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Fiscal Equalisation

by
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Introduction and summary

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 even if incomes differ across areas. Fiscal equalisation can be seen as the natural companion to fiscal decentralisation as it aims at correcting potential imbalances resulting from sub-central autonomy. Distinct fiscal equalisation arrangements first emerged during the 1940s and 1950s in a number of federal countries, and today most OECD Member countries run redistributive programmes to reduce fiscal disparities. 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 procedures are often laid down in the constitution and form a central pillar of national fiscal policy.

This article aims at analysing fiscal equalisation issues that are common to all countries. The article first presents the rationales for fiscal equalisation and an overview on regional disparities within OECD countries and then provides a few stylized facts on fiscal equalisation arrangements. The following sections deal with policy outcomes: the extent to which fiscal equalisation systems reduce fiscal disparities across jurisdictions; the extent to which both revenue and cost equalisation provide incentives for SCGs to develop their economic and fiscal base; and the extent to which equalisation contributes to a balanced budget and fiscal stability. Most information contained in this article 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.[1]

Why fiscal equalisation?

Fiscal equalisation aims at reducing or eliminating differences in net fiscal benefit, *i.e.* the benefits that the public sector provides otherwise identical households residing in different jurisdictions.[2] Net fiscal benefit is the difference between the utility households derive from consuming public services and the taxes they pay for producing these services, standardised to take differences in preferences and tax rates into account (see Box 1 for key terms used in this article). Unlike interpersonal redistribution, fiscal equalisation is not concerned with differences in individual household income but with differences in access to public services in a geographical sense. Although both redistributive arrangements interact to some extent – *e.g.* through the progressivity of national taxes or the level of social assistance programmes – their purpose is not the same, and indeed countries have adopted quite different patterns of individual and spatial redistribution.

Fiscal policy distinguishes three roles of fiscal equalisation, albeit not uncontested, that are related to equity, efficiency and stability of public finance:

- *Equity*: the primary objective of fiscal equalisation is horizontal equity among the residents of different jurisdictions, *i.e.* ensuring that, subject to local preferences, all persons or firms in a country can obtain comparable public services at comparable tax rates.

- *Efficiency*: fiscal equalisation may correct for inefficiencies that might arise if households or firms choose their location based on fiscal rather than productivity considerations. However, equalisation may also reduce labour mobility and SCG's incentives to develop their economic and fiscal base.
- *Stability*: fiscal equalisation may help support macroeconomic stabilization and insure regions against asymmetric shocks they may not be able to cope with if left alone. However, fiscal equalisation can also exacerbate cyclical movements and jeopardise fiscal stability.

Questionnaire responses suggest that the main driver for fiscal equalisation is to guarantee equal access to public services. It is thus safe to say that fiscal equalisation's main objective is equity but that it has to be set against its impact on efficiency and fiscal stability.[3]

Box 1. **Key terms**

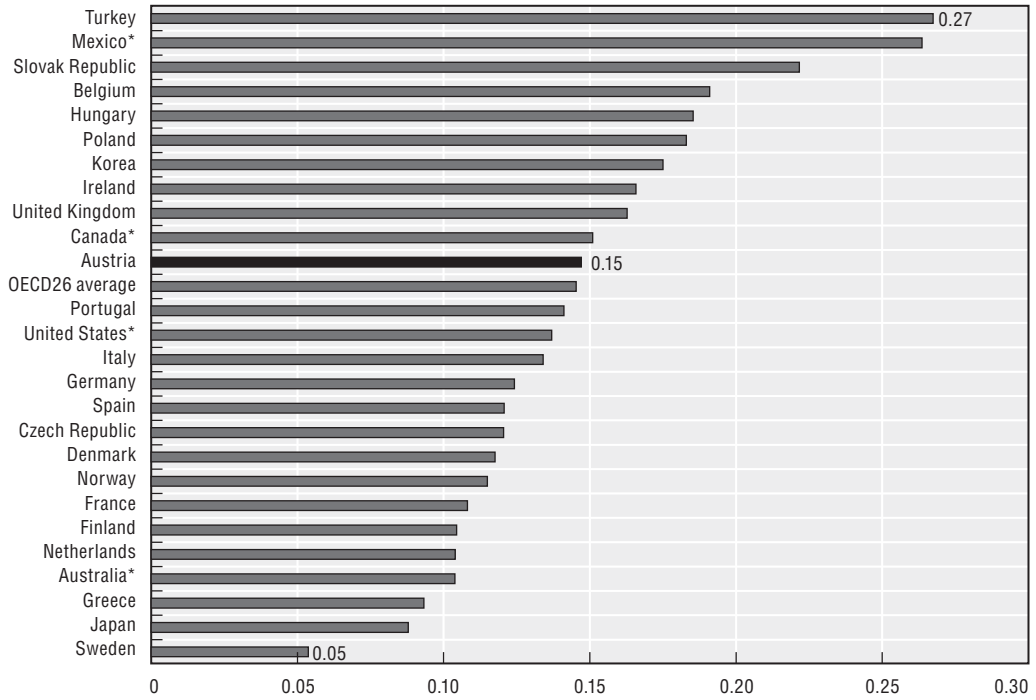
- Revenue raising capacity – the potential ability of a region to raise revenue. Also called "fiscal capacity".
- Expenditure needs – the potential cost for a jurisdiction to provide a given set of services.
- Fiscal disparity – the differences in revenue raising or fiscal capacity across regions.
- Net fiscal benefit – the difference between the benefit a household derives from public services and the cost in terms of taxes to produce them.
- 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.

Regional disparities

Fiscal equalisation is usually justified to address disparities across sub central governments. The differences in sub-central GDP per capita which can serve as a proxy for fiscal or revenue-raising disparities[4] are often substantial and have evolved little during the last decades, although they may depend on how "sub-central governments" are defined statistically (Figure 1).[5] While the Gini index, which measures disparities between the regions in a country, shows relatively low regional inequalities in GDP per capita for Sweden, Greece and Japan (less than 0.10), it is relatively marked for Turkey, Mexico and the Slovak Republic (more than 0.20). The average Gini index for 26 OECD countries is 0.15 (OECD, 2007). What is even more interesting is that regional disparities 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 (Blöchliger *et al.*, 2007), suggesting 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**



* Data are estimated for TL3 regions, except for countries marked with an asterisk (*) which indicates that data are for TL2 regions.

Source: OECD (2007), *Regions at a Glance*.

Regional disparities also arise with respect to the costs of providing public goods in different regions of the same country. Differences in geographic location, population size, demographic trends, welfare status as well as path-dependency after economic shocks are responsible for differences in public service cost across a country.[6] 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 scale and agglomeration. Certain services (*e.g.* hospitals, motorways) can be produced efficiently only beyond a minimum scale and their provision in scarcely populated areas tends to be either more expensive or undersized. In fact, there is a high degree of concentration of population in OECD countries. On average about half of the OECD population (46%) lives in predominantly urban regions and in particular in the Netherlands (85%), Belgium (83%), and the United Kingdom (70%). By contrast, in places such as Ireland, Finland, and Sweden, at least half of the population lives in predominately rural and dispersed regions (OECD, 2007), leading to marked cost differences between concentrated and dispersed areas.

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

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).

A snapshot of fiscal equalisation arrangements

This section deals with the main features of fiscal equalisation. The section first shows size and design of fiscal equalisation and then applies a taxonomy that helps distinguishing between revenue and cost equalisation as well as between horizontal and vertical equalisation.

Size and institutional design of fiscal equalisation

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.* differences in revenue or in cost; or to what extent fiscal equalisation is part of the wider fiscal federal framework such as tax sharing arrangements. Table 1, based on the questionnaire discussed above, provides information on all arrangements that explicitly provide greater per capita-transfers to sub-central governments with below-average tax revenue-raising capacity, or greater per capita-transfers to sub-central governments with above-average public service cost.

With an average of 2.3% 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 (Table 1). 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. Most countries operate arrangements for both revenue and cost equalisation, with three out of 18 countries operating cost equalisation arrangements only and one country operating revenue equalisation only. Most equalisation transfers are closed-ended, *i.e.* total amounts are either determined institutionally (*e.g.* a fixed share of overall tax revenue), or through an *ex ante* central government budget decision. Quantitative and qualitative statistics could be slightly distorted as some countries clearly separate equalisation from other transfers while others use "compound" arrangements where funding and equalisation are combined.

Taxonomy of fiscal equalisation

The variety of equalisation arrangements can be best captured by a taxonomy reflecting the direction of equalisation transfers – horizontal *versus* vertical – and 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.

Table 1. **Main features of fiscal equalisation, 2004**

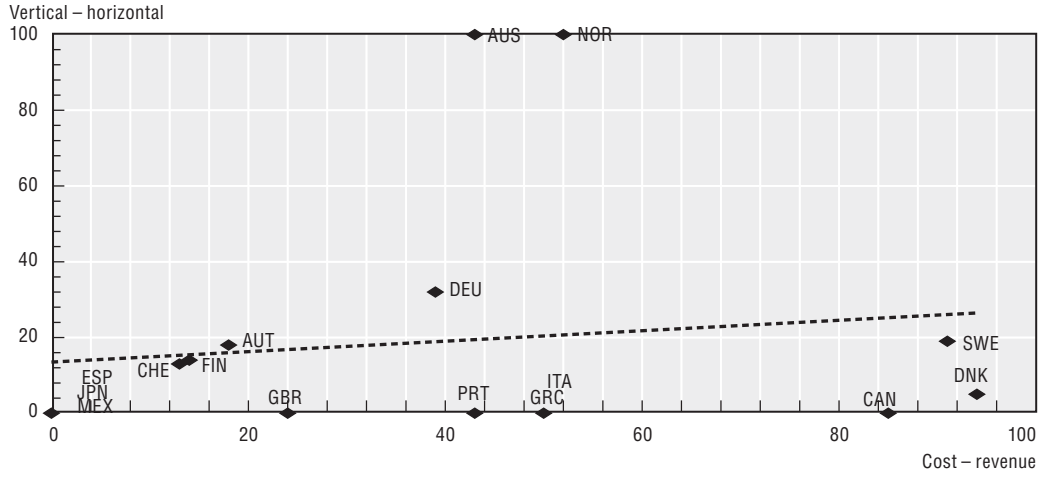
	Size			Number of transfers	Cost and revenue equalisation	Subnational equalisation	Per cent of closed-ended transfers
	Per cent of GDP	Per cent of government expenditure	Per capita (PPP-USD)				
Federal/regional countries							
Australia	0.5	1.4	110	1	Joint	Yes	100
Austria	3.8	7.6	1 227	15	Separate	No	64
Canada	1.0	2.5	326	2	Separate	Yes	84
Germany (2005)	2.0	4.2	569	13	Separate	Yes	60
Italy	3.0	6.3	849	5	Separate	No	91
Mexico	3.7	n.a.	384	8	Cost equalisation only	No	23
Spain	3.0	7.6	768	1	Cost equalisation only	No	100
Switzerland	3.0	8.2	1 035	7	Separate	Yes	56
Unitary countries							
Denmark	2.8	5.1	907	n.a.	Separate	No	n.a.
Finland	3.8	7.4	1 129	4	Separate	No	100
Greece	1.2	2.4	257	10	Separate	No	100
Japan	4.0	11.0	1 244	3	Cost equalisation only	No	100
Norway	0.5	1.2	220	2	Separate	No	100
Poland	n.a.	n.a.	n.a.	10	Separate	No	n.a.
Portugal	1.8	4.0	343	4	Joint	No	100
Sweden	2.6	4.6	813	4	Separate	Yes	100
Turkey	1.1	n.a.	794	2	Revenue equalisation only	No	0
United Kingdom (England)	n.a.	n.a.	530	1	Separate	Yes	100
Unweighted average	2.3	4.8	641	5			78

- 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 be differentiated into whether they are due to 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).

In practice, "pure" systems hardly exist, and most countries today use all types of equalisation. Figure 2 shows the pattern of equalisation arrangements that developed within and across countries. The horizontal axis depicts the percentage of revenue equalisation to total equalisation (the higher the value, the more "revenue-oriented" the system), and the vertical axis depicts the percentage of horizontal equalisation to total equalisation (the higher the value, the more "horizontal" the system).

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 revenue equalisation tends to be horizontal while cost equalisation tends to be vertical – shown by the rising line – but this picture is qualified by several countries (Canada and Italy have vertical revenue equalisation arrangements, 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 favour vertical cost equalisation, differences are small and variation within a country group is larger than variation between the two groups.

Figure 2. **Taxonomy of fiscal equalisation, 2004**



Source: National sources.

Fiscal equalisation and equity

This section shows to what extent equalisation reduces inter-regional disparities and then shows which types of regions benefit most from equalisation.

The disparity-reducing effect of fiscal equalisation

Fiscal equalisation is first and above all evaluated on how it reduces fiscal disparities. Table 2 gives an overview of the revenue raising capacity of OECD sub-central governments before and after equalisation.[7] 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.

In most countries the effect of equalisation is substantial (Table 2). On average disparities, as measured by the coefficient of variation of fiscal capacity before and after equalisation, decrease by almost two thirds, from 29% to 10%; similar effects are shown by the Gini coefficient.[8] In some countries such as Australia, Germany and Sweden revenue raising disparities are virtually eliminated. Horizontal equalisation has a slightly stronger equalisation effect per GDP used than vertical equalisation (not shown in the table). Post-equalisation fiscal disparities 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 of Table 2 are in line with analyses for selected countries (Chernick, 2003).

Contributors and receivers vary from country to country

The redistributive pattern of fiscal equalisation across types of jurisdictions depends on sub-central revenue sources, the character of decentralised public services, and the

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

	Before equalisation (in per cent)				After equalisation (in per cent)				Equalisation effect (difference pre/post-equalisation, percentage 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	67.2	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	56.5	9.7	5.2	123.5	85.8	19.2	9.1

Source: National sources.

design of the equalisation formula. Revenue equalisation usually leads to redistribution from urban to rural areas in view of their lower revenue raising capacity. Cost equalisation based on geographic indicators reinforces redistribution towards rural areas. Cost equalisation based on socio-economic need indicators weakens this redistributional effect, but urban areas usually remain net contributors since higher revenue raising capacity and lower geographical need indicators outweigh socio-economic need indicators (Sweden, Finland, Norway, Japan, Korea and in the future Italy).[9] In a few countries equalisation benefits urban areas, especially if they have few own resources and if cost equalisation leans strongly towards equalising socio-economic needs (Netherlands, England). Some equalisation arrangements appear bi-polar: they tend to favour the low and high end on the fiscal capacity scale relatively at the expense of intermediate-revenue jurisdictions (Germany, Switzerland).

Equalisation does not always adequately address fiscal disparities, and, in some cases, can even exacerbate them. First, a few equalisation formulae leave out substantial revenue sources in their fiscal capacity definition, portraying jurisdictions much "poorer" than they actually are. In Canada and Norway, the non-inclusion of natural resource income is likely to have undesired equity effects. Second, a number of equalisation arrangements take an indicator of fiscal effort into account (Japan, Turkey, and formerly Switzerland), giving equalisation grants a matching character. To the extent that a sub-central government raises its taxes it can get relatively more of the equalisation grant[10] (see also the section on cost equalisation). Whether some cost equalisation arrangements have undesirable effects is less easy to say since the "true" cost of service delivery across jurisdictions is difficult to assess.

Incentives in revenue equalisation

This section deals with revenue equalisation, the indicators it is based on, and the potential disincentives it may create for SCGs to develop their economic and tax base.

Revenue equalisation design

Revenue equalisation addresses differences in sub-central tax raising capacity. An account of revenue equalisation is given in Table 3. Most revenue equalisation systems are of the horizontal or "solidarity" type. In general Representative Tax Systems (RTS) with a standardised tax base are used to assess revenue raising capacity, but in a few countries actual tax revenue is used. Most transfers are closed-ended, *i.e.* there is a ceiling 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"), *i.e.* the amount of equalization grants a SCG looses if it increases its own tax revenue, varies considerably across countries; however, on average sub-central jurisdictions have to dedicate more than 70% of additional tax revenue to equalisation.[11]

Revenue equalisation can reduce a jurisdiction's tax effort…

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. Strong equalisation, with a rate reaching 100% in some cases, 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 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 (for Australia: Dahlby and Warren, 2003; for Canada: Smart, 2007, for Germany: 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.[12] Lenient tax effort, especially if tax administration is under sub-central control, may also be a result of high equalisation rates (Spahn, 2001).

However, equalisation can be designed to maintain incentives for sub-central fiscal effort. Many countries have moved towards comprehensive RTS or a central/federal tax to assess sub-central revenue raising capacity, thereby leaving sub-central jurisdictions less leeway to play with the fiscal base. Imposing tax rate ceilings and floors may also contain sub-central strategic behaviour. Equalisation formulae that fully include all major sub-central taxes reduce strategic behaviour and can help achieve a given equity objective with lower equalisation rates. Whether fiscal equalisation has a negative effect on tax effort also depends on the wider economic framework within which sub-central governments operate. Depending on their power to shape economic policy, sub-central constituencies may opt for growth-oriented strategies – since they increase total disposable income – even if additional tax revenue is entirely equalised away (Schneider, 2002). The constituency may accept such a fiscal zero-sum game under the condition that firms grow, that people get jobs or that new residents settle in the jurisdiction.

Table 3. **Revenue equalisation, 2004**

	Direction	Revenue base	Percentage of closed-ended transfers	Equalisation rate	Per cent of GDP	Frequence of changes to the distribution formula	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 *Länder* above average fiscal capacity, 88% for *Länder* below	2.66	Every four years	
Canada	Vertical	Representative Tax System with 33 different taxes	100%	0% 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)					
Switzerland	Both horizontal and vertical	Actual tax revenue, tax rates, household income	100%	n.a.	0.96	Less than every five years	Some earmarked
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	Some earmarked
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	60 current, 40 capital expense
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	Nine 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.

... and open a development trap for poorer regions

In some cases, fiscal equalisation can open a development trap for poorer jurisdictions. Most arrangements ensure a minimum fiscal capacity to all sub-central governments, *i.e.* jurisdictions whose capacity falls below a certain threshold are fully compensated. Jurisdictions below the minimum threshold face a marginal equalisation tax rate of 100%, while jurisdictions above face a smaller tax rate that can be as low as 0%, depending on equalisation design (see Box 2). Such equalisation creates asymmetric incentive effects, with a stronger disincentive for poorer than for richer jurisdictions to develop their economy. Fiscal equalisation may hence slow down regional economic convergence, and regional inequalities may harden.[13] Individual country evidence suggests a negative relationship between the size of equalising transfers and regional growth performance (Garnaut and FitzGerald, 2002, Baretti, Huber and Lichtblau, 2000), although the direction of causality is not obvious.

Box 2. **Equalisation tax rates in Austria**

Several Austrian municipalities with weak fiscal capacity face equalisation tax rates exceeding 100%. The comprehensive and complex Austrian fiscal equalisation is embedded in a tax sharing system that covers both the state and the municipal level. The sub-central share of the shared taxes are distributed across the *Länder* according to population and a factor representing past tax shares, and to the municipalities according to various criteria such as fiscal capacity, expenditure needs and a scale factor favouring larger municipalities. Altogether five distinct equalisation arrangements 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 actually exacerbate economic and fiscal disparities.

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 increase the pressure on existing taxes and may again give room for strategic tax setting (OECD, 2006a). Regional policy may also offset the negative incentives of fiscal equalisation, particularly if entitlements are based on policy results rather than 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% equalisation tax rate, but such a measure could raise equity concerns. The trade-off between equity and efficiency cannot be entirely avoided.

Incentives in cost equalisation

This section provides an account of cost equalisation, the indicators it is based on, and the effects it could potentially have on expenditures of sub-central governments

Cost equalisation design

Cost equalisation addresses two forms of cost differences. The first refers to the *unit cost* for providing a certain service – *e.g.* maintaining one road kilometre is more expensive in the mountains than in the plain – and the second refers to *needs* – *e.g.* more elderly care is required in a jurisdiction where the population is older. The two sources of cost variations are sometimes difficult to distinguish, as both finally lead to differences in the per capita cost for service provision. Most countries have developed cost indicator systems that take both differences in unit cost and differences in need into account, usually distinguishing between "geographic indicators" – reflecting unit cost differences due to topography – and "socio-economic indicators", reflecting differences in need due to a SCG's social structure.

Cost equalisation covers around 1.4% of GDP (Table 4). Unlike revenue equalisation, cost equalisation is vertical in most countries, *i.e.* central government often fine-tunes sub-central public service delivery. 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 it is 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, a frequent practice is to attach regulatory strings on services that are co-financed by central funds.

Cost equalisation can inflate expenditure needs…

Cost equalisation can give SCGs 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 are much lower than revenue disparities, amounting to one third to one fourth of the latter only, cost equalisation is slightly larger than revenue equalisation in terms of the GDP ratio.[14] Large cost equalisation schemes may point at insufficient own-source revenue (Japan, Mexico, formerly Italy) or at distorted fund allocation in the past (Spain).[15]

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.[16] Cost equalisation based on past (historical) expenditure reduces budget drift but perpetuates initial biases in public service delivery. 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, while voluntary service improvements or inefficiencies in service delivery do not enter the equalisation formula.[17] Standard or norm cost approaches require a set of need criteria: while some countries operate with only a few broad-based needs indicators, others use relatively complex indicator systems that are regularly amended.[18] Cost equalisation arrangements based on a few indicators not only tend to be more transparent, they also cause less statistical headaches when annual equalisation entitlements have to be determined (OECD, 1981, Lotz, 2006a).[19]

Table 4. **Cost equalisation, 2004**

	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.

... and invite rent seeking

Since cost equalisation is often complex, it is prone to rent seeking and pressure from special interest. While revenue equalisation leaves little room for special interest – a tax base has to be selected and the equalisation rate determined – the margin for error and interpretation is larger in cost equalisation: criteria explaining cost differences have to be selected, their weight has to be established and the associated data have to be collected. There is evidence that in some countries political economy pressure has a strong influence on the equalisation formula and/or on individual entitlements (Box 3). Rent seeking can also put pressure on the budget. As shown above, total cost equalisation almost equals total revenue equalisation although disparities in expenditure needs are much smaller. Again, cost equalisation with a few broad-based indicators can reduce rent seeking behaviour.

Cost equalisation and (dis)economies of scale in service production

Expenditures for public service not only depend on need factors but also on production function characteristics such as (dis)economies of scale and scope.[20] As noted in the section on regional disparities, population dispersion as well as density may affect the unit cost of service delivery. Smaller municipalities are more expensive to run since schools, hospitals and other public facilities exhibit fixed costs. On the other hand, services

Box 3. **The political economy of equalisation transfers**

The political economy of grants and tax shares looks at the effects of political factors that should not affect the equalisation policy of a country, but actually do. Various sources of such effects and measures to limit undue political economy pressures are presented below.

- In the US, party affiliation between federal and states politicians increases the per capita dollar amount of grants made to a state, as does the size of its bureaucracy and union membership (Grossman, 1994). Party affiliation and per capita representation also play a role in Japan where over-represented prefectures received higher per capita transfers than under-represented ones (Meyer and Naka, 1999). Similar effects have been analysed for Mexico by Kraemer (1997) who showed that transfers allocated in 1992 favoured states that remained loyal to the dominant party during the previous 1988 presidential election. In Portugal, grants increase in election years, and the longer a mayor has been in office, the more funds are transferred to his municipality (Gonçalves Veiga and Pinho, 2005). Clearly, a political bias is particularly strong if grants are not formula-determined. For Sweden, Johansson (2003) showed that municipalities with many swing voters receive larger grants than other ones. Sorensen (2003) also found persistent disparities in Norwegian local government grants that cannot be accounted for by regional policy or equity objectives. Lobbying powers are underlined by Merk (2006) for the Netherlands where cost equalisation gets evaluated regularly except for the four largest cities that were never subject to evaluation.
- Countries have developed various measures to limit undue special interest influence. Several countries established agencies and other arms' length independent bodies that help contain and channel transfer increases (Denmark, Australia). Independent agencies leave 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, 2003).* In some countries a two-stage budget procedure, whereby the overall budget for equalisation is determined *before* the distribution formula is negotiated among sub-central governments, successfully limits rent-seeking pressure (*e.g.* Norway). The process of adjusting equalisation formulas can also be organized to reduce rent seeking pressure. In many countries not only the opinion of local governments is taken into account, but also civil servants, politicians and experts can be involved. Finally, the most promising way to limit rent seeking is a simple, transparent and easy-to-understand equalization formula with few indicators covering the main fiscal disparities of a country.

* 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.

such as security or fire protection bring about higher per capita expenditures in urban areas. Infrastructure is 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,[21] although it is unclear to what extent this is linked to scale (dis)economies. (Lotz, 2006b).

Many countries have implicit or explicit arrangements to take (dis)economies of scale and scope into account and operate with need indicators that are adjusted for municipal size or for density and dispersion. However, to take the industrial organisation of public services into account for determining equalisation entitlements is risky and is likely to preserve inefficient public service operation. Equalisation payments favouring small municipalities could prevent them from amalgamating or from finding other forms of joint provision that would help increase quality. In the long run, differentiated payments could also reduce service providers' search for cost-saving technologies. In some cases adjustments for jurisdictional size and related features in equalisation formulas cause awkward outcomes.[22]

Earmarking of cost equalisation grants

In a few countries, equalisation transfers are earmarked, and sub-central governments perform public services under explicit financial control of the 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. Moreover, 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). If central government is

Box 4. **Earmarked matching grants in the United States and Switzerland**

Both the Unites States and Switzerland have for some time been using earmarked matching grants to reduce fiscal disparities across states. Medicaid, the US medical insurance programme for low-income people 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% 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%, inversely related to cantonal fiscal capacity. By using earmarked matching grants for equalization purposes, governments implicitly assume high price elasticity and low income elasticity for public goods.

The experience after decades of earmarked equalisation is mixed, however. While state 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% (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%, 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 matching grants led the Swiss government to thoroughly overhaul its fiscal equalisation system as from 2006 on (Blöchliger and Reschovsky, 2003).

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).

Sustainability and stability of fiscal equalisation

Fiscal equalisation can put pressure on the budget…

Fiscal equalisation, in particular vertical cost equalisation, 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.[23] 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 sub-central budget constraint (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, 2003b 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.[24]

Institutional constraints to contain budget drift vary across countries. Horizontal equalisation tends to be less prone to budget drift than vertical equalisation since central government is not involved financially (*e.g.* Germany). Some countries set transfer caps irrespective of sub-central financial needs (*e.g.* Canada). Other countries determine total equalisation payments 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 undermine 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, several countries established agencies and other arms' length independent bodies that help contain and channel transfer increases (Denmark, Australia). While strong institutional constraints are likely to cap central budget drift, they could lack the necessary flexibility in reacting to legitimate sub-central needs.

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 (Switzerland until 2006), but most central budgets today report a few broad equalisation line items only or even report equalisation as a single distinct transfer (*e.g.* Canada or Germany).[25] In some countries a two-stage budget procedure, whereby the overall budget for equalisation is negotiated *separately* from the distribution formula, thereby successfully limiting rent-seeking pressure (*e.g.* Norway). Put together, fiscal equalisation embedded in a stable fiscal framework helps contain budget drift.

... and can be pro-cyclical

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, especially for vertical transfers.[26] 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 upswing expenditures are increased while in a downturn tax rates are increased (Rattso and Tovmo, 1998).

Some 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

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.

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.

Main findings and conclusions

Most OECD countries have established fiscal equalisation arrangements in the last decades. Their objective is to allow sub-central governments to provide their citizens with similar sets of public services at a similar tax burden. Fiscal equalisation is an explicitly redistributive programme and as such may conflict with objectives such as efficient sub-central expenditure or sub-central tax effort. Fiscal equalisation arrangements are very country specific and often form part of the institutional backbone, so any comparative analysis must be taken with great care. However, a few general findings and conclusions can be made, and these can be summarised as follows:

- *Fiscal equalisation makes up around 2.3% of GDP.* Across countries, the size of equalisation transfers varies between 0.5 and 3.8% of GDP, between 1.2 and 7.2% of government expenditures, or between $110 and $1 200 per capita. A part of the difference is due to the difficulty of obtaining detailed data for intergovernmental transfers, however. Fiscal equalisation is more transparent if it is institutionally or statistically separated from other transfer mechanisms
- *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 per cent used than vertical fiscal equalisation.
- *Revenue equalisation can reduce tax and development effort, especially in poorer regions*. A high "equalisation tax" – the rate at which additional tax revenue must be dedicated to equalisation – can reduce a jurisdiction's effort to develop its fiscal base and can slow down regional convergence. Poor regions are more affected since their equalisation tax is usually higher, often reaching 100% and beyond. The disincentive is only partially offset by the constituency's desire to increase its disposable income.
- *Cost equalisation is prone to rent seeking and can become ineffective*. Cost equalisation is more important than revenue equalisation in terms of GDP, although cost disparities are much smaller than revenue disparities. Since true sub-central expenditure needs are difficult to define, cost equalisation tends to become complex and prone to pressure from special interests. A way to reduce rent seeking and budget drift is to base cost equalisation on a few broadly defined need indicators that are difficult to manipulate.
- *The choice of standardised revenue or cost bases can mitigate disincentives*. Many countries use Representative Tax Systems covering all major sub-central taxes to determine revenue raising capacity and thereby reduce undesired equity effects or negative incentives for tax collection. Some countries also use sophisticated methods to calculate standard cost of service provision, in order to vitiate sub-central governments' incentive to inflate expenditures.
- *Equalisation can pose a problem for budget stability.* Fiscal equalisation can jeopardise budget stability. To cope with budget drift, some countries set equalisation transfers as a

fixed percentage of total tax revenue and/or introduced budget ceilings. Horizontal systems are less likely to create budget problems since central government is financially not involved. Fiscal equalisation can also be pro-cyclical. To cope with pro-cyclicality, countries often link entitlements to lagged indicators, thereby neglecting legitimate sub-central budget needs however.

Notes

1. 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.
2. The concept of net fiscal benefit goes back to Buchanan (1950). The concept is further elaborated in Boadway (2001) and Garnaut and FitzGerald (2005)
3. Besides fiscal equalisation, other government fiscal activities have intended or unintended re-distributional effects. Per capita transfers or transfers using demographic indicators are usually equalising, particularly if financed through progressive taxes, and it is often difficult to separate equalisation in the strict sense from other transfers. National taxes – that help, among other things, fund equalisation – change the relative fiscal positions of sub-central jurisdictions. 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. 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.
4. 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.
5. Figure 1 presents GDP data using an OECD territorial classification on the basis of two territorial levels (TLs) (see Spiezia, 2003). Using administrative boundaries is likely to produce different statistical results and show different levels of variation as compared with using regions defined by economic and demographic factors. A TL2 region is a higher level of aggregation (335 macro regions in the OECD database) than TL3 (1 679 micro-regions) which can lead to differences in the ability to detect sub national heterogeneity. Differences between administrative boundaries and OECD regional classification should also be kept in mind when comparing information supplied by ministries in charge of equalisation policy and data generated by the OECD to facilitate the comparison of regional economies.
6. It is important to point out that disparities in the cost of public service provision 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.
7. 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.
8. 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.
9. See *OECD Territorial Reviews* of Finland (2005), Stockholm (2006), Seoul (2005) and DeWit (2004).
10. Sharing of taxes generated at the place of origin can also 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 urban 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%.

11. 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% 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% of differences in education spending are eliminated (Evans, Murray and Schwab, 1997). In France, national grants reduce inequality among municipalities by 30% only (Gilbert and Guengant, 2002).

12. 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.

13. 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).

14. 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 to be larger than cost disparities for all countries.

15. In some countries cost equalisation is based on historical expenditure, perpetuating the inefficiencies in public expenditure of the past. Moreover, the equalisation could have perverse effects in that it could change the ranking order of regional fiscal capacity before and after equalisation (Ruiz Huerta, 2006)

16. The former cost equalisation in Switzerland, in force until 2006, was based on actual spending by the cantons.

17. Strictly speaking, it means separating a sub-central jurisdiction's "preferences" from its "needs".

18. Denmark and Norway each use around 15 socio-economic indicators to assess expenditure needs (Mau Pedersen, 2007). Switzerland uses 4 indicators for geographic and six indicators for socio-economic needs (Fischer, 2007). The Netherlands uses 24 indicators to assess needs. Sweden uses 10 different models for cost equalisation (Tingvall, 2007). On the other hand, the Australian system operates with more than 40 indicators, while the Korean system has around 50 indicators, still less than the UK (Spasojevic, 2007, Ponsford, 2007). The French equalisation system consists of seven programmes with dozens of indicators (OECD, 2007; Gilbert and Guengant, 2003).

19. Statistical procedures on how to determine the true cost of service provision are shortly described in Blöchliger *et al,* 2007.

20. 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.

21. 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 expenditures. Too many people or firms can cause congestion, resulting in diseconomies of agglomeration and negatively affecting the cost of service delivery.

22. Australia, Denmark, the Netherlands, Norway, Sweden and the UK operate arrangements explicitly taking the cost of "density" and "dispersion" into account. Cost equalisation in Austria and the Czech Republic favours 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 into the local tax share formula, causing the public sector to grow. The Portuguese equalisation system until 2006 used the number of *freguesias* (parishes or municipal sub-units) as an indicator for a municipality's entitlements, so municipalities tended to divide themselves further up; the Local Finance reform of 2007 now provides incentives for mergers of *freguesias*.

23. In Portugal, where total transfers are a fixed share of national tax revenue, the "minimum guarantee" offsets the formula-based allocation for around 100 out of 385 municipalities. With the Local Finance reform of 2007, this grandfather clause was abolished.

24. 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).

25. 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.

26. "Pro-cyclical" is meant in the sense that the volatility of total post-equalisation revenues of sub-central governments is larger than the volatility in pre-equalisation revenues.

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