



OECD Working Papers on Fiscal Federalism No. 4

Fiscal Equalisation in OECD Countries

Hansjörg Blöchliger,
Olaf Merk,
Claire Charbit,
Lee Mizell

<https://dx.doi.org/10.1787/5k97b11n2gxx-en>



COM/CTPA/ECO/GOV/WP(2007)4

OECD Network on Fiscal Relations Across Levels of Government

FISCAL EQUALISATION IN OECD COUNTRIES

Working Paper N°4

Hansjörg Blöchliger, Economics Department, O.E.C.D.
Olaf Merk, Public Governance Department, O.E.C.D.
Claire Charbit, Public Governance Department, O.E.C.D.
Lee Mizell, Public Governance Department, O.E.C.D.

FISCAL EQUALISATION IN OECD COUNTRIES

TABLE OF CONTENTS

FISCAL EQUALISATION IN OECD COUNTRIES	1
Introduction and summary.....	5
The rationale for fiscal equalisation	7
Regional disparities	8
A snapshot at fiscal equalisation systems.....	10
Size and institutional design of fiscal equalisation	10
Taxonomy of fiscal equalisation.....	11
Fiscal equalisation and equity	13
The disparity-reducing effect of fiscal equalisation.....	13
Fiscal equalisation should reduce sub-central inequity, but in some cases could increase it	14
Contributors and receivers vary from country to country.....	14
Fiscal equalisation and sectoral policies interact	15
Incentives in revenue equalisation.....	15
Revenue equalisation design.....	15
Revenue equalisation can reduce a jurisdiction’s tax effort	16
... and open a development trap for poorer regions	16
Incentives in cost equalisation.....	18
Cost equalisation design	18
Cost equalisation can inflate expenditure needs.....	20
Cost equalisation should disregard (dis)economies of scale in service production... ..	20
... and should not be earmarked	21
Sustainability and stability of fiscal equalisation	22
Fiscal equalisation can put pressure on the budget	22
... and can be pro-cyclical	22
Governing fiscal equalisation.....	23
Horizontal equalisation is more transparent than vertical.....	23
Cost equalisation is more prone to rent seeking than revenue equalisation.....	24
Asymmetric decentralisation	25
NOTES.....	26
REFERENCES	28
ANNEX: SOURCES AND METHODS.....	31
Data on regional disparities.....	31
Evolution of GDP disparities	31
Table 1: Main statistics on fiscal equalisation systems.....	33
Data sources and methodology	33
Caveats.....	34

Table 2: Disparity-reducing effect of fiscal equalisation	34
Data sources and methodology	34
Caveats.....	35
Table 3: Revenue equalisation	36
Data collection	36
Table 4: Cost equalisation	37
Data sources and methodology	37
Statistical methods to determine service cost	37

Tables

Table 1. Main features of fiscal equalisation, 2004	11
Table 2. Fiscal disparities and disparity reducing effect of fiscal equalisation, 2004.....	13
Table 3. Revenue equalisation, 2004	17
Table 4. Cost equalisation	19

Figures

Figure 1. Gini index of inequality of GDP per capita across regions within each country, 2003	9
Figure 2. Taxonomy of fiscal equalisation, 2004	12

Boxes

Box 1. Main reasons for equalisation	7
Box 2. Key terms.....	8
Box 3. Equalisation tax rates in Austria	18
Box 4. Earmarked equalisation grants in the United States and Switzerland.....	21
Box 5. Ensuring budget stability for both central and sub-central governments: the case of Canada	23
Box 6. Political economy of equalisation transfers in OECD countries	24
Box 7. Asymmetric decentralisation in OECD countries.....	25
Towards an internationally comparable fiscal capacity index.....	36

Introduction and summary

1. Fiscal equalisation is a transfer of fiscal resources across jurisdictions with the aim of offsetting differences in revenue raising capacity or public service cost. Its principal objective is to allow sub-central governments to provide their citizens with similar sets of public services at a similar tax burden. Fiscal equalisation can be seen as the natural companion to fiscal decentralisation as it aims at correcting potential imbalances resulting from sub-central autonomy. If sub-central governments had no fiscal power, no fiscal equalisation would be needed. Distinct fiscal equalisation arrangements first emerged during the 1940s and 1950s in a number of federal countries, and today most OECD Member countries have introduced some explicit or implicit fiscal arrangement that reduces fiscal disparities across jurisdictions. The significance of fiscal equalisation is highlighted not only by its extensive use in both federal and unitary countries, but also by the fact that its objectives and principles are often laid down in the constitution and hence form a central pillar of national fiscal policy.

2. Fiscal equalisation is an explicitly redistributive programme, and as such is highly controversial. The stakes of jurisdictions with high tax revenue and low cost of public services are almost inevitably opposed to those jurisdictions with low tax revenue and high public service cost. Reforms of fiscal equalisation are a “give and take” where the distributional outcome across jurisdictions – the highly visible “global balance” – is likely to dominate any other aspect of potential arrangements such as efficiency, transparency or else sub-central autonomy. Many well-thought and balanced proposals to improve fiscal equalisation do not survive the lengthy and strenuous process towards political acceptance by all or at least a great majority of sub-central governments. In such a framework, arrangements not only tend to be complex, they also require a lot of inventive talent to bring in at least some improvements with regard to efficiency or transparency. The strong interplay between the political system and intergovernmental fiscal relations requires that equalisation is not assessed on technical grounds only but must involve a closer look at the political economy constraints.

3. Fiscal equalisation is also tremendously country specific. Fiscal equalisation is shaped by the wider institutional framework such as size, number and geographical distribution of sub-central governments, the responsibilities and fiscal resources allocated to each jurisdiction, or the mechanics of power sharing between the central and the sub-central level. Those arrangements often form the constitutional backbone of a country and will, if ever, be difficult to change. Fiscal equalisation reflects such variety. Some equalisations arrangements comprise a simple redistribution of fiscal resources that do not impinge on sub-central autonomy while others help central governments closely shape and adapt public service delivery at the local level. While some countries have developed distinct equalisation transfers, others do not even use the term “equalisation” although most have some implicit instruments to attenuate inter-jurisdictional fiscal disparities. The wealth of explicit and implicit, statutory and common, equalisation arrangements makes it hard to find a common baseline and reduces the body of generalised policy analysis applicable to all countries alike. In-depth fiscal equalisation analysis will always, as will other issues of fiscal federalism, require a great deal of country-specific knowledge.

4. This said, the paper aims at analysing fiscal equalisation issues that are common to all OECD member countries. Its objective is to evaluate fiscal equalisation systems in the light of the key aims of public finance: equity, efficiency and stability. The paper first presents the rationales for fiscal equalisation and an overview on regional economic disparities in OECD countries. It then gives a short overview on stylized facts and main statistics of fiscal equalisation in OECD countries. The following sections deal with policy outcomes: the extent to which fiscal equalisation systems reduces fiscal disparities across jurisdictions; the extent to which both revenue and cost equalisation provide incentives for local and regional governments to develop their economic and fiscal base; and the extent to which equalisation

contributes to a balanced budget and fiscal stability. The final section deals with institutional and governance issues. Most information contained in this paper was collated from the responses to a questionnaire distributed to members of the OECD Network on Fiscal Relations across Levels of Government in spring 2006. Eighteen countries (Australia, Austria, Canada, Denmark, Finland, Germany, Greece, Italy, Japan, Mexico, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, and United Kingdom) responded fully or partially to the questionnaire. Additional input was provided by an expert workshop on fiscal equalisation held in Zaragoza, Spain, in June 2006. Finally, recent academic research on fiscal equalisation design and outcomes in various countries was incorporated.

5. The main findings can be summarized as follows.

- *Fiscal equalisation makes up around 2.3 percent of GDP.* Across countries, the size of equalisation transfers varies between 0.5 and 3.8 percent of GDP, between 1.2 and 7.2 percent of government expenditures, or between 110 and 1 200 USD per capita. A part of the difference is due to the difficulty of separating equalisation from other intergovernmental transfers, however (paragraphs 17 to 21).
- *Equalisation significantly reduces disparities.* Disparities in fiscal capacity are reduced by roughly two thirds on average. Most country arrangements have roughly similar equalising effect, but in a few countries disparities are virtually reduced to zero. Horizontal fiscal equalisation has a slightly stronger equalising effect per GDP percent used than vertical fiscal equalisation (paragraphs 22 to 29).
- *Equalisation can pose a problem for budget stability.* Fiscal equalisation can jeopardise budget stability, especially if transfers are open-ended and/or if sub-central governments are entitled to a minimum fiscal capacity. Moreover, high annual transfer fluctuations and frequent formula adjustments can complicate sub-central budget planning. To cope with budget drift, some countries have set equalisation transfers as a fixed percentage of total tax revenue and introduced ceiling and floor provisions to dampen fluctuations. Horizontal systems are less likely to create budget problems since central government is financially not involved (paragraphs 44 to 48).
- *Revenue equalisation can reduce tax and development effort, especially in poorer regions.* A high “equalisation tax” – the rate at which additional own tax revenue is equalised away – can reduce a jurisdiction’s effort to develop its economic and fiscal base and slow down regional convergence within a country. Poor regions are particularly affected since they often face an equalisation tax rate of 100 or more percent. Equalisation arrangements can be successfully designed to promote tax and development effort of sub-central governments (paragraphs 32 to 36).
- *Cost equalisation is prone to rent seeking and can become ineffective.* Given that the higher expenditure side is more decentralised than the revenue side and given the heterogeneity of local and regional public services, cost equalisation tends to become complex and prone to pressure from special interests. Although cost disparities are much smaller than revenue raising disparities, cost equalisation transfers are more important than revenue equalisation transfers. The variety of potential cost factors is likely to reduce the system’s overall efficiency, since the disparity-reducing effect of cost equalising transfers could mutually be cancelled out (paragraphs 37 to 43 and 51 to 55).
- *The choice of standardised revenue or cost bases can mitigate disincentives.* Many countries use Representative Tax Systems to determine revenue raising capacity and thereby reduce negative incentive effects for tax collection. Some countries also use sophisticated methods to estimate the true cost of service provision, in order to vitiate sub-central governments’ incentive to inflate expenditures (paragraphs 34 and 39).

The rationale for fiscal equalisation

6. Fiscal equalisation serves several potential roles (box 1). Its primary policy objective is horizontal equity among the residents of different jurisdictions, i.e. ensuring that, subject to local decisions, all persons or firms in a country can obtain comparable public services at comparable tax rates. Fiscal equalisation may also correct for inefficiencies that might arise if households choose their location based on fiscal rather than productivity considerations, although equalisation itself may reduce labour mobility and hence adjustments between regions. Finally, fiscal equalisation may help support macroeconomic stabilization, insuring regions against asymmetric shocks they may not be able to cope with if left alone. Equalisation is a passive, corrective fiscal policy with no growth and development strategy behind it, and there is a case for concomitant policies aiming at productivity increases, such as transport, research and education. Fiscal equalisation aims at equalising regional public revenue, not GDP or individual household revenue. Like any other redistributive programme, fiscal equalisation policy can result in potentially adverse fiscal and economic incentives for sub-central governments (see section on incentives in revenue equalisation).

Box 1. Main reasons for equalisation

1. EQUITY

- *To equalise per capita tax revenue raising capacity and the per-beneficiary cost of providing public goods and services across regions.* Tax raising capacity per capita and cost of providing public services can differ across regions for geographic or socio-economic reasons. The objective of equalisation is to provide every citizen with an average level of public services at comparable tax rates.
- *To equalise the marginal benefit of public spending across regions.* OECD countries that have central government programs for important public services (such as health and education) administered by sub-central governments, may use equalising transfers to equalise the marginal social benefit of public spending across regions.

2. EXTERNALITIES

- *To avoid fiscal externalities resulting in a misallocation of labour and/or capital across regions.* A decentralised fiscal system could distort the location decision of mobile factors. Unequal tax bases result in pecuniary incentives to locate in high tax base regions, thereby distorting location decisions of mobile factors of production. Grants that equalize tax bases across regions will eliminate this source of inefficiency.

3. INSURANCE

- *To provide insurance against asymmetric income or employment shocks.* If the regions of a country are subject to asymmetric shocks, redistributive grants may provide regions with insurance against the adverse effects of such shocks on income or employment.

In all countries, the driving force for equalisation is equity, i.e. having similar tax raising capacity and equal access to public services across jurisdictions.

7. Besides fiscal equalisation, other government fiscal activities have intended or unintended redistributive or other effects. Per capita transfers or transfers using demographic indicators have often equalising effects, particularly if financed through progressive taxes, and often it is difficult to separate equalisation from other transfers. National taxes – that help, among other things, fund equalisation – change the relative fiscal positions of sub-central jurisdictions.¹ Moreover, through direct investment, public employment or public procurement in policy areas such as education, energy, transport, health care or defence, central government is also able to affect the distribution of fiscal resources across jurisdictions.

Box 2. Key terms

- Revenue raising capacity – the potential ability of a region to raise revenue. Also called “fiscal capacity”
- Expenditure needs – the potential cost for a jurisdiction to provide a given set of services
- Fiscal disparity – the differences in revenue raising or fiscal capacity among regions
- Revenue equalisation - a transfer of fiscal resources to reduce differences in a jurisdiction’s per capita revenue raising capacity
- Cost equalisation - a transfer of fiscal resources to reduce differences in a jurisdiction’s per capita cost of providing a standard set of public services.
- Horizontal equalisation - the transfer of fiscal resources between units at the same level of government
- Vertical equalisation - the transfer of fiscal resources from the central government to sub-central governments
- Vertical fiscal imbalance - the difference between own tax revenue and own expenditure of a jurisdiction
- Fiscal gap - the difference between revenue raising capacity and expenditure needs

Finally, in some countries, regional policy and fiscal equalisation closely interact. While the interaction between fiscal equalisation and other public sector policies should not be neglected, a deeper analysis is beyond the scope of this paper.

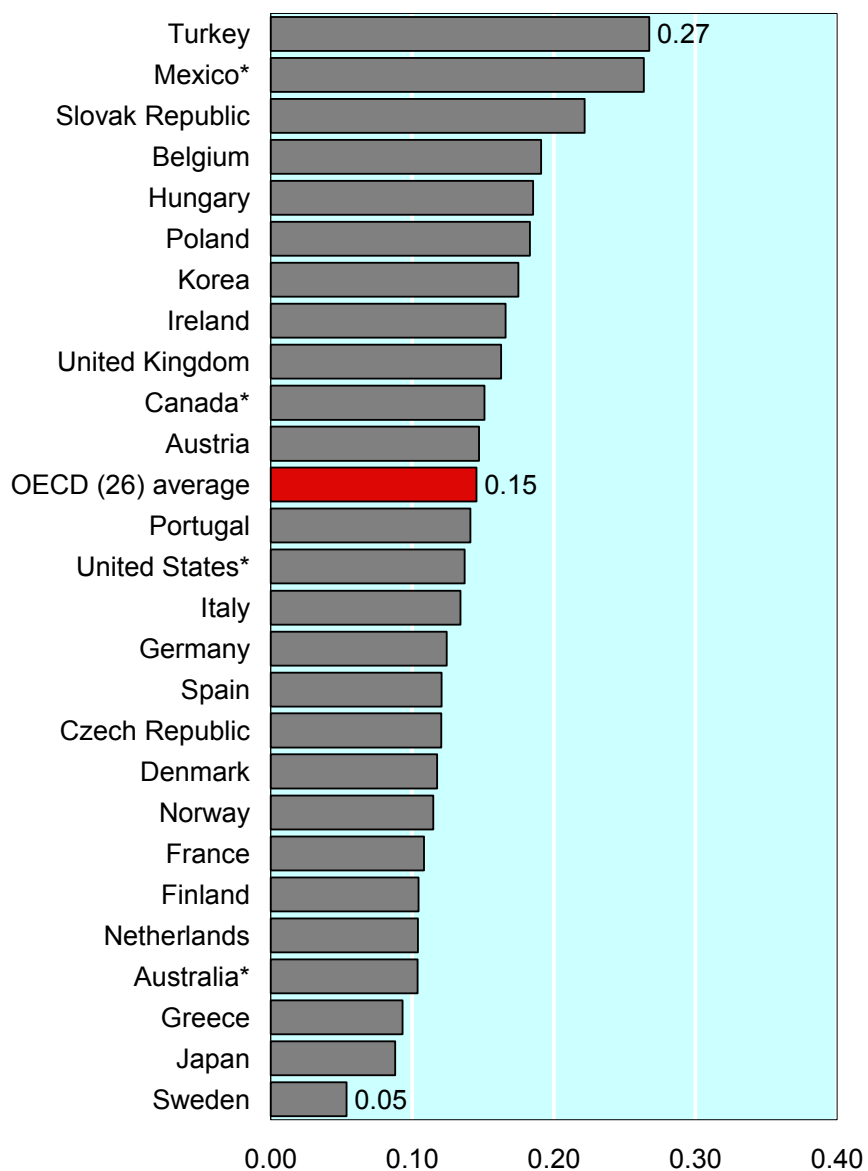
Regional disparities

8. The main rationale for fiscal equalisation is the presence of unequal economic circumstances, which produce disparities in the capacity of different regions to generate wealth and thus fiscal resources. Policies to reduce these disparities are justified by equity concerns. Specifically, it is assumed that citizens of the same country should have approximately the same access to public services independent of the place where they live.

9. How much does fiscal capacity vary across regions in OECD countries? GDP per capita, which is one important determinant of revenue raising capacity and thus one indicator of fiscal capacity, indicates that disparities among regions are often substantial (figure 1).² The Gini index, which measures disparities among all regions of a given country³, shows that Turkey (0.27), Mexico (0.26), and the Slovak Republic (0.22) exhibit the largest regional inequalities in GDP per capita per region. By contrast, Greece (0.09), Japan (0.09), and Sweden (0.05) have the most equal regional distribution of GDP per capita. The average Gini index for 26 OECD countries is 0.15 (OECD, 2007).

10. Not only are regional disparities substantial, but they also tend to be persistent. Analysis of the evolution of the coefficient of variation in regional GDP per capita from 1980 to 2002 shows that, with the exception of some central European countries and Germany in the aftermath of reunification which exhibit a peak of regional disparities, the level of disparity has fluctuated around the same country-specific value over the whole period (see annex). This suggests that regional disparities have remained basically unchanged in many countries over a period of more than 20 years.

Figure 1. Gini index of inequality of GDP per capita across regions within each country, 2003



Notes: Data are estimated for TL3 regions, except for countries marked with an asterisk (*) which indicates that data are for TL2 regions. Regional type is defined in the methodology annex.

Source: OECD (2007), "Regions at a Glance"

11. Equity concerns also arise due to unequal costs of providing public goods in different regions of the same country. Differences in geographic location, population size, demographic trends as well as path-dependency on economic shocks all contribute to the cost of providing public goods and services in different places.

12. One important feature affecting the cost of services is a region's size and the concentration of the population. More populous regions tend to benefit from economies of agglomeration (related agents located near each other). (Of course, too many people or firms can cause congestion, resulting in diseconomies of agglomeration and negatively affecting the cost of service delivery). Moreover, certain goods and services (e.g. hospitals, motorways) can be produced efficiently only beyond a minimum scale. This is why the provision of public goods in scarcely populated or remote regions will tend to be either more expensive or undersized.

13. In fact, there is a high degree of concentration of population in OECD countries. The concentration of population is greatest in Australia and Canada where 10% of regions account for slightly more than 60% of the national population. In contrast, the territorial distribution is more balanced in the Slovak Republic (12% of the population in 10% of regions), the Czech Republic (17%), and Belgium (17%) (OECD, 2007).

14. In addition, on average about half of the OECD population (46%) lives in predominantly urban regions. In the Netherlands (85%), Belgium (83%), and the United Kingdom (70%), a vast majority of the population lives in predominately urban regions. By contrast, in places such as Ireland, Finland, and Sweden, at least half of the population lives in predominately rural regions (OECD, 2007). In these cases, one would expect there to be a need to equalise between concentrated and dispersed areas.

15. The cost of services across regions also varies due to differences in demographic characteristics. For example, in all OECD countries the elderly population has increased dramatically over the last 30 years. As elderly people tend to be concentrated in few areas within each country, a small number of regions will have to face the social and economic challenges associated with an ageing population, such as provision of health care services, affordable housing, and accessible transportation. Similarly, if the welfare of residents varies across regions, expenditure needs can also be expected to vary. For example, unemployment rates vary significantly within regions of OECD countries. The Gini index shows that in 2003, Italy was the country with the largest disparity in unemployment rates (the Gini value was 0.43) whereas the Netherlands boasted the lowest disparity in the unemployment rate (0.09). The average for OECD countries was 0.19 (OECD, 2007).

16. It is important to point out that disparities in the cost of public service provision, whether arising from differences in population distribution, demographics, or welfare status, pose a problem for sub-central governments and require fiscal equalisation only if the sub-central entity is responsible for delivering services in the respective policy area.

A snapshot at fiscal equalisation systems

Size and institutional design of fiscal equalisation

17. The central features of fiscal equalisation systems can be assessed using a few key variables (Dafflon and Vaillancourt, 2002). These include the size of transfers relative to GDP, government expenditure, intergovernmental transfers or population, the type of disparity or inequality the systems is tackling, *i.e.* revenue or cost differences, or the position of fiscal equalisation within the wider intergovernmental fiscal framework such as tax sharing. The questionnaire asked to elicit only those fiscal arrangements as fiscal equalisation that provide greater transfers per resident to sub-central governments with below-average tax revenue-raising capacity, or greater transfers per resident to sub-central governments with above-average public service cost, but this distinction proved difficult for some countries.

Table 1. Main features of fiscal equalisation, 2004

Country	Size				Number of transfers	Cost and revenue equalisation	Subnational equalisation	Percent of closed-ended transfers
	Percent of GDP	Percent of government expenditure	Per capita (PPP-USD)	Percent of intergovernmental transfers				
Federal/regional countries								
Australia	0.49	1.41	110	6.87	1	joint	yes	100
Austria	3.77	7.57	1227	39.72	15	separate	no	64
Canada	1.00	2.50	326	32.99	2	separate	yes	84
Germany (2005)	1.97	4.21	569	22.24	13	separate	yes	60
Italy	3.00	6.33	849	55.00	5	separate	no	91
Mexico	3.75	n.a.	384	45.39	8	cost equalisation only	no	23
Spain	2.97	7.65	768	60.99	1	cost equalisation only	no	100
Switzerland	3.00	8.17	1035	62.96	7	separate	yes	56
Unitary countries								
Denmark	2.81	5.13	907	23.26	n.a.	separate	no	n.a.
Finland	3.79	7.42	1129	70.01	4	separate	no	100
Greece	1.19	2.39	257	80.45	10	separate	no	100
Japan	4.04	11.01	1244	n.a.	3	cost equalisation only	no	100
Norway	0.54	1.18	220	11.01	2	separate	no	100
Poland	n.a.	n.a.	n.a.	n.a.	10	separate	no	n.a.
Portugal	1.85	4.05	343	63.15	4	joint	no	100
Sweden	2.61	4.61	813	54.79	4	separate	yes	100
Turkey	1.09	n.a.	794	21.10	2	revenue equalisation onl	no	0
United Kingdom (England)	n.a.	n.a.	530	n.a.	1	separate	yes	100
Unweighted average	2.26	4.75	641	43.33	5			78

Source: OECD National Accounts and national sources.

18. With an average of 2.3 percent of GDP or 4.8 of government expenditure, fiscal equalisation has a considerable impact on both central and sub-central public finance, roughly comparable to what sub-central governments spend on health care. The size of equalisation varies considerably across countries, pointing both at the varying degree of sub-central revenue autonomy and the political weight given to equal public services access. While in some countries fiscal equalisation qualifies for the majority of intergovernmental transfers, in others the equalisation element makes up a small part of transfers only. All but three countries established both revenue and cost equalisation arrangements, and in most cases the two equalisation forms are institutionally separate. Additional equalisation arrangements between state/regional and local governments are in place in a few federal countries. The majority of transfers is closed-ended, *i.e.* total amounts are either determined institutionally (*e.g.* as part of tax sharing), or through ex ante central government budget decisions. Quantitative and qualitative statistics could be slightly distorted as some countries clearly separate equalisation from other transfers while others use “compound” systems where funding and equalisation are combined (see annex).

Taxonomy of fiscal equalisation

19. The variety of equalisation arrangements that have emerged over time can be best captured by a taxonomy reflecting on one hand the direction of equalisation transfers – horizontal versus vertical - and on the other hand the type of disparity equalised – revenue versus cost equalisation.

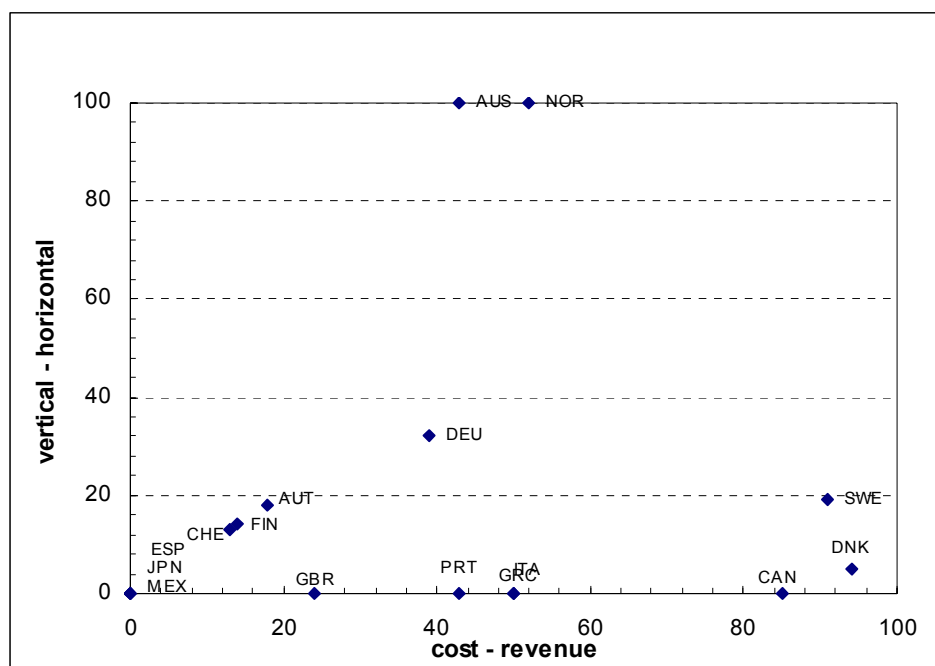
- The first distinction is between horizontal and vertical equalisation. In horizontal equalisation arrangements payments are transferred between sub-central governments, while in vertical or

“gap filling” arrangements equalisation payments are transferred from the central government to sub-central governments.

- The second distinction is between revenue and cost equalisation. Revenue equalisation aims at reducing differences in a jurisdiction’s per capita revenue raising capacity, while cost equalisation aims at reducing differences in the per capita cost of providing a standard set of public services. Cost difference can further be differentiated into whether they are due to special needs (a higher level of a particular service is required per capita) or higher unit cost (a particular service is more expensive per unit in one jurisdiction than another).

20. In practice, “pure” systems hardly exist, and most countries today use all types of equalisation to a varying degree. Figure 2 shows the pattern of equalisation arrangements that developed within and across countries. The horizontal axis depicts the cost-revenue dimension (the more to the left, the more “cost-oriented” the system), and the vertical axis depicts the vertical-horizontal dimension (the higher, the more “horizontal” the system).

Figure 2. Taxonomy of fiscal equalisation, 2004



Source: National sources

21. The figure hints at a wide variety of equalisation models and arrangements across countries. A closer look at the picture shows that vertical equalisation is more important than revenue equalisation. Across countries as well as within a country horizontal equalisation tends to be horizontal while cost equalisation tends to be vertical, but this picture is qualified by some countries (Canada has a vertical revenue equalisation arrangement, and Sweden has horizontal cost equalisation). Whether a country is constitutionally federal or not has surprisingly little influence on equalisation models: Although federal/regional countries tend towards horizontal revenue equalisation while unitary countries tend towards vertical cost equalisation, differences are small and variation within a country group is larger than variation between the two groups.

Fiscal equalisation and equity

The disparity-reducing effect of fiscal equalisation

22. Fiscal equalisation will first and above all be analysed on the grounds of its impact on fiscal disparities. Table 2 gives an overview of fiscal capacity indicators of OECD sub-central governments before and after equalisation.⁴ The table is divided into two sections, one for federal countries or countries that provided data for the regional level, and another for unitary countries. For federal/regional countries the indicators are calculated for the state/regional level and include every single jurisdiction. For unitary countries, local governments are grouped into deciles (or “tenths”) ranked in increasing order of fiscal capacity before equalisation. Both sections of the table show the variation and Gini coefficients of fiscal capacity across sub-central governments, and the maximum and minimum fiscal capacity before and after equalisation. Given the different statistical procedures to calculate fiscal capacity indices, results for federal/regional and unitary countries are not comparable. Details on statistical procedures can be found in the annex.

Table 2. Fiscal disparities and disparity reducing effect of fiscal equalisation, 2004

Country	Before equalisation (in percent)				After equalisation (in percent)				Equalisation effect (difference pre/post-equalisation, percent points)	
	Variation coefficient	Gini coefficient	Highest capacity	Lowest capacity	Variation coefficient	Gini coefficient	Highest capacity	Lowest capacity	Variation coefficient	Gini coefficient
Federal/regional countries										
Australia	16.8	5.0	103.8	79.8	0.0	0.0	100.0	100.0	16.8	5.0
Austria					4.2	2.0	106.9	93.2		
Canada	29.8	10.0	177.1	75.0	20.1	7.0	156.9	92.9	9.7	3.0
Germany (2005)	13.0	6.0	116.5	67.0	2.7	2.0	104.5	97.4	10.3	4.0
Italy	39.0	21.0	146.0	24.0	6.0	10.0	115.0	89.0	33.0	11.0
Spain	26.5	15.0	142.2	67.2	10.1	4.0	117.4	83.7	16.4	11.0
Switzerland	31.8	15.0	173.0	46.0	23.2	11.0	159.0	64.0	8.7	4.0
Unitary countries										
Denmark	16.0	8.0	134.0	62.0	6.0	4.0	175.4	86.4	10.0	4.0
Finland	17.7	11.0	143.0	78.8	4.2	3.0	104.8	95.3	13.4	8.0
Japan	36.0	20.0	183.0	58.0						
Norway	23.0	13.0	142.0	64.0	8.0	5.0	118.0	93.0	15.0	8.0
Portugal	90.0	34.0	331.0	26.0	28.0	14.0	138.0	65.0	62.0	20.0
Sweden	10.0	6.0	118.0	84.0	0.0	0.0	103.0	91.0	10.0	6.0
Turkey	39.0	22.0	130.0	2.0	14.0	6.0	107.0	64.0	25.0	16.0
Average	29.9	14.3	156.9	56.4	9.7	5.2	123.5	85.8	19.2	9.1

Source: National sources.

23. In most countries fiscal equalisation has a substantial disparity-reducing effect (table 2). On average, equalisation reduces fiscal disparities, as measured by the coefficient of variation of fiscal capacity before and after equalisation, by almost two thirds, from 29 percent to 10 percent. Similar effects are shown by the Gini coefficient.⁵ The lowest revenue raising capacity rises from 57 to 86 percent of the national average, the highest revenue raising capacity is reduced from 155 to 122 percent of the national average across countries. Revenue raising capacity after equalisation is never below 64 percent for the poorest jurisdiction (Switzerland) and never above 175 percent (Denmark) for the richest. In some countries revenue raising disparities are virtually eliminated such as in Austria, Germany and Sweden. Horizontal arrangements have a slightly stronger equalisation effect per GDP percent point used for equalisation than vertical equalisation (not shown in the table). Fiscal disparities after equalisation are

clearly below economic disparities as measured by regional GDP, i.e. public services are more equally distributed across jurisdictions than economic wealth. The results shown in table 2 are in line with analyses for selected countries (Chernick, 2003).

Fiscal equalisation should reduce sub-central inequity, but in some cases could increase it

24. Equalisation outcomes can also be evaluated with respect to their outcomes for single jurisdictions or groups of jurisdictions. In general, equalisation leads to greater equity, but there may be exceptions. Those exceptions are complex to show for systems based on cost differences since it is difficult to assess to what extent the possibilities for an equivalent service level are reached. Regarding equalisation based on fiscal resources which are generally equalising, problems can come from the definition of fiscal capacity. In some countries this definition does not include all the local revenue sources, which might be substantial in resource-rich countries such as Canada and Norway. When local income from natural resources is not taken into account, it might lead to less equalisation transfers than would have been possible. This is an issue that is discussed in both Canada and Norway.

25. Equalisation arrangements based on fiscal effort usually increase regional disparities. In order to create incentives to use the local tax base, some equalisation arrangements take an indicator of fiscal effort into account. Examples are Japan, the former system in Switzerland and Turkey.⁶ This can give an equalisation grant a matching character: to the extent that a local unit raises its taxes it can get relatively more of the equalisation grant. This matching element in practice favours the richer local units. The equalisation system thus increases regional disparities.

Contributors and receivers vary from country to country

26. The question of who contributes is dependent on specific national and regional circumstances, the character of decentralized functions, other local revenues resources and the design of the equalisation arrangements. Several national and regional circumstances determine whether there is a large regional redistribution or not. In some countries the differences between regions are bigger, so the need for equalisation might be more urgent. Countries differ with respect to the extent of decentralisation: It is thus difficult to draw general conclusions from the practices in many OECD countries.

27. However, the question of which regions contribute and which ones receive can attract a lot of political attention. Equalisation arrangements have to be paid, either directly (via a horizontal system) or indirectly (via a vertical system financed by national tax revenues generated at the sub-central level). Although there can be a national logic to regional redistribution and the allocation criteria can be listed objectively, the practical reality is that some regions would have to pay and that regional politicians can be more or less discontented with that. The feeling of having to pay too much for other regions can lead to calls for more regional autonomy (Italy, Spain).

28. In general, metropolitan areas seem to be the contributors in equalisation arrangements. Remote rural areas seem to benefit in most OECD countries. As far as a general pattern can be discerned, it could be as follows: metropolitan areas are generally richer than rural areas and thus have a larger tax base. Rural areas at the same time have to deal with higher costs for certain services, because population is less concentrated so services might cost more and because the composition of the population might involve more costs (for example more elderly people). Large cities might also have higher than average costs, since they might have larger social problems to solve. In systems in which only fiscal capacity is equalised, metropolitan areas will usually be the contributors. In systems in which only cost differences are equalised, metropolitan areas will usually benefit, as will remote, rural areas. Many OECD countries have an equalisation system in which both fiscal capacity and cost differences are equalised. The consequences of this system depend on several factors, but in many cases the contributions of metropolitan areas outweigh

the benefits they receive on the basis of cost differences. This is for example the case in Sweden, Finland, Norway, Japan, Korea and the system designed in Italy (but not implemented yet) (See OECD Territorial Reviews of Finland (2005), Stockholm (2006), Seoul (2005) and DeWit (2004).

29. There are however also countries where metropolitan areas benefit from the equalisation arrangements. This is generally the case in countries in which the equalisation of cost differences is relatively more important than those in fiscal capacities. This is also the case in countries in which a relatively small proportion of local revenues comes from local taxes, so that there are less fiscal differences to equalise. This is for example the case in Netherlands and England. Lobbying power of regional or local governments with the central governments also has an influence on net benefits for certain regions. Whereas the whole cost equalisation system in the Netherlands gets evaluated regularly, the costs of the four largest cities in the Netherlands have never been subject to this evaluation (Merk, 2006).

Fiscal equalisation and sectoral policies interact

30. In countries without formal equalisation arrangements, such as the US, a certain form of equalisation is reached via sector policies. In this case, regional equivalence of service possibilities will be reached by the allocation of block grants and earmarked grants. Examples are the earmarked education grants and health care grants in the US (see box 4 in the section on cost equalisation). Sector policies are however by no means limited to countries without a formal equalisation system. Countries with extensive decentralisation and an equalisation system limited to equalising tax capacities, such as Canada, will take account of the differences in costs in different ways. In the example of Canada, the block grants for health care do have a substantial system of cost-related allocation criteria that have equalising consequences.

31. Regional policies and equalisation arrangements become embedded when equalisation grants cover a larger number of policy domains and compensation for cost differences is included. Regional policy goals can in principle be instrumented by equalisation arrangements, except for regional development programmes. This is, however, more difficult when local governments have limited responsibilities, receive relatively a large portion of their revenues in earmarked instead of general purpose grants, and if the allocation of the general purpose grant does not take cost differences into account. In countries where local responsibilities increase, where general purpose grants become more important, and where cost differences are taken into account, such as is the idea in Italy, regional policy with an emphasis on sectoral approaches will become less important in equalising regional differences.

Incentives in revenue equalisation

Revenue equalisation design

32. An account of revenue equalisation is given in table 3. As shown before, slightly more revenue equalisation design is of the horizontal or “solidarity” type. Representative tax system (RTS) or potential tax raising capacity with a broad tax base (personal income tax, corporate income tax, property tax) are the most common form to assess fiscal capacity, but other systems also exist, including population density, household income or proxies for economic activity. In a few countries actual tax revenue is used for assessing revenue raising capacity, and tax revenue is distributed per capita. Most transfers are closed-ended, i.e. a ceiling is usually provided on the total amount of grants, or total funds are determined by tax sharing formulas. The “marginal equalisation rate”, (or “equalisation tax”, “tax back” or “compensation rate”), - the amount of money a sub-central governments loses (wins) if it increases (decreases) its own tax revenue by 100 monetary units – varies considerably across countries; on average out of an additional 100 units of own tax revenue sub-central jurisdictions have to dedicate 70 to equalisation. Effective rates vary according which tax bases and to what percentage they are included in the calculation of the fiscal capacity indicators.⁷

Revenue equalisation can reduce a jurisdiction's tax effort ...

33. The “equalisation tax rate”, i.e. the rate at which a sub-central government’s additional revenue is equalised away, is one of the most debated issues in fiscal equalisation. High equalisation rates, reaching 100 percent in some cases and levelling out differences in fiscal capacity almost completely, may dampen sub-central governments’ efforts to increase their fiscal base and to go for regional growth. There is evidence on a negative relationship between equalisation and economic and fiscal effort (OECD, 2006b; Wurzel, 2003). Moreover, sub-central governments may have an incentive to increase tax rates in order to reduce the tax base and to obtain higher equalisation grants, resulting in strategic tax rate setting and an overall increase of taxation levels (Dahlby and Warren, 2003; Smart, 2007, Büttner, 2006). Since many fiscal equalisation formulas do not or only partially capture all sub-central taxes, governments are tempted to avoid taxes that enter the formula and select taxes that do not, resulting in a distorted sub-central tax structure.⁸). Lenient tax effort, especially if tax administration is under sub-central control, may also be a result of high equalisation rates.

34. Equalisation arrangements can be successfully designed to promote tax effort and economic development of sub-central governments, however. Many countries have moved towards comprehensive RTS or use centrally levied taxes to assess sub-central revenue raising capacity, thereby leaving sub-central jurisdictions much less leeway to play with the fiscal base. Imposing tax rate ceilings and floors may also reduce sub-central strategic behaviour. A comprehensive equalisation formula that fully includes all major sub-central taxes reduces strategic behaviour and can help achieve a given equity objective with lower equalisation rates. The disincentive that fiscal equalisation may have on sub central tax effort also depends on the wider economic objectives of sub-central governments and their voters. Depending on their power to shape local and regional economic and fiscal policy, the constituency may be in favour of policies that stimulate investment and employment in the local and regional economy - since they increase total disposable income – even if additional tax revenue is entirely equalized away (Schneider, 2002). The constituency may accept a fiscal zero-sum game under the condition that firms grow, that people get jobs or that new residents settle in the jurisdiction.

... and open a development trap for poorer regions

35. In some cases, fiscal equalisation can open a development trap for poorer jurisdictions and even increase long term disparities. Most equalisation arrangements guarantee a minimum fiscal capacity to all sub-central governments, i.e. jurisdictions whose fiscal capacity falls below a certain threshold are fully compensated. Jurisdictions below the minimum threshold face a marginal equalisation tax rate of 100 percent, while jurisdictions above face a smaller tax rate that can be as low as zero percent, depending on equalisation design (see box 3). Such equalisation creates asymmetric incentive effects, with a stronger disincentive for poorer jurisdictions to develop their economic and fiscal base. Fiscal equalisation may hence exacerbate the gap between low- and high revenue jurisdictions and slow down or even impede regional economic convergence.⁹ Some empirical evidence suggests a negative relationship between the size of equalising transfers and regional growth performance (Garnaut and FitzGerald, 2002, Baretto, Huber and Lichtblau, 2000), although the effect could be positive or negative depending on the assumptions and scenarios used (Dixon, Picton and Rimmer, 2005).

Table 3. Revenue equalisation, 2004

Country	Direction	Revenue base	Percentage of closed-ended transfers	Equalisation rate	Percent of Frequency of changes to the distribution formula GDP	Conditionality attached
Federal/regional countries						
Australia	horizontal	Potential tax raising capacity, payroll, property sales, land values, mining activities	100%	n.a.	1.98	every five years
Austria	horizontal	Tax sharing system, actual tax revenue collected	100%	0% for <i>Länder</i> above average fiscal capacity, 88% for <i>Länder</i> below	2.66	every four years
Canada	vertical	Representative Tax System with 33 different taxes	100%	0% percent for provinces above average fiscal capacity, 70-100% for provinces below	0.91	formerly every five years, currently more frequent
Germany	both horizontal and vertical	Tax sharing system, actual tax revenue collected, RTS	85%	n.a.	0.76	less often than every five years
Italy	vertical	Representative Tax System	100%	55% to 90%	2.91	less often than every five years
Mexico		(no revenue equalisation)				n.a.
Spain		(no revenue equalisation)				n.a.
Switzerland	both horizontal and vertical	Actual tax revenue, tax rates, household income	100%	n.a.	0.96	less than every five years
Unitary countries						
Denmark	horizontal	n.a.	n.a.	85% for metropolitan municipalities, 90% for poor municipalities, 58% for others	n.a.	less often than every five years
Finland	horizontal	Representative Tax System (Personal Income Tax, Corporate Income Tax, Property Tax)	100%	40% for municipalities above 90% of average fiscal capacity, 100% for municipalities below	0.53	minor changes every two to five years
Greece	vertical	Actual tax revenue	100%	n.a.	1.19	some earmarked
Norway	horizontal	Potential tax revenue (all local governments set the same tax rate)	100%	55% for municipalities above 90% of average fiscal capacity, 90% for municipalities below	0.28	less often than every five years
Poland	vertical	Representative Tax System (Personal Income Tax, Corporate Income Tax, actual tax revenue)	n.a.	n.a.	n.a.	every two to five years
Portugal	vertical	Actual tax revenue	100%	0% for municipalities above average fiscal capacity, 100% for municipalities below	0.80	less often than every five years
Sweden	horizontal	Potential tax revenue	100%	85% for municipalities above 115% of average fiscal capacity, 95% for municipalities below	2.39	every two to five years
Turkey	vertical	per capita	0%	n.a.	0.71	9 changes in the last 20 years
United Kingdom	vertical	actual tax revenue	100%	0-100% according to property tax brackets	n.a.	every two to five years

Source: OECD National Accounts and national sources.

Box 3. Equalisation tax rates in Austria

Some Austrian municipalities with weak fiscal capacity face equalisation tax rates exceeding 100 percent. The comprehensive and complex Austrian fiscal equalisation is embedded in a tax sharing system that covers both the state and the municipal level. Shared taxes are distributed across the *Länder* according to population mainly and a factor representing tax shares of the past, and to the municipalities according to various criteria such as fiscal capacity, expenditure needs and a scale factor favoring larger municipalities. Altogether five distinct equalisation schemes govern the allocation of the equalisation grant to the individual municipality, each with different tax and expenditure bases. As the equalisation formulas interact, a municipality's overall loss in equalisation grants may in some cases be greater than its gain in additional tax revenue resulting from development efforts. Since the disincentive is larger for poorer than for wealthier municipalities, and since policy makers at the *Länder* level tend to favour development in municipalities with a low equalisation tax rate (Schneider, 2002), Austrian municipal equalisation may in the long run exacerbate economic and fiscal disparities.

36. Central governments have responded in some cases and tackled these disincentives. In several equalisation systems only a part of sub-central tax revenue enters the equalisation formula. The Canadian government, conceding that equalisation could impede resource development in the poorer Atlantic Provinces, set up accords endorsing that a part of natural resource revenue does not enter the equalisation formula (Canada Department of Finance, 2006). However, such arrangements reduce transparency and increase complexity in a system that should be entirely formula-driven (OECD, 2006a). Regional policy may also offset the negative incentives of fiscal equalisation, particularly if entitlements are not contingent on a jurisdiction's wealth. Italy has set up regional development programmes where a part of investment support is linked to a region's performance in selected policy areas (Busillo, 2006). Lowering the minimum fiscal capacity threshold reduces the number of jurisdictions facing a 100 percent equalisation tax rate, but such a measure could raise equity concerns. The trade-off between equity and efficiency can, albeit managed, not be entirely avoided.

Incentives in cost equalisation

Cost equalisation design

37. A detailed account of cost equalisation is shown in table 4. Cost equalisation covers around 1.4 percent of GDP. Unlike revenue equalisation, cost equalisation is vertical in most countries, *i.e.* it is central government that is responsible for the financial fine-tuning of sub-central public service cost. While most countries today use standard cost type equalisation formulae, in several countries equalisation is based on historical or actual expenditure. In most unitary countries cost equalisation is closed-ended while in many federal countries they are open-ended, and indeed cost equalisation tends to occupy a larger share of government expenditure in the latter than in the former. While countries usually indicated that cost equalisation was not earmarked, many countries' actual practice is to attach bold regulatory strings on centrally provided funds.

Table 4. Cost equalisation, 2004

Country	Direction	Cost base	Percentage of closed-ended transfers	Size in % of GDP	Frequency of changes to the distribution formula
Federal/regional countries					
Australia	horizontal	Average/Standard cost	100%	0.28	Every five years
Austria	vertical	Average/Standard cost, actual expenditure	37%	3.11	Every four years
Canada	vertical	Average provincial expenditure growth	0%	0.16	Formerly every five years, currently more frequently
Germany	vertical	Global lump sum contributions, actual expenditures	45%	1.21	Less often than every five years
Italy	vertical	Actual expenditure	n.a.	0.09	Less often than every five years
Mexico	vertical	Unit cost, historical expenditure	17%	3.75	n.a.
Spain (2005)	vertical	Historical expenditure	100%	1.48	Between every two to five years
Switzerland	vertical	Actual expenditure	28%	2.04	Between every two to five years
Unitary countries					
Denmark	vertical	Average/Standard cost	n.a.	n.a.	Less than every five years
Finland	vertical	Average/Standard cost, actual expenditure	100%	3.26	Every two to five years
Greece		(no cost equalisation)			
Japan	vertical	Average/Standard cost	100%	11.01	Every year
Norway	horizontal	Average/Standard cost	100%	0.26	Every two to five years
Poland	vertical	Per capita	some closed-ended	n.a.	n.a.
Portugal	vertical	Average/Standard cost	100%	1.05	Less than every five years
Sweden	horizontal	Average/Standard cost	100%	0.44	Every two to five years
Turkey		(no cost equalisation)			
United Kingdom	vertical	Average/Standard cost	100%	n.a.	Every year

Source: National sources.

Cost equalisation can inflate expenditure needs

38. Cost equalisation can give sub-central governments considerable leeway to influence expenditure needs and lead to inflated equalisation payments. First, since the spending side is more decentralized than the revenue side, cost equalisation is potentially more prone to budget drift than revenue equalisation. Second, given that sub-central governments are responsible for many policy areas and that sub-central public services are very heterogeneous, cost equalisation tends to be complex and difficult to manage. Although on average cost disparities amount to one third to one fourth of revenue disparities only and are hence much lower than revenue disparities, cost equalisation is even slightly larger than revenue equalisation in terms of the GDP ratio.¹⁰ Large cost equalisation schemes may point at insufficient own-source revenue (Mexico, formerly Italy) or at distorted fund allocation in the past.¹¹

39. The extent to which cost equalisation can withstand spurious demand while addressing true expenditure needs depends on how needs are assessed. Cost equalisation that relies on actual spending gives sub-central governments an incentive to inflate the budget.¹² Cost equalisation based on historical expenditure reduces budget drift but perpetuates former misallocations and differences in public service levels across jurisdictions. Today most countries use standard or norm cost approaches that separate “avoidable” from “unavoidable” expenditures and account only for features that are beyond sub-central control.¹³ Spending for voluntary service improvements or due to simple waste does not enter the equalisation formula. In order to avoid complexity and to reduce rent seeking, cost equalisation should rely on a few indicators covering a broad range of needs rather than a multitude of indicators reflecting numerous special circumstances. Despite the many pros of the standard or norm cost approach, the statistical procedures to determine effective needs and equalisation payments are tricky and sometimes yield inconclusive results (OECD, 1981, Lotz, 2006a). Statistical methods that allow governments to determine the true cost of service provision are described in the annex.

Cost equalisation should disregard (dis)economies of scale in service production...

40. Expenditures for public service not only depend on need factors but also on production function characteristics such as (dis)economies of scale and scope.¹⁴ “Dispersion” as well as “density” of the population may affect the unit cost of service delivery. Smaller municipalities could be more expensive to run since schools, hospitals and other public facilities exhibit fixed costs. On the other hand, services such as security or fire protection bring about higher per capita expenditures in urban areas. Infrastructure, often based on capital-intensive network industries such as energy or transport systems, exhibits strong economies of scale and unit cost decrease considerably over a wide range of population size and density. In most countries, per capita expenditures are U-shaped with respect to jurisdictional size, with very small and very large settlements having higher per capita expenditure,¹⁵ although it is unclear to what extent this is linked to the cost of local government service provision (Lotz, 2006b). The policy question is to what extent such production-induced cost variations – even if they are beyond control of a single sub-central government – should be taken into account when determining cost equalisation grants.

41. To take the industrial organisation of public services into account for determining equalisation entitlements is risky. Although differences in production cost may be outside government control, and although a school, a hospital or a fully-fledged administration indeed may be more expensive in some jurisdictions, introducing additional compensation for higher production cost is likely to preserve inefficient structures and institutions. Equalisation payments favouring small municipalities could prevent them from amalgamating or from searching other forms of joint provision that would help save cost or increase quality. In the long run, differentiated payments could also reduce service providers’ interest in developing cost-saving technologies. Several countries have introduced adjustments for population size and related features in their equalisation formulas, and this has delayed efficiency-promoting institutional

reform and sometimes even led to awkward outcomes.¹⁶ Equalisation systems using the cost of production as an indicator carry the risk of protracting rather than removing inefficient structures.

...and should not be earmarked

42. In some countries, equalisation transfers are earmarked. Sub-central governments perform public services on behalf and under control of the central government, and equalisation forms part of an implicit or explicit contract between the central and sub-central government. Such arrangements raise considerable efficiency concerns. Earmarking is an input rather than an output- or outcome-related strategy. It brings about considerable administrative burden and compliance cost for both the central and sub-central governments. Earmarking reduces sub-central choice and can lead to distorted sub-central budget allocation, especially if grants cover many small budget items. And if earmarked grants are matching sub-central spending – so-called matching grants –, their equalising effect is likely to be weak or even negligible (see box 4).

43. The purpose of equalisation transfers is to provide regions with the resources that would enable them to meet national standards of redistributive equity if they so chose, but does not compel them to do so. Earmarking contradicts this very idea of sub-central autonomy, and the administrative cost to control the correct use of equalisation grants can be considerable. If central government is to retain control over the proper use of equalisation funds, it can do better through appropriate public service regulation such as minimum standards or output and performance indicators, while leaving operation and management of fiscal resources at the discretion of local and regional governments (Bergvall et al, 2006). Most countries today refrain from earmarking equalisation grants.

Box 4. Earmarked equalisation grants in the United States and Switzerland

Both the United States and Switzerland have for some time been using earmarked grants to reduce fiscal disparities within their federal system. Medicaid, the US medical insurance programme for the indigent and by far the largest intergovernmental programme in the US, is an open-ended earmarked matching grant with the matching rate varying between 50 and 77 percent inversely related to state income per capita (Laubach, 2005). Most US states also use earmarked grants to finance local school districts with a matching rate inversely related to the districts' tax raising capacity. In Switzerland, cost equalisation is composed of around 350 earmarked grants with a matching rate between 40 and 95 percent, inversely related to cantonal fiscal capacity. Implicitly, earmarked equalisation systems assume high price elasticity and low income elasticity for public goods.

The experience after decades of earmarked equalisation is mixed, however. While regional and local governments indeed tend to spend more on subsidized services, the disparity reducing effect is quite small. The US Medicaid programme does little to reduce disparities precisely because poor states tend to spend less on health care (Levitt and Poterba, 1994). The states' educational grants are estimated to have reduced the large fiscal inequalities among school districts only by 19 to 34 percent (Evans, Murray and Schwab, 1998), and have reduced spending of high-spending districts rather than increased spending of low-spending districts (Hoxby, 2001). With around 3 percent, Switzerland's earmarked equalizing grants have an even lower disparity reducing effect (Frey et al, 1994). Both the US and Swiss experience show that although poorer regions get a higher matching rate, they are also less willing or able to put up their own funds, so the resulting equalizing effect is at best weak. The disappointing outcome of earmarked grants led the Swiss government to thoroughly overhaul its fiscal equalisation system as from 2005 on (Blöchlinger and Reschovsky, 2003).

Sustainability and stability of fiscal equalisation

Fiscal equalisation can put pressure on the budget...

44. Fiscal equalisation, in particular vertical cost equalisation arrangements, can put pressure on the central budget. Many countries ensure that their sub-central governments have a minimum fiscal capacity or fully cover expenditure needs without setting a ceiling to total payments. In Ireland, Portugal and Spain, jurisdictions have grandfather rights even if the distribution formulae would call for a reduction in annual transfers.¹⁷ Several countries regularly adapt and extend cost indicators in order to account for newly emerging needs, inviting rent seeking that may result in a soft budget constraint for sub-central governments (Goodspeed, 2002). Analysis for two countries for which detailed data is available (Mexico, Switzerland) suggests that central government at least partially gives in to sub-central pressure (OECD, 2003 and OECD, 2004), leading to above-average transfer growth. That not only damages the central government's fiscal stance, but it is also likely to reduce overall effectiveness of equalisation, as the disparity-reducing effect of various indicators could be mutually cancelled out (France).¹⁸

45. Institutional constraints to contain budget drift vary across countries. Horizontal equalisation tends to be less prone to budget drift than vertical equalisation as central government is financially not involved. Some countries use closed-ended vertical transfers and ceiling provisions irrespective of sub-central financial needs. In some countries total equalisation payments are determined in advance as a share of total tax revenue or total expenditure (Japan, Korea, Portugal), thereby limiting expenditure increases, although occasional increases of the sub-central governments' share undermined the limit's credibility. A neat way to reduce budget drift is to concatenate different equalisation transfers: In Switzerland's post-2007 equalisation system vertical revenue equalisation will be determined – within a range - as a percentage of horizontal revenue equalisation, thereby forging political coalitions between the federal and cantonal governments against expenditure increases. Finally, some countries established agencies and other arms' length independent bodies that help contain and channel transfer increases (e.g. Denmark). While strong institutional constraints are likely to cap central budget drift, they could lack the necessary flexibility in reacting to legitimate sub-central needs.

46. An adequate set of rules on how budgets are drafted, approved and implemented can also help better align equalisation needs with budgetary resources. There is some evidence that improved budget management leads to greater fiscal discipline (Ahmad, Albino-War and Singh, 2006). Several countries present detailed and binding medium-term budget projections for equalisation payments and their growth (Canada, Denmark). In a few countries fiscal equalisation is linked to other transfer mechanisms and scattered over several budget lines, reducing transparency and complicating a general view of the true cost of equalisation, but most central budgets today report a few broad equalisation line items only or even report equalisation as a single distinct transfer (Canada, Germany).¹⁹ In some countries a two-stage budget procedure, whereby the overall budget for equalisation is determined *separately* from the distribution formula, successfully limits rent-seeking pressure (e.g. Norway). Put together, fiscal equalisation should be embedded in a general fiscal framework that ensures stability and fiscal discipline.

... and can be pro-cyclical

47. Business cycles may also pose a problem when allocating equalisation payments. Rapid adjustments to changes in sub-central tax capacity or expenditure needs can exacerbate cyclical movements and destabilise aggregate fiscal policy.²⁰ In some countries, equalisation payments are frequently and rapidly adjusted to changes in sub-central tax capacity, and these adjustments can exacerbate annual fluctuations in total sub-central revenue, particularly if sub-central fiscal behaviour is in itself pro-cyclical. There is some evidence that in Canada and Germany vertical equalisation increased the volatility of sub-central revenues, while German horizontal equalisation tends to act as an automatic stabiliser (Boadway

and Hayashi, 2002, and von Hagen and Hepp, 2000). Moreover, business cycles and equalisation payment fluctuations have an asymmetric effect on sub-central behaviour: in an upturn expenditures are increased while in a downturn tax rates are increased (Rattso and Tovmo, 1998).

48. Most countries harness equalisation as an automatic stabiliser, by linking equalisation payments to lagged fiscal capacity indicators or by applying moving averages, thereby avoiding excessive sub-central revenue volatility. Canada, where fluctuations in equalisation transfers have been a concern for both the federal and provincial governments for decades, in 2005 thoroughly overhauled both the procedure to determine the overall equalisation budget and the distribution formula (see box 5). Nevertheless, equalisation that reacts slowly to the cycle may put sub-central budgets at risk, particularly if the revenue base – such as local business taxes – is highly volatile (Finland). There is hence a certain trade-off between the stability and the insurance objective of equalisation: central governments may compensate sub-central governments for fluctuations at the risk of exacerbating business cycles, or use sub-central governments as automatic stabilisers at the cost of undermining their budget security.

Box 5. Ensuring budget stability for both central and sub-central governments: the case of Canada

The search for a balance between fiscal stability at the federal level and budget predictability for the provinces is an ongoing concern in Canada. Unlike in most other federations, revenue equalisation is not horizontal but vertical, i.e. the federal government is entirely responsible for equalisation payments. The standard to which provinces are equalized has changed several times and is currently set by five middle-income provinces. Provinces below this average receive equalisation payments; provinces above the standard are not affected by equalisation.

Since their introduction in 1957, fluctuations in equalisation payments have been large, making budgeting difficult for both the federal government and for provinces. Ceiling and floor provisions have been used in the past to attempt to limit fluctuations. In 2004, a new formula was introduced which replaced ceiling and floor provisions with a 3-year moving average approach to determine entitlements. This approach would have limited fluctuations in payments substantially; however it did not set a limit to the global equalisation budget and thus still posed a certain threat to fiscal stability.

The formula was superseded in autumn 2004 by a new funding framework. Whereas funding levels for equalisation had previously been endogenously determined (or open-ended), total payments under the new framework are “fixed” (pre-set by fiat or closed-ended). The new rules eliminate budgetary uncertainty and the risk of fiscal drift for the federal government since total payments – for all provinces combined – are set and known in advance of each fiscal year. They also substantially reduce - though not eliminate - year-to-year fluctuations in payments to individual provinces through ceiling and floor provisions, making budgeting easier for provincial governments. Total equalisation is now set at \$10.9 billion for 2005-06, with 3.5% annual growth thereafter.

Governing fiscal equalisation

49. Each type of equalisation system requires a different institutional set up. There are different types of equalisation systems, as has been illustrated in earlier sections. An equalisation system can be horizontal or vertical; and equalize differences in costs or revenues. As the character of each equalisation type differs, its institutional characteristics, also with regard to transparency and the most suitable institutional elements, will also differ.

Horizontal equalisation is more transparent than vertical

50. Horizontal systems are likely to be more transparent than vertical systems because they usually do not mix funding and equalisation (Bergvall et al, 2006). In addition, sub-central governments will know without exception whether they are a net receiver or a net contributor, as there is a concrete transfer from net contributors to net receivers. For vertical systems this is less clear because most of the sub-central

governments receive a transfer and therefore some calculation is needed to establish whether a municipality is a net receiver or contributor. In countries with horizontal systems (such as Germany) the principle of equalisation is more likely to be established in the constitution, although the institutional arrangements are not necessarily worked out there. The equalisation systems in most of the OECD countries are established in law. In many cases, further regulation is provided in executive decrees or ministerial decrees. This set legal framework provides stability to the system, but can also make it less flexible. The obligation to cooperate with local governments is put in law in many OECD countries, but less so in countries with vertical systems, such as Sweden, Denmark and Korea.

Cost equalisation is more prone to rent seeking than revenue equalisation

51. Cost equalisation is more complicated than revenue equalisation. The decisions to be made in a revenue equalisation system are usually quite simple: a tax base has to be selected and the rate of equalisation. In cost equalisation systems criteria have to be selected that objectively explain cost differences, their weight has to be established and the associated data have to be collected. The margin for error and interpretation is larger in cost equalisation systems. This will have several consequences that are described below.

52. Cost equalisation will be revised more often than revenue equalisation systems. Revisions to equalisation systems are needed when current distribution criteria, or their weight, prove to be inadequate. Responses to the questionnaire indicate that most adjustments to cost equalisation systems take place within a timeframe of about five years (e.g., Australia, Finland, Sweden, Spain and Poland). In countries with revenue equalisation or systems that rely less on cost criteria, such as Germany and Italy, adjustments of the equalisation arrangements take place less than every five years.

53. Sub-national governments have more possibilities to influence a vertical cost equalisation system. As the vertical system makes it fuzzier who receives and who contributes and as cost equalisation systems leave more margin for interpretation, vertical cost equalisation systems will usually be the systems for which most sub-national lobbying takes place. The possibilities for undesirable political influence are bigger in cost equalisation. The same reasons that make a vertical cost equalisation system more prone to lobbying by sub-central governments will make it a more likely object of undesirable political influence. Equalisation, by nature, will to some extent be political, as it is connected to issues of efficiency and equity – and the trade off between the two requires political choices.

Box 6. Political economy of equalisation transfers in OECD countries

The political economy of grants and tax shares looks at the effects of political factors that ought not to affect the distribution according to the equalisation policy of the country concerned, but that in fact do.

- Grossman (1994) assumes that grants buy support of state voters and the 'political capital or resources' of state politicians and interest groups which can be used to further increase the support of state voters for the federal politician. He tests the model for 49 states in the US. He finds that similarity of party affiliation between federal and state politicians increases the per capita dollar amount of grants made to a state. He also finds that increases in the size of the state bureaucracy and union membership lead to greater grants for a state.
- Johansson (2003) estimates the number of swing voters, using election data survey in Sweden, and finds that municipalities with many swing voters receive larger grants than other municipalities.
- Sorensen (2003) finds persistent disparities in local government grant revenues in Norway that cannot be accounted for by regional policy aims or equity objectives. He finds that disparities in number of seats allocated to the election districts, as well as differences in local lobbying activities, influence the distribution of grants between municipalities and counties.
- Meyer and Naka (1999) shows that transfers from the central government in Japan to prefectures are not only affected by income-differences among different prefectures but by various political institutional factors, such as party affiliation and per capita representation. The results indicate that over-represented prefectures received more

real per capita transfers than did under-represented prefectures.

- Kraemer (1997) analysed the determinants of the regional distribution of federal transfers to provincial governments in Mexico in 1992. He found that transfers were allocated in a way to favour states that remained loyal the political party PRI during the crucial 1988 presidential election.
- Gonçalves Veiga and Pinho (2005) look at the allocation of grants from the central government to municipalities in Portugal. They find that grants increase in election years and that the longer a mayor has been in office, the more funds are transferred to his municipality. They find that these effects are particularly strong for grants that are not formula-determined.

54. Having an independent body that allocates equalisation transfers is more necessary for cost equalisation than for revenue equalisation. An independent agency leaves less room for political bargaining; allocation of equalisation money is defined as a technical exercise. In order to do justice to different circumstances, a fine-tuned allocation model tends to be used. Recent research confirms that independent agencies are less prone to political influence than ministries (Khemani, 2004).²¹

55. Revisions in cost equalisation will need to be carried out objectively. The process of adjusting equalisation formulas is organized differently in different countries. In many countries the opinion of local governments is taken into account, but also civil servants, politicians and experts can be involved. Countries with cost equalisation systems will have to give more guarantees for an objective procedure. A typical procedure therefore involves experts and not only civil servants.²²

Asymmetric decentralisation

56. Several countries have introduced a form of asymmetric decentralisation (see box 7). Asymmetric decentralisation could lead to an iterative process in which equalisation becomes increasingly difficult. Since such a construction has to be paid by the other regions, the remaining poorer regions will get less and the remaining richer regions will have to pay more. So they, in turn, will become more secession-prone. Asymmetric decentralisation might thus undermine the inter-regional solidarity that lies at the core of every equalisation system. Instead of engaging an asymmetric decentralisation process that might be difficult to sustain, more energy could be spent on finding a fair balance within an equalisation arrangement.

Box 7. Asymmetric decentralisation in OECD countries

Several OECD countries have implemented some form of asymmetric decentralisation. In Spain, Navarra and the Basque communities have tax powers beyond those of the other "autonomous communities". In Italy, there are 5 special regions that have more responsibilities than the 15 ordinary regions; they are also allowed to keep part of the VAT they generate for the national government.²³ In Canada, Quebec has special powers to encourage the use of the French language and protect the French-Canadian culture. In the UK, the Scottish Parliament has significantly more policy-making authority than the Welsh Parliament. In the US, Indian reservations have their own specific taxing and regulatory authority that differ from those of ordinary state government. In Portugal, there are special fiscal arrangements for Madeira and the Azores; in Finland for the Aland Islands.

NOTES

-
1. The net effect of central government's taxes collected at the sub-central level and its fiscal transfers to the sub-central level is widely debated in countries with a vertical fiscal imbalance (or fiscal gap) and significant vertical equalisation (such as Canada).
 2. The link between GDP per capita and tax-base depends on the tax base of sub-national governments, the regional composition of GDP, and the link between GDP and the actual tax-base. The development of GDP per capita and the effect on the tax-base depends on the composition of GDP and the parts of GDP that are growing, as tax rates usually differ between different components of GDP. Generally, GDP per capita can be assumed to be a good indicator of revenue raising capacity. While GNP may also be a useful measure of regional fiscal capacity, these data are not readily available.
 3. The value of the Gini index ranges between 0 and 1: the higher the value, the larger the inequality among regions in terms of GDP per capita (see methodology in annex).
 4. Revenue raising capacity is used here as a proxy for fiscal capacity since most countries only provide revenue raising capacity but not cost disparity indicators, necessary to construct an overall fiscal capacity indicator.
 5. The Gini coefficient is population-weighted while the variation coefficient is not. Small jurisdictions with very high or very low revenue raising capacity therefore affect the coefficient of variation more than the Gini coefficient.
 6. Sharing of taxes generated at the place of origin can interfere with an equalisation arrangement. In some countries part of the local revenue comes from a share of the taxes that are generated locally. The idea is that richer areas, usually large metropolitan areas, should be able to profit from the wealth that they themselves create. Metropolitan municipalities in Turkey, for example, are allowed to keep 5% of the general tax revenues collected within their boundaries. This is in addition to the allocation of the general revenue share to municipalities, which is based on a per capita-criterion. The result is that the richer, metropolitan areas get relatively more of the revenue share: almost 70% of the budget of Istanbul consists of the revenue share, whereas municipalities on average get 50%.
 7. Marginal equalisation rates are extremely difficult to calculate and values should be taken with care. Statutory and effective equalisation rates may vary considerably because tax bases interact and because equalisation formulas fully or partially omit some tax bases. Often the effective rate is endogenously defined, as the total amount to be disbursed is decided first, followed by a calculation of the equalisation rate for each jurisdiction. Also the *marginal* equalisation rate must be carefully distinguished from the *average* long-run reduction in SCG fiscal disparity. Both indicators may vary considerably. In Germany, around 50 percent of the long run differences in state tax revenue are offset by equalisation (Von Hagen and Hepp, 2000), in the United States less than 50 percent of differences in education spending are eliminated (Evans, Murray and Schwab, 1997). In France, national grants reduce inequality among municipalities by 30 percent only (Gilbert and Guengant, 2002).
 8. In Canada, some natural resource taxes do not enter the equalisation formula. In Germany or Austria, only a part of municipal business taxes enters the equalisation formula.
 9. The relatively larger public sector and therefore the political economy of equalisation-dependant jurisdictions might reinforce this effect. Economic underperformance and long standing disparities are often seen as the result of development-discouraging policies and attitudes linked to equalisation (Poschmann and Tapp, 2005).

-
10. To calculate revenue and cost disparities, figures on pre- and post equalisation tax revenue and expenditures for each state/region or municipal decile were used. Using these proxies, disparities in revenue raising capacity appear larger than cost disparities for all countries.
 11. Biased fund allocation could also have perverse effects in that it could change the ranking order of regional fiscal capacity before and after equalisation (Ruiz-Huerta, 2006).
 12. The former cost equalisation in Switzerland, in force until 2006, was based on actual spending by the cantons.
 13. Strictly speaking, it means separating a sub-central jurisdiction's "preferences" from its "needs".
 14. For a detailed presentation of this issue, see the Proceedings of the Experts' Meeting on "Efficiency of Sub-central Public Spending" held in the Ministry of Economy and Finance, Paris, France, May 2006.
 15. The shape of the curve much depends on the country. In general, settlements below 10 000 and above 250 000 inhabitants exhibit higher than average expenditure.
 16. While the Austrian and Czech revenue equalisation systems both grant disproportionately higher grants to larger municipalities, grants aimed at cost equalisation seem to favour smaller municipalities. This could explain the fierce resistance of Czech municipalities to merge and the increase in the number of municipalities in Austria. In Korea, the number of administrative districts and government officials enters as indicator into the local tax share formula. The Portuguese equalisation system until 2006 used the number of *freguesias* (parishes or municipal sub-units) as an indicator for a municipality's entitlements; the Local Finance reform of 2007 now provides incentives for mergers of *freguesias*.
 17. In Portugal, where total transfers were a fixed share of national tax revenue, the "minimum guarantee" offset the formula-based allocation for around 100 out of 385 municipalities. With the Local Finance reform of 2007, this "grandfather clause" was eliminated.
 18. France's municipal equalisation scheme reduces fiscal disparities by one third only. High levels of complexity and rent seeking at the local government level appear to be responsible for the relatively weak performance of the French transfer system (Gilbert and Guengant, 2003).
 19. Until 2006, vertical fiscal equalisation in Switzerland was attached to various other transfer mechanisms and scattered over more than 300 different budget lines, making planning virtually impossible. In 2007, vertical equalisation became a single budget line, thereby considerably increasing transparency of the budget.
 20. "Pro-cyclical" is meant in the sense that the volatility of total SCG post-equalisation revenue is larger than the volatility of pre-equalisation revenue.
 21. There could be problems connected to an independent agency. An agency brings a principal-agency-problem: the agency might have an interest to make its work more complex than necessary so as to ensure its existence and to enlarge the scope of its work. Moreover, it might lead to an increase in transaction costs. Shah tries to confirm this by pointing out that the Australian grants commission has a large staff and the Australian equalisation system a massive set of criteria and data required to feed in the model (Shah 2005). However, there seems to be a large variety in the amount of staff in a ministry occupied with equalisation. This can range from one staff member (in the case of Sweden) to 17 in the case of Korea. An independent agency does not necessarily have to have more staff than the number of people in a ministry occupied with equalisation.
 22. In Sweden, there have been several inquiries to propose changes in the equalisation system. These expert inquiries usually consist of experts from the ministries, the Swedish association of local authorities and regions and Statistics Sweden. In Denmark proposals for changes are in general made or handled by the Committee on Local Finance, a group of civil servants, chaired by the Ministry of Interior and composed of members from the local government associations and relevant ministries.
 23. The 5 special regions are Valle d'Aosta, Trentino Alto Adige, Friuli Venezia Giulia, Sicily and Sardegna.

REFERENCES

- Ahmad, Ehtisham, M. Albino-War and R. Singh (2006), "Subnational Public Finance Management: Institutions and Macroeconomic Considerations", in Ahmad, Ehtisham and Giorgio Brosio (eds.), *Handbook of Fiscal Federalism*, Edward Elgar.
- Baretti, C., B. Huber and K. Lichtblau (2000), "A tax on tax revenue", CESifo Working Paper No. 333.
- Bergvall, D., C. Charbit, D-J. Kraan and O. Merk (2006), "Intergovernmental Transfers and Decentralised Public Spending", *OECD Journal on Budgeting*, Vol. 5, n°4, pp. 111-58.
- Blöchliger, H. and A. Reschowsky (2002), "Reinventing Fiscal Federalism: The Swiss Reforms", *National Tax Journal*, proceedings, 178-184.
- Boadway, R. and M. Hayashi (2002), "An Evaluation of the Stabilization Properties of Equalisation in Canada", mimeo, Queens University.
- Busillo, F. (2006), "Interaction between Regional Development Policies and Fiscal Equalisation in Italy", presentation for the OECD Workshop "Fiscal Equalisation, Impact of Design on Effectiveness, Zaragoza, 1-2 June 2006
- Chernick, H. (2003), "Fiscal equalisation between Swedish Municipalities", *National Tax Journal*, Proceedings, 185-191.
- Commonwealth Grants Commission (1998): *Report on General Revenue Grant Relativities*, Australian Government, Canberra
- Dafflon, B. and F. Vaillancourt (2002), "Problems of Equalisation in Federal Systems", in: Blindenbacher and Koller (eds.): *Federalism in a Changing World*, Montreal University Press.
- Dahlby, B. and N. Warren (2003), "Fiscal Incentive Effects of the Australian Equalisation System", *The Economic Record* 79 (No. 247), 434-445.
- Department of Finance (2006), "Achieving a National Purpose: Putting Equalization Back on Track", Expert Panel on Equalisation and Territorial Formula Financing, Ottawa http://www.eqfff-pfft.ca/epreports/EQ_Report_e.pdf.
- DeWit, A. and Y. Yamazaki (2004), "Koizumi's Flawed Political Economy of Decentralization", <http://www.zmag.org/content/showarticle.cfm?SectionID=17&ItemID=6418>
- Dixon, P; M. Picton and M. Rimmer (2005): *Efficiency Effects of Changes in Commonwealth Grants to the States: A CGE Analysis*, Australian Economic Papers, March
- Evans, W., S. Murray and R. Schwab (1997), "Schoolhouses, Courthouses, and Statehouses after Serrano", *Journal of Policy Analysis and Management*, 10-31.
- Frey, R. L. et al (1994), *Der Finanzausgleich zwischen Bund und Kantonen*, Bern.

- Garnaut, R. and V. FitzGerald (2002), "Issues in Commonwealth-State Funding", *The Australian Economic Review* 35(3), 290-300.
- Gilbert, G. and A. Guengant (2003), "The Equalizing performance of central government grants to local authorities: the case of France", *National Tax Journal*, proceedings, 192-202.
- Gonçalves Veiga and Pinho, 2005, "The Political Economy of Portuguese Intergovernmental Grants", NIPE Working Paper 8
- Goodspeed, T.J. (2002), "Bailouts in a Federation", *International Tax and Public Finance*, 409-421.
- Grossman, P. (1994), "A political theory of intergovernmental grants", *Public Choice*, Vol. 78, pp. 295-303
- Hagen, J von and R. Hepp (2000), "Regional risk sharing and Redistribution in the German Federation", Zentrum für Europäische Integrationsforschung, Universität Bonn
- Hoxby, C. (2001), "All school finance equalizations are not created equal", *The Quarterly Journal of Economics*, Vol. 166, No. 4, pp. 1189-1231.
- Johansson, E. (2003), "Intergovernmental grants as a tactical instrument: empirical evidence from Swedish municipalities", *Journal of Public Economics*, Vol. 87, pp. 883-915
- Khemani, S. (2004), "The Political Economy of Equalization Transfers", Andrew Young School of Policy Studies, Working Paper 04-13
- Kraemer, M. (1997), "Intergovernmental Transfers and Political Representation: Empirical Evidence from Argentina, Brazil and Mexico", Inter-American Development Bank Working Paper 345
- Laubach, T. (2005), "Fiscal Relations across levels of Government in the United States", Economics Department Working Paper, OECD, Paris.
- Levitt, S. D. and J. M. Poterba (1994), Congressional Distributive Politics and State Economic Performance, NBER Working paper W4721.
- Lotz, J. (2006a), Measuring Local Expenditure Needs, presentation for the OECD Workshop "Fiscal Equalisation, Impact of Design on Effectiveness, Zaragoza, 1-2 June 2006
- Lotz, J. (2006b), "Municipal amalgamations and economies of scale", presentation to the OECD Workshop on Public Sector Efficiency, Paris, May 2006
- Merk, O. (2006), "Equalisation and regional equity: the case of the Netherlands", presentation for the OECD Workshop "Fiscal Equalisation, Impact of Design on Effectiveness, Zaragoza, 1-2 June 2006
- Meyer, S. and S. Naka, (1999), "The Determinants of Japanese Local-Benefit Seeking", *Contemporary Economic Policy*, Vol. 17, No. 1, pp. 87-96
- OECD (1981), *Measuring Local Government Expenditure Needs*, The Copenhagen Workshop, Paris.
- OECD (2003), *Territorial Reviews: Switzerland*, OECD, Paris
- OECD (2004), *Territorial Reviews: Mexico*, OECD, Paris

OECD (2005a), *Territorial Reviews: Finland*, OECD, Paris

OECD (2005b), *Territorial Reviews: Seoul*, OECD, Paris

OECD (2006a), *Economic Surveys: Canada*, OECD, Paris

OECD (2006b), *Economic Surveys: Germany*, OECD, Paris

OECD (2006c), *Territorial Reviews: Stockholm*, OECD, Paris

OECD (2007), *Regions at a Glance*, OECD, Paris, forthcoming.

Poschmann, F. and S. Tapp (2005), "Squeezing Gaps Shut: Responsible Reforms to Federal-Provincial Fiscal Relations", C.D. Howe Institute, Ottawa.

Rattso, J. and P. Tovmo (1998), "Local Government responses to shocks in Denmark", Kommunal Budgetoversigt, Finansministeriet.

Ruiz-Huerta, J. (2006): Fiscal equalisation in Spain, presentation to the 4^o Simposium de Federalismo Fiscal, "La experiencia de los países federales: lecciones para España", University of Barcelona

Schneider, M. (2002), "Local Fiscal Equalisation Based on Fiscal Capacity: the case of Austria", *Fiscal Studies* 23(1), 105-133.

Shah, A. (2005), "A framework for evaluating alternate institutional arrangements for fiscal equalization transfers," Policy Research Working Paper Series 3785, The World Bank.

Sorensen, R. (2003), "The political economy of intergovernmental grants: The Norwegian case", *European Journal of Political Research*, Vol. 42, No.2, pp. 163-195

Wurzel, E. (2003), "Consolidating Germany's finances: Issues in public sector spending reform", Economics Department Working Paper, No 366, OECD: Paris.

ANNEX: SOURCES AND METHODS

57. This document presents an account of data sources and a number of methodological issues with respect to the statistics presented in the tables and figures in the main document.

Data on regional disparities

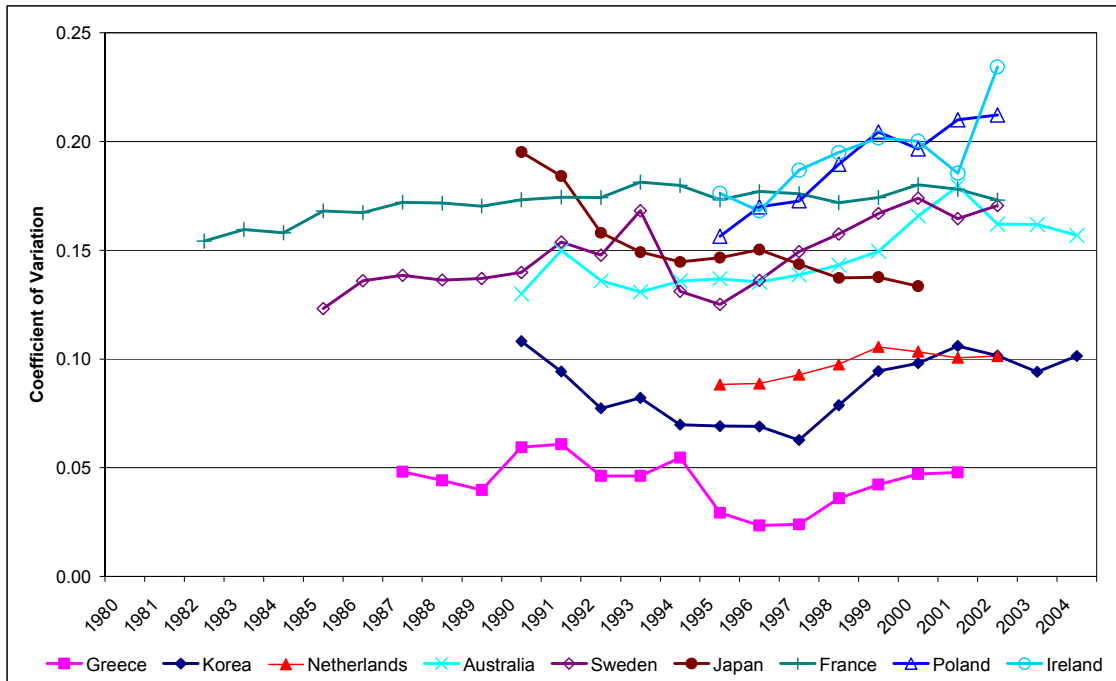
58. The word “region” can mean very different things both within and between countries. To address this issue, the OECD has classified regions within each member country. The classifications are based on two territorial levels (TLs). The higher level (Territorial Level 2) consists of 335 macro-regions while the lower level (Territorial Level 3) is composed of 1 679 micro-regions. This classification – which, for European countries, is largely consistent with the Eurostat classification – facilitates comparability of regions at the same territorial level. Statistics presented in the text measuring geographic concentration, types of regions, and disparities all use TL3 level data, except for GDP per capita in Australia, Canada, Mexico, and the United States – for which TL2 data are used. Additional information on these statistics and the definition of regional units can be found in OECD (2007), “Regions at a Glance”, OECD, Paris.

59. For details regarding the OECD classification of TL3 regions as Predominantly Urban, Predominantly Rural and Intermediate, as well as information regarding the computation and interpretation of the Gini index used to measure regional disparities, please see OECD (2007), “Regions at a Glance”, OECD, Paris.

Evolution of GDP disparities

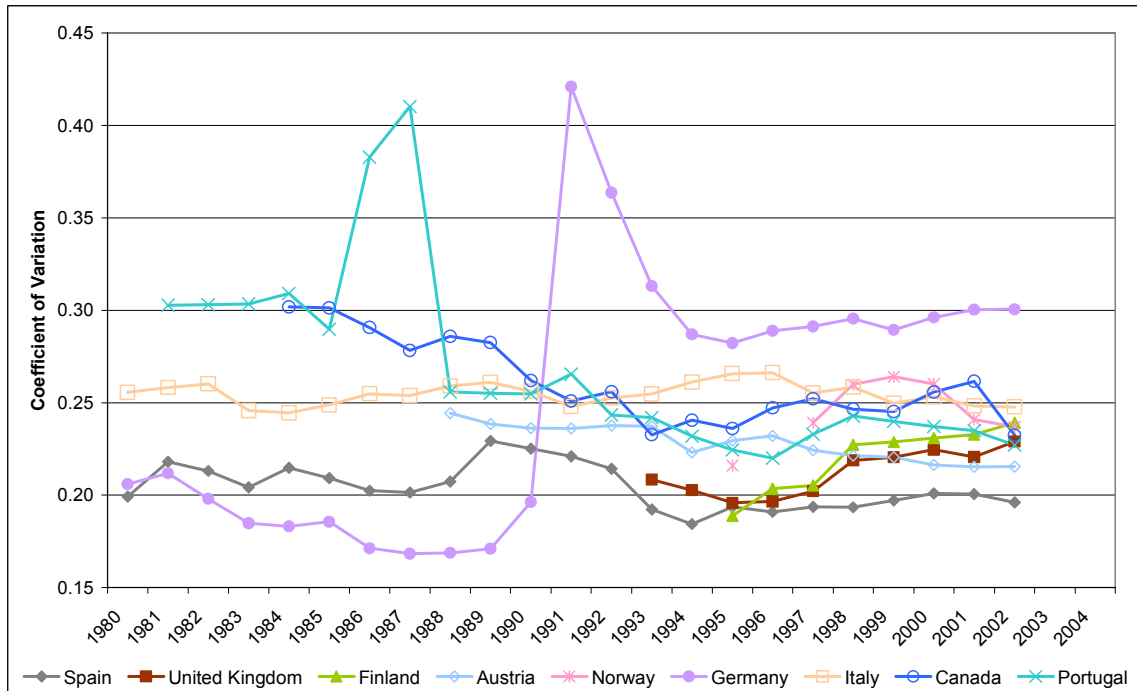
60. The coefficient of variation offers a picture of regional disparities. It measures the variability of GDP per capita per region in a given country. Figures 1a through 1c display the change in the coefficient of variation of GDP per capita over time. One can identify three groups of countries with low (figure 1a), medium (1b) and large (1c) regional disparities.

Figure 1a : Evolution of regional disparities as measured by the coefficient of variation of GDP per capita - low disparities



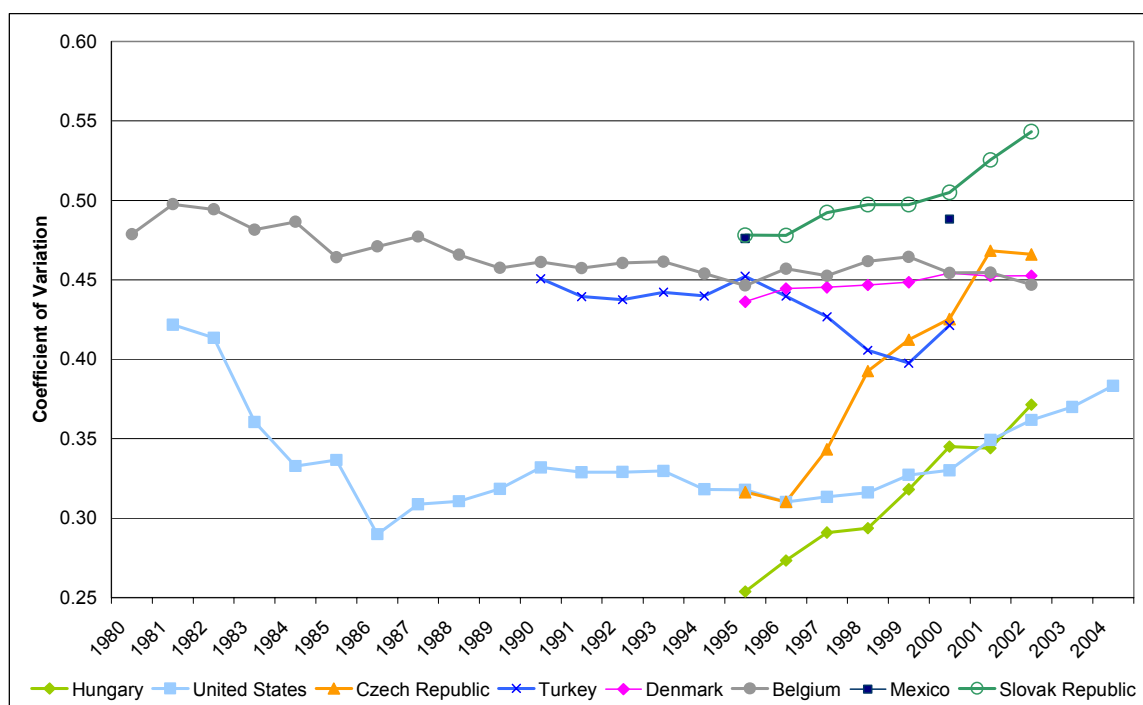
Source: OECD Regional Database

Figure 1b : Evolution of regional disparities as measured by the coefficient of variation of GDP per capita - medium disparities



Source: OECD Regional Database

Figure 1c : Evolution of regional disparities as measured by the coefficient of variation of GDP per capita - high disparities



Source: OECD Regional Database

Table 1: Main statistics on fiscal equalisation systems

61. Most data were collected through the questionnaire “Fiscal equalisation in OECD countries: questionnaire” sent to member countries in March 2006. Additional information stems from OECD statistical databases and individual national sources.

Data sources and methodology

62. *Size:* The size of fiscal equalisation systems was calculated by summing up revenue and cost equalisation transfers taken from the questionnaire. If equalisation was part of tax sharing arrangements, only the equalisation part was taken into account (Australia, Austria, Germany, Switzerland). To calculate relative size in terms of GDP, nominal GDP (National Accounts, expenditure approach) was used. To calculate relative size in terms of government expenditure, total government expenditure (National Accounts) was used. To calculate size per capita, population data from OECD demography and population statistics were used. For currency conversion, PPP-US-Dollars from OECD statistics were used. Data are for 2004, unless otherwise indicated.

63. *Number of Transfers:* The number as indicated in the questionnaire was used.

64. *Cost and revenue equalisation:* Indicates whether both types of equalisation exist in a country, and if they do, whether there are separate transfers for the two forms of equalisation (“separate”) or whether transfers combine both types of equalisation (“joint”). Answers were taken from the questionnaire.

65. *Subnational equalisation:* indicates whether *separate* equalisation exists at the state level (between a state and its local governments or among local governments). Answers were taken from the questionnaire

66. *Percent of closed-ended transfers*: Indicates the percentage of transfers whose total amount is fixed *in advance*, either by an institutional rule (e.g. a percentage of total tax revenue) or by government (e.g. parliamentary budget decision). Horizontal transfers are considered closed-ended. Answers were taken from the questionnaire

Caveats

67. While table 1 can give a first impression on fiscal equalisation in OECD countries, the statistics should be interpreted with care.

- *Equalisation statistics can be biased because fiscal equalisation transfers are not gathered uniformly*. Fiscal equalisation is often linked to financial transfer mechanisms with no equalisation purpose, leading to “mixed” transfer systems. A frequent example is tax sharing that combines funding with equalisation, and depending on whether both transfer types are treated separately or not, statistics may differ. Cost equalisation transfers are particularly hard to separate into the two purposes. Many public services such as education and health care have a deeply redistributive nature, and several countries neither institutionally nor statistically feel fit to make the distinction between “funding” and “equalisation” of those services (Bovenberg and Jacobs, 2006). Taken at face value, fiscal equalisation systems that include funding arrangements tend to be larger than “pure” equalising systems, and their redistributive properties tend to be weaker.
- *Distinguishing between cost and revenue equalisation (equalising tax capacity and equalising cost or expenditure needs) is sometimes difficult*. Some countries use a single transfer that comprise both revenue and cost equalisation elements (Australia, Italy, Portugal until 2006). The resulting equalisation programme is likely a single transfer with both revenue and cost equalisation elements difficult to disentangle. Such “encompassing” transfers are little transparent since they disclose no information as to whether a transfer to a specific sub-central government is due a low revenue raising capacity or high service cost. A clear institutional and/or statistical distinction between transfers that aim at reducing revenue disparities and those aiming at cost disparities would give more information on how and why fiscal needs of sub-central government evolve.

Table 2: Disparity-reducing effect of fiscal equalisation

68. Data were collected through the questionnaire “Fiscal equalisation in OECD countries: questionnaire” sent to member countries in March 2006 or through individual country information

Data sources and methodology

69. *Fiscal capacity*: Fiscal capacity before and after equalisation can be measured in three ways: as tax revenue raising capacity, as expenditure needs, or as a fiscal gap (also called a “resource-requirements gap” or “needs capacity gap”), which is the difference between revenue raising capacity and expenditure needs. For table 2, revenue raising capacity before and after equalisation was used. Countries provided potential revenue raising capacity per capita for each state/region, for each municipality or for deciles of municipalities.

70. *Fiscal disparities*: Fiscal disparity describes differences in per capita fiscal capacity of sub central jurisdictions or of deciles of sub central governments relative to the national average. It is expressed as the coefficient of variation (standard deviation divided by the mean) and the Gini coefficient of fiscal capacity of all subcentral jurisdictions of a country. The higher the variation and Gini coefficients, the higher fiscal disparities. The jurisdiction with the highest and the lowest fiscal capacity or the highest and lowest decile were provided by national sources or calculated based on the questionnaire.

71. Data on fiscal capacity and fiscal disparities of individual countries were collected as follows:

- *Australia*: relativities of revenue raising capacity for each province before and after equalisation are reported by the Commonwealth Grants Commission.
- *Austria*: revenue raising capacity index of each *Bundesland* as percent of the federal average after equalisation (*Landes-Kopfquote in % der Bundes-Kopfquote*) were provided by the Ministry of Finance as an annex to the questionnaire. No revenue raising capacity indicators before equalization are available.
- *Canada*: potential revenue raising capacity per capita for each Province before and after equalisation was provided by the Canadian Department of Finance.
- *Denmark*: potential tax raising capacity before and after equalisation was provided by the Ministry of Finance.

- *Finland*: potential revenue raising capacity per capita before equalisation for each municipality decile was sent by the Ministry of Finance. Revenue raising capacity after equalisation was calculated by adding revenue equalising transfers taken from table 5 in the questionnaire.
- *Germany*: revenue raising capacity index of each *Bundesland* relative to the national average before and after equalisation was provided by the German Ministry of Finance.
- *Italy*: Potential revenue raising capacity before and after equalisation was provided by the Ministry of Economy and Finance and by the Ministry of Economic Development.
- *Japan*: Actual tax revenue per capita before equalisation was provided by the Ministry of Finance
- *Portugal*: actual revenue raising capacity per capita before equalisation for each municipality decile was provided by the questionnaire. Revenue raising capacity after equalisation was calculated using all equalising transfers (no division between revenue equalising and cost equalising transfers was available) contained in table 5.
- *Spain*: Revenue raising capacity index before and after equalisation for each Autonomous Region was taken from Ruiz-Huerta (2006).
- *Sweden*: Potential revenue raising capacity per capita before and after equalisation was provided by the Ministry of Finance and taken from the questionnaire.
- *Switzerland*: Potential tax revenue raising capacity per capita before and after equalisation for each canton (*Steuerkraft der Kantone vor und nach Ausgleich der Finanzkraft*) was provided by the Swiss Finance Administration.
- *Turkey*: Potential tax revenue raising capacity before and after equalisation was provided through the questionnaire. For technical reasons metropolitan municipalities are not included in the dataset, resulting in a likely underestimation of fiscal disparities in Turkey.

Caveats

72. There are yet methodological limitations to an analysis of fiscal capacity and the impact of fiscal equalisation across countries. The limitations are both institutional and methodological in nature.

- *Methodological caveats*: Fiscal capacity means different things in different countries. In some countries it is defined as revenue raising capacity (Canada, Germany, Italy), in other countries as expenditure needs (Spain, Mexico), in others again as the fiscal or resource-requirement gap (Denmark) or a blend of revenue and expenditure elements (Switzerland). Fiscal capacity can be assessed using various bases, such as actual tax revenue, a representative tax system, actual expenditure or a standard cost approach. Fiscal capacity may vary subject to what taxes and/or what cost criteria enter the formula, and which intergovernmental transfers are considered as “equalising” and which are not. The wide range of national fiscal equalisation arrangements is likely to produce indices not necessarily comparable across countries¹. Finally, the small number of countries for which data are available limit the generalisation of the findings.
- *Institutional caveats*: The institutional and territorial background of a country affects fiscal equalisation arrangements and hence fiscal capacity indices. First, revenue and responsibility assignments strongly determine differences in public service provision across countries. In a country where taxing and spending powers are mostly assigned to the central governments fiscal disparities have less significance than in countries where the bulk of public services is funded by sub central government. Second, size and geography play a crucial role in calculating fiscal disparities and fiscal capacity indices. Countries with many small jurisdictions are likely to have larger fiscal disparities simply because the differences are not averaged out within a larger territorial unit. This simple statistical artefact also compromises the comparison between larger and smaller countries.

73. There is as yet no uniform index for measuring the fiscal power of a region before and after fiscal equalization across countries and hence no comparable index of fiscal disparities. While institutions and objectives of fiscal equalisation arrangements vary between countries, the methodological approaches for calculating fiscal capacity indices can be harmonised. A fiscal capacity index based on a set of common principles could allow for a better international comparison of fiscal equalisation systems and their effects. A guideline for such an indicator is developed below (see box).

1. Some fiscal capacity indicators can even be misleading. If the indicator is constructed in such a way as to measure total revenue after all transfers, including cost transfers, then it may overstate actual fiscal capacity of a region. Higher transfers and higher revenue do not translate into higher fiscal capacity since the respective region also has to bear a higher cost, actually lowering fiscal capacity.

Towards an internationally comparable fiscal capacity index

Fiscal capacity is measured as either the capacity to raise taxes (tax or revenue raising capacity), the capacity to bear expenditures (expenditure needs) or as the “resource-requirements gap” or “needs capacity gap”, which is the difference between revenue raising capacity and expenditure needs. Revenue raising capacity is defined as the actual or potential ability of a sub central government (SCG) to raise taxes and other own fiscal resources. Expenditure needs are the minimum cost a SCG has to lay out in order to provide a given set of public services. The variety of fiscal capacity indices makes cross-country comparisons of fiscal equalization effects awkward. A set of rules on how to measure fiscal capacity before and after equalization would therefore be useful.

In its most general form, the fiscal capacity of a region can be seen as the difference between tax-raising capacity and expenditure needs, usually called the resource-requirements gap or needs-capacity gap (Ladd, 1994). Formally, fiscal capacity can be written as:

$$F_i = R_i - C_i, \quad (1)$$

where F_i is fiscal capacity of region i , R_i is revenue raising capacity of region i , and C_i represents expenditure needs of region i . The index can be either expressed in per capita terms or in percentages of the national average. If the distribution over F_i is normalized and average fiscal capacity set at 100, F_i represents the fiscal capacity index of region i in percent of the national average. F_i then becomes comparable across countries. For a country with pure revenue equalization or pure cost equalization, the indicator collapses to $F_i = R_i$ or $F_i = -C_i$ respectively. In order to avoid negative values of F_i , (which leads to distorted coefficients of variation and hence distorted fiscal disparity indicators), either R_i or C_i can also be expressed as *deviations* from an average of zero (0). Fiscal capacity is computed twice, once before equalization and once after equalization. Formally, fiscal capacity after equalization is

$$F_i = R_i - C_i -/+ (T_{ci} + T_{ri}), \quad (2)$$

where T_{ci} and T_{ri} represent cost equalizing transfers and revenue equalizing transfers respectively. In order to make T_c and T_r compatible with other terms of the equation, they must again be expressed in per capita or relative terms. Note that T_i can be negative in the case of horizontal equalization systems where wealthier regions make a contribution to the equalization fund. In vertical equalization systems T is usually positive.

In order to compare fiscal capacity within and across countries, tax raising capacity and expenditure needs should be measured using standard rather than actual values. Revenue raising capacity should be measured applying the Representative Tax System approach (RTS) whereby the tax base is multiplied with a standard tax rate and should encompass major SCG taxes whenever possible. Expenditure needs should be assessed through a representative (or standard) expenditure approach or more sophisticated econometric methods. Applying this approach, countries should be able to establish fiscal capacity and fiscal disparity indices comparable at an international scale.

Table 3: Revenue equalisation

Data collection

74. Most data were collected through the questionnaire “Fiscal equalisation in OECD countries: questionnaire” sent to member countries in March 2006. Additional information stems from OECD statistical databases and individual national sources.

75. *Direction*: Taken from questionnaire

76. *Revenue base*: Taken from questionnaire

77. *Percentage of closed-ended transfers*: Indicates the percentage of transfers whose total amount is fixed *in advance*, either by an institutional rule (e.g. a percentage of total tax revenue) or by government (e.g. parliamentary budget decision). Horizontal transfers are considered closed-ended as funds received by low-revenue countries cannot exceed the amount skimmed off from high-revenue countries. Percentages were calculated based on answers to the questionnaire.

78. *Equalisation rate*: The percentage at which an increase of the tax revenue base is taxed away for equalisation. Indicates the legally determined equalisation rate (Austria, Canada, Denmark, Finland, Norway, Portugal, Sweden, United Kingdom) or actual rates (Italy). Answers were taken from the questionnaire or provided individually.

79. *Percent of GDP*: Calculation is based on answers to the questionnaire.

80. *Frequency of changes to the distribution formula*: Describes how frequently the distribution formula is adapted (caution: changes to the formula must be carefully distinguished from changes to outcomes. Outcome for an individual SCG may change every year due to a change in underlying circumstances *without* a change in the formula)

Table 4: Cost equalisation

Data sources and methodology

81. *Direction*: Taken from the questionnaire

82. *Cost base*: In most countries, the base on which transfers are allocated to SCG is either actual SCG expenditure, average expenditure across all SCGs or average/standard cost based on geographic or socio-demographic criteria. In Germany, some cost equalisation transfers are lump-sum and fixed for a longer period.

83. *Size in percent of GDP*: Calculation is based on answers to the questionnaire

84. *Percent of closed-ended transfers*: Indicates the percentage of transfers whose total amount is fixed *in advance*, either by an institutional rule (e.g. a percentage of total tax revenue) or by government (e.g. parliamentary budget decision). Horizontal transfers are considered closed-ended. Percentages were calculated based on answers to the questionnaire.

Statistical methods to determine service cost

85. In order to estimate the minimum amount of expenditure a SCG has to bear – and to calculate the respective equalisation grant -, there are two established methods, regression analysis and the representative expenditure (or standard cost) approach (Ladd 1994, Lotz 2006, OECD 1981):

- *Regression-based cost approach*: In the regression-based approach, a sub-central government's expenditure need is measured as the amount it must spend to provide a standard quality set of public services. Regression analysis identifies a number of characteristics or need variables, and the weights associated with each, which best account for observed spending differences. Need usually comprises a set of geographic or socio-economic variables. Regression analysis can also take the supply-side of service provision into account, such as economies of scale and scope. Regression analysis measures the statistical impact of those characteristics on the expenditure a SCG has to bear, collating the data of all or a representative selection of sub-central jurisdictions in a country. If properly set up, regression analysis separates effective cost from waste and other “avoidable” expenditures.
- *The Representative (standard) expenditure approach*: The representative expenditure approach follows the logic of the representative tax system RTS. The approach measures per capita expenditure for a jurisdiction's service by multiplying the workload – or number of units of a service provided – with the average cost per workload, and dividing by the jurisdiction's population. Unlike regression analysis, the approach assumes constant unit production cost – there are no economies of scale and scope - and basically asks what an SCG has to spend per capita given service-specific workloads and constant unit cost. Typical workload measures include total population, road kilometres, the proportion of households below the poverty level, or the number of people with special needs. In most cases, indicators are combined to construct more complex models.

86. Both approaches have advantages and drawbacks for policy implementation.

- Regression analysis is more sophisticated as it can take differences in unit cost of service delivery into account. The main determinant of variation in expenditure - differences in geographical or social-economic factors – can only be measured through multivariate estimation techniques which allow cost indices to be measured for each jurisdiction. On the other hand, this sophistication also poses peculiar econometric problems. Multicollinearity often makes regression results ambiguous and instable. Endogeneity is difficult to detect (e.g. a variable such as a jurisdiction's grant entitlement depends on the grant allocated in an earlier period) and can seriously distort assessed fiscal needs; appropriate instrumental variables (i.e. a variable that is not correlated with its error term) are not always at hand. The analysis can become so technical and cumbersome that it is virtually impossible to communicate to policy makers.²

² Sweden uses 10 different econometric models and a large number of cost-determining factors to determine each year the size of grants a single SCG is entitled to (Nyström, 2006).

- The main advantage of the representative expenditure approach is its simplicity and its appeal to extensive intergovernmental consultation processes. Moreover, it is better suited for inserting value judgments such as minimum unit cost for which a SCG should be eligible or the degree of efficiency in service provision it has to achieve. The approach and its results are easier to communicate to a wider public. However, it is difficult for the representative expenditure approach to take unit cost variations into account and so it can severely miscalculate the true expenditure needs of a sub-central government. The representative expenditure approach does not take the supply-side of service provision into account, e.g. higher cost of education or social assistance in distressed urban areas would not be addressed.

87. Sophisticated analysis has to be weighed against pragmatism. The number of cost indicators for establishing standard costs can often be reduced using techniques such as factor analysis, which can also help collate the standard cost and regression approach. The use of historical expenditures reduces SCG incentives' to expand their cost base but may freeze former inefficiencies in grant allocation. Norm cost is a bottom-up accounting principle requiring a lot of information on production processes of public service; it is so far rarely used in OECD countries. Actual expenditures should not be the base for cost equalisation since this is a strong incentive for sub-central governments to expand their budget.