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Decentralised Government in an Integrating World

Quantitative Studies for OECD Countries

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For Glòria

Preface

This book provides an empirical and institutional analysis of fiscal federalism in OECD countries, focusing on the impact of economic and political integration on the degree of public sector decentralisation. This work has been made possible through the financial support of the German Research Foundation (DFG) within the Priority Programme “Institutional Design of Federal Systems: Theory and Empirical Evidence” and through different research projects carried out at the Centre for European Economic Research (ZEW).

First of all, I am very grateful to my supervisor Prof. Dr. Robert Schwager for finding interest in this topic and for giving me considerable freedom to write my doctoral thesis. I would like to thank him and Prof. Dr. Thiess Büttner, who kindly accepted to be my second supervisor, for their continuous support throughout this work. Additionally, I am indebted to the Centre for European Economic Research (ZEW) and to Prof. Dr. Dr. h.c. mult. Wolfgang Franz for the excellent working and research conditions. I would also like to express my gratitude to all my colleagues from the ZEW Department of Corporate Taxation and Public Finance for the pleasant working environment and many helpful discussions. Thanks are also due to several anonymous referees and to participants in international conferences who with their critical comments helped to improve the papers written during this time. I am also grateful to the student assistants, and particularly to Lena Lindlar, who provided able help in collecting and processing data and literature.

Last but not least, I would like to thank my wife, Glòria, for her unquestioning support, patience and moral understanding throughout the work on the doctoral thesis. Her affection showed me that life consists of many other important things apart from work. Furthermore, as a sign of my gratitude for the permanent support they gave me during my entire life, I wish to dedicate this work to my family, and particularly to my mother and to the memory of my grandmother.

Mannheim, September 2005 *Dan Stegarescu*

Contents

1

Introduction

La décentralisation n'a pas seulement une valeur administrative; elle a une portée civique puisqu'elle multiplie les occasions pour les citoyens de s'intéresser aux affaires publiques; elle les accoutume à user de la liberté. Et de l'agglomération de ces libertés locales, actives et sourcilleuses, naît le plus efficace contrepoids aux prétentions du pouvoir central, fussent-elles étayées par l'anonymat de la volonté collective.
A. DE TOCQUEVILLE

1.1 General Scope

The design of fiscal relations across levels of government has gained increasing importance in government practice.[1] Since the 1970s and especially during the last decade, in several industrial and developing countries, and, more recently, in the post-communist countries in East Europe, government functions and tax-raising powers have been reallocated from central government to regional or local governments. Formerly highly centralized countries like Spain, Belgium or Italy are increasingly plagued by secessionist trends and gradually evolve into federal or quasi-federal states, and countries with long-standing federal traditions like Germany and Austria currently debate on the reform of their federal structures in terms of larger subnational autonomy and stricter separation of government functions.[2] However, despite these worldwide trends, large differences in vertical government structures still persist and are not likely to disappear in the near future.

Apart from the devolution of fiscal competencies, electoral control over municipal, state, and national governments was also extended in recent times.

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[1] See, e.g., Bird (1993) and Oates (1999).
[2] See OECD (1997, 2002b, 2003) for a description of these decentralisation trends.

Accordingly, in several countries democratically elected bodies were introduced at subnational levels, and citizens were increasingly allowed to participate directly in policy-making by means of initiatives and referendums. This process of fiscal and political decentralisation is actively supported by supranational institutions such as the World Bank, the United Nations or the OECD, particularly in developing countries and East European transition countries.[3] By enhancing efficiency, policy innovation and transparency in the public sector, government decentralisation is expected to promote economic and social development.

Different forces are assumed to be at the origin of this decentralisation process.[4] The worldwide spread of democracy is often invoked as an important source of decentralisation, since it gives voice to local demands of specific groups and brings decisions closer to the citizens' preferences. In his famous article, Huntington (1993) pointed to another possible source of the breakdown and increasing decentralisation of countries: the end of the Cold War, which allowed the realignment of people into countries that better reflected homogeneous "civilisations". Another argument states that increasing economic and social prosperity is associated with increasing diversity of local preferences and the desire of citizens to influence financing and supply of public goods, thus fostering demands for decentralisation and local democracy. Whereas these explanations might apply to culturally, ethnically or linguistically heterogeneous countries, they provide no clear understanding of decentralising trends in rather homogeneous countries or long-standing democracies.

Therefore, the observed decentralisation trend may be driven by another force. Increasing fiscal decentralisation and political separatism seem to go hand in hand with the rapid progress of globalisation and integration of the world economy, particularly noticed since the breakup of the Bretton Woods system in the early 1970s. Technological improvements in methods of production, and in the ease of transportation and communication, together with the advancement of worldwide trade and financial liberalisation have reduced the impediments to mobility of goods and factors, thus increasing both the size of the markets and the degree of transnational interdependency.[5] As recently noted by Alesina (2002), among other authors, in the face of this trend, national governments increasingly prove to be too small to cope with globalisation, and too large and inefficient to take account of local or regional requirements and diversities. Some analysts, such as Ohmae (1995), e.g., even predicted the imminent demise of the nation-state in a borderless world.

Though the disappearance of the nation-state is not likely to occur in the near future, two concomitant, though opposing trends in the public sector

[3] See OECD (2002a, 2002b) with respect to EU accession countries and, also, the Decentralization Project of the World Bank described at www1.worldbank.org/wbiep/decentralization and www.decentralization.org.

[4] See Tanzi (2001) for an overview.

[5] See Amin and Thrift (1999), e.g., for a description of different aspects of globalisation.

seem to be the result of the same driving force, increasing economic integration. On the one hand, growing interdependencies and increasing commodity and financial flows erode the regulatory capacities of sovereign states, thus requiring centralisation or coordination of national government policies. Since the end of World War II, an increasing number of supranational authorities have emerged both at the global level, such as the United Nations, or the World Trade Organisation, and at the regional level, such as the European Economic Community, NAFTA, MERCOSUR, or ASEAN being the most prominent examples.

On the other hand, globalisation reduces the benefits of country size for economic growth and allows even small local entities to bypass central authorities in order to participate directly in international transactions and to compete for mobile manpower, firms and investors on global markets.[6] Within this context, Straubhaar (1999) speaks of "glocalisation", arguing that free markets and decreasing transport costs reduce the importance of national economies, at the same time strengthening local and regional agglomerations. Consequently, globalisation poses pressures to both political integration of nation-states and fragmentation into regions and cities at the same time. The World Bank recently estimated that localisation, that is the subnational desire for self-determination and devolution of power, and globalisation will be shaping the world.[7]

This parallel is even more striking with regard to European Union countries. In the course of economic and political integration, significant fiscal and political powers have been transferred from the national governments both to a supranational authority and to lower levels of government. This development is particularly associated with a rise of the regional level of government – referred to by Keating (1998) as "New Regionalism". According to the "Sandwich" hypothesis, national governments are expected to be further pushed back in the course of European integration. This process will ultimately lead to a "Europe of the Regions".[8] With the imminent coming into force of the European Constitution, the European Union gradually evolves from an initial customs union into a quasi-federalized multi-level government structure. Yet, despite this overall tendency, the form and pace of regionalisation and decentralisation differ considerably among EU member countries. Whereas Spain, Belgium, Italy, France, and more recently, the United Kingdom represent the most prominent examples of real devolution in terms of expenditure and tax-raising autonomy, other countries like Ireland, Portugal, Greece and Finland created only administrative regions under central government control.

Apart from normative considerations, these issues therefore raise the question about the common factors which determine observed differences in the

[6] See, e.g., Keating (1998) and Scott (1998).
[7] See World Bank (2000) and also Hiscox (2003), among others.
[8] See, e.g., Lammers (1999) and Zimmermann (1990). The latter, however, questions this development.

distribution of spending and taxing powers between levels of government across countries and over time. This work takes an empirical approach to investigate the determinants of vertical government structures and the developments described above. The particular aim is to analyse the causal relationship between those two broad trends, increasing integration of the world economy, and concomitant supranationalisation and decentralisation of government structures. The analysis draws on OECD countries with long-standing democratic traditions, particularly focusing on the process of European integration.

More specifically, the following questions are addressed:

- How decentralized is the public sector in OECD countries and is there a real decentralisation trend observable among them?
- What are the general determinants of cross-country differences in the degree of fiscal decentralisation?
- Is there a causal relationship between increasing economic and political integration on the one hand, and increasing fiscal decentralisation on the other hand, particularly among EU member countries?
- And, finally, which are the long-term trends in the public sector and the factors underlying them, taking Germany as an example?

1.2 Topics and Related Literature

1.2.1 Existing Studies

The interest in the public finance literature in empirical studies of vertical fiscal structures has considerably grown. This empirical literature deals partly with possible determinants of public sector decentralisation as derived from the theory of fiscal federalism,[9] or tries to detect long-term centralisation trends in the public sector, as suggested by Popitz (1927). Alternatively, other studies focus instead on the possible implications of centralisation for the size of the public sector,[10] economic and productivity growth,[11] or good governance and corruption.[12]

General reference for the analysis of vertical government structures is the theory of fiscal federalism in the tradition of Musgrave (1959) and Oates (1972). According to the "Decentralisation Theorem", the optimal degree of decentralisation of the public sector is determined by the costs and benefits of the decentralized provision of public goods. On the one hand, decentralisation

[9] See, e.g., Oates (1972), Wallis and Oates (1988), and more recently, Panizza (1999), and Strumpf and Oberholzer-Gee (2002).
[10] See the empirical Leviathan literature, e.g., Oates (1985) or Feld et al. (2003). The latter also provides a survey of this literature.
[11] See, e.g., Davoodi and Zou (1998), Thiessen (2003), or Behnisch et al. (2002).
[12] See, e.g., Arikan (2004) and Fisman and Gatti (2002).

allows for the differentiation of public goods according to local preferences and conditions. On the other hand, it implies costs in form of interjurisdictional spillovers and foregone economies of scale.

Recent theoretical work on fiscal federalism has shown that apart from traditional cost-benefit aspects, institutional rules underlying decision-making processes in democracies considerably influence the costs and benefits of decentralisation, and consequently, the choice of the vertical government structure (Besley and Coate, 2003, Lockwood, 2004, Redoano and Scharf, 2004). The delegation of political decision-making to elected representatives is shown to create a common-pool problem, collusive behaviour and vote-trading leading in the end to inefficiently high public spending and centralisation (Brennan and Buchanan, 1980).

Empirical analyses mostly support the "Decentralisation Theorem", showing that particularly heterogeneous countries or jurisdictions are more decentralized. On the other hand, the political-economic considerations and, above all, the implications of specific institutions of collective decision-making for government decentralisation have only partly been tested on a cross-national level. For example, some evidence is provided for a positive effect of local referendums and subnational participation in central decision-making on the degree of fiscal decentralisation (Schaltegger and Feld, 2001, Vaubel, 1996).

While explaining cross-country differences in the vertical government structure, the theory of fiscal federalism fails to give an adequate explanation of the recent process of decentralisation. Inspired by the spread of political separatism and the emergence of new countries throughout the world, a growing new literature (Alesina and Spolaore, 1997, Bolton and Roland, 1997) explores the economic determinants of the creation and disintegration of countries. They show that economic integration lowers the benefits of large jurisdictions by increasing the market size and reducing political and economic transaction costs. As a consequence, integration enhances incentives to secession or to regional autonomy.

However, the resulting implications of integration for the vertical government structure are mostly neglected by the literature on secessions. Apart from this, the possible contribution of political integration among countries to explaining the decentralising tendencies is not taken into account. While the negative relationship between the size of the country and the degree of economic openness is mostly confirmed in empirical studies, there is only little evidence with regard to the impact of integration on the vertical government structure. The results of some studies seem to support a positive relationship between integration and fiscal centralisation (Rodrik, 1998, Garrett and Rodden, 2003).

1.2.2 Plan of the Work

Given this background, the present work extends previous analyses in order to focus on other aspects of the positive theory of fiscal federalism which have not been explored empirically. The specific questions formulated above are addressed by dividing the work in four parts.

Measurement and Description of Fiscal Decentralisation

In order to verify the claim that decentralisation is in vogue, chapter 2 begins with the analysis and quantification of the extent of fiscal decentralisation of 23 OECD countries. We investigate how decentralized the public sector is in OECD countries and whether there is a real decentralisation trend observable among them? The share of subnational government expenditure or revenue in consolidated general government expenditure or revenue as derived from financial statistics is widely used in the literature as a proxy for the degree of decentralisation of the public sector. As already mentioned by Oates (1972), without taking into account the vertical structure of decision-making, the degree of decentralisation of the public sector tends to be misrepresented and both cross-country comparisons and the description of long-term trends might be seriously distorted.

In view of its predominant importance for subnational autonomy, the present analysis focuses on the revenue side of fiscal decentralisation. We start in section 2.2 with a general discussion of existing concepts of measuring public sector decentralisation. Drawing on an analytical framework provided by the OECD, different measures of tax autonomy and revenue decentralisation are constructed in section 2.3. Classifying local taxes according to the degree of discretion of sub-central governments, the degree of fiscal decentralisation is measured by relating revenue from taxes or other resources which are significantly controlled by sub-central government to total tax or other revenue of consolidated general government. Based on this set of fiscal indicators, the development of the vertical government structure in OECD countries is investigated in sections 2.4 and 2.5. Taking account of changes in the assignment of tax raising powers in the course of time, new time series of annual data on the corrected degree of fiscal decentralisation are provided for 23 OECD countries in the time period between 1965 and 2001.

The analysis shows that common measures usually employed tend to considerably overestimate the extent of fiscal decentralisation. Though no uniform pattern of development could be determined, evidence is provided for increasing fiscal decentralisation in a majority of OECD countries during the last three decades.

Determinants of Vertical Government Structures

In the next step, based upon the decentralisation measures developed in chapter 2, chapter 3 addresses empirically for a panel of OECD countries the question about the general determinants of cross-country differences in vertical government structures. Since the literature provides only limited cross-country evidence, the particular focus is on the contribution of preferences and institutions in explaining the degree of fiscal decentralisation.

For this purpose, section 3.2 starts with a summary of the main theoretical results of recent political-economic work on fiscal federalism. Then, section 3.3 provides a detailed analysis of decision-making institutions of the 23 OECD countries from 1965 to the present. Different institutional rules providing for subnational or citizen participation in central decision-making processes are represented by means of qualitative indicators. Based upon this, we investigate in sections 3.4 and 3.5 the effect of specific decision-making institutions on the degree of fiscal decentralisation, explicitly considering institutional changes over time, and controlling for preference heterogeneity, economies of scale and other possible determinants. More specifically, we test the collusion hypothesis and other propositions laid down in the literature.

The results of the cross-sectional time-series regression analysis indicate that institutions, as well as costs and preferences have a significant impact on the degree of fiscal decentralisation. Only when using a measure of fiscal decentralisation which accounts for the distribution of decision-making powers among levels of government, the evidence strongly supports the collusion hypothesis according to which delegation of decision-making concerning assignment of powers and national legislation to subnational representatives leads to increased centralisation of tax-raising powers. In contrast to this, direct participation of the citizens of the subnational entities is associated with more decentralisation. On the other hand, however, there is some evidence that direct democracy at the national level tends to be associated with increased centralisation.

Integration and Decentralisation

Once the factors generally determining government structures have been identified, we turn in chapter 4 to the theoretical and empirical investigation of the specific relationship between those two trends described in the introduction, integration and fiscal decentralisation. The question is whether there exists a causal relationship between increasing economic and political integration on the one hand, and increasing fiscal decentralisation on the other hand, particularly among EU member countries? The analysis draws on the new literature on secessions, which mostly neglects the resulting implications of economic and political integration for the vertical government structure and provides no thorough empirical verification.

To begin with, in section 4.2 a theoretical model is set up, which relates the degree of fiscal decentralisation to economic integration, preference heterogeneity, and economies of scale. By lowering the relative costs of local provision of public goods, integration is expected to enhance fiscal decentralisation. Political integration might further contribute to decentralisation, since market integration is intensified and the costs of supplying certain public goods from now on in the competency of the supranational level are reduced. On the other hand, by increasing economic risks, economic integration is also expected to enhance the demand for inter-regional risk-sharing or other policies carried out or enforced by the central government. Then, section 4.3 discusses different empirical considerations and some descriptive statistics on the process of integration and presents the investigation approach. The hypothesis of a decentralising effect of economic integration in general, and of political integration in the European Union in particular, is tested empirically in section 4.4 for the panel of OECD countries, along with controlling for inter-regional heterogeneity, institutions, and other possible factors. In order to focus on the impact of increasing integration and of other factors which are assumed to determine the costs and benefits of decentralisation over time, the model is estimated with country fixed effects.

The results found mostly support a decentralising effect of economic and European integration, particularly in the context of preference heterogeneity, whereas participation of subnational governments in central decision-making is associated with increasing centralisation. Some limited evidence is therefore provided for the "Sandwich" hypothesis postulating a diminishing role of national governments in the course of European integration. Also, circumstantial evidence is reported for a causal relationship between the end of the Cold War and decentralisation of the public sector.

Long-Term Trends in the Public Sector

The studies carried out for OECD countries in chapters 2-4 have shown that, in spite of few exceptions, vertical fiscal structures and institutional rules barely change over time. Chapter 5 therefore provides a long-term view on the development of the public sector, drawing on the history of Germany from the creation of a unified state in the 19th century until today. First, it addresses the question whether there is an unavoidable long-term centralisation trend in the public sector, as suggested by Popitz (1927). Second, we investigate empirically whether those factors identified above were also determining the development in Germany over a longer period of time. Whereas long-term trends in the public sector have already been dealt with by earlier studies, the determinants of the underlying development have barely been investigated in empirical terms.

The analysis starts in section 5.2 with a brief historical description of Germany's vertical government structure since 1871 until today. Then, in section 5.3, the long-term development of the public sector is quantified in terms of government size and allocation of public expenditure and revenue by fiscal tiers. The regression analysis is carried out in section 5.4. The effects of economic development and of economic and European integration on fiscal decentralisation are tested empirically for the period 1950 to 2001, controlling for other time-variant determinants of the vertical government structure.

Despite significant centralisation and coordination in today's federal system, the German experience provides no clear evidence for a continuous and unavoidable process of centralisation in the public sector, but rather for some distinct developments before and after 1950, caused by the distortionary effects of wars and regime changes. However, the collusion hypothesis is supported by institutional changes in the German history. The results of the time series analysis also contrast with previous predictions, indicating a significant decentralising effect of per capita income growth during this time. On the other hand, there is no clear evidence for a causal relationship between economic and European integration and fiscal decentralisation in the case of Germany.

The last chapter finally provides a summary of the main findings of the different studies, concluding with a discussion of future developments and resulting normative considerations.

2

Public Sector Decentralisation: Measurement and International Trends

2.1 Introduction

Motivated by increasing interest in public finance and practice in the comparison of vertical government structures, this chapter focuses on the problems encountered in defining and measuring public sector decentralisation appropriately.

Despite several shortcomings, the share of subnational government expenditure or revenue in consolidated general government expenditure or revenue is widely used as a proxy for the degree of decentralisation of the public sector. However, Oates (1972), among others, already pointed to the limitations of using budgetary shares. Without taking into account the vertical structure of decision-making, the degree of decentralisation of the public sector tends to be misrepresented and both cross-country comparisons and the description of long-term trends might be seriously distorted. It is therefore not obvious that the observed worldwide increase in the subnational government share of public expenditure and revenue actually reflects fiscal decentralisation in terms of devolution of decision-making powers to lower levels of government.

Related to this, erroneous measurement of decentralisation may seriously bias the results of empirical studies and in the end may lead to wrong conclusions. This has been recently confirmed by Ebel and Yilmaz (2003), who replicated previous studies and showed that more comprehensive measures of fiscal decentralisation actually yield deviating results. Within this context, measurement errors concerning decentralisation as the independent variable are more problematic in regression analyses than those concerning decentralisation as the dependent variable.[1] Due to its importance, the measurement of fiscal decentralisation has been recently placed on the research agenda of international organisations like the OECD or the World Bank.

[1] Greene (2000: 375f), e.g., shows that as long as the independent variable is measured properly, measurement errors on the dependent variable are absorbed in the regression disturbance and can therefore be ignored.

The analysis draws on a recent study of the OECD which provides a cross-country comparison of tax-raising autonomy of sub-central governments. Based upon the analytical framework elaborated by the OECD, measures of both fiscal autonomy and revenue decentralisation are constructed which consider tax-raising powers of sub-central governments. The new contribution is twofold. First, more recent figures on subnational tax autonomy, as well as on the different indicators of fiscal decentralisation are presented for 23 OECD countries. Second, taking account of changes in the assignment of decision-making competencies for each tax in the course of time, we investigate the long-term trend providing new time series of annual data on the degree of tax and revenue decentralisation of OECD countries in the time period between 1965 and 2001.

The analysis proceeds as follows. It starts with a presentation and discussion of existing concepts for measuring public sector decentralisation. Then, in section 2.3, different indicators of fiscal autonomy and decentralisation are derived for the revenue side. Based on this, sections 2.4 and 2.5 present new figures on fiscal decentralisation for OECD countries and investigate possible long-term trends. Finally, the results are briefly discussed and some conclusions are drawn.

2.2 Measuring Public Sector Decentralisation

2.2.1 General Definitions

Public sector or fiscal decentralisation is commonly associated with the assignment of authority for public functions or finances to lower levels of government.[2] Due to the complexity of intergovernmental relations, measuring the degree of decentralisation, however, is a difficult task which bears many dimensions and which can hardly be accomplished by using a single quantitative measure.

Among the multitude of definitions found in the public finance literature, a widely used classification distinguishes between three different forms of fiscal decentralisation:[3]

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[2] The design of fiscal relations across levels of government is to be distinguished from *political decentralisation*, that is the extension of direct or indirect participation of the citizens in public decision-making through referendums or local elections. This form of decentralisation does not necessarily imply the transfer of real fiscal responsibilities. Also, the transfer of government functions to the private sector (*privatisation* or contracting out), or, more recently, to the non-profit sector can be interpreted as a distinct form of extensive fiscal decentralisation.

[3] See, e.g., OECD (1997), Rondinelli (1999), and the Decentralisation Project of the World Bank.

– *deconcentration*: responsibility for the delivery of certain services is dispersed to regional administrative units of central government without transfer of authority,
– *delegation*: responsibility for the administration of functions is transferred to independent units of sub-central government which have some discretion in administration and implementation, but which, however, are accountable to the central government,
– *devolution*: complete decision-making authority for the financing and administration of functions is transferred to independent units of sub-central government which have corporate status.

Strictly speaking, only the last form can be considered as true fiscal decentralisation in terms of real transfer of powers. This qualification suggests to take account of two important dimensions when comparing vertical government structures across countries.[4] The first dimension comprises the formal division of functional responsibilities and revenues across levels of government. Within this context, the range and the relative importance of the different functions and revenues assigned to subnational governments, as well as the extent to which government functions are performed by the private sector determine the degree of fiscal decentralisation.

The second and most important dimension concerns the vertical structure of decision-making, that is the extent to which decisions regarding functions and resources assigned to lower levels of government are decentralised, too. A system where sub-central levels of government have real autonomy to determine the allocation of their expenditure or to raise own revenue is more decentralised than another system where local or regional government spending and revenue is determined by national legislation, even though the formal assignment of functions or revenues might be the same.

A final aspect which should be noticed, is the geographic dimension of fiscal decentralisation, that is the extent to which the assignment of functions and resources is uniformly implemented across different jurisdictions. The special case where responsibilities are unevenly distributed between sub-central government units belonging to the same level, i.e. when certain jurisdictions enjoy a specific autonomy status as compared to others, is referred to as asymmetric fiscal decentralisation.[5]

2.2.2 Common Measures of Fiscal Decentralisation

A common approach to quantifying the degree of fiscal decentralisation is to look at how extensive central and sub-central government activities are. Public output is generally approximated by means of government expenditures and revenues. Accordingly, sub-central government (SCG) expenditure or revenue are related to consolidated general government (GG) expenditure or revenue,

[4] See also Oates (1972) and Riker (1964), with respect to this.
[5] See Bird (2003).

thus weighting each government function and resource with the corresponding budgetary share.[6]

Vertical aggregation of expenditure and revenue across levels of government requires the elimination of intergovernmental expenditure (transfers) and revenue (grants). Therefore, in order to avoid double counting of intergovernmental payments appearing at both the grantor level as transfers and at the recipient level as expenditure, intergovernmental transfers are attributed either to the level of the recipient or, alternatively, to the granting level of government. In the first case, transfers from lower levels of government to the central government are attributed to the latter, the degree of decentralisation thus reporting only amounts spent or administered directly by sub-central government (*direct expenditure*, indicator *ED1* below). By this, we implicitly assume that the decision on the use of the resources is made at the level of the recipient. In the second case, sub-central government spending is adjusted for grants received from central government (*self-financed expenditure*, indicator *ED2* below), thus taking into account all public expenses financed from formally own resources. This seems particularly reasonable when the grantor prescribes the use of these funds (conditional grants). However, in case of unconditional grants, it would be more appropriate to attribute these funds to the recipient. The degree of expenditure decentralisation can then be defined alternatively as:

$$ED1 = \frac{\text{SCG total expenditure} - \text{transfers to other lev. of gov.}}{\text{GG total expenditure} - \text{intergov. transfers}} \tag{2.1}$$

$$ED2 = \frac{\text{SCG total expenditure} - \text{grants from other lev. of gov.}}{\text{GG total expenditure} - \text{intergov. grants}} \tag{2.2}$$

When focusing on the financing of public goods, decentralisation is alternatively represented in terms of revenue shares. Analogous to public spending, one could consider sub-central government revenue from own sources, thus exclusive of received grants from central government (*own revenue*, indicator *RD3* below):

$$RD3 = \frac{\text{SCG total revenue} - \text{grants from other lev. of gov.}}{\text{GG total revenue} - \text{intergov. grants}} \tag{2.3}$$

This approach to quantifying public sector decentralisation, however, suffers from certain limitations. A key methodological problem is associated with the use of aggregate measures. The difficulty consists in distinguishing as to what extent the degree of decentralisation reflects the assignment of functions and

[6] See Oates (1972), Pryor (1968), and Levin (1990). Breton and Scott (1978) propose alternatively to use population shares as weights for the public output provided in each jurisdiction. In the following discussion, we abstract from the problems encountered in the measurement of public output.

resources to different levels of government or, merely, the relative size of sub-central government activities. An increase in the measure of decentralisation might be due to a *ceteris paribus* increase in either the volume, or, in the range of public goods provided by sub-central government. The first effect simply describes a shift in the budgetary shares of the different government functions – in general caused by changing patterns of demand for public goods. In contrast to this, the second effect implies what is generally referred to as true fiscal decentralisation, namely the reassignment of existing government functions or the introduction of new functions in favour of the decentralised provision of public goods.

A second problem is associated with measurement based on fiscal data. Most cross-country empirical studies draw on budgetary data reported in financial statistics.[7] It is widely accepted that budgetary data in general, and expenditure or revenue shares, in particular, are imperfect indicators of the share of public goods supplied by sub-central governments and of the actual degree of decentralisation of the public sector.[8] First of all, the second dimension of fiscal decentralisation mentioned above, that is the vertical structure of decision-making with regard to public expenditure and revenue, is not accurately represented by public finance statistics. These report expenditure and revenue figures at the level of government which ultimately operates or receives them, irrespective of whether it has discretion upon them. Thus, expenditure mandated by the central government or spent on behalf of the central government is reported as subnational expenditure. In addition, no distinction is made between locally determined own taxes, piggybacked or shared taxes, or between conditional and unconditional intergovernmental grants, all being reported as sub-central revenue and grants. It is therefore difficult to interpret the unadjusted subnational share of expenditure and revenue as reported in financial statistics as an indicator of expenditure and financial autonomy.

Apart from decision-making structures, expenditure and revenue shares also fail to capture the extent of legislative and regulatory activities and

[7] Cross-country analyses draw particularly on the Government Finance Statistics (GFS) of the IMF. See, among others, Levin (1990), Panizza (1999), Thiessen (2003), Miñana (1998), and Rahmann et al. (1994). A description of data and methodology can be found in IMF (2001). Some studies also use National Accounts statistics of the UN, such as Oates (1972) and Pommerehne (1977), of the OECD, such as Patsouratis (1990), or the World Tables reported by the World Bank. These statistics, however, encounter certain limitations and generally lack more recent data. Note also that indicators based solely on public consumption data tend to overestimate the degree of decentralisation, since redistributive transfers of central government are not taken into account.

[8] See, e.g., Oates (1972), Levin (1990), Wasylenko (1987), OECD (1999), and Kraus (1983) for a comprehensive discussion of the measurement of decentralisation. With regard to other possible limitations of fiscal indicators based on GFS data, see also Ebel and Yilmaz (2003), and the Decentralisation Project of the World Bank.