in terms of the scope of various dimensions of decentralisation that they capture. However, in practice, the importance of these conceptual differences will depend on the extent of divergence in the progress along various dimensions of decentralisation. Thus, when we have uniform progress along all dimensions of decentralisation, then expenditure decentralisation will be the same as revenue decentralisation and both decentralisation ratios will be telling us the same information while the revenue autonomy indicator would not give any information because it would be always equal to one minus the share of federal grants in the state-local finances (1-DF).

Further to the point, Martinez-Vazquez and Timofeev (2010) report that, using the scale indicators (R-scale and E-scale) on the IMF's GFS data adds little additional information on top of that relayed by the decentralisation ratios as the two scale indicators are almost perfectly inversely correlated with the corresponding decentralisation ratios used in their construction. This suggests that the territorial fragmentation does not develop independently from the fiscal ratios, at least in the countries included in the GFS dataset.[6]

Therefore, we examine next in this chapter differences in the actual behaviour of the seven decentralisation indicators in relationship to each other and in statistical association with some variables of interest:

1. Expenditure ratio (ER)
2. Revenue ratio (RR)
3. Average ratio (AR)
4. Composite ratio (CR)
5. Revenue autonomy (RA)
6. E-scale
7. R-scale

We start by summarising the relationships among these indicators in a visual form by means of a biplot. The biplot display is a commonly used multivariate method for graphing row and column elements (in this case, states and their decentralisation indicators correspondingly) using a single display (Gabriel, 1971). The rays originating from the centre of the graph are linear projections of the seven indicators onto the

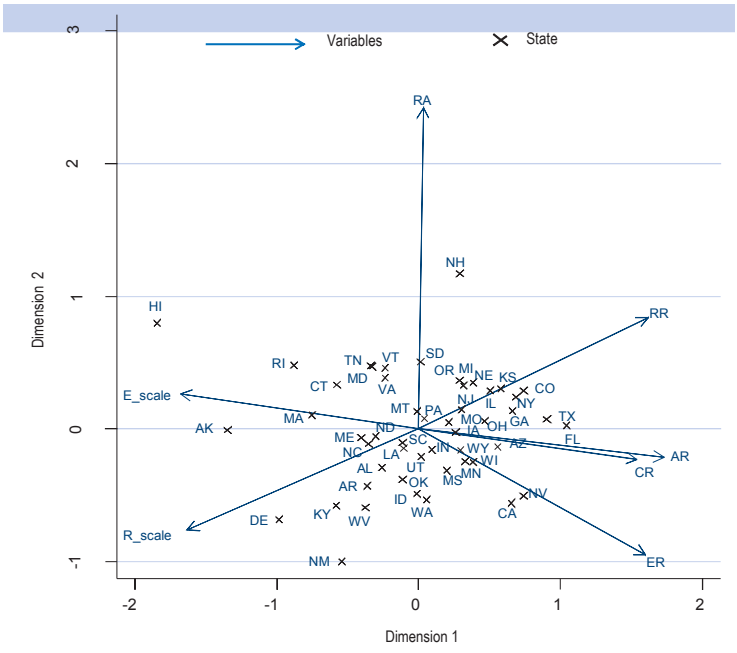
two-dimensional subspace where most variability occurs in the original multidimensional dataset, capturing almost 95% of total variation in our case.[7]

The principal component biplot is a powerful tool that allows us to capture the relationship between the different indicators. Variable rays representing uncorrelated indicators are orthogonal. The smaller the inner angle between rays, the higher is the positive correlation between the values of the corresponding indicators. For negatively correlated variables, the inner angle is greater than 90°. Because biplot is a two-dimensional projection of a multi-dimensional space, it deforms the relative configurations among objects depending on the angle of projection. We use the projection aspect that preserves angles among indicators but not necessarily distances among states.

Similar to the cross-country findings by Martinez-Vazquez and Timofeev (2010), we also observe that the R-scale indicator is almost perfectly inversely correlated with the corresponding ratio (RR) used in its construction to weigh the government tiers. This suggests that the territorial aspect of decentralisation (territorial fragmentation) does not develop independently from the revenue decentralisation within the US states. However, the negative correlation between the E-scale and ER is strictly less than unity thus suggesting that, unlike revenue raising powers, the assignment of expenditure responsibilities to local authorities might be unrelated to the extent of their fragmentation.

We also find that the two aggregate measures (AR and CR) are almost perfectly and positively correlated, which is not surprising given that they are constructed from the same ingredients (ER and RR) but using different functional forms.

Figure 5.1. **Principal component biplot for decentralisation indicators in the United States in 1992**



Source: Prepared by the authors based on data from the Census of Government.

The Revenue autonomy indicator has clear relationships with the Revenue ratio (positive) and the Expenditure ratio (negative). This latter negative association conforms to the prediction by Martinez-Vazquez and Timofeev (2010), which was derived under

the assumption that the elasticity of the revenue ratio measure with respect to the expenditure ratio measure is less than one.[8] This possibility that two dimensions of the same decentralisation process can move in opposite directions might partially explain the inconsistencies in the findings of existing studies of decentralisation outcomes. It also poses challenges for meta-analyses of those studies, such as the recent one by Feld *et al.* (2010), comparing estimates of the impact on growth obtained in studies using inconsistent measures of decentralisation, including the expenditure ratio and revenue autonomy indicator.

As a robustness check, in Table 5.3 below we report coefficients of pair-wise correlations between our seven indicators. The relationships uncovered by examining the projections of those variables on the two-dimensional biplot space for the most part accord with the values of correlation coefficients. The slight differences are due to the biplot approximation as the rank of our dataset is more than two.

The individual points on the biplot chart are linear projections of our observations labelled with corresponding state codes. Because the variables are normalised by subtracting the mean and dividing by the standard deviation, data points located in the centre of the graph represent US states with average values of the decentralisation indicators. Data points located away from the centre in the direction of some variable ray represent states with values of that variable that are distinct from the average.

Table 5.3. **Coefficients of pair-wise correlation**

	ER	RR	AR	CR	RA	E-scale	R-scale
ER	1.00	0.72	0.95	0.84	-0.36	-0.91	-0.73
RR	0.72	1.00	0.90	0.74	0.34	-0.85	-1.00
AR	0.95	0.90	1.00	0.86	-0.07	-0.95	-0.91
CR	0.84	0.74	0.86	1.00	-0.03	-0.80	-0.73
RA	-0.36	0.34	-0.07	-0.03	1.00	0.09	-0.30
E-scale	-0.91	-0.85	-0.95	-0.80	0.09	1.00	0.87
R-scale	-0.73	-1.00	-0.91	-0.73	-0.30	0.87	1.00

Source: Authors' calculations.

As one can see from the biplot graph, New Hampshire is the outmost outlier in the positive direction along the revenue autonomy ray, while Washington state is the outmost outlier in the negative direction. A few states stand out in the direction of the fiscal ratios: Florida having the largest share of sub-national revenues and expenditure while Hawaii having the smallest sub-national shares but at the same time among the highest values of the revenue autonomy indicator.

Next we examine how much information is lost in practice by *i)* using a single indicator rather than several, or *ii)* one single indicator rather than another single indicator.

This empirical exercise aims to compare the explanatory power of alternative decentralisation indicators in terms of the share of variation in the outcome variable explained by the given indicator(s), known as the R-squared. In computing the R-squared, we do not include any additional regressors, *i.e.* we are running a univariate regression.

Although additional regressors could explain more variation in the outcome variable, this additional explanatory power would be due to the regressors other than the decentralisation measures we are trying to compare. Being just a squared coefficient of correlation, the R-squared captures the strength of statistical association between decentralisation and the variable of interest but it does not imply causality; in fact, the coefficient of correlation might represent the effect of that socio-economic variable on decentralisation. This suits our purpose because we are interested in evaluating the ability of alternative indicators to capture information about decentralisation regardless of whether it is used on the left-hand side or the right-hand side of a regression equation.

Table 5.4 provides some evidence on the explanatory power of different indicators of fiscal decentralisation for five socio-economic outcomes in the US states:[9]

- real per capita income growth
- real per capita GDP growth
- employment growth
- population growth
- government size

For each of the outcome variables, we report the share of total variation explained by the pair of indicators corresponding to the respective column and row, while adjusting for the number of explanatory variables employed (adjusted R-squared). In the diagonal cells, where the row and the column represent the same indicator, we report the share of total variation explained by that single indicator (the squared coefficient of its correlation to the outcome variable). The decentralisation indicators are for 1992 while the values for the outcome variables are averaged over 1992-96, following Akai and Sakata (2002). While lagging the fiscal indicators can help capture causality, we do not claim any causal link but rather discuss the strength of a statistical association. This is because our discussion of measuring decentralisation equally applies whether decentralisation is measured as a dependent or independent variable.

The explanatory power of each pair of decentralisation indicators varies among the outcome variables and overall is higher for personal income growth and lower for employment growth. While for any pair of decentralisation indicators the explained share of variation in the outcome variables is smaller than the joint explanatory power of all seven indicators, according to an adjusted R-squared, the loss of explanatory power is considerable only for the government size regression.

Even after adjusting for the number of regressors, there is a substantial difference in explanatory power between the best performing pair of indicators and either of the two individual single indicators, or the best performing single indicator for that matter. It also comes as little surprise that no single indicator performs well for all outcome variables. The expenditure ratio performs best for employment growth. The revenue ratio performs best in the government size regression. The average ratio is the best performer for GDP growth and personal income growth. The composite ratio is the best performer for population growth. As a standalone indicator, revenue autonomy has almost no explanatory power.

Table 5.4. **Explanatory power of a pair of decentralisation indicators (adjusted R-Squared)**

	Real per capita income growth						
	ER	RR	AR	CR	RA	E-Scale	R-scale
ER	0.236						
RR	0.28	0.272					
AR	0.28	0.28	0.286				
CR	0.239	0.273	0.411	0.14			
RA	0.243	0.31	0.271	0.122	-0.0194		
E-Scale	0.231	0.271	0.376	0.127	0.127	0.143	
R-scale	0.24	0.347	0.273	0.17	0.225	0.17	0.187
Variation explained by all seven indicators: 0.380							
	Real per capita GDP growth						
	ER	RR	AR	CR	RA	E-Scale	R-scale
ER	0.251						
RR	0.241	0.175					
AR	0.243	0.246	0.255				
CR	0.29	0.157	0.38	0.119			
RA	0.235	0.275	0.257	0.129	0.0105		
E-Scale	0.263	0.157	0.324	0.113	0.146	0.131	
R-scale	0.236	0.191	0.257	0.117	0.239	0.123	0.128
Variation explained by all seven indicators: 0.341							
	Employment growth						
	ER	RR	AR	CR	RA	E-Scale	R-scale
ER	0.23						
RR	0.222	0.0792					
AR	0.22	0.226	0.189				
CR	0.213	0.177	0.173	0.178			
RA	0.223	0.219	0.225	0.228	0.0517		
E-Scale	0.247	0.0924	0.206	0.21	0.168	0.111	
R-scale	0.221	0.0661	0.216	0.192	0.218	0.0943	0.0624
Variation explained by all seven indicators: 0.216							
	Population growth						
	ER	RR	AR	CR	RA	E-Scale	R-scale
ER	0.0835						
RR	0.0987	-0.00586					
AR	0.0936	0.105	0.0485				
CR	0.107	0.264	0.188	0.123			
RA	0.0766	0.0483	0.0669	0.148	0.0262		
E-Scale	0.0642	0.114	0.0472	0.163	0.0949	0.0659	
R-scale	0.0774	-0.0142	0.0547	0.224	0.0692	0.0893	0.000367
Variation explained by all seven indicators: 0.242							
	Government size						
	ER	RR	AR	CR	RA	E-Scale	R-scale
ER	0.0688						
RR	0.122	0.14					
AR	0.13	0.122	0.113				
CR	0.0512	0.155	0.177	0.0423			
RA	0.0785	0.128	0.102	0.0257	-0.0179		
E-Scale	0.0779	0.216	0.282	0.0532	-0.0026	0.0155	
R-scale	0.0715	0.221	0.0939	0.0606	0.065	0.0837	0.079
Variation explained by all seven indicators: 0.334							

Note: Dependent variables are in levels, 1992-1996 average; independent variables are in logs, 1992.

Source: Authors' calculations.

We also attempted to take into consideration the fact that, unlike in the cross-country setup of Martinez-Vazquez and Timofeev (2010), for state-local finances a pair of indicators might not perform that well because federal grants introduce an additional, third dimension. To address this, we repeated this empirical exercise as a second step of a partitioned regression on three decentralisation indicators. More specifically, in the first

step we regressed all variables on the share of federal grants in state-local finances. Then in the second step, we replicated regressions reported in Table 5.4 but this time replacing each variable with the residuals from regressing that variable on the federal dependence in the first-step regression. This produced results that are qualitatively very similar to those reported in Table 5.4.

Conclusions

This chapter corroborates previous findings from cross-country studies, showing that aggregating distinct dimensions of decentralisation into a single indicator inevitably leads to a loss of information in the form of lower explanatory power. Because the validity of this point has been shown in a completely different context from that of the previous studies, it should leave no doubt that the distinctions among the dimensions of decentralisation are not just theoretical hair-splitting but have real implications for applied studies.

Previous studies did not take into account how grants to the central budget from foreign and sub-national entities might affect the decentralisation indicators constructed from cross-country data. This could lead to incomparable measures of decentralisation in poor developing countries, where a significant share of international assistance can be in the form of central government budget support grants. In this chapter, we show how the traditional measures of decentralisation can be modified to account for the dependence on grants external to the state-local relations in the United States. This approach can be also applied to the case of foreign grants in a cross-country context.

The main message of this chapter is that there is no single best measure of fiscal decentralisation. This reinforces earlier calls for distinct aspects of decentralisation to enter regression analyses separately, in the most flexible functional form possible.[10] Even when we include measures of various decentralisation aspects as separate regressors, we effectively assign relative weights (given by the regression coefficients). However, in this case the weights are less arbitrary than in a composite measure, as they are determined by the relative impacts of the decentralisation aspects on the specific dependent variable.

One problem with regression-derived weights is that, if different aspects of decentralisation have a common driver (*e.g.*, more fragmented local governments might have less taxing powers), then the regression might fail to clearly attribute the impact to separate decentralisation indicators, thus resulting in statistically insignificant weights (estimated coefficients). A composite indicator would not have such a problem as it assigns predetermined (arbitrary) weights as a result of the chosen functional form for the formula used to compute the decentralisation measure. However, these arbitrary weights do not reflect the relevance of different aspects of decentralisation for the outcome that is being studied. Therefore, a composite variable might perform well for one outcome but not so well for some other outcome variable. By contrast, including disaggregated indicators in the regression would assign weights specific to that particular causal relationship.

To avoid the problem of multi-collinearity without resorting to arbitrary weights, one can reduce the dimensionality of a set of decentralisation measures by way of factor analysis, as in Blume and Voigt (2011), and then use the resulting principal components as explanatory variables in the regression analysis. However, the interpretation of the principal components may not always be transparent or even intuitive.

Finally, explanatory variables should include both fiscal and non-fiscal variables. Thus, in addition to measuring both fiscal importance and fiscal autonomy of sub-national governments, any study of economic outcomes should also control for other institutional arrangements such as: territorial structure of sub-national jurisdictions, political arrangements including legal status of local authorities, clarity in the delineation of powers among levels of government, or sub-national borrowing powers and financial infrastructure. Voigt and Blume (2010) find that fiscal performance and government efficiency outcomes are strongly affected by a number of non-fiscal dimensions of decentralisation: electing municipal governments locally, empowering states to veto at least some federal-level legislation and the political fragmentation of parliament in terms of the heterogeneity of interests.

Notes

1. Indirectly, however, fiscal data can capture the relative roles of different tiers of government in regulation. To the extent that regulation requires manpower to prescribe and enforce regulatory norms, the relative share of local governments in total public administration expenditure or in the total civil service of a country should reflect the role of local government in regulation. Concerning the regulation of local government services, the extent of funding mandated by the national government can be measured by the share of conditional grants in local government revenue (Levin, 1991).
2. See, for example, Oates (1985), Nelson (1986) and Eberts and Gronberg (1990).
3. Breton and Scott's indicator is computed as the average size (population-wise or land-wise) of the different tiers of government weighted according to the shares of those tiers in total public expenditure. However, Martinez-Vazquez and Timofeev (2010) argue that population and land area should play a more flexible role and enter them as separate explanatory variables and instead use the inverse of the number of jurisdictions.
4. General purpose authorities include county, municipal and township governments, while special purpose districts include independent school districts and special districts.
5. In states where all local government expenditure are financed by the state government, the CR indicator of decentralisation would be insensitive to changes in the amount of these centrally financed expenditures. This might be a good quality of a decentralisation indicator, as a lack of any source of marginal revenue for local governments makes reaping the benefits of decentralisation less feasible.
6. It can be shown that, when territorial fragmentation and decentralisation ratios are independent from each other, the negative correlation between a scale indicator and the corresponding decentralisation ratio is strictly less than unity. Moreover, the higher is the variation in territorial fragmentation relative to the variation in the decentralisation ratio, the weaker is this negative correlation between the scale indicator and the corresponding decentralisation ratio. For proof see Annex 5.A1.

7. Somewhat similar to the R-squared in the case of a regression, the goodness of fit of a biplot is defined as the fraction of the sum of squares of singular values accounted for by the two largest singular values of the dataset.

8. In our dataset the elasticity of the revenue ratio measure with respect to the expenditure ratio measure is 0.72.

9. We chose this set of outcome variables because they were used previously in studies of state-local decentralisation in the United States (see, for example, Xie *et al.*, 1999; Akai and Sakata, 2002; Stansel, 2005; Akai *et al.*, 2009; and Hammond and Tosun, 2011). The list of variables and data sources and descriptive statistics are presented in Annex 5.A1, Tables 5.A1 and 5.A2, respectively.

10. For example, Feltenstein and Iwata (2005) use a vector autoregressive (VAR) model to simultaneously determine relative weights of different decentralisation aspects in a composite measure for China and to estimate the impact of this synthesised decentralisation measure on the country's economic growth and inflation.

References

Akai, N. and M. Sakata (2002), "Fiscal Decentralization Contributes to Economic Growth: Evidence from State-level Cross-section Data for the United States", *Journal of Urban Economics*, 52(1), pp. 93-108.

Akai, N., M. Hosoi *et al.* (2009), "Fiscal Decentralization and Economic Volatility: Evidence from State-level Cross-section Data of the USA", *Japanese Economic Review*, 60(2), pp. 223-235.

Blume, L. and S. Voigt (2011), "Federalism and Decentralization – a Critical Survey of Frequently Used Indicators", *Constitutional Political Economy*, pp. 1-27.

Breton, A. and A. Scott (1978), *The Economic Constitution of Federal States*, University of Toronto Press, Toronto.

Davoodi, H. and H.-f. Zou (1998), "Fiscal Decentralization and Economic Growth: A Cross-Country Study", *Journal of Urban Economics*, 43(2), pp. 244-257.

Ebel, R.D. and S. Yilmaz (2002), "On the Measurement and Impact of Fiscal Decentralization", *The World Bank, Policy Research Working Paper Series,* 2809.

Eberts, R.W. and T.J. Gronberg (1990), "Structure, Conduct, and Performance in the Local Public Sector", *National Tax Journal*, 43(2), pp. 165-73.

Feld, L.P., J. Schnellenbach and T. Baskaran (2010), "Fiscal Federalism, Decentralization and Economic Growth: A Meta-Analysis", *Working Paper*, University of Freiburg.

Feltenstein, A. and S. Iwata (2005), "Decentralization and Macroeconomic Performance in China: Regional Autonomy Has Its Costs", *Journal of Development Economics*, 76(2), pp. 481-501.

Gabriel, K.R. (1971), "The Biplot Graphic Display of Matrices with Application to Principal Component Analysis", *Biometrika*, 58 (3), pp. 453-467.

Habibi, N. *et al.* (2003), "Decentralization and Human Development in Argentina", *Journal of Human Development*, 4(1), p. 73.

Hammond, G.W. and M.S. Tosun (2011), "The Impact of Local Decentralization on Economic Growth: Evidence from U.S. Counties", *Journal of Regional Science*, 51(1), pp. 47-64.

Kyriacou, A.P. and O. Roca-Sagalés (2011), "Fiscal and Political Decentralization and Government Quality", *Environment and Planning C: Government and Policy,* 29(2), pp. 204-223.

Levin, J. (1991), "Measuring the Role of Subnational Governments", *IMF Working Papers*, 91/8, International Monetary Fund.

Martinez-Vazquez, J. and A. Timofeev (2010), "Decentralization Measures Revisited", *Public Finance and Management,* 10(1), pp. 13-47.

Mello, L.R. de (2000), "Fiscal Decentralization and Intergovernmental Fiscal Relations: A Cross-Country Analysis", *World Development*, 28(2), pp. 365-380.

Nelson, M.A. (1986), "An Empirical Analysis of State and Local Tax Structure in the Context of the Leviathan Model of Government", *Public Choice*, 49(3), pp. 283-294.

Nelson, M.A. (1987), "Searching for Leviathan: Comment and Extension", *The American Economic Review*, 77(1), pp. 198-204.

Oates, W.E. (1972), *Fiscal Federalism*, Harcourt Brace Jovanovich, New York.

Oates, W.E. (1985), "Searching for Leviathan: An Empirical Study", *The American Economic Review*, 75(4), pp. 748-757.

Philip, K. (1956), *Intergovernmental Fiscal Relations*, EjnarMunksgaard, Copenhagen.

Rodden, J. (2003), "Reviving Leviathan: Fiscal Federalism and the Growth of Government", *International Organization*, 57(04), pp. 695-729.

Schneider, A. (2003), "Decentralization: Conceptualization and Measurement", *Studies in Comparative International Development,* 38(3), p. 32.

Stansel, D. (2005), "Local Decentralization and Local Economic Growth: A Cross-sectional Examination of US Metropolitan Areas", *Journal of Urban Economics*, 57(1), pp. 55-72.

Voigt, S. and L. Blume (2010), "The Economic Effects of Federalism and Decentralization – a Cross-Country Assessment", *Public Choice*, pp. 1-26.

Woller, G.M. and K. Phillips (1998), "Fiscal Decentralisation and IDC Economic Growth: An Empirical Investigation", *Journal of Development Studies*, 34(4), pp. 139-148.

Xie, D., H.-f. Zou and H. Davoodi (1999), "Fiscal Decentralization and Economic Growth in the United States", *Journal of Urban Economics*, 45(2), pp. 228-239.

Zhang, T. and H.-f. Zou (1998), "Fiscal Decentralization, Public Spending, and Economic Growth in China", *Journal of Public Economics*, 67(2), pp. 221-240.

Annex 5.A1

Lemma: If territorial fragmentation and decentralisation ratios are independent from each other, the negative correlation between a scale indicator and the corresponding decentralisation ratio is strictly less than unity.

Proof:

Let us consider a simplified case of a two-tier government: central and local.

Let *R* stand for a decentralisation ratio (revenue or expenditure). Then a related scale measure can be expressed as following:

$S= (1-R) +R/\#,$

where # is the number of local government units

Let's denote (1/#-1) as *G*, then

$S=1+R*G$

Recalling that VAR [X] =E[X^2]-E^2[X] and COV[X, Y] =E[X*Y]-E[X] *E[Y], we express the correlation between R and S as

$$\frac{\operatorname{cov}[R,S]}{\sqrt{VAR[R]*VAR[S]}}=\frac{E[R*S]-E[R]*E[S]}{\sqrt{E[R^2]-E^2[R]}*\sqrt{E[S^2]-E^2[S]}}.$$

If R and G are independent, then

E[R*S] = E[R] +E [R^2] * E [G], and

E[S] = 1+E[R]* E [G],

E [S^2]-E^2[S] =E [R^2] * E [G^2]-E^2[R]*E^2 [G],

Substituting these into the correlation formula yields

$$\frac{E[R]+E[R^2]*E[G]-E[R]-E^2[R]*E[G]}{\sqrt{E[R^2]-E^2[R]}*\sqrt{E[R^2]*E[G^2]-E^2[R]*E^2[G]}}=E[G]*\sqrt{\frac{VAR[R]}{VAR[R*G]}}.$$

Now recall the law of total variance:

VAR[X] =E [VAR [X|Y]] +VAR [E [X|Y]].

If R and G are independent, then VAR [G |R] =VAR [G] and E [G |R] =E [G], which yields

VAR[R*G] =E [VAR[R*G |R]] +VAR [E[R*G |R]] =E [R^2]*VAR [G] +VAR[R]*E^2 [G].

Substituting this into the correlation formula yields

$$E[G]*\sqrt{\frac{VAR[R]}{VAR[R*G]}} = -\sqrt{\frac{E^2[G]*VAR[R]}{\mathrm{E}[\mathrm{R}^2]*\mathrm{VAR}[\mathrm{G}]+\mathrm{VAR}[\mathrm{R}]*\mathrm{E}^2[\mathrm{G}]}} = \frac{-1}{\sqrt{\frac{\mathrm{E}[\mathrm{R}^2]*\mathrm{VAR}[\mathrm{G}]}{E^2[G]*VAR[R]}+1}}$$

This is because E [G] <0.

It is clear that the latter expression is negative and less than unity in absolute value unless VAR [G] =0.

Moreover, the higher is the variation in territorial fragmentation relative to the variation in decentralisation ratios, the weaker is this negative correlation between the scale indicators and corresponding decentralisation ratios.

Table 5.A1. **Variables description and sources**

Variable	Description	Source
incpc_gr	Real per capita income growth rate	U.S.Census
gdppc_gr	Real per capita GDP growth rate (chained 2005 dollars)	U.S.Census
emp_gr	Employment growth rate	U.S.Census
pop_gr	Population growth rate	U.S.Census
gov_siz	Government size, defined as the share of total state and local tax revenues in personal income	U.S.Census

Source: Authors' calculations.

Table 5.A2. **Variables descriptive statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
incpc_gr	50	0.016	0.007	-0.007	0.028
gdppc_gr	50	0.025	0.012	-0.014	0.051
emp_gr	50	0.022	0.012	-0.003	0.059
pop_gr	50	0.014	0.010	0.002	0.052
gov_siz	50	0.116	0.014	0.095	0.181

Source: Authors' calculations.

Chapter 6

Measuring decentralisation of public sector activities: Conceptual issues and the case of Germany

Paul Bernd Spahn

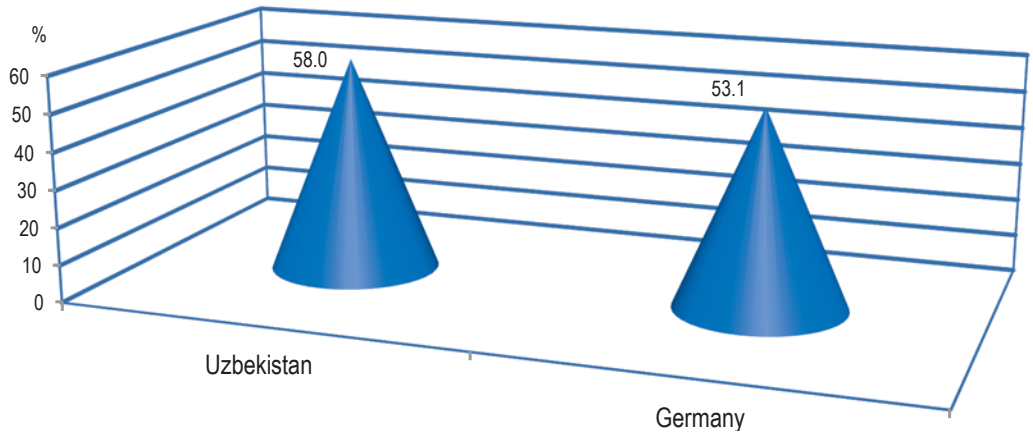
This chapter examines conceptual problems related to standard revenue and expenditure measures to assess government decentralisation. While the refinement of the revenue metric as proposed by the OECD comes close to expressing the degree of sub-central tax autonomy, there are still problems to be resolved for assessing tax sharing. Suitable expenditure-oriented decentralisation measures are more difficult to construct. Not only can central mandates or conditions imposed on funding limit the degree of fiscal autonomy of sub-central governments; it is also relevant to evaluate to which extent such constraints are binding for sub-central governments. The problems related to fiscal decentralisation measures are then discussed by looking at the German federal arrangements, which have raised some controversies in the past. Fiscal measures alone may fall short in defining the degree of decentralisation in a country. A more comprehensive approach is needed. The chapter concludes with an outline of a more differentiated composite decentralisation index.

Introduction

When measuring decentralisation of government, most studies use budget indicators – constructed for instance from the OECD National Accounts or the IMF's Government Finance Statistics (GFS) – such as the ratio of sub-central revenues to total government revenue or the ratio of sub-central spending to total government spending. This has substantial shortcomings. To illustrate some of these, we start with a provocative comparison between two decentralised countries, Germany and Uzbekistan, using the revenue measure for 2005. This is what we find (Figure 6.1).

Of course concluding from this that Germany is less decentralised than Uzbekistan would grossly mislead us. Uzbekistan is a unitary state with a strict vertical command line from top to the bottom, fully dependent local administrations with no discretion in local policies or taxation whatsoever. Public decision-making is centralised, spending is mandated by the central budget, lower tiers of government do not have budget autonomy and they operate through appointed officials. So what we measure is a central albeit "deconcentrated" budget, which is presented by regional layers of administration for convenience.

Figure 6.1. **The share of sub-central government revenues in total public revenues, 2005**



Source: Author's research, Bundesministerium der Finanzen.

Germany on the other hand has a federal constitution with the states and municipalities controlling their budgets independently. In particular lower tiers of government enjoy policy discretion, including taxation, and spending autonomy, local authorities are self-governing and strong, there is inter-jurisdictional fiscal competition, and elected officials decide and implement policies on their own, with citizens' participation. In short: any comparison based on simple aggregate fiscal indicators must be deficient when comparing countries. We have to introduce additional qualitative indicators to shed light on the distinctive characteristics of the countries concerned.

In response to such criticism, Blöchliger and Rabesona (2009) have proposed a refinement of the revenue decentralisation indicator using the sum of all sub-central revenue from taxes for which sub-central governments may determine either rates, bases or both, as a ratio of total government tax revenue; and/or the sum of all tax revenue from shared taxes for which sub-central governments may co-determine the revenue distribution or other allocation details, again as a ratio of total government tax revenue.

This is a remarkable improvement since it emphasises local tax autonomy and policy coordination, which could also serve as proxies for measuring self-government and budget autonomy more generally. Nevertheless these measures keep on being purely fiscal and leave out other important features of decentralisation. For instance local democracy and citizens' participation, regulatory powers (which could be extensive) or the quality of local service delivery are difficult to capture by fiscal measures alone.

Moreover the criteria developed by the OECD for adjusting the revenue-oriented decentralisation metric are rather complex as shown in Table 6.1. So the aggregate indicator has to be presented with care and accompanied by footnotes.

Table 6.1. **Criteria used for adjusting revenue-oriented decentralisation measures**

a.1	The recipient SCG sets the tax rate and any tax reliefs without needing to consult a higher level government.
a.2	The recipient SCG sets the rate and any reliefs after consulting a higher level government.
b.1	The recipient SCG sets the tax rate and a higher level government does not set upper or lower limits on the rate chosen.
b.2	The recipient SCG sets the tax rate, and a higher level government does set upper and/or lower limits on the rate chosen.
c.1	The recipient SCG sets tax reliefs – but it sets tax allowances only.
c.2	The recipient SCG sets tax reliefs – but it sets tax credits only.
c.3	The recipient SCG sets tax reliefs – and it sets both tax allowances and tax credits.
d.1	There is a tax-sharing arrangement in which the revenue split can be changed only with the consent of SCGs.
d.2	There is 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.
d.3	There is 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.
d.4	There is a tax-sharing arrangement in which the revenue split is determined annually by a higher level government.
e	Other cases in which the central government sets the rate and base of the SCG tax.
f	None of the above categories a, b, c, d or e applies.

Source: Blöchliger, H. and J. Rabesona (2009), "The Fiscal Autonomy of Sub-Central Governments: An Update", *OECD Fiscal Network Working Papers*, No. 9, OECD Publishing, *10.1787/5k97b111wb0t-en*.

One way of providing an aggregate fiscal metric is by weighing its components. For instance items *a.1* and *b.1* could be defined as representing full tax autonomy. The proceeds from these taxes would hence be weighted by one. All other components would be weighted by a factor between one and zero according to the importance of the constraint on local autonomy. For instance, if the consultation process of *a.2* were mandatory with veto power given to the central government, the weight attached to this revenue component would become zero; if it were purely informal and non-compulsory, the weight would be one. A weight of one would also apply to *b.2* as long as the upper limits set by the central government are not binding.[1] If they are binding for a subset of sub-central governments, their relative share of the tax could be deducted from the total of the tax concerned.

There seems to be agreement that rate setting is sufficient for fiscal autonomy and that meddling around with tax reliefs at sub-central levels is likely to entail distortions and inequities through unfair horizontal tax competition. This is not to argue against tax competition, on the contrary. However, tax competition should be transparent and fair, which is best achieved through the setting of rates alone, ideally on a nationally standardised tax base. So it is questionable what dimension of fiscal autonomy will be added by items *c.1* through *c.3* of Table 6.1. These items may perhaps be redundant. The weights of own fiscal revenue as proxies for fiscal autonomy of sub-central governments should be determined by the rules governing tax rate setting alone, and not the discretion to vary tax reliefs.

The treatment of tax sharing (items *d* in Table 6.1) needs a more thorough examination. Obviously item *d.1* means full sub-central tax autonomy, so the coefficient should be one. On the contrary, items *d.3* and *d.4* (as well as *e*) denote full dependence of sub-central budgets from centralised flows, so the coefficient would be zero.[2] The remaining case *d.2* is harder to treat. We shall illustrate this case by looking at an ongoing controversy with regard to tax sharing in Germany.

The German fiscal federal arrangements

Using the more refined OECD criteria would dramatically change the provocative interpretation of fiscal indicators made initially. Uzbekistan's metric would collapse to practically zero, while Germany's would remain positive. This renders an inappropriate international comparison pointless, but it still leaves us wondering what the decentralisation coefficient for Germany would be.

The German fiscal arrangements were indeed a source of confusion and debate in the past because the distinction between own taxes and general grants appears to be blurred. True, in Germany municipalities control the tax rates of their local business tax (*Gewerbesteuer*) and of the property tax (although not their bases), which is a clear case of *b1*. The states (*Länder*) have recently won the freedom to set the rates of the property transactions tax above a uniform national level, which falls into category *b2*. These elements are not contentious. However a dispute is going on about tax sharing and whether shared revenue represents a transfer without fiscal autonomy, hence should not be included in the corrected fiscal revenue measure, or whether tax sharing should indeed be seen as providing at least some revenue autonomy.

In Germany taxes assigned to specific layers of government are limited in terms of their revenue potentials. Excise duties (excluding the beer tax), insurance tax, and the surtax on income tax and corporation tax are assigned to the federal level; the states benefit from the property transaction tax, inheritance tax, beer tax and the gambling tax; and the main municipal taxes are the property tax and the local business tax (the latter being subject to sharing with higher levels of government). The majority of taxes however, if assessed in terms of their revenue potential, are shared among the different tiers of government. These are VAT and income taxes.

The vertical distribution of shared taxes is as follows (Table 6.2):

Table 6.2. **The allocation of shared taxes in Germany (2009)**

	Federation	Länder	Municipalities
Personal income tax (including wage tax)	42.5%	42.5%	15%
Final withholding tax on interest and capital gains	44%	44%	12%
Corporate income tax	50%	50%	Nil
VAT (shares tend to vary)	≈ 53.9%	≈ 44.1%	≈ 2.0%

Source: Federal Ministry of Finance.

The horizontal distribution of taxes shared among sub-federal entities is basically by origin for the income taxes; VAT is chiefly allocated on a per capita basis.

Shared taxes and tax autonomy

Constitutional lawyers in Germany insist that both income tax and VAT sharing represents "own revenue" of sub-central jurisdictions and not grants. The tax shares

would therefore have to be integrated into the fiscal decentralisation metric. Of course, from a normative point of view one can agree on any arrangement to suit a desired result, but the question is what we want to measure and whether the metric reflects genuine fiscal autonomy comparable to categories *a – c* in Table 6.1. Moreover, for international comparisons, the norm must be universally applicable and cannot simply reflect an idiosyncratic legal interpretation by one country's lawyers.

As discussed above, Table 6.1 is helpful in determining the various degrees of fiscal autonomy of sub-central jurisdictions for categories *a.1* through *d.2*. All other categories emphasise the central government's leadership in fiscal arrangements and can therefore be disregarded when constructing a fiscal decentralisation metric. As far as tax sharing is concerned, categories *d.1* and *d.2* are of particular relevance. While the former is likely to be the exception (it may apply to Bosnia and Herzegovina, for instance, where the sub-central entities determine the tax share of the central government), the latter could reflect fiscal autonomy insofar as sub-central governments participate in federal legislation in Germany.

In fact, the German constitutional provisions guarantee the states, although not municipalities, a right to co-determine the tax sharing arrangements by injecting their voice into federal legislation through the Second Chamber, the *Bundesrat*. So any change in the "revenue split", the vertical allocation of proceeds from shared taxes requires the joint consent of sub-central governments (the *Länder*[3]). In particular income taxes whose proceeds are allocated by origin or derivation could therefore be considered "own revenue" of sub-central government both in a legal and economic sense. The arrangements are tantamount to conceding each tier the same tax base with a vertical split of nationally uniform tax rates by layer of government. Of course, contrary to full tax autonomy as expressed in item *a.1* of Table 6.1, there are binding constraints on both the central and sub-central governments for tax sharing: uniformity of tax bases and rates, majority voting across *Länder* and mutual agreement between both Houses of Parliament. But this is a matter of degree that could be expressed through new subcategories of item *d.2*. And for constructing a decentralisation metric these constraints could be expressed through weights[4] to be attached to the different items of Table 6.1.

While these arguments may hold, and could possibly be accepted across countries for international comparisons, as long as the derivation principle is observed, they are difficult to defend in the case of VAT sharing in Germany. The proceeds from VAT are not allocated to sub-central jurisdictions according to derivation, but by formula. Although the *Länder* co-determine, through federal legislation, the horizontal allocation formula as well, the final outcome of VAT allocation is totally disconnected from the proceeds collected on the territory of any one *Land*. Thus the fiscal arrangements for VAT contain an element of horizontal redistribution or equalisation among the *Länder*. From an economic point of view it is therefore out of the question to include these resources in an indicator of sub-central tax autonomy. Nevertheless, German constitutional lawyers maintain that even the individual shares from VAT represent own revenue and not a federal transfer with compensations among sub-central jurisdictions.[5]

The question is now whether this interpretation reflects pure idiosyncrasy or whether it is more generally applicable for international comparisons. Given the complex formula used for VAT allocation in Germany one could easily argue that the *Länder's* share represents a general revenue grant with implicit equalisation as in Australia. In fact the similarities are striking: The Commonwealth Government distributes all GST revenues, not just a tax share, to the states according to the Commonwealth Grants Commission's

recommendations. The horizontal allocations are made on the basis of a formula, and the revenue is distributed without conditions. But Australia considers the allocation of GST funds to be a grant, not own state revenue. True, the revenue from GST as an indirect tax could be interpreted as the Commonwealth's according to Article 86 of the Constitution.[6] However, the Australian states – through the Senate[7] – also interact with national legislation similarly to the German *Länder* through the *Bundesrat*. So in both countries the tax sharing arrangements "can be changed only with the consent of sub-central governments" as defined in item *d.2*.[8]

It means that the German interpretation of vertical tax sharing *cum* equalisation arrangements does not appear to be consensual at the international level. Yet it is doubtful whether this really matters for all practical purposes. The decisive question is: What really do we want to measure?

The purpose of decentralisation metrics

Any statistical indicator is developed with a purpose. The rationale of the revenue-oriented decentralisation index and its refinement is chiefly to indicate the degree of taxing autonomy of sub-central governments. With this objective in mind it makes sense to look at a sub-central level of government's ability to set the tax rate, for instance. But in fact there is no single objective behind the criteria developed in Table 6.1. As said before, items *d.3* and *d.4* put the finger on the reliability of tax sharing rules – whether they are based on more durable legislation or can be changed annually by the central government. The reliability and steadiness of funding and budget stability of sub-central governments are in fact important dimensions of fiscal autonomy, yet they do not only apply to tax sharing. The assignment of possibly volatile taxes to sub-central budgets and the intergovernmental transfer system as a whole may also play a role.

But even for the limited agenda of focusing on fiscal autonomy any revenue-oriented metric must fail to capture sub-central authorities' discretion on the spending side of the budget. So an expenditure-oriented measure is the natural companion of a revenue-oriented metric. Similarly it is worth developing different dimensions of fiscal autonomy as seen from the spending side. Spending measures should convey whether sub-national expenditure are autonomous or mandated by central government decisions or regulations.

In Germany, the Constitution conveys administrative powers (*Verwaltungshoheit*) to the *Länder*. As a consequence the Federation uses the *Länder* to implement its federal policies as well, for instance in transportation (*Bundesautobahnen, -fernstraßen*), tax administration (*Finanzverwaltung*) and on the basis of specific laws (*e.g.* on water ways, civil protection, nuclear energy, air traffic control, etc.) or for subsidies for which the Federation assumes at least 50% of the costs.

One would therefore have to distinguish between *i)* federal mandates on state expenditure; *ii)* federal mandates on municipal expenditure (which are negligible for practical purposes, apart from some smaller earmarked grants); *iii)* and state mandates on municipal expenditure (which are, however, consolidated within sub-national spending). All spending mandated by the central government should be excluded from sub-central budgets when deriving the decentralisation metric for spending. Where this plays a role in other countries one may also have to exclude sub-central expenditure financed through earmarked grants.

More difficult will be the treatment of non-earmarked grants where some spending discretion is given to sub-central authorities albeit under conditions, with matching funds, and/or based on performance criteria. Again one could exclude or include these expenditure items with different weights in accordance with the degree of policy discretion, but determining these weights may be contentious. For instance an earmarked grant is not binding to the extent that the sub-central authority would have spent the money anyway from own resources, in which case the earmarked grant will become general revenue. However it is hard to decide to which degree a sub-central authority would have acted on its own in a certain policy area, in which case an earmarked grant becomes free money, and to which degree its preferences are altered through central government mandates or conditional grants. From a theoretical point of view the focus would be on whether external financing of sub-central budgets has a revenue effect only (in which case it would be difficult to speak of distorted sub-central decision-making) or also a price effect (in which case fiscal autonomy would be affected). Yet one can argue that even a pure general revenue grant, with no strings attached, will influence the range of policy options, and hence interfere with sub-central fiscal autonomy. This is particularly visible for a "negative revenue grant", *i.e.* whenever there is a shortage of budget resources relative to a sub-central government's spending responsibility: "unfunded mandates".

Yet even if it were possible to correct the spending side of the budgets in accordance with the degree of fiscal autonomy in sub-central responsibility areas, there could be other factors restricting the autonomy of sub-national spending, *e.g.* wage setting (collective bargaining), national labour legislation and standards imposed by national or EU legislation. In Germany there are attempts to reduce at least the impact of costly standards on municipal spending[9] and to wind down the degree of entangled federal-*Länder* decision-making (*Politikverflechtung*), which will enhance the fiscal autonomy not only of sub-central authorities, but also of the Federation. This will help constructing appropriate decentralisation measures from the spending side of the budget, but generally such measures are difficult to establish on the basis of formal rules as in Table 6.1.

A comprehensive approach to measuring decentralisation

Decentralisation measures are being used for a great number of analytical questions. They have been employed to analyse the effects of decentralisation on the degree of fiscal autonomy, citizens' participation, accountability of local officials, and corruption, for instance. Other studies have looked into the relationship between decentralisation and economic growth and development, poverty reduction, social aspects and regional income inequality. Or they have addressed the influence of decentralisation on macro-fiscal stability and the sustainability of consolidated government budgets.

It is questionable whether all these questions can be tackled with one single measure alone and whether this metric could be purely fiscal. There is clearly a need for a more comprehensive and differentiated approach to measuring decentralisation. As Chanchal Kumar Sharma (2006, p. 49) states,

> "... a true assessment of the degree of decentralisation in a country can be made only if a comprehensive approach is adopted and, rather than trying to simplify the syndrome of characteristics into the single dimension of autonomy, interrelationships of various dimensions of decentralisation are taken into account. Thus it is to be realised that there is no simple one dimensional, quantifiable index of degree of decentralisation in a given country."

Such an approach may have to distinguish several classes of indicators:

1. A number of criteria looking at policy outcomes rather than budget items; these could be the result of statistical research and/or household surveys.
2. Institutional aspects; these could be assessed by independent watchdogs of the civil society, research institutes and individual researchers and/or international organisations (*e.g.* PEFA, ROSC).
3. Macro-fiscal indicators (such as debt, internal stability arrangements); and of course
4. The "classical" (adjusted) fiscal measures discussed before.

For most of the criteria under 1 – 2 one could consider three sub-dimensions: *i)* The level, respectively the intensity; *ii)* the legal or statutory reliability, and the stability of rules over time; *iii)* and the regional impartiality, equality or fairness.

The set of criteria and their sub-dimensions would then have to be weighted. The weighting scheme would of course differ according to the purpose of a study.

There are two methodologies for introducing weights: Either the classical multiple regression approach, where the weights are the result of statistical estimates; or the use of pre-defined weights as often employed to establish a composite index (*e.g.* the Human Development Index). An outline for such a composite decentralisation index can be found in Table 6.3.

Of course using the information presented in Table 6.3 for evaluating different decentralisation criteria and their impact on a particular research topic offers greater flexibility under the control of the researcher. The selection of criteria can be better tailored to the respective research agenda. However in this case one has to make sure that an independent variable does not appear as explanatory variable in the regression equation. If appropriate, some explanatory variables may have to be moved to the left-hand side of the equation. The risk of endogeneity is, however, greatly reduced when using a composite decentralisation index for analysis.

Table 6.3. **Outline of a composite decentralisation index with pre-defined weights**

		Level/ degree	Legality/stability of rules	Regional equality /impartiality	Parameter restrictions	Weights
1	Local service delivery, consumer satisfaction	a_{1j}	a_{2j}	a_{3j}		w_i
2	Quality of infrastructure					
3	Human capacity development					
4	Social indicators (education, health, social protection)				$a_{ij\Sigma\{1-4\}}$	
5	Environmental factors					
6	Governance, political commitment, accountability					
7	Transparency, corruption perception					
8	Citizens' participation					
9	Political coherence, interjurisdictional cooperation			0		
10	Macro stability, sustainability of consolidated budgets			0	$a_{ij\Sigma\{1-6\}}$	
11	Taxing autonomy index		0	0		
12	Spending autonomy index		0	0	$a_{ij\Sigma\{1-12\}}$	
	Total index = $\frac{1}{12}\Sigma_i w_{ij}\Sigma_i w_i a_i$					$\Sigma_i w_i = 1$

Source: Author's calculations.

Conclusions

Crude metrics relating sub-central revenue or spending to the total of government revenue or spending are inadequate for measuring the decentralisation of government. Based on customary presentations of government budgets they say little about the degree of fiscal autonomy. Qualifying different subcategories, as proposed by the OECD, and weighing these categories when constructing an aggregate decentralisation measure can improve the sway of a revenue-oriented decentralisation metric remarkably. Yet defining tax autonomy is controversial for tax sharing, especially if the sharing arrangements contain elements of equalisation as in the case of the German VAT. Delineating tax sharing from ordinary grants may not find a universally accepted interpretation.

The companion of a revenue metric for measuring fiscal decentralisation is a spending metric. Spending measures should convey whether sub-national expenditure is autonomous or mandated by central government decisions or regulations. This may be possible, where such mandates are clearly defined by law as in the case of Germany. More difficult will be the treatment of non-earmarked grants where some spending discretion is given to sub-central authorities albeit under conditions, with matching funds and/or based on performance criteria. But even for earmarked grants the question is to what extent centrally imposed mandates or conditions represent binding constraints for sub-central budgets.

It is questionable whether the decentralisation of government can be appropriately summarised by one single measure alone and whether this metric could be purely fiscal. There is a clear need for a more comprehensive and differentiated approach to measuring decentralisation. An outline for a composite decentralisation index could help guiding the discussion onto that avenue.

Notes

1. The lower limits are to prevent a spiralling down of tax revenue through tax competition, so this constraint could reasonably be neglected.
2. The distinction between items *c.3* and *c.4* does not address issues of taxing autonomy, but brings in a new criterion: the reliability of central transfers and their impact on sub-central budget stability.
3. Municipalities are a creation of the *Länder* and – although they possess important political "voice" through their associations – they exercise legal powers at the federal level through their respective *Land*.
4. For tax sharing between the two layers of German governments with joint legislation "at par", a reasonable weight could be 50%.
5. Here the term "jurisdictions" is used intentionally. It would be inadequate to view the allocation of VAT in Germany as a centralised asymmetrical equalisation mechanism as in Australia, for instance. In Germany, in a first step, the vertical assignment of VAT revenue defines the joint entitlements of the *Länder* (like a fund). The horizontal allocations according to the formula must then be seen as secondary compensations among beneficiary states although vertical and horizontal allocations among jurisdictions are, of course, made simultaneously.
6. Article 86 confines Commonwealth revenue to the "control of duties of customs and of excise, and the control of the payment of bounties".
7. However the Australian states have limited initiation rights in Commonwealth legislation. Article 53 of the Australian Constitution states that "Proposed laws appropriating revenue or moneys, or imposing taxation, shall not originate in the Senate". No such limitation exists in Germany. It is questionable, however, whether such a difference should matter when defining fiscal transfers as "own revenue" or a general revenue grant.
8. In both countries this right of sub-central entities is not simply confined to co-deciding on the vertical "revenue split", but also on the horizontal allocation formula.
9. In 2010, the Federal Ministry of Finance has created a Commission to look into local finance (*Gemeindefinanzkommission*). Its terms of reference include a revision and proposals for the reduction of standards that affect municipal decision-making or costs.

References

Blöchliger, H. and J. Rabesona (2009), "The Fiscal Autonomy of Sub-Central Governments: An Update", *OECD Working Papers on Fiscal Federalism*, No. 9, OECD Publishing, *10.1787/5k97b111wb0t-en*.

Sharma, C.K. (2006), "Decentralization Dilemma: Measuring the Degree and Evaluating the Outcomes", *The Indian Journal of Political Science*, Vol. 67, No. 1, pp. 49-64.

Chapter 7

Taxonomy of grants and local taxes: The Norwegian case

Lars-Erik Borge*

The chapter discusses a taxonomy of grants and local taxes based on the Norwegian institutional context. A main issue is whether the major local tax, the personal income tax, should be classified as a tax with local discretion or a tax sharing arrangement. Although local governments can formally set tax rates below the upper limit, it would give a more correct picture of the Norwegian system if the local income tax was classified as a tax sharing arrangement. The taxonomy of grants is less problematic, but some earmarked grants constitute a grey zone in the sense that they work as non-earmarked grants. In addition, the VAT compensation scheme should be classified as a non-earmarked grant.

* I am grateful for discussions at the workshop on "Taxonomy of grants and measurement of decentralisation" at the OECD in Paris 10-11 March 2011, and in particular for comments by Niels Jørgen Mau Pedersen.

Introduction

The organisation and financing of sub-central governments is often seen as important for efficiency, distribution and growth. Many studies rely on cross-country variation in fiscal decentralisation to identify the effects of different federal systems. The quality of such empirical studies is highly dependent on the quality of the data describing fiscal decentralisation. Indicators of fiscal decentralisation are regularly published by international organisations such as the IMF, the OECD and the Council of Europe. Much effort is devoted to the development of common definitions and taxonomies to make the indicators comparable across countries.

The purpose of this chapter is to discuss the taxonomy of local taxes and intergovernmental grants using the Norwegian system as reference. Norway is an example of a Nordic welfare state where local governments are responsible for major welfare services. Section 2 provides an overview of the present organisation and financing of the local public sector. Tax financing and grant systems are discussed more thoroughly in sections 3 and 4 as a basis for an evaluation of the current taxonomy.[1] Indicators of revenue decentralisation and local autonomy that are used in the Norwegian setting are presented in section 5. Section 6 makes a general remark on indicators describing incentives for local development policy. Finally, section 7 provides concluding remarks.

The local public sector in Norway

Norway is quite large in terms of area, but small in terms of population. By January 2011 the population size was 4.9 million. The public sector is divided in three tiers: the central government, the county governments, and the municipal governments. The 19 counties and the 430 municipalities constitute the local public sector.[2] The municipalities and the counties have the same administrative status, whereas the central government has the overriding authority. Both municipalities and counties are mainly financed by taxes and grants from the central government. As in the other Nordic countries, the local public sector is an important provider of welfare services. The sector accounts for nearly 50% of government consumption and their revenues make up nearly 20% of (mainland) GDP. Close to 20% of the workforce is employed in the local public sector.

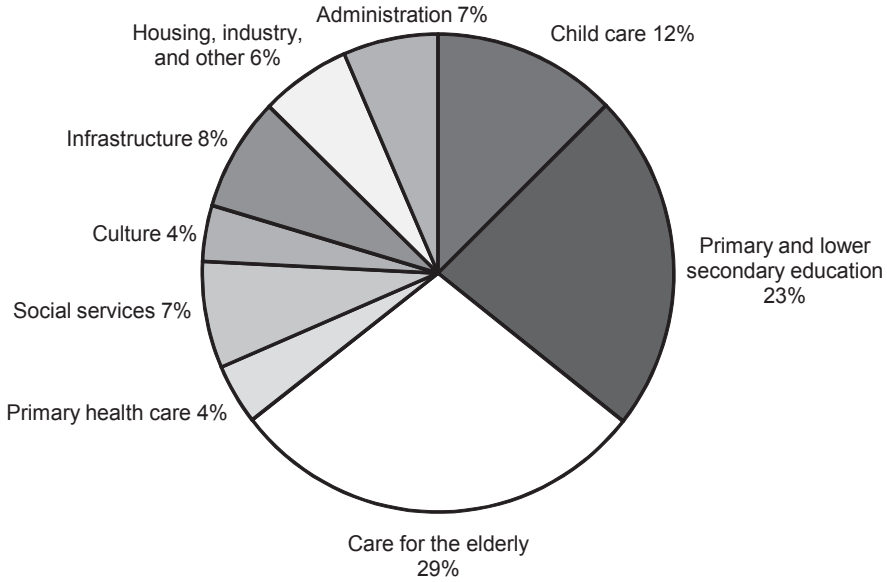
The responsibilities of municipalities and counties are based on the so-called generalist local authority system. This means that all municipalities and all counties have to fulfil the same functions regardless of size. In terms of revenues and expenditure the competencies of the municipalities are much larger than the competence of the counties. This was also the case before the responsibility for hospitals was moved from the counties to the national government in 2002. In terms of revenues the municipal level is now around three times as large as the county level.

Figure 7.1 provides an overview of the municipal responsibilities. It is evident that welfare services within the educational, health, and social sectors account for the bulk of expenditure. The welfare services under municipal responsibility are child care, primary and lower secondary education (1st to 10th grade), care for the elderly (nursing homes and home-based care), primary health care (general practitioners, health centres, and emergency wards) and social services (mainly social assistance and child custody). These services amount to ¾ of the total budget. The more local services include a large number

of activities, but make up less than 20% of the budget. They can broadly be categorised as culture (libraries, cinemas, sports facilities, etc.), infrastructure (roads, water, sewage and garbage collection), and planning (including land use planning), industry and housing.

Figure 7.1. **Municipal service sector spending**

Per cent of current expenditures, 2010

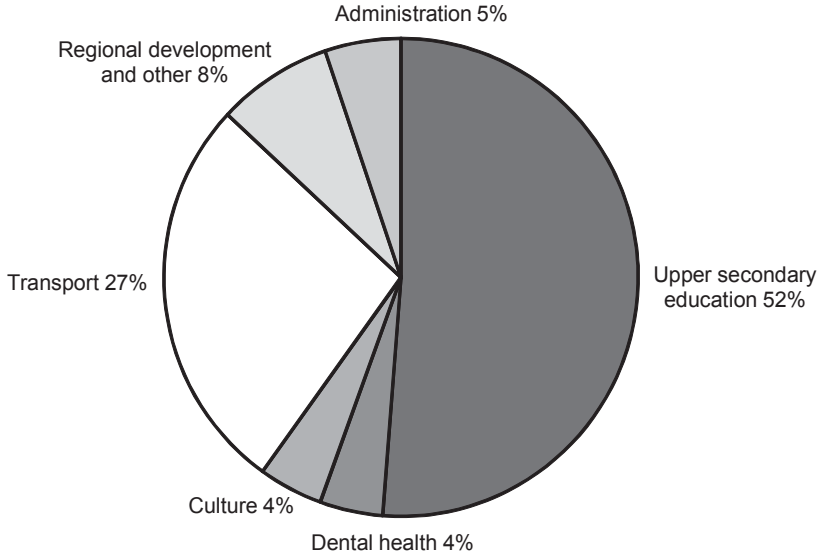


Note: The capital Oslo, which is both a municipality and a county, is excluded.

Source: Statistics Norway, Local Government Accounts.

Figure 7.2. **County service sectors**

Per cent of current expenditures, 2010



Note: The capital Oslo, which is both a municipality and a county, is excluded.

Source: Statistics Norway, Local Government Accounts.

The main responsibilities of the counties are shown in Figure 7.2. After the national government took over the responsibility for the hospitals in 2002, upper secondary education (general and vocational) is the largest task for the counties. It amounts to around half of the total budget. The second largest service sector is transport (roads and public transport), which accounts for a quarter of the budget. The remaining services are dental health (mainly for the young and residents in nursing homes), culture (libraries, museums, sports facilities, etc.) and regional development (planning and business development). Together, the welfare services, upper secondary education and dental services make up around 55% of county expenditure. However, if we consider county spending on transport as part of the national infrastructure, this share increases to more than 80%.

Total local government revenue amounts to nearly 20% of GDP, and Table 7.1 gives an overview of the major revenue sources. Local revenues (taxes and user charges) amount to a bit more than 50% of total revenues, while grants from the central government account for a bit more than 40%. The main differences between the two local government tiers are that the counties are more dependent on central government grants, while taxes and user charges are more important for the municipalities. The municipalities apply user charges for a wide range of services, but technical services (water, sewage, and garbage collection), child care and care for the elderly account for most of the revenue. User charges cannot be applied in primary and secondary education.

Table 7.1. **The financing of the local public sector**

Per cent of total revenues, 2010

Revenue source	Total	Municipalities	Counties
User charges	12.5	14.2	4.2
Taxes	40.1	41.8	31.7
Grants	42.2	39.5	55.7
Interest and dividends	3.3	2.7	6.3
Other	1.9	1.8	2.1
Total	100.0	100.0	100.0

Note: Oslo, which is both a municipality and a county, is included in the figures for the municipalities. Interest and dividend receipts for the counties include revenues from toll roads.

Source: Local Government Accounts, Statistics Norway and Committee for Assessment of Local Government Economy.

Local tax financing

Local taxation in Norway is based on the following four tax bases:

- Income tax (individuals)
- Wealth tax (individuals)
- Property tax (individuals and businesses)
- Natural resource tax (power companies)

The base for the local income tax is general income (*alminnelig inntekt*), which is labour income, pensions and capital income less allowances. Since the 1992 tax reform general income is taxed at a flat rate (28%) and the revenue is shared between the municipalities, the counties and the central government.[3] The tax rate for each

government tier is decided annually by the Parliament. The 2011 tax rates are respectively 11.3% (municipalities), 2.65% (counties) and 14.05% (the central government).[4] Formally the municipal and county tax rates are maximum rates, and the local councils can in principle set a lower rate.[5] However, during the past 30 years, there has been no deviation from the maximum.

Wealth tax is levied at the municipal and the central government level. The tax base is net wealth above NOK 700 000 (EUR 90 000). The municipal part of the wealth tax has a flat rate of 0.7%, whereas the central government tax rate is 0.4%. As for the income tax the municipal councils can set a tax rate below 0.7%, but this discretion has not been used.

Property tax is levied at the municipal level only and comprises both residential and business property. Before 2007, the property tax was restricted to urban areas and certain facilities (notably hydroelectric power plants),[6] and was in practice not available for all municipalities. The law did not provide any precise definition of urban areas, and several municipalities were taken to court by property owners arguing that their property was not located in an urban area. In 2006, the Property Tax Law was changed to avoid confusion and to increase fairness among tax payers, and since 2007 the property tax can also be levied in rural (non-urban) areas. The change led to increased use of the property tax in rural municipalities. In particular, it became more attractive for municipalities with cottages to introduce a property tax or to extend it to also include non-urban areas.[7] Property taxation of cottages is a prime example of tax exporting, and cottage owners have heavily opposed the introduction of a "cottage" tax. In 2010, a total of 309 municipalities (72%) used the property tax. Among these, 129 taxed certain facilities only. Residential property tax is levied in 170 municipalities, and in a majority of these (145) it applies to both urban and rural areas. The property tax rate may vary between 0.2 and 0.7%.

Municipal and county governments receive the natural resource tax, which is levied on power companies. The base for the tax is power production above a specified minimum level. The municipal governments receive 0.011 NOK per kWh and the county governments 0.002 NOK per kWh.

Table 7.2. **The composition of the local tax base**

Billion NOK and percentage of total tax revenue, 2010

	Municipalities		Counties	
	NOK billion	Percentage	NOK billion	Percentage
Income tax	107.7	87.7	22.3	99.1
Wealth tax	6.7	5.5		
Property tax	7.1	5.8		
Natural resource tax	1.3	1.1	0.2	0.9
Total	122.8	100.0	22.5	100.0

Note: The separation between income and wealth tax for the municipalities is based on own calculations.

Source: Statistics Norway and Ministry of Local Government and Regional Development.

Table 7.2 reports the revenue from the different tax bases in 2010. As in the other Nordic countries, income tax from individuals is the most important local tax. It amounts to 88% of municipal taxes and 99% of county taxes. Although other taxes constitute only a small share of aggregate local tax revenue, the property and natural resource tax are important revenue sources for the municipalities. The most prosperous municipalities are

small rural communities with waterfalls, where the property and natural resource tax from power companies make up substantial amounts per capita.

A key concept when classifying local taxes is tax autonomy or the freedom that sub-central governments have over their own taxes. According to Blöchliger and Rabesona (2009), the term tax autonomy encompasses sub-central government's right to introduce or abolish a tax, to set tax rates, to define the tax base or to grant tax allowances or reliefs to individuals and firms. It is obvious from the above discussion that the degree of tax autonomy varies sharply across the different local taxes in Norway.

The municipal property tax is the local tax with the highest degree of tax autonomy. The tax administration is local and as discussed above the municipalities can choose whether to tax property or not, the type of property to be taxed (certain facilities only or a more general property tax), and whether the tax should be restricted to urban areas or not. If the property tax is introduced, it is the responsibility of the municipality to assess property values and to set the tax rate (within an interval). The municipality can decide whether to have a basic deduction for residential property (to make the tax less regressive or more progressive) or not, as well as the size of the basic deduction. New residential property can be exempt from the property tax for a period of time, and this is also a municipal decision. However, the municipalities cannot give tax reliefs on an individual basis, for instance, to attract businesses or to reduce the tax burden for low income households.

At the other end of the scale we find the natural resource tax. For this tax both the base (hydroelectric power production) and the rate (NOK per kWh) is solely determined by the central government, and municipalities and counties have no influence at all. Nevertheless, it is obviously a local tax since the revenue for each local authority is calculated on the basis of power production within its borders. Since the tax is not shared with the central government, it is not a tax sharing arrangement. The split between municipalities and counties have been stable over time.

The income tax (municipalities and counties) and the wealth tax (municipalities) is somewhere in between the municipal property tax and the natural resource tax with respect to tax autonomy. The local income and wealth taxes are similar to the natural resource tax in the sense that they are parts of the national tax system. The tax bases are defined by national legislation and are calculated by a central government agency without any influence from local governments. On the other hand, the degree of tax autonomy is higher in income and wealth taxation since the local governments can set tax rates below the maximum rate. The discretion to set income and wealth tax rates is identical to the discretion in the municipal property tax. Nevertheless, tax autonomy is lower for income and wealth taxation since the centralised tax administration leaves no room for local influence over assessment, deductions, exemptions, etc.

It is uncontroversial to conclude that local income and wealth taxes fall somewhere between the municipal property tax and the natural resource tax. A more interesting issue is whether they come close to the property tax or close to the natural resource tax. The answer depends on whether one emphasises the formal rules or the working of the system.

The formal rules are easy to interpret. The annual decisions at the central level do only specify the maximum tax rates and there is nothing that prevents the local governments from setting lower rates. And since there is no lower limit, local governments even have the opportunity to abolish local taxation of income and/or wealth.

A formalistic approach therefore leads to the conclusion that the local governments have discretion to set their own tax rates on income and wealth and that these taxes come close to the municipal property tax in terms of tax autonomy. The main difference is that income and wealth taxes are administered centrally, while the property tax is administered locally.

The formalistic approach may be challenged by historical developments and the working of the system. After WW II the building of the welfare state was combined with local responsibility for welfare services like education and health care. A large variation in local income tax rates was considered to be in conflict with the aim of equalised provision of welfare services throughout the country, and as a consequence the difference between the upper and lower limits was gradually reduced. In addition local governments with tax rates below the maximum were "punished" by lower grants.[8] By 1970 only five local governments deviated from the maximum income tax rate, and in 1979 the last local government gave in. Since then there has not been a single deviation from the upper limit. The upper limit in the income tax was stable during the 1980s, but has since the early 1990s been adjusted nearly every year. The upper limit is an important tool for the central government to achieve a balanced growth in taxes and block grants. An unbalanced growth in taxes and block grants would have important distributional consequences since taxes as a share of total revenues vary substantially across local governments.[9]

The working of local income and wealth taxation during the last three decades resembles a tax sharing arrangement where the split is determined annually by the central government. This view is also underpinned by other observations. Local political discussions about taxation are limited to the property tax, while discussions about income and wealth tax rates are extremely rare (or do not take place at all). Moreover, the local councils do not need to vote on income and wealth tax rates. If they do not make a vote, the upper limit binds by default.

No matter how income and wealth taxes are classified, it is an interesting question why tax discretion is not used. Why do we not observe that even a single local government chooses a tax rate below the upper limit on income and wealth taxation? A popular explanation by some Norwegian observers is that the local public sector is "underfinanced", *i.e.* all local governments have a desired tax rate above the upper limit. The problem with this explanation is that it is hard to reconcile with the large variation in revenues, service provision and utilisation of other revenue sources (property tax and user charges). Another explanation is that the local governments fear that they will be "punished" by lower grants if they set income or wealth tax rates below the upper limit. This explanation is not water proof either since the grant system is to a large extent based on objective criteria, but it may be rescued by the fact that some grants are distributed on the basis of judgments or negotiations. In the longer term also the objective criteria and the rules of the grant system may be changed to the disadvantage of local governments with tax rates below the upper limit.

In OECD publications (*e.g.* Blöchliger and Rabesona 2009), local income and wealth taxes in Norway are classified as taxes with local tax discretion. This means that the OECD classification emphasises the formal rules.[10] I would rather emphasise the working of the system and classify local income and wealth taxes as tax sharing arrangements. An advantage of this classification is that the tax autonomy of Norwegian local governments will stand out as lower than in the neighbouring countries Denmark and Sweden. Although Sweden had a tax freeze in the early 1990s and Blom-Hansen (chapter 8) argues that local tax discretion in Denmark was *de facto* abolished since the municipal

reform of 2007, the (informal) restrictions on local tax discretion are a more permanent feature of the Norwegian system. On the other hand, I agree with OECD (Blöchliger and Petzold, 2009) that local income and wealth taxes in Norway should not be classified as intergovernmental grants. The main arguments are that the tax revenues are locally generated and that the development of the local tax base affects the total revenue of local governments (tax equalisation is partial).

Taxonomy of grants

In the Norwegian context three types of grants are usually distinguished:

- The general purpose grant scheme
- Earmarked grants within the ordinary budget
- Earmarked grants outside the ordinary budget

Earmarked grants outside the ordinary budget are grants related to refugees and labour market policies. These grants vary substantially from year to year and are not taken into account in the "official" calculations of revenue growth by central government ministries. In 2011, the general purpose grant scheme accounted for 73% of total grants, earmarked grants within the ordinary budget for 18% and earmarked grants outside the ordinary budget for 9%.

The general purpose grant scheme

The general purpose grant scheme introduced in 1986 has three main purposes:

- Equalise the economic opportunities across local governments;
- Promote regional policy goals; and
- Transfer resources to the local public sector.

Equalisation is achieved through tax equalisation and spending needs equalisation. The role of the tax equalisation scheme is to reduce the differences in per capita revenue due to differences in tax bases. The present tax equalisation scheme for the municipalities consists of a symmetric part with a compensation rate of 60%. This means that municipalities with tax revenues (per capita) below average are compensated for 60% of the difference and that 60% of tax revenues above the average is withdrawn by the state. In addition, there is an extra 35% compensation for municipalities with tax revenues below 90% of the average. As an example, a municipality with a tax base of 80% of the average first receives 60% of the difference between 80 and 100% from the symmetric part. In addition, this municipality receives 35% of the difference between 80 and 90%. It is also important to notice that tax equalisation only applies to the income tax, the wealth tax and the natural resource tax,[11] while the property tax is not taken into account. The tax equalisation scheme for the counties implies that counties with tax revenues below 120% of the average are compensated for 90% of the difference.

Spending needs equalisation is in place because equalisation of per capita revenues is insufficient to equalise difference in the cost of service provision. Local governments have different cost conditions due to differences in population size and settlement patterns. The age composition of the population affects the demand for important services

like child care, education and care for the elderly. And social criteria like the unemployment and divorce rate influence expenditure on social services like social assistance and child custody. The spending needs equalisation scheme hence compensates local governments with unfavourable cost conditions. Spending needs equalisation also covers so-called national welfare services. The spending needs equalisation for the municipalities include child care, primary and lower secondary education, primary health care, care for the elderly, child welfare, social assistance and administration. For the counties, upper secondary education, dental health and transport are included in the spending needs equalisation. Spending needs equalisation is arranged as a pure redistribution between municipalities and between counties. This means that transfers to local governments with needs (per capita) above average are financed by contributions from local governments with spending needs below average.

The equalising grants are largely self-financing and can be carried out without large net transfers from the central government to the local public sector. The spending needs equalisation and the symmetric part of the tax equalisation for the municipalities are completely self-financing. Only the tax equalisation for the counties and the extra tax equalisation for municipalities with a tax base below 90% of the average are financed by the central government. Actually, more than 90% of total block grants are distributed through the so-called per capita grant. The role of the per capita grant is to transfer resources to the local public sector (close the vertical fiscal gap) without distributional implications.

While tax and spending needs equalisation promotes equality of service provision, the regional policy grants create differences. The design of the regional policy grants has changed over time, but during the 1990s they were separated out as specific grants and their regional policy purpose was clarified. The justification of the grants is that rural and northern local governments should be able to provide better services than the rest in order to promote employment and population growth. The regional policy grants are not in any way earmarked for narrowly defined regional development purposes and can, for instance, be spent on welfare services. The grants are now called Grant for Small Municipalities (for municipalities with less than 3 200 inhabitants), Regional Grant Southern Norway (for rural municipalities in Southern Norway with populations below 3 200) and the Northern Norway Grant (for municipal and county governments in the northern part of the country). A requirement for receiving the Grant for Small Municipalities and the Regional Grant Southern Norway is that per capita tax revenue has been below 120% of the average for the last three years. The Northern Norway Grant is paid out as a flat amount per capita (mainly differentiated by county), the Grant for Small Municipalities as a fixed amount per municipality (differentiated by regional policy zone) and the Regional Grant Southern Norway as a mix of a flat amount per capita and a fixed amount per municipality (both differentiated by regional policy zone).

The regional policy grants are major sources of differences in fiscal capacity and service provision. It is not obvious that providing grants to municipalities and counties is the most efficient way of stimulating economic development in rural areas. Other means like direct support or tax reductions for businesses or individuals could be more efficient.[12] And if so, one could achieve a better regional policy and less variation in fiscal capacity by reducing the role of regional grants to local governments. Unfortunately, there is limited knowledge about the effectiveness of regional policy grants, but a study by Berg and Rattsø (2009) indicates the effect on population size is modest.

In addition to the grants described above, general purpose grants consist of a specific grant for fast growing municipalities, a grant to limit reductions in a total block grant from year to year, a merger grant to stimulate consolidation of municipalities and a judgment grant. The judgment grant takes account of specific local conditions not captured by the objective criteria, and also fiscal distress.

Do the grants in the general purpose grant scheme comply with the definition of general purpose grants as defined by the OECD? In OECD (2002, p. 15) a general purpose grant is defined as a grant that is distributed according to objective criteria (and possibly also own tax effort) and that can be used as if it was the receiving sub-national government's own tax revenue. It is clear from the above discussion that all grants in the Norwegian general purpose grant scheme can be used as if they were local tax revenue. With the exception for the judgment grant, they are all distributed according to objective criteria.

Bergvall *et al*. (2006, p. 118) make a distinction between general purpose grants and block grants, which both are classified as non-earmarked grants. A block grant is given for a specific purpose, but since it is not earmarked the use of the grant is not subject to control. The example they provide is a grant to cover all or part of the cost for certain services and where the distribution is based on objective criteria capturing normative costs or spending needs. The purpose is often to improve efficiency since a local government that is able to provide the service at lower than normative costs is not "punished" by lower grants. Before 1994, the spending needs equalisation consisted of grants related to each major service sector (education, health care, etc). These grants were probably better characterised as block grants than general purpose grants. Since 1994, expenditure needs equalisation is handled through single grants that are best characterised as general purpose grants.[13]

Earmarked grants

All grants that are not included in the general purpose grant scheme are labelled earmarked grants. They are conditional in the sense that they must be spent on a specific spending program or a specific purpose and are granted by the corresponding central government ministry. Guidelines for the use of earmarking (Lilleschulstad, 2010) state that earmarking could be used to promote new services or expansion of existing services, for services that are provided only by a few local governments, or to compensate for spending needs that are difficult to capture through objective criteria.

There are a large number of earmarked grants (50-60) and with large variations in design. The menu includes matching grants that affect relative prices, grants distributed on the basis of objective criteria, as well as application procedures with central government discretion. Rather than going into the details of each and every earmarked grant, I will focus on a few grants to illustrate cases where the effect of the earmarking can be questioned.

The first example is an earmarked grant that provides compensation for interest expenses related to investment in school buildings.[14] The point of departure for the grant is an investment frame for each local government determined by the number of pupils, *i.e.* the number of inhabitants 6-15 years for the municipalities (primary and lower secondary education) and the number of inhabitants 16-18 years for the counties (upper secondary education). The investment frame applies for investments during the 8-year period 2009-16. The maximum grant for each local government is the interest expenses related to a loan corresponding to the investment frame. This is an example of a

closed-ended matching grant that will work as a non-earmarked grant if the investment frame is lower than the investment that would have been undertaken anyway. The aggregate investment frame is NOK 15 billion (EUR 1.9 billion). As a comparison, the capital Oslo (comprising 12% of the population), spent NOK 9 billion on investment in school buildings during the 9-year period 1997-2005. The earmarked compensation for interest expenses is therefore unlikely to affect local government priorities compared to a situation where the same amount was given as a non-earmarked grant.

Another example is a grant to county governments for regional development. The grant is distributed partly on the basis of objective criteria and partly by discretion. There are not very detailed guidelines on how to spend the grant and the counties are mainly evaluated according to results. The grant amounts to less than 50% of county spending on regional development and is therefore unlikely to affect priorities.

The grants for interest compensation and regional development are examples of grants that constitute a "grey zone" between earmarked and non-earmarked grants. They are earmarked in the sense that they must be spent on a specific service or for a specific purpose, but they more or less work as non-earmarked grants (general purpose grants or block grants). However, it is reasonable and also in line with OECD definitions (OECD, 2002, Bergvall *et al*., 2006) to classify them as earmarked.[15] They do not comply with the definition of general purpose grants (cannot be used as if they were tax revenue) or block grants (will be reduced if spending becomes sufficiently low). The distinction between matching and non-matching earmarked grants can be understood as an attempt to separate between earmarked grants that affect local priorities and earmarked grants that do not. However, the correspondence will not be perfect. I guess the grant for interest compensation is classified as a matching grant, while the grant for regional development is classified as a non-matching grant. In general there are two sources that contribute to the imperfect correspondence: *i)* closed-ended matching grants that do not affect local priorities will be classified as matching, *ii)* and grants of the non-matching type may affect local priorities if they are in relation to the service or activity they are earmarked for.[16]

A general VAT compensation for local governments was introduced in 2004. The background was the introduction of VAT on services in 2001, which for local governments drove a wedge between the costs of producing services in-house and the costs of purchasing the same services from private providers. Only purchases from private providers were subject to VAT, and the purpose of the VAT compensation scheme was to restore neutrality. The classification of VAT compensation as an earmarked grant can be questioned since the purpose of the grant is not to stimulate the provision of a particular local government service. In that sense it is similar to a non-earmarked grant. The main difference is that the VAT compensation will be related to the local government's total spending. The higher the spending, the higher the VAT compensation will tend to be. A type of grant with a similar feature is a tax equalisation grant related to own tax effort where a higher tax rate will increase the amount received by the local government. This type of grant is classified by Bergvall *et al.* (2006) as a general purpose grant. In my view, a general VAT compensation scheme could also be classified as a general purpose grant using the same reasoning.

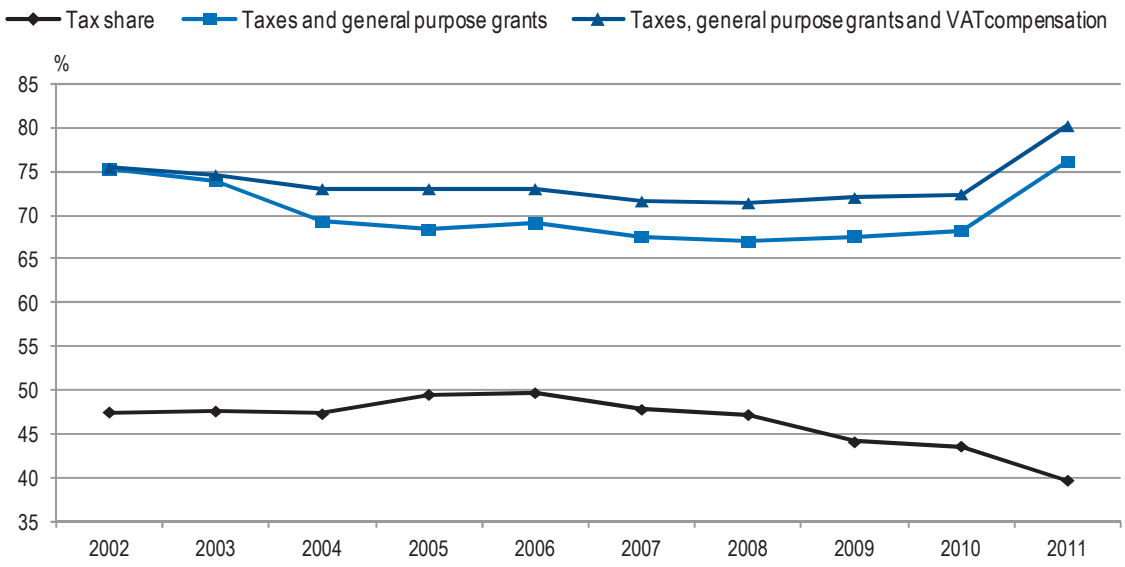
Indicators of revenue decentralisation and local autonomy

Some key indicators of revenue decentralisation and local autonomy are displayed in Figure 7.3. Revenue decentralisation is measured by the share of taxes in local

government revenue, and includes local taxes on income, wealth, immovable property and power production as described in section 3. It appears that the tax share was stable around 47% until 2006. Since then it has been steadily reduced, and is estimated to be around 40% in 2011. It has been a stated policy of the red-green government that came into office in 2005 to reduce the tax share. The main argument has been to reduce the variation in revenues across local governments.

Figure 7.3. **Local tax revenues, general purpose grants and VAT compensation**

Per cent of total revenues (ordinary budget), 2010-11



Source: National Accounts, Statistics Norway and Committee for Assessment of Local Government Economy.

Subject to legal regulations, both taxes and general purpose grants can freely be allocated across services. In the Norwegian context, the share of taxes and general purpose grants in total revenue is an important indicator of local discretion in the use of revenues. Until 2008 it was a downward trend in the share of taxes and general purpose grants. This development was mainly driven by the child care reform, of which increased capacity to achieve full coverage and lower user charges were financed by earmarked grants. Starting in 2011, child care will be included in the general purpose grant scheme, and consequently the share of taxes and general purpose grants in total revenue will increase sharply.

Figure 7.3 also reports an alternative indicator of discretion in use of revenues (used by the Committee for the Assessment of Local Government Economy) that includes VAT compensation in addition to taxes and general purpose grants. It appears that the handling of VAT compensation is of great importance. First, the reduction in discretion over revenues from 2003 to 2004 as indicated by the share of taxes and general purpose grants mainly reflects the introduction of VAT compensation. At the introduction the revenue increase associated with VAT compensation was neutralised by a reduction in the general purpose grant. This pops up as reduced local discretion in the use of revenues when VAT compensation is classified as an earmarked grant. Second, how is local discretion in use of revenues in 2011 compared to 2002? The discretion is about the same if VAT

compensation is classified as an earmarked grant, but has increased substantially if VAT compensation is classified as a general purpose grant.

Incentive effects: The interplay between taxes and grants

Revenue decentralisation through a high tax share is considered to be an important element of fiscal federalism that underscores the autonomy and accountability of local governments. Moreover, tax financing creates a link between the local economy and local government revenues that provides incentives for local development policy. Everything else equal, the link and thereby the incentives are stronger the higher the share of taxes in local revenues. The point I want to make in the following is that the tax share may not be a precise indicator of the incentive effects, and that additional indicators may be useful if one, for instance, wants to study the impact of decentralisation on economic growth. The development of more precise indicators requires more detailed information on the design of the tax equalisation schemes.

Consider a stylised case where local governments receive revenue from a single tax base:

$$TR^j = t^j TB^j \tag{1}$$

In equation (1) TB^j is the per capita tax base for local government j, t^j its tax rate, and TR^j per capita tax revenues. A tax equalisation scheme is in place to reduce fiscal disparities. For simplicity, symmetric tax equalisation related to own tax effort is assumed:

$$TE^j = a(t^j TB - t^j TB^j) \quad 0 \le a \le 1 \tag{2}$$

In equation (2) TB is the national tax base per capita, a is the rate of compensation, and TE^j the tax equalisation grant received by local government j. It is sum of taxes and tax equalisation that is of relevance for the local government:

$$TR^j + TE^j = t^j[(1-a)TB^j + aTB] \tag{3}$$

The incentive effect can be measured as the relationship between revenues and tax base:

$$\frac{\partial(TR^j + TE^j)}{\partial TB^j} = t^j(1-a) \tag{4}$$

It is evident that the incentive effect depends on both the tax rate and the rate of compensation in the tax equalisation scheme. The incentive effect is stronger the higher the tax rate and the lower the rate of compensation. An immediate implication of this result is that systems with very different degree of revenue decentralisation may have similar incentive effects. A country with a low tax share[17] and a low rate of compensation can have the same incentive effect as a country with a high tax rate and a high rate of compensation. Sweden is an example of the latter. It is one of the OECD countries with the highest share of taxes in local government revenue, but because of a very ambitious tax equalisation scheme the incentive effect as captured by equation (4) is rather low.

Blöchliger and Vammalle (2010) investigate the relationship between taxes and tax equalisation in 12 OECD countries. Their results indicate that tax equalisation transfers (as share of GDP) are positively correlated with the share of total taxes received by sub-national governments. This finding may indicate that countries with substantial tax

financing also have more ambitious tax equalisation and the variation in tax shares overstates the variation in incentive effects.

Conclusions

The chapter has discussed the Norwegian taxonomy of taxes and grants and how it compares with that of the OECD. A main issue is whether the major local tax, the personal income tax, should be classified as a tax with local discretion or a tax sharing arrangement. Although local governments formally can set tax rates below the upper limit, the system resembles a tax sharing arrangement. During the last three decades not a single local government has deviated from the upper limit, there is no local discussion on the income tax rate, and the central government uses the local tax rates as important distributional tools. It would give a more correct picture of the Norwegian system if the local income tax (and also the minor wealth tax) was reclassified as a tax sharing arrangement by the OECD.

The taxonomy of grants is less problematic. The general purpose grants scheme can safely be classified as general purpose grants and most earmarked grants are earmarked in the sense that they must be used for specific purposes or activities. Some earmarked grants constitute a grey zone as they may resemble non-earmarked grants, and this grey zone is not necessarily captured by the distinction between matching and non-matching earmarked grants. A VAT compensation scheme was introduced in 2004 to restore neutrality between in-house production of services and purchases from private providers. Although the purpose is not to stimulate the provision of a particular service, the VAT compensation is classified as an earmarked grant in the Norwegian taxonomy. It is argued that it should rather be considered as a non-earmarked grant similar to tax equalisation grants related to own tax effort. The classification of the VAT compensation is of great importance for the assessment of the development of discretion in the use of revenues during the last decade.

Finally, the chapter looks at the interplay between tax financing and grants and the incentives for local governments to develop the local tax base. It is argued that a more precise indicator, that also takes account of the rate of compensation in the tax equalisation scheme, may be useful in studies of the impact of decentralisation on, for instance, economic growth.

Notes

1. The descriptive parts of these sections are largely based on Borge (2010a).
2. The capital Oslo is both a municipality and a county.
3. In the tax system there is a second income tax base, personal income, which is a gross income tax base comprising labour income, income from self-employment and fringe benefits. The tax on personal income is highly progressive and is received by the central government.

4. In the most northern part of Norway the central government tax rate is 10.55% and the total tax on general income is 24.5%.

5. Since 2004, there is no minimum tax rate.

6. The law does not provide a definition of certain facilities, but in practice they are defined as larger works used for production of goods or maintenance. Property tax can be levied on certain facilities without taxing property in urban areas.

7. An empirical investigation of the extension of the property tax can be found in Carlsen (2010).

8. The grant system included a large number of matching grants where the matching rates were differentiated between local governments. The differentiation was partly based on judgment and the matching rates were reduced for local governments with low tax rates.

9. See Borge and Rattsø (1998, pp. 34-35) for a more detailed discussion on the need for balanced growth in taxes and block grants.

10. Moreover, Blöchliger and Rabesona (2009, p. 5) seem to classify the Norwegian income and wealth taxes as taxes with full local discretion over tax rates. Since there are upper limits, tax discretion is restricted even when the classification is based on formal rules.

11. For these taxes all municipalities use the same rate (see section 3) so there is no need to distinguish between tax revenues and the tax base.

12. Notice that the regional policy grants are general purpose grants that are not earmarked for economic development. The grants are supposed to promote economic development by improving local public services.

13. Expenditure needs equalisation is still based on analyses of and criteria for specific service sectors. It is not clear to me whether Bergvall *et al.* (2006) would still classify it as a block grant. But if so, it is hard to think of any spending needs equalisation grant that could be classified as a general purpose grant.

14. A similar grant is also in place for churches.

15. OECD (2002) use the term specific.

16. In Borge (2010b) I labelled such grants narrow categorical block grants.

17. For given responsibilities a low tax rate will be associated with a low tax share.

References

Berg, E. and J. Rattsø (2009), "Do Grants to State and Local Governments Stimulate Economic Development?", mimeo, Department of Economics, Norwegian University of Science and Technology.

Bergvall, D., C. Charbit, D.-J. Kraan and O. Merk (2006), "Intergovernmental Transfers and Decentralized Public Spending", *OECD Journal on Budgeting,* 5, OECD Publishing, *10.1787/budget-v5-art24-en*.

Blöchliger, H. and C. Vammalle (2010), "Intergovernmental Grants in OECD Countries: Trends and Some Policy Issues", in J. Kim, J. Lotz and N.J. Mau (eds.), *General Grants versus Earmarked Grants: Theory and Practice*, Korea Institute of Public Finance and the Danish Ministry of Interior and Health.

Blöchliger, H. and J. Rabesona (2009), "The Fiscal Autonomy of Sub-central Governments: An Update", *OECD Working Papers on Fiscal Federalism*, No. 9, OECD Publishing, *10.1787/5k97b111wb0t-en*.

Blöchliger, H. and O. Petzold (2009), "Finding the Dividing Line between Tax Sharing and Grants: A Statistical Investigation", *OECD Working Papers on Fiscal Federalism*, No. 10, OECD Publishing, *10.1787/5k97b10vvbnw-en*.

Borge, L.-E. (2010a), "Local Government in Norway", in A. Moisio (ed.), *Local Public Sector in Transition: A Nordic Perspective*, Publications 56, Government Institute for Economic Research (VATT).

Borge, L.-E. (2010b), "Growth and Design of Earmarked Grants: The Norwegian Experience", in J. Kim, J. Lotz and N.J. Mau (eds.), *General Grants versus Earmarked Grants: Theory and Practice*, Korea Institute of Public Finance and the Danish Ministry of Interior and Health.

Borge, L.-E. and J. Rattsø (1998), "Reforming a Centralized System of Local Public Finance: Norway", in J. Rattsø (ed.), *Fiscal Federalism and State-Local Finance: The Scandinavian Perspective*, Edward Elgar.

Carlsen, F. (2010), "Political and Economic Determinants of Property Taxation of Vacation Homes", mimeo, Department of Economics, Norwegian University of Science and Technology.

Lilleschulstad, G. (2010), "Financing Municipalities and Counties in Norway – Specific Grants vs. Block Grants", in J. Kim, J. Lotz and N.J. Mau (eds.), *General Grants versus Earmarked Grants: Theory and Practice*, Korea Institute of Public Finance and the Danish Ministry of Interior and Health.

OECD (2002), "Fiscal Design Surveys across Levels of Government", *OECD Tax Policy Studies*, No. 7, OECD Publishing, *10.1787/9789264195530-en*.

Chapter 8

Measuring decentralisation: The challenge of the Danish story

Jens Blom-Hansen

The OECD has done path breaking work in developing indicators of local autonomy. The work begun in the late 1990s on a taxonomy of local taxing power seems especially promising. In contrast to measures of local shares of total expenditure and revenue it focuses on the discretion enjoyed by local authorities. This is at the heart of the theoretical concepts of local autonomy, authority or decentralisation. It is therefore recommendable to continue the OECD work on establishing a cross-national dataset on local taxing power. But there is still work ahead before this particular indicator is completely satisfactory. The Danish experience shows how difficult it is to make a correct coding of individual countries. It is not enough to focus on official rules in national tax codes. At least in Denmark, these rules are nested in informal institutions and supplemented by other formal rules that make the formal tax codes grossly misleading.

Introduction

The concept of decentralisation, or local autonomy, is notoriously difficult to measure. The OECD has played – and is playing – a leading role in developing empirical indicators that can be used for comparisons across countries and over time. While this is laudable it is evident that there is still some way to go before we have a set of valid indicators. In recognition of the complex nature of local autonomy the OECD has focused on developing a set of empirical indicators, rather than on just one or a few indicators. As readily acknowledged by the OECD this includes indicators that "poorly measure the true degree of autonomy that SCG (sub-central governments) enjoy in practice" (Blöchliger and King, 2007).

In the following I will question the OECD's approach and argue that more efforts should be devoted to developing and refining valid indicators, especially the taxing power indicator. I will use the example of Denmark to illustrate the shortcomings of a range of the OECD indicators of local autonomy, and I will use the findings of the recent project on indicators of regional authority by Marks, Hooghe and Schakel (2008) to demonstrate the validity, and hence potential, of using taxing power as an indicator of local fiscal autonomy.

Denmark: The OECD story

Denmark is a unitary country divided into three tiers: central, regional and local government. The provision of most welfare services is left to regional and local governments, and local governments levy income taxes that finance about half their expenditure (Blom-Hansen and Heeager, 2011). These facts mean that Denmark scores high on most OECD indicators of local autonomy. Table 8.1 shows the situation according to a recent update of the OECD indicators.

Table 8.1. **Denmark's score on selected OECD indicators of local fiscal autonomy**

2005

	Denmark's score in %
Sub-central tax revenue as % of GDP	17 (OECD maximum)
Sub-central tax revenue as % of total tax revenue	36 (OECD top-3)
% of sub-central tax revenue classified as "Full discretion on rates"	86 (OECD top-5)

Source: Blöchliger, H. and J. Rabesona (2009), "The Fiscal Autonomy of Sub-Central Governments: An Update", *OECD Fiscal Network Working Papers*, No. 9, OECD Publishing, *10.1787/5k97b111wb0t-en*.

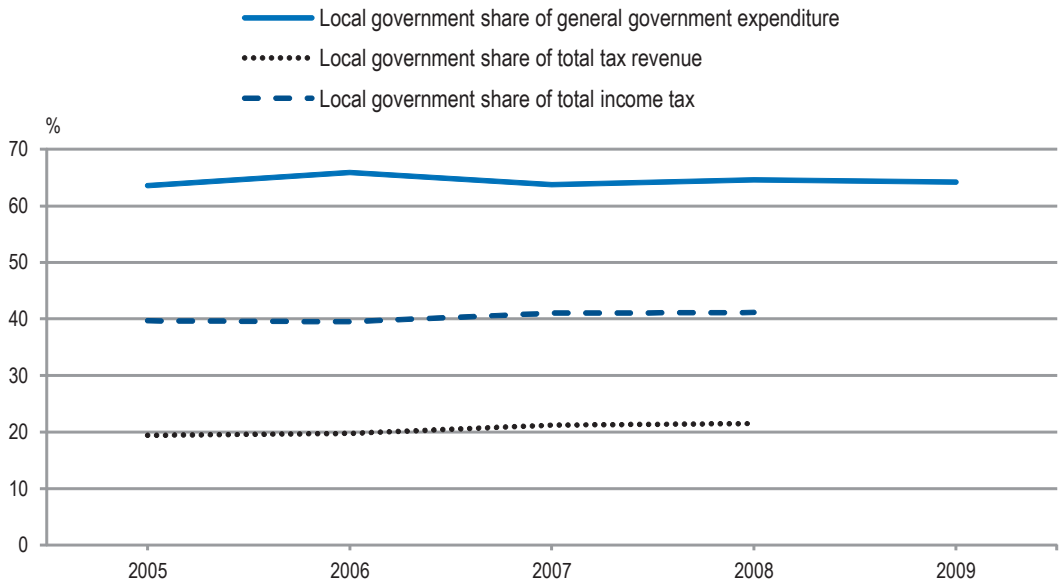
Denmark is not only a top scorer in a snapshot perspective. As Figure 8.1 shows, Denmark's scores have been stable since 2005.

Denmark: The true story

In 2007, midway through the apparently stable period depicted in Figure 8.1, Danish local and regional governments changed radically when a comprehensive local government reform was implemented. It consisted of three main elements: 1) the number

of local governments was reduced from 271 to 98, increasing the average size of local authorities from 20 100 to 55 600 citizens; 2) 14 regional governments were merged into five new administrative units, so-called regions, without taxation rights; 3) local governments took over new functions from the regional tier: specialised social services, health care prevention, maintenance of regional roads and environmental tasks. The new regions were stripped of most of their old functions and are almost exclusively responsible for health care (Blom-Hansen *et al.*, 2006).

Figure 8.1. **Denmark's score on OECD indicators of local fiscal autonomy**



Source: OECD (2010), National Accounts Database.

In the wake of the reform, the central government began to tighten its control of local expenditure and taxation. This was not a completely new initiative. For macroeconomic reasons, local economic dispositions in Denmark have for the past 30-40 years been controlled in a system of annual negotiations between the central government and the associations of local governments (*Local Government Denmark*) and regional governments (*Amtsrådsforeningen* before 2007; *Danske Regioner* after 2007). This system is known as the budgetary cooperation between central, local and regional government.

These negotiations normally end with an agreement on overall limits to local taxation and expenditure levels. The agreement traditionally covers all local authorities and thus leaves room for individual adjustments as long as the general limit is respected. The system enables the central government to use the local and regional government sector for macroeconomic control purposes. A recent example is the agreement for 2012 which was completed in June 2011 (Regeringen and KL, 2011), in which the central government explicitly states that local government expenditure must be controlled in order to contribute to the goal of reducing public expenditure in the wake of the financial crisis.

Although often hailed as a unique squaring of the circle – that is, a way of solving the dilemma of central control and local self-government – the Danish system of annual negotiations is not always as effective as the central government might wish. The reason is that the system is plagued by a collective action problem. The annual agreement is an

informal, negotiated outcome made by the local authorities' association, *Local Government Denmark*. The association cannot make a legally binding agreement on behalf of its members, so in reality the annual agreement is a declaration of intent. It is general and covers all local authorities. If an individual local authority does not want to follow the guidelines it can ignore them and refer to the collective character of the agreement. In other words, the collective and private interests of the local authorities may not coincide. There is a more or less implicit threat of central intervention if the agreement is not kept, but its credibility depends on the government's parliamentary situation.

In 2004-07, when the local government reform was planned, the traditional negotiation system was supplemented with tight central government controls. They were introduced to prevent the old municipalities from "spending before closing time" (Blom-Hansen, 2010). In 2004, central regulation of local capital spending was introduced, which meant that spending that exceeded the 2004 budget had to be submitted to the Ministry of Interior for approval. Since the 2004 budget was made in the autumn of 2003, all capital projects planned after the amalgamations were known had to be approved by the central authorities. In 2005 restrictions were tightened; the approval system for capital spending was continued, but a compulsory saving scheme was introduced. All local liquid assets above a certain amount (so-called "surplus liquidity") had to be deposited in special bank accounts until 2007. This was the first restriction on local current expenditure.

In 2006 restrictions were tightened again. This was a transitional year between the old and the new local government structure; the new local units were established, but the old ones were not yet closed down. The recently elected new local councils in the amalgamated local authorities functioned as local amalgamation committees in charge of preparing the amalgamations, and the old local authorities carried on for one final year as caretaker governments. The central government trusted the amalgamation committees with the approval of capital spending. These committees were also to approve all supplementary appropriations – current and capital – in the old local authorities. In addition to empowering the local amalgamation committees, the central government strengthened its own regulation. Compulsory saving of local "surplus liquidity" was continued in 2006. Furthermore, a tax freeze was introduced so local income and property taxes could not be raised above their 2005 level. Finally, the central government introduced fees on all local supplementary appropriations in 2006.

The tight controls in the reform years 2004-07 were widely accepted, but on the implicit condition that control should be eased once the reform was in place. In 2007, the government lived up to this expectation; it abolished the control instruments and negotiated a traditional economic agreement with the local authorities' national association, *Local Government Denmark*, for 2008. Macroeconomic control was to be conducted just as before the reform – that is, by negotiations and agreements. However, the local authorities broke the agreement. The agreement was made in the summer of 2007, but when the individual local authorities enacted their budgets three months later in October, both expenditure and taxation exceeded the agreed guidelines dramatically.

The government's immediate reaction was to accept the situation, probably because national elections were held at the same time, and intervening in local budgets meant taking responsibility for unpopular cuts in local welfare. But after the elections the government introduced two new control instruments that were enacted by the Parliament with the help of the Danish People's Party.

The first instrument was directed at local expenditure. Part of the central government's general grant (the so-called block grant) was made contingent on local governments budgeting within the limits specified by the agreement between their association and the central government. The contingent nature of the general grant was later extended to local budgets being kept – that is, budget overruns were also punished. If local budgets are not kept at the collective level, 40% of the cut in the general grant is collective and hits all local authorities, while 60% of the cut is individual – that is, directed against the local authorities who have not kept their budget.

The second instrument was directed at local taxation. According to the Danish municipal income tax act local authorities are free to set the local income tax rate. This is the reason the OECD classifies Danish local governments as having high fiscal autonomy. But, as we saw above, this taxation right has for many years been curtailed by the system of annual negotiations and agreements between the central government and the association of local authorities. Now the central government went further. It introduced sanctions for local tax increases. The sanctions had both a collective and an individual element. The individual element was later strengthened so that today 75% of the revenue generated by the tax increase is neutralised by a reduction of a local authority's grant from the central government. The remaining 25% is made as a collective reduction of the general grant. The individual sanction is gradually phased out (Table 8.2). The central government argues that this allows individual local governments to make long-term structural adjustments.

In sum, the taxation rights of Danish local governments are today effectively controlled by the central government and only marginal adjustments are possible. The regulatory system is quite complex. The municipal income tax act, which specifies full local autonomy to decide tax rates, has been left untouched. However, for many years this autonomy has been curtailed by the informal negotiation system between the central government and the association of local authorities. Today, new formal rules – which are separate acts rather than amendments to the municipal income tax act – dictate sanctions against local tax increases. The combined effect of these regulatory measures comes very close to an abolishment of local taxation rights. The complex regulation of local taxation is summed up in Table 8.2.

Table 8.2. **Central government regulation of personal income taxation by Danish local government**

The Municipal Income Tax Act	Informal system of annual negotiations between the central government and the association of local authorities	Act on reduction of central government grants in the case of local tax increases		
Specifies full local autonomy: "§ 6. Municipal income tax is paid at a rate set by the municipal council"	Specifies informal general limits to local taxation	Introduces a combination of individual and collective sanctions against local tax increases		
			Individual sanction (%)	Collective sanction (%)
		Year 1	75	25
		Year 2	50	50
		Year 3	25	75
		Year 4	25	75
		Year 5	0	100

Source: Act 725/2006; Act 709/2010.

Why did the OECD miss the Danish story?

The near abolishment of Danish local governments' independent taxation rights took place in the middle of the period described in Figure 8.1, but according to the OECD indicators this was a stable period in Denmark characterised by a high level of local fiscal autonomy. How can the OECD indicators be so misleading? First, some OECD indicators are theoretically flawed as they measure local fiscal autonomy by sub-central government shares of total tax revenue and expenditure. These indicators can be grossly misleading since they say nothing about the discretion enjoyed by sub-central government to set revenue and expenditure levels. Second, some OECD indicators are theoretically valid, but too crudely measured to be reliable. Especially the OECD's indicator of local taxing power introduced in the late 1990s – the so-called taxonomy of taxing power – is promising. It consists of five main categories of autonomy. Category A represents full power over tax rates and bases, category B power over tax rates, category C power over the tax base, category D tax sharing arrangements and category E no power over rates and bases at all (see Blöchliger and King, 2007).

This taxonomy of taxing power is theoretically valid, but difficult to measure in practice. As the Danish case shows, the effective central regulation of local taxation rights can be quite complex. The OECD classifies 86% of Danish local taxation as falling into category B, *i.e.,* full power over tax rates. The reason for this classification is the local taxation right specified in § 6 of the Danish municipal income tax act (Table 8.2). But as argued above, this right is effectively neutralised by other regulatory initiatives, also summarised in Table 8.2.

That being said, however, a valid measure of local taxing power holds considerable promise, since taxing power is intimately connected to local autonomy in general. This is one of the insights from a recent project on measuring regional authority.

An indication of the potential of the OECD taxing power indicator: Findings from a recent project

The concept of decentralisation, local autonomy or local authority is notoriously difficult to operationalise in comparative empirical research. However, in a recent project Marks, Hooghe and Schakel (2008) have gone considerably further than previous research in developing a valid indicator. Focusing on intermediate or regional governments in 42 democracies over the period 1950-2006 they develop eight indicators of regional authority (Table 8.3), which are subsequently combined into an index of regional authority. This measure is one of the most encompassing indicators of regional authority in the literature so far.

One of the eight indicators in the Marks/Hooghe/Schakel index is the regional government's fiscal autonomy (Table 8.3). This indicator is directly modelled on the OECD taxonomy of taxing power discussed above (Hooghe *et al.*, 2008a, pp. 128-129).

The interesting point is that this indicator is closely correlated with the full index of regional authority. Figure 8.2 shows a scatter plot of the 42 countries' scores on the full index of regional authority (X-axis) and the fiscal autonomy indicator (Y-axis).[1]

The close correlation between the fiscal autonomy indicator (modelled on the OECD taxonomy of taxing power) and the theoretically valid index of local authority suggests the promise of the OECD taxing power index. This seems to be an indicator that captures

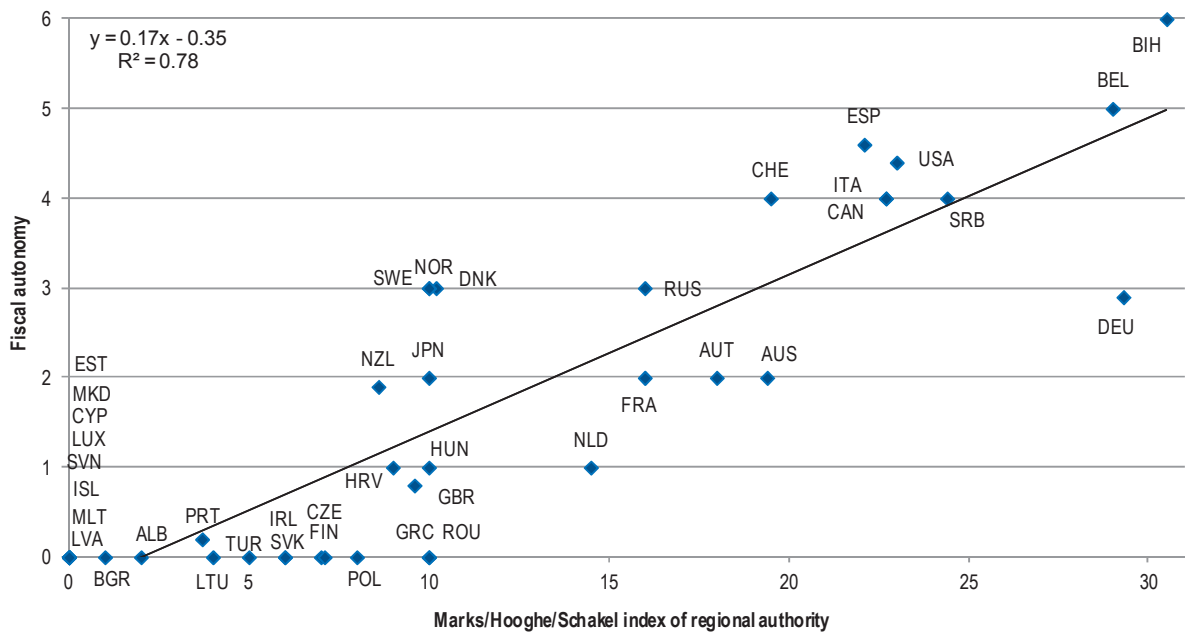
essential elements of local autonomy, and I strongly recommend further refinement of this particular OECD measure of local autonomy.

Table 8.3. **Indicators in the Marks/Hooghe/Schakel index of regional authority**

Indicators of self-rule	Explanation
Institutional depth	The extent to which a regional government is autonomous rather than deconcentrated
Policy scope	The range of policies for which a regional government is responsible
Fiscal autonomy	The extent to which a regional government can independently tax its population
Representation	The extent to which a regional government is endowed with an independent legislature and executive
Indicators of shared rule	
Law making	The extent to which regional representatives co-determine national legislation
Executive control	The extent to which a regional government co-determines national policy in intergovernmental meetings
Fiscal control	The extent to which regional representatives co-determine the distribution of national tax revenues
Constitutional reform	The extent to which regional representatives co-determine constitutional change

Source: Marks, G., L. Hooghe and A.H. Schakel (2008), "Measuring Regional Authority", Regional and Federal Studies (special issue on "Regional Authority in 42 countries, 1950-2006: A Measure and Five Hypotheses"), 18, pp. 111-121.

Figure 8.2. **A scatterplot of the Marks/Hooghe/Schakel index of regional authority and the fiscal autonomy indicator**



Source: Hooghe, L., A.H. Schakel and G. Marks (2008b), "Appendix B: Country and Regional Scores", *Regional and Federal Studies* (special issue on "Regional Authority in 42 Countries, 1950-2006: A Measure and Five Hypotheses"), 18, pp. 259-274.

Conclusions

The OECD has done path breaking work in developing empirical indicators of local autonomy. The work begun in the late 1990s on a taxonomy of local taxing power seems especially promising. In contrast to measures of local shares of total expenditure and revenue it focuses on the discretion enjoyed by local authorities. This is at the heart of the theoretical concepts of local autonomy, authority or decentralisation. In this sense taxing power is a theoretically valid indicator and based on the findings of Marks *et al.* (2008) on measures of regional authority it also seems to be an empirically valid indicator. In practice it functions as a proxy for essential elements of autonomy.

Against this background it seems recommendable to continue the OECD work on establishing a cross-national dataset on local taxing power. But there is still work to be done before this particular indicator is completely satisfactory. The Danish experience shows how difficult it is to make a correct coding of individual countries. It is not enough to focus on official rules in national tax codes. At least in Denmark, these rules are nested in informal institutions and supplemented by other formal rules that make the formal tax codes grossly misleading as indicators of local taxing power.

Note

1. Making this scatterplot is possible because all country scores on the eight indicators in the Marks/Hooghe/Schakel index as well as the full index are published in Hooghe *et al*. (2008b).

References

Act 725 (2006), *Lovbekendtgørelse nr. 725 af 26, juni 2006 af lov om kommunal indkomstskat* (Municipal Income Tax Act).

Act 709 (2010), *Lov nr. 709 af 25. juni 2010 om ændring af lov om nedsættelse af statstilskuddet til kommuner ved forhøjelser af den kommunale skatteudskrivning*, (Act on reduction of the central government grant in the case of an increase in local taxation).

Blöchliger, H. and D. King (2007), "Fiscal Autonomy of Sub-Central Governments", *OECD Working Papers on Fiscal Federalism*, 2006/2, OECD Publishing, *10.1787/5k97b127pc0t-en*.

Blöchliger, H. and J. Rabesona (2009), "The Fiscal Autonomy of Sub-Central Governments: An Update", *OECD Working Papers on Fiscal Federalism*, No. 9, OECD Publishing, *10.1787/5k97b111wb0t-en*.

Blom-Hansen, J. (2010), "Municipal Amalgamations and Common Pool Problems: The Danish Local Government Reform in 2007", *Scandinavian Political Studies* 33, pp. 51-73.

Blom-Hansen, J. and A. Heeager (2011), "Denmark: Between Local Democracy and Implementing Agency of the Welfare State", in J. Loughlin, F. Hendriks and A. Lidström (eds.), *The Oxford Handbook of Local and Regional Democracy in Europe*, pp. 221-241, Oxford University Press, Oxford.

Blom-Hansen, J., J. Elklit and S. Serritzlew (2006), "Den store kommunalreform og dens konsekvenser", in J. Blom-Hansen, J. Elklit and S. Serritzlew (eds.), *Kommunalreformens konsekvenser* (The Effects of the Municipal Reform), Academica, Aarhus, pp. 11-37.

Hooghe, L., G. Marks and A.H. Schakel (2008a), "Operationalizing Regional Authority: A Coding Scheme for 42 Countries, 1950-2006", *Regional and Federal Studies* (special issue on "Regional Authority in 42 Countries, 1950-2006: A Measure and Five Hypotheses"), 18, pp. 123-142.

Hooghe, L., A.H. Schakel and G. Marks (2008b), "Appendix B: Country and Regional Scores", *Regional and Federal Studies* (special issue on "Regional Authority in 42 Countries, 1950-2006: A Measure and Five Hypotheses"), 18, pp. 259-274.

Marks, G., L. Hooghe and A.H. Schakel (2008), "Measuring Regional Authority", Regional and Federal Studies (special issue on "Regional Authority in 42 countries, 1950-2006: A Measure and Five Hypotheses"), 18, pp. 111-121.

OECD (2010), *Revenue Statistics 2010*, OECD Publishing, *10.1787/rev_stats-2010-en-fr*.

Regeringen og KL (2011), *Aftale om kommunernes økonomi for 2012* (Agreement on the Economy of Local Governments in 2012).

Chapter 9

From transfers to tax "co-occupation": The Italian reform of intergovernmental finance

Ernesto Longobardi

This chapter provides insights into the current reform of intergovernmental fiscal relations in Italy. The most relevant change is the abolition of transfers as an ordinary means of sub-central government finance, except for equalisation. Since the room for autonomous local taxes is quite narrow, transfers will be mainly replaced by different forms of "co-occupation" of central taxes. Using the OECD taxonomy of tax autonomy, we show that the effective increase in "infra-marginal" tax autonomy of sub-central governments brought about by the reform will be quite modest. At the margin, however, where autonomy really matters, there could be enough room for effective discretion. The main problem is that both the central and the sub-central governments fear tax power decentralisation. The former because it feels that, at least in the transition period, the electorate might not properly distinguish the different fiscal responsibilities; the latter because they would prefer not to tax their electorate.

Introduction

Constitutionally Italy is still a unitary country, even if the amendment of 2001 has made the country resemble very closely a federal system, having granted to the intermediate level of government, the regions, some prerogatives that are typical of states in a federal context.[1] Scholars in constitutional law (Bassanini, 2012; Fusaro, 2009) define today's Italy as a regional or regionalised country, which is probably undergoing a process towards federalism, even if the ultimate outcome of such a process is still very difficult to predict. In 2009, an act has been approved establishing the framework for a deep reform of governmental fiscal relations and enabling the government to implement it through a series of legislative decrees, which should be completed by the end of 2011. The reform is characterised by two main innovations. The first one consists of the introduction of expenditure needs as the main criterion for financing sub-central governments (SCGs), replacing the current system, in which the actual amount of transfers depends mainly on the pattern inherited from the past. The second relevant change is the abolition of transfers from a higher level of government as an ordinary means of finance for SCGs, with the exception of grants having an explicit equalisation purpose. This modification was dictated by the constitutional reform of 2001, which has banned any form of derivative finance. The chapter is mainly concerned with this latter aspect. Since the room for levying autonomous local taxes is quite narrow, transfers will be replaced, to a large extent, by different forms of "co-occupation" of central taxes. The term co-occupation, or cohabitation, is used here to indicate both tax-sharing arrangements and different systems of overlapping taxation (or "piggyback taxation").

This chapter is organised as follows. In section 2 the current situation of intergovernmental financial relations in Italy is briefly described. The OECD taxonomy is discussed and used in order to measure effective tax autonomy at the regional, municipal and provincial level. In the following section the impact of the reform is considered. A main concern is to verify the success of the reform in decentralising effective tax power to SCGs. The third section offers some further elements for an evaluation of the new design of intergovernmental fiscal relations. The open question is whether the movement from transfers to tax co-occupation will actually enhance autonomy, accountability and responsibility of sub-central governments, which is the main objective of the reform.

The current system of intergovernmental fiscal relations

Some facts and figures

Italy has three tiers of government. The state at the centre, the regions at the intermediate level and two distinct entities at the local level: provinces and municipalities. There are 20 regions. Immediately after the Second World War a special statute was guaranteed to five regions, conferring them a large institutional and financial autonomy. There are 107 provinces, while there are 8 094 municipalities, a very large number relative to many other comparable countries. More than 70% of the municipalities have less than 5 000 inhabitants.

As Italy is formally a unitary country, in the national accounts regions are lumped together with the provinces and municipalities, their accounts being consolidated into the subsector local government. Table 9.1 shows the relative weight of local government in terms of expenditure.[2] While the total consolidated expenditure of general government is close to half of GDP, the share of local in total government, which provides a measure of

fiscal decentralisation (Bergvall *et al.* 2006), is 31.6%. If considered net of interest payments, this share rises to 34.5%.

Table 9.1. **Expenditure by level of government**

2008

	EUR million	% of GDP
General government		
Total	774 636	49.41
Net of interests payments	693 475	44.23
Central government		
Total	430 484	27.46
Net of interests payments	354 249	22.59
Local government[1]		
Total	244 615	15.60
Net of interests payments	239 026	15.25
Social Security		
Total	284 129	18.12
Net of interests payments	283 800	18.10

1. Regions, provinces, municipalities.

Source: National Accounts.

Considering the figures of the balance sheets of the three sub-central aggregates provides a closer insight into intergovernmental finance. This is done in Tables 9.2 to 9.10. Tables 9.2 and 9.3 consider separately the 15 regions with an ordinary statute (RSO) and the 5 with special statute (RSS). Table 9.2 shows that in ordinary statute regions the expenditure of the regions, which for more than 8/10 consists of expenditure for health care, is just twice that of municipalities, while the role of provinces is quite modest. In special statute regions the role of regions relative to local government is even stronger.

Table 9.2. **Expenditure for levels of local government (2008)**

	EUR million	% of GDP
Regions with an ordinary statute (RSO)		
Regions	136 851	8.73
Provinces	13 028	0.83
Municipalities	67 765	4.32
Regions with a special statute (RSS)		
Regions	42 872	2.73
Provinces	1 926	0.12
Municipalities	14 318	0.91

Source: Balance Sheets (accrual basis).

Table 9.3 considers the revenue side of regions' balance sheets. It can be noticed that the percentage of tax revenue out of total revenue is very high both in ordinary (77%) and in special statute regions (82%). Hence, apparently, Italian regions benefit of a very wide tax autonomy. However, as it will be shown in the next paragraph, the effective power of ordinary regions over resources formally classified as tax revenue is much lower.

Table 9.3. **Regions: total revenue**

2008

	EUR million	% of GDP
Regions with an ordinary statute (RSO)		
Tax revenue	97 693	76.90
Transfers (from state and EU)	27 141	21.36
Non-tax revenue	2 202	1.73
Total	127 036	100.00
Regions with a special statute (RSS)		
Tax revenue	32 005	81.63
Transfers (from state and EU)	6 048	15.43
Non-tax revenue	1 154	2.94
Total	39 207	100.00

Source: Balance Sheets (accrual basis).

In Table 9.4 the tax revenue of ordinary regions is split into its main components. It can be seen that five items provide more than 96% of total revenue. The most important source of revenue is the regional share of VAT. However, as it will be argued below, the regional VAT sharing currently adopted in Italy is just nominal, being, in fact, a transfer in all respects.

Table 9.4. **Regions with an ordinary statute (RSO): tax revenue**

2008

	EUR million	% of total
Regional share of VAT revenue	46 359	47.45
Regional Business Tax (IRAP)	34 185	34.99
Regional tax rate on PIT (IRPEF) base	6 998	7.16
Vehicle tax	5 171	5.29
Regional share of the state excise on petrol	1 684	1.72
Other tax revenue	3 296	3.37

Source: Balance Sheets (accrual basis).

The second source of revenue is a regional tax on business activity (IRAP). Introduced in 1998, the tax is levied on the value added, net of depreciation, both of market and non-market entities. The value added is calculated according to the "base form base" method, considering the balance sheet's values. In recent years the tax has been the object of growing hostility by the taxpayers. In their view, the tax is unfair and jeopardising firms' profitability: because it must be paid independently of the existence and amount of profits, it may turn a profit into a loss and it compromises the capacity of marginal firms to stay in the market. Mainly as a consequence of public opinion's pressure, the abolition of IRAP has long been on the agenda of the government. In fact, by now, all political parties share the view that the tax should be repealed, or at least its importance reduced through the exclusion of the labour income component from the tax base. The main obstacle is the importance of the tax as source of revenue and the difficulty in finding alternative tax resources for regions.

Tables 9.5, 9.6 and 9.7 refer to municipalities belonging to the ordinary statute regions.[3] Table 9.5 shows that the most important category of income at the municipal level still consists of transfers, received mainly from the state and the region where the

municipality is located, and to a smaller extent from the EU and other entities. The tax revenue amounts to 28.6% of the total. A considerable share is provided by non-tax revenue (fees, user charges, profits from municipal enterprises, etc.).

Table 9.5. **Municipalities in ordinary statute regions: total revenue**

2008

	EUR million	% of total
Tax revenues	17 890	28.62
Transfers	25 752	41.19
Non-tax revenue	18 874	30.19

Source: Balance sheets (accrual basis).

Table 9.6 shows the importance of the two main sources of tax revenue at the municipal level. About a half of it is provided by a municipal property tax (ICI) levied on real estate. Since 2008, owner-occupied houses have been exempted. A municipal tax rate levied on the state PIT base, introduced in 1999, yields 14.14% of the total tax revenue.

Table 9.6. **Municipalities in ordinary statute regions: tax revenue composition**

2008

	EUR million	% of total
Local property tax (ICI)	8 604	48.09
Municipal tax rate on PIT (IRPEF) base	2 530	14.14
Other tax revenue	6 756	37.76

Source: Balance sheets (accrual basis).

Table 9.7 gives the composition of transfers received by municipalities according to the donor (the state or the region) and to the economic nature (current or capital account). Municipalities receive 70% of grants from the state: more than 90% of them are in the current account. Instead, 60% of grants received from the region are in the capital account.

Table 9.7. **Municipalities in ordinary statute regions: transfers from the state and the region**

2008

	EUR million		
	From the state	From the region	Total
In current account	12 861	2 429	15 290
In capital account	1 382	3 670	5 052
Total	14 243	6 099	20 342

Source: Balance sheets (accrual basis).

It should be mentioned here that generally transfers to local governments (municipalities and provinces) are mandatory, not earmarked and general purpose when they are in the current account; but, if they are in the capital account, they are still mandatory, but earmarked.[4]

Tables 9.8, 9.9 and 9.10 provide the same information as Tables 9.5, 9.6 and 9.7 with reference to provinces belonging to ordinary statute regions. In Table 9.8 it can be seen that provinces are more dependent on transfers than municipalities (49% of total revenue against 41%).

Table 9.8. **Provinces in ordinary statute regions: total revenue**

2008

	EUR million	% of total
Tax revenues	4 429	37.03
Transfers	5 859	48.98
Non tax revenue	1 673	13.99

Source: Balance sheets (accrual basis).

Table 9.9 provides the composition of tax revenue. The two most important sources of tax revenue at the provincial level are two forms of vehicle taxation. The first is levied on the insurance policies covering car drivers from damages to third parties; the second is levied on the registration of the vehicle. The third provincial tax in order of yield is a surcharge on the state tax on electricity consumption.

Table 9.9. **Provinces in ordinary statute regions: tax revenue**

2008

	EUR million	% of total
Tax on cars' insurance	1 855	41.88
Tax on cars' registration	1 073	24.23
Surcharge on electricity tax	825	18.63
Other tax revenue	676	15.26

Source: Balance sheets (accrual basis).

Table 9.10 shows the composition of grants received by the provinces. It can be seen that provinces, as opposed to municipalities, receive the far larger part of their grants from the region and that the share of grants in the capital account is much bigger than that one in the current account.

Table 9.10. **Provinces in ordinary statute regions: transfers from the state and the region**

2008

	From the state	From the region	Total
In current account	770	2 821	3 591
In capital account	323	1 528	1 851
Total	1 093	4 349	5 442

Source: Balance sheets (accrual basis).

Measuring tax autonomy at the sub-central level

OECD (1999a), (1999b), (2002) and Blöchliger-King (2006) have proposed an indicator for measuring the taxing power of SCGs. The indicator comprises five main

categories of autonomy and 13 sub-categories. Categories are ranked in decreasing order in terms of taxing power.

a) Category "a" represents full power over the tax rate, tax allowances and tax credits: the category is split into two sub-categories showing whether a SCG is or is not obliged to consult a higher level of government when changing an element of the tax.

b) Category "b" represents the power to change the tax rate, without any limit (b.1) or within a range established by a higher level of government (b.2).[5]

c) Category "c" encompasses the power to modify the tax base through both tax allowances and tax credits (c.1), only tax allowances (c.2) or only tax credits (c.3).

d) Category "d" includes four different arrangements of tax-sharing: d.1 when the SCGs determine the revenue split; d.2 when the revenue split can be changed only with the consent of SCGs; d.3 when the revenue split is determined in legislation and it may be changed unilaterally by a higher level government, but less frequently than once a year; d.4 when the revenue split is determined annually by a higher level government (usually as part of the annual budget process).

e) Category "e" includes all other cases in which the central government determines all the parameters of the SCG tax.

It should be mentioned that, as far as tax-sharing arrangements are concerned (category d), sub-category d.1 seldom occurs: in OECD surveys (1999b and 2002) no country reported tax revenue under this item, while in Blöchliger and King (2007) there is just one country (Greece). More or less the same can be said for sub-category d.4.

Blöchliger and King (2007) and especially Blöchliger and Petzold (2009) have proposed criteria for the scrutiny of tax-sharing arrangements, mainly aiming to "draw a dividing line between tax-sharing and intergovernmental grants".

Four test criteria have been established in order to identify tax-sharing (Blöchliger and Petzold, 2009, pp. 4-5):

1) *Risk sharing*: the amount of revenue allocated to the SCG must be strictly related to total tax revenue, so that the SCG fully bears the risk of tax revenue fluctuations;

2) *Unconditionality*: the SCG must be free in deciding how to use the revenue allocated, *i.e.* the revenues must be unconditional (not earmarked);

3) *Formula stability*: the revenue share between the two levels of government involved must be predetermined in advance and not changed in the course of a fiscal year;

4) *Individual proportionality*: the revenue share of each SCG must be strictly related to what it generates on its own territory, *i.e.* there must be no horizontal redistribution or fiscal equalisation across SCGs.

Any arrangement classified under category "d" in the OECD tax autonomy classification and any intergovernmental grant can be put through the test and re-classified as:

- *strict tax-sharing,* if is fulfils all four criteria;
- *tax-sharing,* if it fulfils the first three criteria but not the fourth;
- *intergovernmental grant*, if it does not fulfil one or more of the first three criteria.

It is worth noticing that Blöchliger and Petzold (2009) propose, in a quite innovative fashion, to consider all arrangements as tax-sharing, which fall in the OECD's "e" tax classification category.

In Table 9.11 the OECD taxonomy for SCG taxes has been merged with the Blöchliger and Petzold (2009) criteria to distinguish tax-sharing from intergovernmental grants: categories a, b and c of the OECD taxonomy are considered SCG taxes, while the Blöchliger and Petzold test is used in order to split all the revenue reported as tax-sharing or grants in the three categories of strict tax-sharing, tax-sharing and intergovernmental grants. It also follows the Blöchliger and Petzold proposal in considering all the taxes belonging to the "e" category as strict tax-sharing.

Table 9.11. **A taxonomy of tax autonomy**

Sub-central taxes	a	a.1	The SCG sets the tax rate and any tax relief, without needing to consult a higher level government
		a.2	The SCG sets the tax rate and any tax relief, after consulting a higher level of government
	b	b.1	The SCG sets the tax rate without upper or lower limits
		b.2	The SCG sets the tax rate within a range established by a higher level government
	c	c.1	The SCG sets both tax allowances and tax credits
		c.2	The SCG sets tax allowances only
		c.3	The SCG sets tax credits only
Tax sharing	d	d.1	Strict tax-sharing (risk sharing, un-conditionality, formula stability, individual proportionality)
		d.2	Tax sharing (risk sharing, un-conditionality, formula stability)
Intergovernmental grants (G)			

Source: Blöchliger, H. and D. King (2007), "Less than you Thought: the Fiscal Autonomy of Sub-central Governments", *OECD Economic Studies*, 2006/2, OECD Publishing, *10.1787/eco_studies-v2006-art12-en*; Blöchliger, H. and O. Petzold (2009), "Finding the Dividing Line between Tax-sharing and Grants: a Statistical Investigation", *OECD Working Papers on Fiscal Federalism*, No. 10, OECD Publishing, *10.1787/5k97b10vvbnw-en*.

The Italian SCGs' revenue from taxes and transfers will now been reconsidered in the light of the taxonomy of Table 9.11, in order to measure effective tax autonomy. The situation preceding the current reform is considered.[6]

The regional level

- Regional VAT sharing was introduced in 2000 as a means of financing regional health care systems, replacing transfers, starting from the financial year 2001. Initially the regional share was established at 25.7% of national VAT revenue.[7] The receipts should have been distributed among regions according to a proxy of the VAT base, which was identified in regional households' consumption, as reported in regional economic accounts. However, since the beginning, the implementation of the arrangement has deviated from the original design. The regional aggregate share of revenue was increased from year to year to keep up with the growth of regional expenditure on health care: it has now reached 44.7%. The distribution among the regions in each year depends partly on rough indicators of expenditure needs and is partly the result of a bargaining process between the state and the regions on the one side and among regions on the other side. In any case the distribution of receipts among regions includes a component

of horizontal equalisation. The regional VAT sharing does not fulfil any of the four Blöchliger and Petzold criteria and should thus be classified as a transfer.[8]

- When the regional business tax (IRAP) was introduced the autonomy of the regions was limited to the possibility of increasing the 4.25%[9] standard rate by one point (up to 5.25%). Regions could not decrease the rate and could neither introduce tax allowances or credits. Moreover, from 2002 even the possibility to increase the rate was suspended (until the end of 2006). The financial law for 2008 has in principle substantially enhanced the discretion of the regions, establishing that, with an own law, each region can regulate the tax as a regional tax, set the rate and introduce different forms of tax relief. However, this amendment has not become fully operational, because its implementation had been subordinated to a national law establishing the framework within which regions could exert their enhanced autonomy. This law has never been enacted. In conclusion IRAP was born as a tax of the b.2 category. Since 2002, for a few years, it collapsed to a form of strict tax-sharing (d.1). Since 2008 it potentially belongs to the a.1 category, but for the time being it has just gone back to its original nature of b.2.
- The regional "piggy-backing" tax, applied on the base of IRPEF, the national PIT, was introduced in 1998. The regions were conferred a limited discretion in setting the rate, but none on the side of tax relief. For the first two years the range for tax changes was set between a minimum of 0.5% (considered the standard rate) and a maximum of 1%. Since 2000 the minimum has been increased to 0.9% and the maximum to 1.4%. As in the IRAP case, the tax rates were frozen between 2002 and 2006. In conclusion, the regional PIT surcharge belongs to the b.2 category. During the years when the possibility of modifying the rate was precluded, the regional income tax degenerated into a form of strict tax-sharing (d.1).
- The regional vehicle tax is levied on cars and other vehicles, generally on the base of the possession, in some minor cases of the circulation. The regions have a limited power to vary the levy: each year they can increase or decrease the tax by 10% as compared to the previous year. Very rarely regions make use of this possibility. In principle, regions are not entitled to modify the tax base or to introduce tax relief, even though some regions have done so. The tax must thus be classified in the b.2 category.
- The regional share of the excise on petrol was introduced in 1996. It belongs to the category of strict tax-sharing (d.1), because it fulfils all the four classification criteria. Formula stability: the regional share does not change in the course of the fiscal year, and not even over the years (since the start, the component of the tax attributed to the regions has changed just once, in 2001, when it increased from 242 to 250 lire for a litre). Risk sharing: given formula stability and individual proportionality, the regions bear the risk of revenue fluctuations.[10] Un-conditionality: the regional revenue is not earmarked. Individual proportionality: the revenue is allocated to the region where the station, which has sold the petrol, is sited (place of actual consumption).

The municipal level

- The local tax on real estate (ICI), introduced in 1992, is the most important municipal tax, even though in 2008 its role was reduced by the exclusion of

owner-occupied houses from the tax base. The tax base is given by the cadastre value of immobile property. Undoubtedly the tax belongs to category b.2, because municipalities can set the rate between 0.4% and 0.7%, while they cannot modify the tax base or introduce any form of tax relief.

- The municipal "piggy-backing" tax on IRPEF base was introduced in 1999. Originally municipalities were empowered to set the rate up to a maximum level of 0.5%, being able to reach the maximum level only in a three year period, with annual tax rate increases not larger than 0.2%; no power was instead given over tax relief. However the rates were frozen in 2003, but liberalised in 2007, when the maximum rate was also increased to 0.8%. It was again frozen in 2008. The conclusion is the same as with the regional income tax surcharge: the local tax must in principle be classified in b.2, but since 2003, with the exception of 2007, it has been *de facto* downgraded to d.1 (strict tax-sharing).

The provincial level

- The tax on car insurance (RCA), introduced in 1999, should in all respects be considered a form of strict tax-sharing, because provinces have no power over the rate (12.5%), which is set at the central level, let alone over the tax base. The individual proportionality criterion is met because the yield is allocated to the provinces according to the registration of the vehicle and the public registers are located at the provincial level. This tax must thus be considered as a strict tax-sharing arrangement.
- The provincial tax on car registration (IPT) enters the b.2 category because provinces are allowed to increase the national tariffs up to 30% and they are also entitled to introduce a mild form of tax relief.
- The provincial component of the excise on electricity should also be included in the b.2 category, because provinces are empowered to increase the standard rate, which is 0.0093 euro/kWh, up to a maximum rate of 0.011362.

The results of the classification of the main tax revenue items in Italian SCG budgets are summarised in Table 9.12 for the year 2010.

Table 9.12. **A classification of Italian SCGs main tax revenue items according to the OECD taxonomy**

Regions	
Regional share of VAT revenue	G
Regional Business Tax (IRAP)	b.2
Regional tax rate on PIT (IRPEF) base	b.2
Vehicle tax	b.2
Regional share of the state excise on petrol	d.1
Municipalities	
Local property tax (ICI)	b.2
Municipal tax rate on PIT (IRPEF) base	d.1
Provinces	
Tax on car insurance	d.1
Tax on car registration	b.2
Surcharge on electricity excise tax	b.2

Note: The classification refers to 2010 legislation.

Source: Author's calculations, based on Blöchliger, H. and D. King (2007), "Less than You Thought: the Fiscal Autonomy of Sub-central Governments", *OECD Economic Studies*, 2006/2, OECD Publishing, *10.1787/eco_studies-v2006-art12-en*.

The results confirm that the tax autonomy of the Italian sub-central government sector is actually much lower than measured by the traditional indicators. In Italian ordinary statute regions tax revenue amounts to about 77% of total regional revenue. But almost a half of it is due to tax-sharing arrangements, which are in reality a grant (the regional VAT sharing). Two important regional taxes, IRAP and the income tax surcharge, are characterised by a limited degree of autonomy on the rate side, even though they have been *de facto* transformed in a tax-sharing arrangement in recent years. The municipal surcharge on PIT must still (2010) be considered a form of tax-sharing. The same can be said for the most important provincial tax (the tax on car insurance).

The on-going reform of intergovernmental finance

The premise

The current reform is based on the constitutional amendment of 2001, which established that intergovernmental grants were to be abolished as an ordinary means of financing SCGs. According to the amended art. 119 of the Constitution regions, provinces and municipalities must be able to finance their expenditure with own taxes or fees and with tax-sharing arrangements. Only two forms of transfers are still admitted: those with an explicit equalisation purpose and some earmarked grants to finance policies with specific objectives, enumerated in the Constitution, such as enhancing regional development, promoting social cohesion and solidarity or guaranteeing the exercise of the fundamental personal rights.

Thus the goal of the 2001 reform has been the alignment of expenditure functions and fiscal responsibilities, in order to eliminate any vertical fiscal imbalance, other than the component due to disparities in fiscal capacity among territories, which should be dealt with through an appropriate mechanism of equalising transfers.

Different arguments have been used in favour of such an approach. The point of enhancing accountability has been particularly popular. The basic idea is that the decentralisation of the power to tax would have the effect of turning the economic cost of providing public services into a political cost for the local government, to be evaluated against the benefits arising on the expenditure side. Thus the local government would be induced to act as any other economic agent in a decentralised setting: taking decisions comparing marginal costs and benefits.

It has however been stressed[11] that a necessary and sufficient condition for the accountability effect is the alignment of expenditure and taxation *at the margin.* "Inframarginal" expenditure could be financed by grants, provided that any increase over that level were covered by taxes under the full control and responsibility of the SCG. The essential point would not be that grants should be granted at all, but that they should be inelastic to local expenditure decisions. The question then becomes the credibility of the higher level government commitment to not intervene to bail out a SCG.

Bird (2011), while sharing the theoretical point, argues (p. 156 note) that, as a matter of fact, "since few, if any, countries are likely to achieve such perfection, the better part of wisdom would appear to be to follow the advice that emerges from the literature": "If sub-national governments are to be big spenders, they must, in the interest of fiscal responsibility and accountability, also become bigger taxers." (p. 156).

The framework

In 2009, a law concerning the financing of SCGs was passed, implementing the constitutional reform of 2001. The Law 42/2009 established the general framework of the new intergovernmental financial relations and enabled the government to produce the detailed norms through legislative decrees, within two years from the promulgation of the law.[12] The government has recently completed the task, having issued eight decrees, which have gone through the scrutiny of a parliamentary committee and are now in operation. In particular, the legislative decree 23/2011 regulates municipal finances, while with legislative decree 68/2011 the new financial arrangements for regions and provinces were set.

Two essential innovations characterise the new system of intergovernmental fiscal relations. The first was dictated by the constitutional reform of 2001, as we have seen: the abolition of transfers, other than those having a strict equalising nature and some special earmarked grants. The second consists in the introduction of expenditure needs as the main criterion for financing SCGs, replacing the present system, in which the actual amount of transfers mainly depends on the pattern inherited from the past, which in Italy is referred to as the "criterion of the historical expenditure" and has so far proved very difficult to modify.[13]

In the new framework, the spending of the regions is split into two categories:

1. Public services that must be provided uniformly across all the country ("essential services") at a minimum standard, named *essential levels of provision,* which must be established by the state with separate legislations and which for the time being have been identified in health, education, social protection and local transport (the latter limited to capital expenditure);
2. All other public services.

The two categories of expenditure differ with respect to the nature and the degree of equalisation. As far as essential services are concerned, equalisation refers to *expenditure needs* and is supposed to be complete (100% equalisation). Expenditure needs must be determined with respect to normative costs required for the provision of the minimum standard. For the equalisation of the other services, *tax capacity* is considered and compensation is less than 100%.

The law enumerates the different possible sources of tax revenue for the regions:

a) *Derivative* own taxes (by which is meant the regional taxes based on state law);

b) Own taxes (*strictu sensu, i.e.* set by regional law);

c) Tax sharing arrangements, and particularly VAT sharing;

d) "Piggy-back" taxes, and particularly the IRPEF surcharge;

e) Equalising transfers.[14]

The equalisation mechanism envisaged for essential services postulates that the rate of taxes and the ratios of tax-sharing are set at the level necessary to provide the richest region with sufficient revenue to cover its expenditure needs. For all the other regions their own tax resources are combined with access to an equalising fund, which is financed by shares of VAT and of the IRPEF regional surcharge.[15]

At the local level (municipalities and provinces) the framework is very similar. Expenditure are viewed as "fundamental" and "not fundamental", with the same implications in terms of financing and equalisation as for the mechanisms between central and regional government.

The expenditure of municipalities and provinces must be financed by:

a) Own taxes (based on state or regional law);

b) Tax sharing arrangements (with state or regional taxes);

c) "Piggy-back" taxes;

d) Equalising transfers.

It is worth emphasising that the movement from transfers to local taxation, which is the essential feature of the reform, is supposed to be revenue neutral. This implies that state taxation must be reduced to the same extent as transfers, and both must be equal to the increase in the SCGs tax revenue.

The implementation

It was an easy prediction (Gastaldi, Longobardi and Zanardi, 2009) that, given that the scope for new taxes at the sub-central level is very limited, the goal to replace grants with tax resources would have been mainly pursued by enlarging the space of "co-occupation" of the same taxes among different levels of government.[16]

Taxes may be co-occupied by different levels of government according to two main general formulas:

1) Revenue-sharing, whereby SCGs are assigned a fraction of the revenue produced within their jurisdiction;

2) Overlapping taxation (or piggy-back taxation), which may involve two different forms of levies:

   a) with the *tax on base system,* a surcharge is applied by a SCG on the *tax base* of the higher level government;

   b) with the *tax on tax system,* a surcharge is applied by a SCG on the *tax liability* of the higher level government.

The Italian reform makes widespread use of both revenue sharing and overlapping taxation; in the latter case, following a tendency started in the late 1990s, the tax on base system was chosen.[17]

In the following the different forms of tax co-occupation introduced or modified by the two legislative decrees will be identified, going through a brief presentation of all the legislative innovations.

Regional finance

The reform of regional finance is supposed to start being operational in 2013. The main aspects are the following.

1. The regional surcharge on IRPEF base is reformed, with the aim of increasing the discretion of the regions over rate setting and of recognising also the power of introducing some forms of tax relief. The standard rate of 0.9% is increased by the

amount necessary to compensate for the abolition of state transfers and of the regional sharing of the state excise on petrol. Each region is empowered to increase the new standard rate by 0.5 percentage points in 2013, 1.1 in 2014, to 2.1 in 2015. Decreasing the rate is not subject to any limit. Thus, after the transitional period, each region will have the power to set its income tax rate t_{ry} within the range:

$$0 \leq \quad t_{ry} \leq (0.9\% + x\% + 2.1\%)$$

where x% is the percentage point increase necessary to replace the state grants and the regional revenue from petrol tax-sharing, which will be both abolished. It is worth noticing that the increase in the standard rate cannot go above 0.5 percentage points for incomes falling in the first bracket of the state progressive income tax. Above the first bracket the rate can be graduated, up to the maximum, but respecting the tax brackets of the national tax. The regions are also empowered to increase the national tax credits for a spouse and children and to introduce tax credits for social purposes, substituting for any existing form of subsidy, grant and voucher.

2. The regional VAT sharing is also modified. The intention is to transform it, from being *de facto* a transfer to strict tax-sharing, especially with concern to the principle of individual proportionality. Art. 4 of the legislative decree 68/2011 states that, starting from 2013, the allocation of the revenue to regions should follow the "territorial principle", meaning that each region must receive a share of the tax arising in its territory. The point where the VAT revenue is effectively generated is identified by the place where goods (and generally also services) are sold, which, for some reasons, cannot deduct the VAT included in the passive invoice. The latter will primarily be non-VAT registered persons, that is to say final consumers. But they can also be VAT entities that are not entitled to (full) deduction of VAT on their purchases (non-market public or private entities, firms providing exempted services, like banks and hospitals and so on). The decree states that the point of VAT generation should be determined using the information derived from the VAT tax files and other databases of the fiscal administration. The rationale is to provide a system in which the SCG is given the right incentive to collaborate in the administration of the tax and, in particular, in fighting tax evasion. This incentive is lacking when the tax is distributed according to some economic proxy independent of the effective tax revenue generated in the jurisdiction. It is surely a challenge because in no other country such a system has been successfully implemented.

3. The decree 68/2011 grants the regions the possibility to reduce the rate of IRAP without any limit. Regions are also granted the right to introduce tax allowances. The revenue effects of the rate reductions and of the introduction of allowances must be borne by the region itself. In particular, it must be assured that the reduction will not affect the amount of equalising transfers. A region that decides to decrease its IRAP rate is not entitled to augment the standard rate of the IRPEF surcharge more than 0.5 percentage points.

4. Different measures provide incentives to the regions to participate in fighting evasion. The regions have the right to keep the entire increase in revenue of "cohabitated" taxes, including the regional VAT sharing, that is due to the reduction of evasion.

Municipal finance

The reform of municipal finances is supposed to be fully in force in 2014, after a transitional period of three years. The main innovations are the following.

1. A new municipal property tax is introduced (IMU-Municipal Tax on Immobile Property), replacing both the present municipal property tax (ICI) and the personal income tax (IRPEF) levied on the imputed rent of the real estate which does not produce an income (because it is not rented), with the exclusion of owner-occupied houses. For non-rented immobile property the standard rate is 0.76%: municipalities are entitled to modify it within the range of +/- 0.3. For rented properties, because they still remain subject to income taxation, the standard rate is lower, at 0.38%, with a range of regional discretion of +/- 0.2. The tax is levied at the higher rate also when the immobile properties are used as assets in business activities: the region has, however, the option to apply the reduced rate.
2. When real estate property is rented, the owner must include the rental income in the IRPEF tax base. With the reform the owner is now offered the possibility to opt for a withholding tax with a flat rate of 21% (19% when the rental contract is stipulated according to special schemes regulated by law). The municipalities will receive a share equal to 21.7% of the withholding tax revenue. If, instead, the taxpayer has not opted for the withholding tax, and pays IRPEF, the municipality, curiously enough, will receive the entire revenue (a 100% tax sharing).
3. A municipal VAT sharing is introduced. The revenue is allocated by distributing the regional revenue on a per capita basis. The fulfilment of the individual proportionality criterion is thus in doubt.[18]
4. The municipal surtax on IRPEF is confirmed with the range 0-0.8% for tax variation. The rates are gradually "de-frozen" starting from 2011.
5. A municipal share (30%) of revenue of the registry tax (and other fees that are absorbed in the main tax) on the value of sales of real estate is introduced.
6. The entire revenue (100%) of registry tax and stamp duty on contracts of real estate leases is assigned to the municipalities.

Provincial finance

The reform should be implemented during 2012. The main innovations are as follows:

1. The tax on car insurance over which the provinces do not exert any discretional power at the moment, and are thus considered a disguised form of tax-sharing, is modified. The provinces are empowered to set their rate within a +/-3.5 percentage point range around the standard rate of 12.5%.
2. A provincial sharing of the personal income tax is introduced:[19] the provincial ratio will be determined at the level necessary to fully compensate the cut of the transfers from the state.
3. The provincial surcharge on the state excise on electricity is abolished.

The new financial relations between regions and local authorities

Implementing Law 42, the decrees 23 and 68 establish that also the transfers from regions to municipalities and provinces must be replaced by tax resources. The loss of the regional grants will be compensated at the municipal level with a share of the regional surcharge on IRPEF and, at the provincial level, with a share of the revenue from the regional vehicle tax.

After reform implementation there will be 11 different forms of tax co-occupation. They are reported in Table 9.13.

Table 9.13. **The forms of tax co-occupation in the new system of financial intergovernmental relations**

	State-regions co-occupation
1	Regional surcharge on IRPEF
2	Regional VAT sharing
	State-municipalities co-occupation
3	Sharing the withholding tax on rental income
4	IRPEF on rental income (100 % devolution)
5	Municipal VAT sharing
6	Municipal surtax on IRPEF base
7	A municipal share (30%) of revenue of the registry tax
8	Registry tax and stamp duty on contracts of real estate lease (100% devolution)
	State-provinces co-occupation
9	Provincial share of IRPEF
	Region-municipalities co-occupation
10	Municipal share of the regional surcharge on IRPEF
	Region-provinces co-occupation
11	Provincial share of the regional vehicle tax

Source: Author's calculations.

Open questions

The rationale and the politics of tax decentralisation

A huge movement from transfers to different forms of tax "co-occupation" is the hallmark of the present reform of intergovernmental fiscal relations in Italy. Starting from the 1980s a climate of diffuse criticism towards intergovernmental fiscal frameworks has spread. On economic grounds, the prevailing opinion ascribes to the decentralisation of tax power positive effects in terms of fiscal consolidation. The basic idea is that the alignment of expenditure and fiscal functions would enhance responsibility and accountability, and would thus promote fiscal discipline. On political grounds, two main forces have acted. First, a political party (Lega Nord) in the north of the country has been constructing its electoral consensus on the claim "taxes must remain in the territory where they are paid". Secondly, SCGs, of any political colour, have been asking for more effective independence from higher level governments and developed an increasing intolerance towards any undue form of interference in their decisions as well as towards unannounced unilateral changes in the provision of funds. It should be stressed that local governments, on the one hand, require more certainty in terms of availability of resources, but, on the other hand, they are also very reluctant to assume the responsibility to tax their electorate. That's why forms of tax co-occupation, and especially the tax-sharing arrangements that are politically the mildest form of tax involvement, are preferred to fully autonomous taxes.

Another important factor, which contributes to explain the movement towards tax co-occupation, is the firm belief of the last governments (of both political sides) in the necessity to involve the sub-national governments in tax assessments. This is founded on the belief that local governments have an information advantage that can be precious in counteracting evasion. Having the local government as a cohabitant of the tax becomes, thus, an indispensible premise for its involvement in tax administration.

All these factors, together with the objective difficulty of envisaging new forms of local taxes on economic tax bases not already occupied by the central government, contribute to explain the resulting specific architecture of the new intergovernmental fiscal relations.

In this concluding part of the chapter three main questions are raised. The first is if, as a final result, the reform is likely to augment effectively the tax autonomy of SGSs. The second is connected with the need of coordination within some of the main schemes of tax co-occupation and, in particular, the PIT. Finally, we turn to the question of the new strategy that has been chosen to share the VAT among levels of government.

Will the reform effectively produce more tax autonomy?

The degree of tax autonomy implied by any single tax revenue in force in the last year preceding the beginning of the implementation of the reform (2010) is compared with those expected in the year when the reform will be fully operative at every level of government (2014) in Table 9.14. One can see that out of 16 main forms of tax revenue in force in 2014, 8 are "new", in the sense that they substitute transfers. In all these cases the new tax item is constituted by a tax-sharing arrangement: in 7 cases out of 8 it qualifies as "strict tax-sharing" (d.1), while in the remaining one the tax share is just apparent, concealing, in fact, a transfer. It is well known that tax-sharing does not confer SCGs more autonomy in any meaningful sense compared to transfers. In a perspective of fiscal federalism, the only appreciable advantage of a tax-sharing formula with respect to a transfer is in terms of the effective entitlement over the resource. While a transfer remains in the domain of the donor, which can, thus, change the amount transferred when a cut is considered necessary, say for consolidation purposes – as it has happened twice in Italy in the last three years – the guarantees assured to SCGs by tax-sharing arrangements are likely to be stronger on both political and institutional grounds. We would expect, in fact, that changing the formula of tax-sharing would require the consensus of the receiving government. In a sense Italian SCGs have won their battle: as was mentioned, what they really wanted was not more autonomy, but more certainty over the effective availability of the resources.

Looking at the remaining items of Table 9.14, one can see that in five cases the position of the item in the OECD ranking has not changed: the item was classified in the b.2 category and it has been left there. In two cases the tax item (d.1 and b.2) has been abolished. At the end only in one case the tax item results moved up in the OECD ranking: the provincial tax on cars' insurance moves from d.1 to b.2.

It must be noticed, however, that the OECD taxonomy cannot capture a main result of the reform in terms of tax autonomy conferred to the regions. As far as IRAP and the regional PIT surtax are concerned, the enlargement of the range of possible tax rate changes and the possibility to introduce tax reliefs, while enhancing effective tax power at regional level, do not change the nature of the two local taxes. The latter, thus, do not go up in the OECD ranking.

What really matters in terms of accountability and responsibility is the taxing power at the margin. Thus the question becomes if, at the margin, there will be enough scope in the new system to allow the SCG to finance expenditure needs exceeding the "normal" level with autonomous tax effort. Spending can be above "normal", either because of inefficiencies in the provision or because local preferences justify a change in the allocation of resources in favour of public goods.

Table 9.14. **An evaluation of the effects of the reform in terms of effective tax autonomy of Italian SCGs**

	2010	2014
Regions		
Regional share of VAT revenue	G	d.1
Regional Business Tax (IRAP)	b.2	b.2
Regional tax rate on PIT (IRPEF) base	b.2	b.2
Vehicle tax	b.2	b.2
Regional share of the state excise on petrol	d.1	abolished
Muncipalities		
Local property tax (2010 ICI, 2014 IMU)	b.2	b.2
Sharing the withholding tax on rental income	-	d.1
IRPEF on rental income (100 % devolution)	-	d.1
VAT municipal sharing	-	G
A municipal share (30%) of revenue of the registry tax	-	d.1
Registry tax and stamp duty on contracts of real estate lease (100% devolution)	-	d.1
Municipal surtax on IRPEF base	d.1	b.2
Municipal share of the regional surcharge on IRPEF	-	d.1
Provinces		
Tax on car insurance	d.1	b.2
Tax on car registration	b.2	b.2
Surcharge on electricity excise tax	b.2	abolished
Provincial share of IRPEF	-	d.1
Provincial share of the regional vehicle tax	-	d.1

Source: Author's calculations, based on Blöchliger and King (2007), "Less than You Thought: the Fiscal Autonomy of Sub-central Governments", *OECD Economic Studies*, 2006/2, OECD Publishing, *10.1787/eco_studies-v2006-art12-en*.

If one looks at the regional level, the main source of autonomous fiscal effort is given by the surtax on IRPEF. This is because political reasons prevent regions to rely on IRAP, whose burden is even expected to decrease, while the possible contribution of the vehicle tax is limited. At the municipal level the importance of the property tax as a possible source of revenue has been depleted by the exclusion of owner-occupied houses from the base, so that at the moment non-residents pay a significant portion of the tax. Hence, also at the municipal level the most important means of autonomous fiscal effort remains the surtax on the IRPEF base.

In principle, at both the regional and the municipal level, the range for potential rate changes in income surtaxes becomes of some relevance with the reform. Probably the technical space for discretionary tax choices is not the real obstacle to an effective exercise of (marginal) tax autonomy: what is still missing today is an institutional culture of tax autonomy. The central level government still fears that the electorate could make it responsible for tax increases at the lower government level. This attitude explains why the central government has several times intervened to freeze local tax rates and also why in the implementation of Law 42 the government has been very cautious in according effective tax autonomy to SCGs. A fully accountable system in which the electorate can attribute tax responsibilities to each level of government and each level of government has full consciousness of this (she knows that he knows), so that nobody can play to pass the buck, is something still unknown in the Italian political and institutional life.

Co-habiting the PIT: some equity issues

PIT co-habitation appears at the heart of the new system of tax relations between levels of government. An intensive discussion had been already started about the equity implications of such a co-habitation in the last few years. The relevant questions pertain both to the sphere of vertical and horizontal equity.

When regional and municipal surtaxes were introduced, the dominant opinion, at least at the academic level, was that they should have been of a flat type, in order to reduce the impact of sub-central discretion on the overall progressivity structure of the income tax.[20] Instead, regions started introducing progressive rate schedules, often with a class-based rate progressivity (instead of the bracket-based system adopted at the national level, as in most countries).[21] The question of the legitimacy of such choices was raised in front of the Constitutional Court, which recognised the reasons of the regions.

It is largely admitted that the traditional approach, according to which the redistributive function should be reserved to the central level, can be considered obsolete – both because preferences for redistribution may vary from one local community to another and because it is impossible to assign the redistributive function to a single level of government (Boadway and Shah, 2009, pp. 72-73). However, it could still be maintained that the SCGs' involvement in redistribution should use instruments and policies other than the PIT. The overlapping of the choices of different governments in determining the structure of progressivity of the income tax without any coordination can, in fact, determine an erratic path of the effective total marginal rate, with unpredictable effects in terms of incentives to work.

In Italy a measure of coordination has now been introduced with the reform, which, as already mentioned, has established that, when adopting a progressive surtax, the region has to adhere to the bracket-based system and to respect the structure of brackets established at the central level.

In terms of horizontal equity the question is to which extent differences can be admitted in tax incidence on equal incomes depending on the place of residence. While, as far as vertical equity is concerned, the reform has contributed to ameliorate the situation, it has, instead, exacerbated the problem concerning horizontal equity, by giving the region the discretion to increase tax credits for children and the spouse.

How to allocate sub-central VAT revenues?

Allocating central VAT to SCGs according to the place where VAT is actually paid is not a good criterion, because VAT is paid at the place of legal residence of the firm, which is generally different from the place where it undertakes the activity. Thus, in many countries, VAT is allocated among levels of government using some proxies of the tax base or revenue, such as final consumption, manpower, payroll and so on. In this case the revenue accruing to a SCG is independent from the contribution it may have assured in the administration of the tax.

At the moment, great attention is paid to the design of appropriate incentive mechanisms to involve SCGs in the assessment of the tax. As far as VAT is concerned, the Italian reform drew up a new system to decentralise VAT according to the place where the transaction that has generated the revenue has been undertaken. The underlying vision is that VAT does not produce revenue until it impacts on an agent who has not the possibility to deduct the VAT paid on purchases. Simplifying, one could say that business-to-business transactions do not generate revenue, while business-to-consumer

transactions do. If so, VAT would be a pure consumption tax. However, in practice, some business-to-business transactions also generate revenue. This happens when the VAT registered entity cannot (fully) deduct VAT on purchases, essentially because it does not produce for the market (public administrations and private non-profit entities) or because it undertakes exempted operations. For this reasons, the VAT domain does not coincide with final consumption. A share of VAT is levied, in fact, on intermediate consumption or investment.[22]

Some years ago, a new box was introduced in the VAT return, where the taxpayer has to register separately the sales to final consumers, indicating also the region where the operation has taken place (the so called VT box in the VAT returns). The data have been checked and their reliability has improved from year to year. Now the intention is to use this data set to allocate the VAT revenue generated by business-to consumer operations to the regions. As far as the other VAT components are concerned, the administration is considering the possibility to use other databases. The one for IRAP returns, for example, provides good information on the territorial distribution of all economic activities, considering both market and non market entities.

It is a difficult challenge, because apparently there is no experience at the international level on sub-central VAT-sharing, which could help and the technical problems are daunting. The risk is that the resulting mechanism would not appear rigorous and transparent enough, undermining its legitimacy with the SCGs.

Conclusions

The chapter has provided some insights into the current reform of intergovernmental relations in Italy. The reform is mainly characterised by a movement from transfers to different forms of tax co-occupation, which is intended to enhance autonomy and, as a consequence, accountability and responsibility of SCGs. Using the OECD taxonomy, it has been shown that the effective increase in "infra-marginal" tax autonomy of SCGs produced by the reform will be quite modest. At the margin, however, where autonomy really matters, there could be enough room for the exercise of effective discretion. The main problem is that both the central government and the SCGs fear the decentralisation of tax power: the former because it feels that, at least in the transitional period, the electorate might not properly distinguish the different fiscal responsibilities, the latter because they would prefer not to tax their electorate, even if they ask for more stable and predictable sources of finance with respect to the current system of grants.

Notes

1. Bergvall *et al.* (2006), p. 20 includes Italy among federal countries.
2. All the figures presented in the chapter refer to 2008.
3. Their number is 6.704, corresponding to the 85.7% of the total.
4. For the taxonomy of grants see OECD (2002), Blöchliger and King (2007), Bergvall *et al.* (2006).
5. Blöchliger and King (2007), p. 159 specify that category b includes essentially the "piggy-backing" type of tax. In fact, there could be cases in which SCGs are conferred an autonomous tax, but limiting their autonomy to tax rate changes, without giving the possibility of modifying the tax base or introducing tax credits. As it will be seen below this is, for example, the case of IRAP and other local taxes in Italy.
6. It can thus be considered the 2010 situation, because some of the novelties of the reform have already been implemented, starting from 2011.
7. Net of the shares devolved to RSS and to the EU.
8. As a grant it must also be considered conditional (it funds the health system), although in the "weak" sense of block-grants (Bergvall *et al*., 2006, p. 118).
9. The rate was decreased to 3.9% starting from 2008.
10. I wonder if formula stability and individual proportionality would not automatically imply risk sharing.
11. See, for example, Boadway and Shah (2009), p. 97 and 157; Bird (2011) p. 146 and p. 150-51.
12. The deadline was 21 May 2011, but was later postponed to 21 November 2011.
13. Bird (2011, p. 140) argues: "Existing fiscal institutions usually reflect the results of an accretionary process of policy change over time, and the inertia inherent in such institutions must not be underestimated." OECD (2002, p. 15) includes in the category of "related to objective criteria" "grants which have historically been distributed in a certain way and where legal or administrative limits or established custom are seen as preventing governments from changing the distribution of the grant very much from year to year".
14. Beside the other transfers admitted for very special purposes by the Constitution.
15. An equalising mechanism of the same nature was proposed by Bird (1993), p. 218, see also Bird (2011), p. 150.
16. The term "co-occupation" is used by Boadway and Shah (2009, pp. 86 and 191).
17. Gastaldi, Longobardi and Zanardi (2009) provide a comparative economic analysis of the two forms of overlapping taxation.

18. Blöchliger and Petzold (2009, p. 5 note) argue that "arrangement where tax receipts are distributed on the basis of a close proxy should fulfil the criterion (*e.g.* a consumption tax whose distribution relies on household income or a corporate income tax whose revenue in distributed according to the number of employees)". It is clearly debatable if a per capita distribution could still be considered a meaningful proxy for the production of VAT revenue.

19. It can be mentioned that a provincial IRPEF sharing already exists, but is considered in all respects a transfer, even by the administration (Ministry of the Interior) in charge of administering it.

20. It is worth remembering, however, that a sub-central surtax on the PIT base, even if flat, affects the degree of overall progressivity. Gastaldi, Longobardi and Zanardi (2009, p. 168) show that a flat surtax reduces the overall degree of progressivity in the sense of Kakwani and, instead, increases the redistributive effect in the sense of Reynolds-Smolensky.

21. In 2008, eight regions out of twenty had introduced a progressive rate schedule, while six of them adopted the class-based system (Gastaldi, Longobardi and Zanardi, 2009, p. 168).

22. According to estimates produced by the EU Commission some years ago, on average in the Union 1/3 of VAT was levied on intermediate goods and investment.

References

Bassanini, F. (2012), "Federalizing a Regionalised State. Constitutional Change in Italy", in A. Benz and F. Knüpling (eds.), *Changing Federal Constitutions. Lessons from International Comparison*, Barbara Budrich Publishers, Opladen and Farmington Hills.

Bergvall, D., C. Charbit, D.J. Kraan and O. Merk (2006), "Intergovernmental Transfers and Decentralised Public Spending", *OECD Journal on Budgeting*, Vol. 5, No. 4, OECD Publishing, *10.1787/budget-v5-art24-en*.

Bird, R.M. (1993), "Threading the Fiscal Labyrinth: Some Issues in Fiscal Decentralisation", *National Tax Journal*, Vol. XIV (2), pp. 207-227.

Bird, R.M. (2011), "Subnational Taxation in Developing Countries: a Review of the Literature", *Journal of International Commerce, Economics and Policy*, Vol. 2 (1), pp. 139-161.

Blöchliger, H. and D. King (2007), "Less than You Thought: the Fiscal Autonomy of Sub-central Governments", *OECD Economic Studies*, 2006/2, OECD Publishing, *10.1787/eco_studies-v2006-art12-en*.

Blöchliger, H. and O. Petzold (2009), "Finding the Dividing Line between Tax-sharing and Grants: a Statistical Investigation", *OECD Working Papers on Fiscal Federalism*, No. 10, OECD Publishing, *10.1787/5k97b10vvbnw-en*.

Boadway, R. and A. Shah (2009), *Fiscal Federalism. Principles and Practise of Multiorder Governance*, Cambridge University Press, Cambridge.

Brosio, G. and S. Piperno (2010), "Conditional Intergovernmental Transfers in Italy after the Constitutional Reform of 2001", in J. Kim, J. Lotz and N.J. Mau (eds.), *General Grants versus Earmarked Grants: Theory and Practice*, Korea Institute of Public Finance and the Danish Ministry of Interior and Health, pp. 218-235.

Fusaro, C. (2010), "Italy's Multitier Regional Federalism: Why and How It Was Built Like That", in *Annual Report of the Institute of Legal Studies*, Kanagawa University, Yokohama, 28, pp. 41-49, *www.carlofusaro.it*.

Gastaldi, F., E. Longobardi and A. Zanardi (2009), "Sharing the Personal Income Tax among Levels of Government: Some Open Issues from the Italian Experience", *Rivista italiana degli economisti*, XIV, 1.

Kim, J., J. Lotz and N.J. Mau (eds.) (2010), *General Grants versus Earmarked Grants. Theory and Practice, The Copenhagen Workshop 2009*, The Korea Institute of Public Finance and Danish Ministry of Interior and Health, Rosendahls-Schultz Grafisk, Albertslund.

OECD (1999a), *Revenue Statistics 1965–1998*, OECD Publishing, *10.1787/rev_stats-1999-en-fr*.

OECD (1999b), "Taxing Powers of State and Local Government", *Tax Policy Studies,* No. 1, OECD Publishing, *10.1787/9789264174030-en*.

OECD (2002), "Fiscal Design Surveys Across Levels of Government", *Tax Policy Studies,* No. 7, OECD Publishing, *10.1787/9789264195530-en*.

Annex A

Contributors

Nobuo Akai, Professor, Osaka School of International Public Policy, Osaka University.

Hansjörg Blöchliger, Senior Economist and Head of the Fiscal Federalism Network, OECD.

Jens Blom-Hansen, Professor of Public Administration, Department of Political Science and Government, Aarhus University.

Lars-Erik Borge, Professor, Department of Economics, Norwegian University of Science and Technology.

Junghun Kim, Director of Fiscal Research, Korea Institute of Public Finance (KIPF) and the Chair of the OECD Network on Fiscal Relations across Levels of Government.

Yongzheng Liu, International Center for Public Policy, Andrew Young School of Policy Studies, Georgia State University.

Ernesto Longobardi, Professor of Public Finance, Department of Economics and Quantitative Methods, University of Bari.

Jorgen Lotz, Consultant, Copenhagen University.

Jorge Martinez-Vazquez, International Center for Public Policy, Andrew Young School of Policy Studies, Georgia State University.

Paul Bernd Spahn, Emeritus Professor of Public Finance, Goethe University, Frankfurt am Main.

Andrey Timofeev, International Center for Public Policy, Andrew Young School of Policy Studies, Georgia State University.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Union takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

KOREA INSTITUTE OF PUBLIC FINANCE (KIPF)

The Korea Institute of Public Finance (KIPF), a government research institution established in July 1992, specialises in high-quality policy-oriented research and analyses in all aspects of taxation and public finance. The institution provides policy recommendations to assist the government in formulating national tax, fiscal, and SOEs policies through systematic and scientific research.

Since its foundation, KIPF has played a significant role in the development of tax and budget policies and in the improvement of tax administration. Also, with the opening of the Research Center for State-Owned Entities in 2009, substantial changes and improvements have been made in the management policies of state-owned enterprises. The team of economic and public policy experts at KIPF strive to develop strategic insights to provide more innovative and effective tax, fiscal, and SOEs policies. KIPF publishes detailed research studies and analyses in various forms such as books, research papers, policy papers, and policy reference manuals.

OECD PUBLISHING, 2, rue André-Pascal, 75775 PARIS CEDEX 16
(11 2012 01 1 P) ISBN 978-92-64-17483-2 – No. 60433 2013

OECD Fiscal Federalism Studies

Measuring Fiscal Decentralisation

CONCEPTS AND POLICIES

Contents

Foreword
Summary
Chapter 1. Measuring decentralisation: The OECD fiscal decentralisation database
Chapter 2. On grant policy and the OECD-taxonomy of grants
Chapter 3. Measurement of decentralisation: How should we categorise tax sharing?
Chapter 4. The role of decentralisation indicators in empirical research
Chapter 5. Measuring the extent of fiscal decentralisation: An application to the United States
Chapter 6. Measuring decentralisation of public sector activities: Conceptual issues and the case of Germany
Chapter 7. Taxonomy of grants and local taxes: The Norwegian case
Chapter 8. Measuring decentralisation: The challenge of the Danish story
Chapter 9. From transfers to tax "co-occupation": The Italian reform of intergovernmental finance

Further reading

Reforming Fiscal Federalism and Local Government: Beyond the Zero-Sum Game (2012)
Institutional and Financial Relations across Levels of Government (2012)

Please cite this publication as:
OECD/Korea Institute of Public Finance (2013), *Measuring Fiscal Decentralisation: Concepts and Policies,* OECD Fiscal Federalism Studies, OECD Publishing.
http://dx.doi.org/10.1787/9789264174849-en

This work is published on the *OECD iLibrary,* which gathers all OECD books, periodicals and statistical databases. Visit ***www.oecd-ilibrary.org***, and do not hesitate to contact us for more information.

OECD*publishing*
www.oecd.org/publishing

ISBN 978-92-64-17483-2
11 2012 01 1 P

9 789264 174832