CESifo DICE REPORT

Journal for Institutional Comparisons

Volume 6, No. 1 — Spring 2008

Forum

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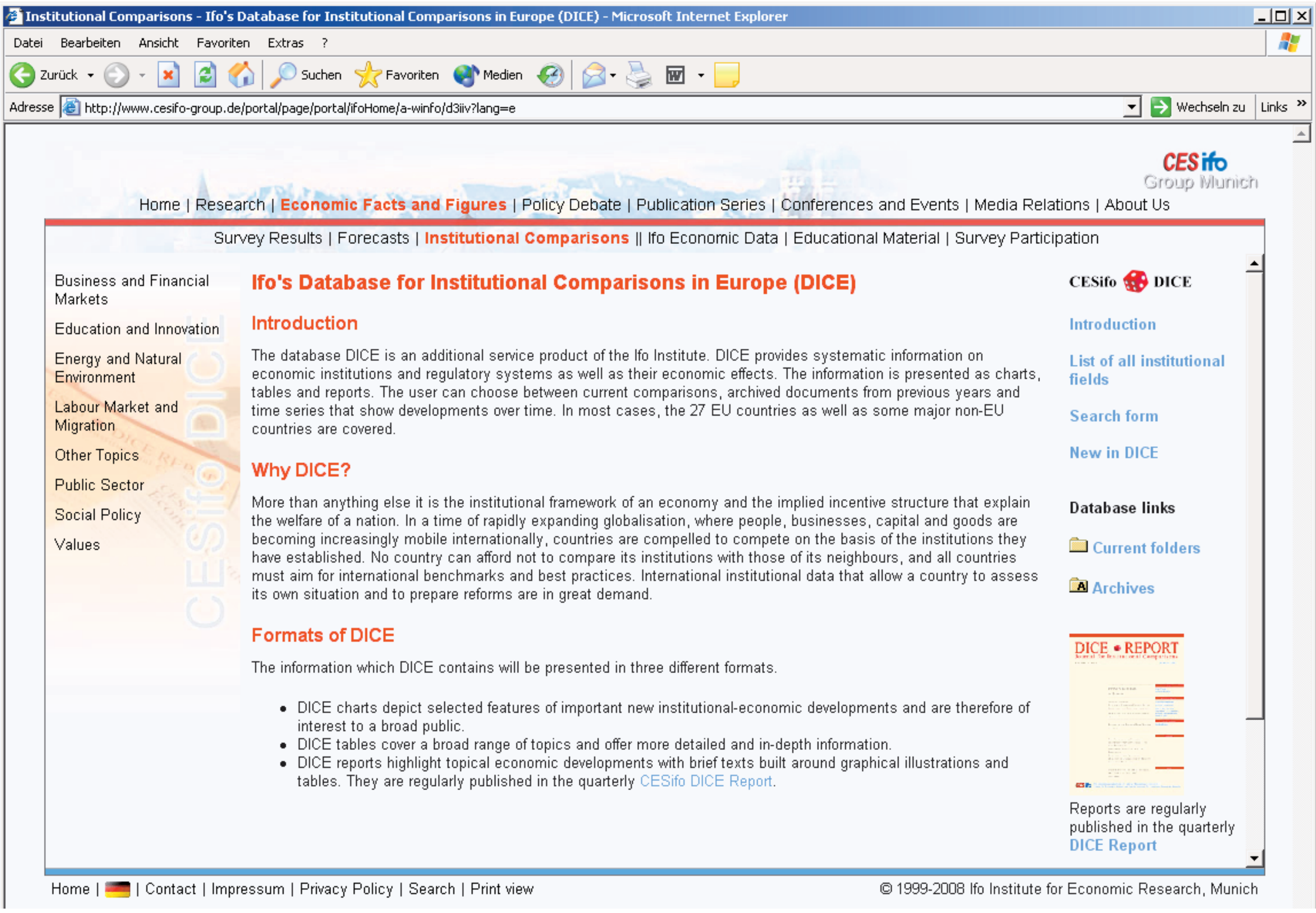

CESifo DICE Report ISSN 1612-0663
A quarterly journal for institutional comparisons
Publisher and distributor: Ifo Institute for Economic Research e.V.
Poschingerstr. 5, D-81679 Munich, Germany
Telephone ++49 89 9224-0, Telefax ++49 89 9224-1462, e-mail ifo@ifo.de
Annual subscription rate: €50.00
Editors: Marko Köthenbürger (koethenbuerger@ifo.de),
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Editor of this issue: Marko Köthenbürger
Copy editing: Anne Heritage, Paul Kremmel

DICE Database: www.cesifo.de/DICE

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Forum

Fiscal Equalization: Country Experiences

The Canadian Federal-Provincial Fiscal Equalization System
Bev Dahlby 3

Fiscal Equalisation in Australia: High Level VFI and Equity Focused HFE
Neil Warren 10

Fiscal Equalization: The Case of German Municipalities
Thiess Buettner and Fédéric Holm-Hadulla 16

Reform of the Swiss Fiscal Equalisation System
René L. Frey and Gérard Wettstein 21

Research Report

How Corporate Tax Competition Reduces Personal Tax Revenue
Ruud de Mooij and Gaëtan Nicodème 27

Reform Model

Political Support and Tax Reforms: An Italian Example
Paola Profeta 32

Database

Direct and Indirect Tax Revenues 37
Ease of Employing Workers 39
Income Maintenance during Unemployment 41
Migration of Health Professionals 43
Student Mobility 45
Teacher's Salaries 46

News

New at DICE Database, Conferences, Books 47

Fiscal Equalization: Country Experiences

The Canadian Federal-Provincial Fiscal Equalization System

Bev Dahlby*

The federal-provincial fiscal equalization system plays a very important role in Canadian public finances. This report describes this program, which has recently undergone major changes. We also provide some background on intergovernmental finances in Canada to put the equalization system in its constitutional, historic and economic contexts. The report focuses on the main federal equalization grant program to the provincial governments and discusses only in passing the other major federal transfers to the provinces. It does not cover the federal transfers to the territorial governments, which are determined under a different program, or the transfers that the ten provincial governments make to municipal governments.[1]

Background on federal-provincial finances in Canada

The federal-provincial equalization program began in 1957 in response to the desire of the two largest provinces in Canada, Ontario and Quebec, to reassert their control over their revenues and recommence levying income taxes. (During World War II, the federal government had taken control of all of the major tax bases and distributed grants in lieu of taxes to the provinces.) Given the inequality in the fiscal capacities of the provinces, the move to greater provincial taxation would have resulted in large variations in the revenue-raising abilities of the provinces. Hence, the federal government implemented the first equalization program to reduce the fiscal disparities of the provinces. The initial equalization program was based on three revenue sources – personal income tax, corporate income tax, and succession duties – and the standard of equalization was based on the average fiscal capacities of the two richest provinces at the time, Ontario and British Columbia. A history of the evolution of the equalization program is contained in annex of the report of Expert Panel on Equalization and Territorial Formula Financing (2006b).

The importance of the equalization program was recognized in 1982 in the following provision of the Canadian constitution:

Parliament and the Government of Canada are committed to the principle of making equalization payments to ensure that provincial governments have sufficient revenues to provide reasonably comparable levels of public services at reasonably comparable levels of taxation.

While the obligation of the federal government to make equalization payments to the provinces was enshrined in the Canadian constitution in 1982, the wording is sufficiently ambiguous that it gives the federal government considerable flexibility in determining the distribution and the level of the equalization payments.

Other aspects of the Canadian constitutional arrangements have also shaped the equalization program. These include:

The provinces have "exclusive responsibility" for health, education, and social welfare. These are the "big ticket" items for modern governments, and responsibility for these activities requires substantial amounts of revenue. Major differences in the provision of these key services, because of differences in the revenue-raising abilities of the provinces, would be inconsistent with the spirit of section 36(1) of the Canadian constitution which enjoins the federal and provincial governments to promote "equal opportunities for the well-being of Canadians…".

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[1] For information on transfers to the territorial governments, see Department of Finance (2007a and 2007c) and Expert Panel on Equalization and Territorial Formula Financing (2006a).

Notwithstanding the assignment of exclusive responsibility of key functions to the provinces, the courts have determined that the federal government can offer conditional grants to the provinces to promote national programs in areas of provincial jurisdiction, such as health care, post-secondary education, infrastructure, and other social programs. This is referred to as the federal "spending power", and it provides the basis for the other major federal transfer programs – currently called the Canada Health Transfer (CHT) and the Canada Social Transfer (CST).

The constitution restricts the provincial governments to levying "direct taxation within the province". This means that the provinces are not able to levy taxes on imports to the province, as this would restrict the free flow of goods and services within the federation. In practice, the provincial governments have extensive tax powers, and they impose taxes on all of the major tax bases, including personal and corporate income taxes, sales taxes, payroll taxes, excise taxes, and property taxes. The federal government also co-occupies these tax fields, with the exception of property taxes. The Canadian tax system is characterized by a high percentage of revenue raised at the subnational level and the joint occupation of the main tax bases by the two levels of government.

The Canadian constitution also gives the provincial governments ownership and control over natural resources. Natural resource revenues, especially from royalties on the production of oil and natural gas, have become major sources of revenue for some provincial governments, especially in Alberta, Saskatchewan, and British Columbia. Two eastern provinces, Newfoundland and Labrador and Nova Scotia, have also negotiated the right to receive revenues from offshore oil and gas fields. Revenues from hydro-electric developments are also important for Quebec. Other provinces receive relatively little resource revenues, and this inequality in the distribution of resource revenues, combined with the absence of federal revenues from these sources, has created major problems in determining the appropriate level of equalization payments.

Municipal governments do not have an independent status in the Canadian constitution. The provincial governments have complete control over the municipal sector and can create, reform, or merge any municipal governments within their boundaries. The financing of municipal governments is a provincial responsibility, and any equalization programs at the municipal level are the responsibility of their respective provincial governments. The property tax is the main source of own-revenues for municipal governments, but most municipal governments are heavily reliant on transfers from their provincial governments. In 2006, transfers were the single largest source of income for local governments at 42.7 percent of the total. Thus, in some respects, the provincial governments can be viewed as conduits for revenues raised at the federal level to local governments.

Key characteristics of the equalization program

Although the equalization program has evolved over time and has undergone recent major changes, certain key characteristics of the program have endured.

Equalization payments are lump-sum grants that have been largely determined within a representative tax system (RTS) framework, although the number of tax bases used in the calculation of equalization payments and the equalization standard has varied over time. Broadly speaking, the equalization program has been formula driven, with federal government determining the parameters of the formula. Limitations on the size of the equalization payments have occasionally been imposed, and the fixing of the size of the equalization pool in 2005 was a major source of discontent that led to a major reassessment and revamping of the equalization program in 2007.

Equalization payments have not been based on measures of fiscal need, such as are used to determine equalization payments in Australia. The reasons for not incorporating a needs component in the equalization calculations include the conceptual and statistical problems in defining need, the potential distortions in provincial policies that might arise if the needs components could be affected by provincial policies, and the desire to limit federal interference in areas of provincial jurisdiction.

Equalization payments are only made to the provinces with relatively low fiscal capacities. Ontario, with around 40 percent of the population, has never received equalization payments. Alberta has not received equalization payments since the early 1960s when resource revenues were included in the calculation of fiscal capacity. Other provinces, such as Saskatchewan and British Columbia, have been recipients of equalization in some years, but they have lost their equalization entitlement when

Table 1

Equalization payments in millions of dollars[a)]

Fiscal Year	NL	PEI	NS	NB	Que	Man	Sask	BC	Total
1997–98	1,093	238	1,302	1,112	4,745	1,053	196	–	9,738
1998–99	1,068	238	1,221	1,112	4,394	1,092	477	–	9,602
1999–00	1,169	255	1,290	1,183	5,280	1,219	379	125	10,900
2000–01	1,112	269	1,404	1,260	5,380	1,314	208	–	10,948
2001–02	1,055	256	1,315	1,202	4,679	1,362	200	240	10,310
2002–03	875	235	1,122	1,143	4,004	1,303	106	71	8,859
2003–04	766	232	1,130	1,142	3,764	1,336	–	320	8,690
2004–05	762	277	1,313	1,326	4,155	1,607	652	682	10,774
2005–06	861	277	1,344	1,348	4,798	1,601	82	590	10,900
2006–07	632	291	1,386	1,451	5,539	1,709	13	260	11,282
2007–08	477	294	1,465	1,477	7,160	1,826	226	–	12,925
2008–09	158[b)]	322	1,465[c)]	1,584	8,028	2,063	–	–	13,620
$ per capita	313	2,310	1,565	2,111	1,038	1,732	–	–	
Shares of payments (%)	1.2	2.4	10.8	11.6	58.9	15.1	–	–	100.0
Population share (%)	1.5	0.4	2.8	2.3	23.4	3.6			37.1

[a)] The names and abbreviations of the provinces are given in Table 2. On January 31, 2008 a Canadian dollar was worth US$1.01 or €0.679. – [b)] In addition, Newfoundland and Labrador will receive $742 million or $1,469 per capita under the Offshore Accords. – [c)] In addition, Nova Scotia will receive $106 million or $113 per capita under the Offshore Accords.

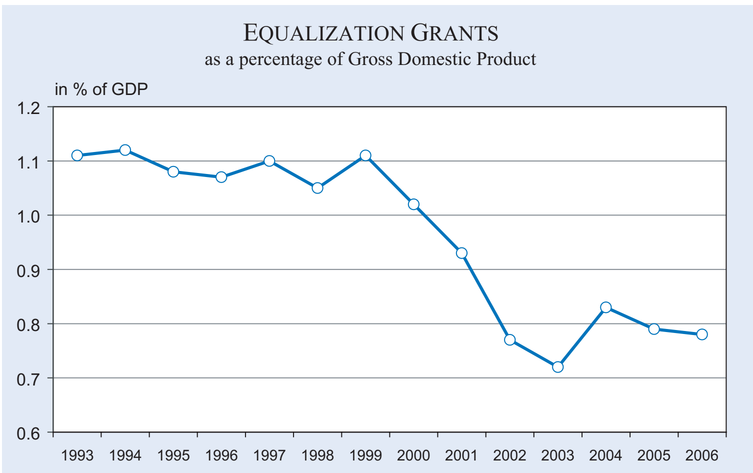
Source: Dept of Finance (2007c, Table 9, 63) and http://www.fin.gc.ca/news07/07-108e.html.

economic conditions have improved. Table 1 shows the equalization payments to the recipient provinces since 1997–98. The percentage of the total population that resides in the recipient provinces has ranged from 51.8 percent in 2001–02 to 37.1 percent in 2008–09. Note that there have been at times large fluctuations in the equalization payments to the provinces. For example, Quebec's equalization payment fell by $1.7 billion or 30 percent between 2000–01 and 2003–04, but it returned to the earlier level by 2006–07. As Figure 1 shows, total equalization payments as a percentage of GDP have declined from an average of 1.09 percent in the 1990s to less than 0.80 percent in 2006.

The advent of the offshore oil and gas revenues to New-foundland and Nova Scotia would have meant that these provinces would also lose equivalent equalization entitlements. The federal government signed the Off Shore Accords in 2005 with these provinces to prevent this from happening. The federal government argued that these special grants to offset the loss of equalization payments were justified because of the low levels of economic development and high indebtedness of these provinces, but these offsets led to accusations that the federal government was making "special deals" for certain provinces.

Equalization payments are funded out of the general revenues of the federal government. Provincial governments do not contribute to the funding of the program. Recipient provinces are equalized up to some standard level of fiscal capacity – the ability to raise a certain per capita revenue by levying average provincial tax rates – but provincial governments with relatively high fiscal capacity are not "equalized down". The residents of Ontario contribute about 43 percent of total federal tax revenues and there-

Figure 1



Source: Calculations based on Statistics Canada CANSIM data Table 380:0030 and Table 1.

fore pay a substantial fraction of any increase in the equalization payments, even though their provincial government has never received these funds.

Total federal-provincial transfers

Equalization grants are a key part of the Canadian fiscal architecture but other transfer programs, notably the Canada Health Transfer (CHT) and the Canada Social Transfer (CST), actually funnel more money to the provincial governments. Figure 2 shows that equalization grants represented about 27 percent of the total cash transfers to the provinces in 2007–08. The Canada Health Transfer, which provides grants to all of the provinces to aid in the funding of provincial health care programs, is the largest grant program, representing 45.5 percent of the total cash transfers. The Canada Social Transfer nominally helps fund post-secondary education and provincial social programs. It has become an equal per capita cash transfer to all the provinces and represents just under 21 percent of total transfers.

Table 2 shows the provinces' equalization grants in 2006–07 as a percentage of their total revenues. The government of Prince Edward Island relies on equalization grants for almost a quarter of its revenues. Quebec, which is the largest recipient province, received 9.2 percent of its revenues from equalization grants. The table also shows total federal cash transfers to the provinces as a percentage of their total revenues in 2006–07. The provinces in the Atlantic region receive more than a third of their revenues from transfers from the federal government, while the two richest provinces, Ontario (15.5 percent) and Alberta (8.1 percent), are much less reliant on federal transfers.

Table 2

Provincial governments' reliance on federal transfers in 2006–07

	Equalization payments as a percentage of total provincial government revenues	Total federal cash transfers as a percentage of total provincial government revenues
Newfoundland and Labrador (NL)	11.9	33.0
Prince Edward Island (PEI)	24.4	39.1
Nova Scotia (NS)	19.4	36.1
New Brunswick (NB)	22.4	38.0
Quebec (Que)	9.2	18.3
Ontario (Ont)	0.0	15.5
Manitoba (Man)	15.7	30.4
Saskatchewan (Sask)	0.2	16.1
Alberta (Alta)	0.0	8.1
British Columbia (BC)	0.7	16.5

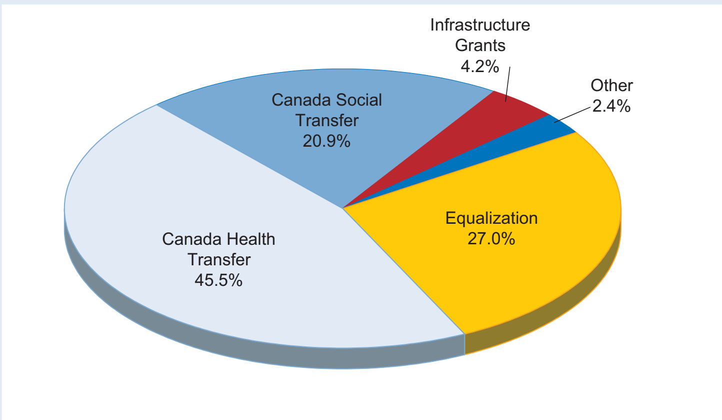
Source: Calculations based on data in Dept of Finance (2007b) and Table 1.

Recent changes to the equalization system

In light of the problems and controversies arising out of the 2005 changes to the equalization program and the Atlantic Accords, the federal government under Prime Minister Paul Martin appointed an expert panel to study the equalization system and recommend changes. The Expert Panel, under the chairmanship of Al O'Brien, a former deputy provincial treasurer in Alberta, presented its report in May 2006.[2] The Expert Panel (2006b) report contained an extensive analysis of the equalization system and made a number of recommendations for significant changes to the sys-

Figure 2

MAJOR FEDERAL-PROVINCIAL TRANSFERS IN CANADA
2007–2008



Source: Dept of Finance (2007c, Table 12, p. 67).

[2] The Expert Panel's reports, commentaries on the equalization system by academics and public policy experts, and other background documents can be accessed at the website http://www.eqtff-pfft.ca/index.asp. See also the report of the Council of the Federation (2006) on fiscal imbalances in Canada.

tem. In its March 2007 budget, the new federal government under Prime Minister Stephen Harper adopted most of the changes proposed by the Expert Panel. Among the most significant changes to the equalization system are the following:

The equalization standard is now based on the average fiscal capacity of all 10 provinces instead of the five province standard which had been used to calculate entitlements since 1982. The adoption of the 10 province (or national average) standard increases the equalization standard because Alberta's fiscal capacity is now included in the computation of the standard. Under the new equalization program, total payments for 2007–08 are $1.5 billion higher than in 2006–07.

The computation of equalization entitlements has been simplified by reducing the number of tax bases used to calculate fiscal capacity from 33 to five – the personal income tax base, the business income tax base, the property tax base, the sales tax base, and 50 percent of natural resource revenues. This means, for example, that the sales tax base will be used to calculate the fiscal capacity based on revenues from a variety of provincial taxes, such as tobacco taxes, gasoline and diesel fuel taxes, the sale of alcoholic beverages and motor vehicle licenses, in addition to the general sales taxes. The main argument for this change was simplification and the fact that some of the bases were difficult to measure accurately.

The revised treatment of natural resources – the 50 percent inclusion rate and the use of revenues instead of "bases" to calculate fiscal capacity – is particularly significant because this has been a source of controversy since the inception of the equalization program. The 50 percent inclusion rate, which was recommended by the Expert Panel, represents a compromise. On the one hand, some argue that all provincial revenue sources constitute fiscal capacity and therefore natural resource revenues should be fully included in the calculation of the average fiscal capacity of the provinces. On the other hand, partial inclusion, which has been the norm since the equalization program was started, has been justified because full inclusion would greatly increase the amount of equalization that would have to be paid to the recipient provinces. This burden would largely fall on the taxpayers in Ontario, which receives little in the way of resource revenues. It is also argued that full inclusion would effectively eliminate the net benefit that a recipient province receives from its natural resources, because its equalization payments would be "clawed-back" when it received more resource revenues. This would effectively negate provincial ownership of natural resources which is enshrined in the constitution. Thirdly, full inclusion would reduce incentives for provinces to develop or price their natural resources in an efficient manner.

The other major change to the resource component of the equalization formula is the use of resource revenues, instead of resource tax bases (volume or value measures of resources produced in a province), to calculate fiscal capacity. The justification for this change is that there has been a proliferation of natural resource bases in the equalization program because different types of resources, for example a barrel of heavy oil versus a barrel of conventional oil, can yield different levels of economic rent, and therefore represent different "fiscal capacities". However, the proliferation of resource bases meant that the adverse incentives to develop or price resources have became more significant because the narrowly defined bases are often concentrated in only one province. In addition, some of the resource bases were entirely "fictional". For example, the sale of exploration rights, a major source of revenue for the Alberta government, had to be converted into a tax base, even though it was a sale, not a tax. Combining the resource revenues from 14 different natural resources, including hydroelectricity, oil and gas, and forestry, along with the 50 percent inclusion rate, is meant to address these issues.

Another major change in the calculation of fiscal capacity is the use of market-values for the residential property tax base. Previously a proxy for the property tax base had been used based on economic indicators that were thought to approximate the revenue-raising ability of the property tax. A proxy was used because historically assessment and valuation practices for property taxes had varied widely across provinces. In recent years, most provinces have adopted market values as the basis for levying residential property taxes, and the logic of using market values in the equalization formula became very strong. (The procedure for computing fiscal capacity based on market values is complex because it has been observed that most municipalities that have high per capita property tax bases levy significantly lower property tax rates.) The switch to market-values for residential property taxes has resulted in a substantial increase in the measured fiscal capacity of British Columbia, where property values in the

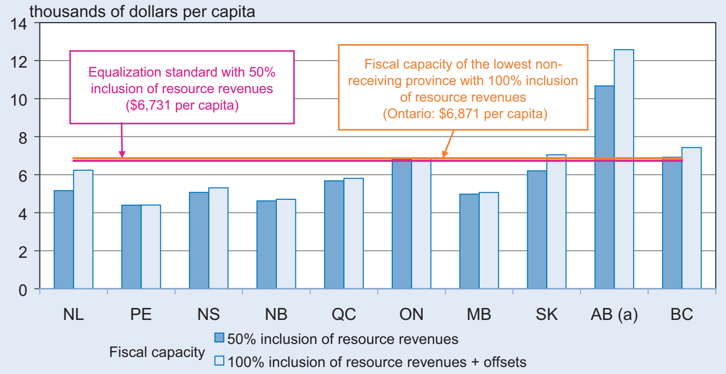
Greater Vancouver area are relatively high, and a corresponding decrease in the relative fiscal capacity of Quebec, where property values are relatively low. As a consequence, Quebec's entitlement to equalization has increased. Further reforms in this area are required because the fiscal capacities arising from commercial, industrial and agriculture property taxes are still based on a proxy.

A further simplification is that equalization entitlements will be based on a three year weighted moving average of measured fiscal capacities with a two year lag. For example, the equalization entitlements for 2007–08 are based on the fiscal capacities of the provinces in 2003–04, 2004–05, and 2005–06, with the first two years having 25 percent weights and the final year a 50 percent weight. This change was introduced because under the previous system, given the lags in data collection, it took up to 42 months before a province received final confirmation of its equalization payment. The new method will make it easier for recipient provinces to make budget plans and will reduce fluctuations in payments.

The final major change to the computation of equalization was the introduction of a fiscal capacity cap to ensure that a recipient province's fiscal capacity with equalization does not exceed that of any non-recipient province. For example, it is possible that with only 50 percent of resource revenues included in the measurement of fiscal capacity a province, such as Saskatchewan, would be eligible for equalization payments and have a fiscal capacity that exceeded Ontario, which would not receive equalization. This is viewed as fundamentally unfair since Ontario taxpayers fund a substantial share of the equalization program. To avoid this situation, a receiving province's fiscal capacity with equalization payments is capped at the fiscal capacity of the lowest non-receiving province, which at this time is Ontario.

Figure 3

CALCULATION OF FISCAL CAPACITIES AND EQUALIZATION ENTITLEMENTS FOR 2008–09



(a) Alberta's fiscal capacity with 50% resource revenue inclusion is $10,673 and $12,579 with 100% resource revenue inclusion.

Source: Dept. of Finance.

Figure 3 shows the fiscal capacities of the provinces for 2008–09 and illustrates how the fiscal capacity cap operates. The first solid bar shows the fiscal capacity of each province using the new standard with the 50 percent inclusion of resource revenues. The average fiscal capacity is $6,731 per capita. Ontario, British Columbia and Alberta have fiscal capacities that are in excess of this standard and therefore are not eligible for equalization payments. Equalization entitlements are calculated as the gaps between the solid bar and the solid line which represents the standard fiscal capacity. Then the fiscal capacities of the provinces are calculated with 100 percent inclusion of the resource revenues. The fiscal capacity of the lowest non-receiving province is Ontario at $6,871 per capita. Since Saskatchewan's fiscal capacity with 100 percent inclusion of resource revenues (even without the equalization entitlement calculated at the first stage) is higher than Ontario's fiscal capacity, Saskatchewan is not eligible for equalization payments in 2008–09. In the case of Newfoundland and Labrador and Nova Scotia, equalization payments are reduced by the cap because of the Offshore Accord payments. The entitlements of all of the other provinces are unaffected by the fiscal capacity cap in 2008–09.

Summary

In the view of most public policy analysts, the 2007 revisions to the equalization system, based on the recommendations of the Expert Panel, represent an improvement over the previous system and address in a balanced manner the irreconcilable goals and controversial issues that have grown up around the equalization program in Canada. As with any new major program, there will be unforeseen problems with the changes to a complex system and in light of newly emerging fiscal events, but the general directions of the reforms seem reasonable. The new system will likely remain the basis for determining equalization for the foreseeable future.

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Fiscal Equalisation in Australia: High Level VFI and Equity Focused HFE

Neil Warren*

Federation and the constitution

When the Australasian Federal Convention met in the late 1890s to discuss a draft constitution for the new Commonwealth of Australia, tax and expenditure responsibilities of the States[1] (the former colonies) were the focus of much debate. Particular attention was given to whether the reference to customs duties should be extended to also include excise duties since customs duties were imposed on similar goods. The subsequent amendment to s. 90 of the Australian Constitution[2] gave the Commonwealth Parliament exclusive power to impose duties of customs *and* excise, an action which was to have profound and unforeseen implications for the future taxing powers of States.

The Constitution also restricted States from levying duties/taxes on flows to/from other States (s. 92) and from imposing taxes on the Commonwealth (and the Commonwealth from imposing taxes on the States) without agreement to do so (s. 114). The Commonwealth was also prevented from levying taxes which discriminated between States (s. 51(ii)). In relation to inter-governmental financial arrangements, tax sharing was provided for (s. 87) along with provision for the Commonwealth to provide grants to States on any terms (s. 96). Following a Constitutional referendum in 1928, the Commonwealth also acquired the power to coordinate borrowing by State governments (s. 105A) which resulted in the setting up of the Loan Council.

In the case of expenditure responsibilities, the Constitution endows the Commonwealth Government (s. 51) with powers relating to defence, foreign affairs, maritime, trade (inter- and intra- national), and pensions and benefits. States, by default, retained responsibility for the major expenditure areas of health, education, transport, and law and order.

Since the Proclamation of Federation on 1 January 1901, the independence of States enshrined in the Constitution has been progressively eroded. S. 90 of the Constitution, which was designed to ensure States did not impose import duties on cross-border trade, has subsequently been interpreted by the High Court of Australia as excluding States from levying any form of sales tax or excise duty.

In the case of income based taxes, the colonies had imposed such taxes as early as the 1880s and retained these after federation. It was not until 1915 that the Commonwealth introduced an income tax. In 1942, the Commonwealth introduced the Uniform Income Tax Act and forced States to repeal their own income taxes. This was not because such State taxes were unconstitutional but because the Commonwealth indicated that any revenue raised by States from their own income taxes would result in an equivalent reduction in their grants from the Commonwealth. The States challenged the right of the Commonwealth to impose such conditions on its grants to States, but the High Court found in favour of the Commonwealth on the basis that s. 96 of the Constitution states that the Commonwealth "Parliament may grant financial assistance to any State on such terms and conditions as the Parliament thinks fit".

The impact on Australian States of the loss of access to income and consumption taxes is apparent from Table 1. States now rely on payroll taxes for 30 percent of revenue (assigned to them by the Commonwealth in 1971), taxes on motor vehicles for 25 percent and property based taxes for 19 percent. In con-

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[1] The Australian Commonwealth comprises six states (New South Wales, Victoria, Queensland, South Australia, Western Australia and Tasmania) and two territories (Northern Territory and Australian Capital Territory). Hereafter, we shall refer to these states and territories as "States".

[2] See the Australian Constitution at <www.aph.gov.au/senate/general/constitution/>

Table 1

Australian tax revenue 2005–06

Commonwealth	AU$mn	%	All States	AU$mn	%
Personal Income	118,708	48.4	Payroll	13,087	29.6
Company Income	56,394	23.0	Stamp duty on property conveyancing	3,613	8.2
GST	38,884	15.9	Land tax	4,550	10.3
Excise & levies	22,748	9.3	Motor vehicles	10,945	24.7
Other	8,489	3.5	Gambling	5,568	12.6
			Insurance	3,559	8.0
			Other	2,912	6.6
Total	245,223	100.0	Total	44,234	100.0

Source: Australian Bureau of Statistics, ABS Cat. No. 5506.0 Taxation Revenue, Australia, 2005-06, www.abs.gov.au

trast, the Commonwealth receives 48 percent of its tax revenue from taxes on personal income, 23 percent from company income, 16 percent from the GST and 16 percent from excise duties. This is all at a time when States have retained the same expenditure responsibilities as they had at federation. Not surprisingly, the Commonwealth raises considerably more revenue than it requires for its own-purpose outlays, collecting 82 percent of all taxation revenue while being responsible for only 54 percent of total general government outlays. In contrast, the States collect 15 percent of taxation revenue and account for 40 percent of total general government outlays (Table 2). A high level of vertical fiscal imbalance (VFI) therefore characterises the Australian federation.

Australia's current approach to addressing VFI involves two basic strategies: a system of specific purpose (tied) payments to the States from the Commonwealth; and a system of general revenue (untied) grants based on GST revenue sharing.

Specific purpose payments

Reassigning expenditure responsibilities from the States to the Commonwealth has effectively occurred through the use of specific purpose payments (SPPs) by the Commonwealth as shown in Table 3. SPPs "through" States have grown in importance in recent years with the Commonwealth assuming direct funding responsibilities for initiatives by States, with or without their agreement. Examples include funding for non-government schools, a first home owner's purchase support scheme, and financial assistance grants for local government.

Table 2

Government expenditure: Australia 2005–06, in %

	Commonwealth (Central)	State	Local
Tax Revenue	82.2	14.8	3.0
General Government Expenditure	53.8	40.1	6.1

Source: Australian Bureau of Statistics, ABS Cat. No. 5512.0 Government Finance Statistics, Australia, 2005–06, www.abs.gov.au

SPPs "to" States have also been designed to fund the expenditure obligations of States in a way which the Commonwealth seeks to encourage. This has resulted in both tied and untied SPPs. This is possible because s. 96 of the Constitution gives the Commonwealth the power to provide grants to States on any terms. In the case of tied SPPs, this has had a disproportionate impact on States' fiscal autonomy through the matching and maintenance conditions attached to the Commonwealth grants. For example, these tied grants provide around 15 percent of NSW total Budget revenues, but the conditions attached to these grants control around 30 percent of NSW budget outlays.[3]

In the early 1980s, SPPs were some 34 percent of all grants to States, rising to around 48 percent in the early 1990s. As shown in Table 3, by 2005–06 SPPs comprised some 42 percent of all State grants received with some 21 percent of SPPs passed straight through to the States.

GST revenue sharing

In 1998, the Commonwealth released a proposal (Costello 1998) to introduce a 10 percent GST on 1 July 2000 and to assign the revenue to States in return for the abolition of some nine State taxes,[4] Commonwealth Financial Assistance Grants (FAG) and Revenue Replacement Grants (RRP).[5] At the Commonwealth level, the abolition of FAG would help fund the repeal of a multi-rate narrow based

[3] NSW Government Budget Papers 2006–07, Budget Paper No. 2. p. 8–14.
[4] Ibid., p 22.
[5] RRP were compensation to States for their loss of taxes on petrol, tobacco and alcohol following a successful Constitutional challenge to their legitimacy given s. 90 of the Constitution.

Table 3

State government, operating statement – general government 2005–06, in %

	NSW	VIC	QLD	WA	SA	TAS	ACT	NT	All
Taxation revenue	36	34	25	32	26	20	29	13	31
GST revenue grant to States	23	24	25	23	30	41	27	61	26
SPPs to the States	14	14	13	15	14	14	10	12	14
SPPs through the States	5	5	5	4	5	5	5	2	5
Other revenue	21	22	32	25	24	20	29	13	24
Total	100	100	100	100	100	100	100	100	100
Taxation revenue	36	25	17	12	7	2	2	1	100
GST revenue grant to States	28	21	21	10	9	4	2	5	100
SPPs to the States	32	22	20	12	8	3	1	2	100
SPPs through the States	32	25	20	10	8	2	2	1	100
Other revenue	27	21	28	12	8	2	2	1	100
Total	31	22	21	11	8	3	2	2	100
Population	33	25	20	10	8	2	2	1	100

Source: Commonwealth of Australia, 2006–07 Budget Paper No. 3, www.budget.gov.au; Australian Bureau of Statistics, ABS Cat No. 5512.0 Government Finance Statistics, 2005–06, Table 19, www.abs.gov.au

Wholesale Sales Tax (WST). While the Commonwealth made much of the assignment of the GST revenue to States, in effect, only 58.5 percent of the GST funded their loss of FAG.[6] As a consequence, the arrangement was less genuine revenue sharing and more an alternative to the then current system of FAG and RRP.

While the Commonwealth proposal further reduced the discretionary taxing revenue raising powers of States, the States responded positively. However, in May 1999, the Commonwealth amended its offer to the States as a result of needing to compromise to ensure the GST reforms passed through the Parliament. This involved excluding basic foods from the base of the proposed GST, funded in part through delays to the funding of State tax reforms.

To remove any concern on the part of the States that they might be worse off during the transition period, the Commonwealth agreed that each State would receive a Guaranteed Minimum Amount (GMA) such that if any State was worse off, they would receive Budget Balancing Assistance (BBA) to make up the shortfall.[7] On 30 June 1999, the *Intergovernmental Agreement on the Reform of Commonwealth-State Financial Relations* (IGA) was signed by the Commonwealth and the States and on 1 July 2000, the 10 percent GST was introduced.

[6] See Commonwealth of Australia, 2007–08 Budget Paper No. 3, Table B2.
[7] For a discussion of how GMA works in practice, see *Commonwealth of Australia, 2007–08 Budget Paper* No. 3, Table B2: <www.budget.gov.au>

While some State taxes were abolished within a year of introducing the GST, the States agreed to review the remainder by 2005 with a view to their possible abolition, conditional on the GST revenue sharing arrangement providing the necessary funding. By 2005, all States had either repealed these taxes or set dates for their repeal or further review.[8] The Commonwealth has continued to argue that since all States are consistently better off (GST>GMA) they should embark on State tax reforms additional to those identified in IGA.

For States, the repeal of the various State taxes noted under the IGA has directly impacted on their discretionary sources of tax revenue (and VFI). In 2005–06, States collected 14.8 percent of all tax revenue, down from 19.5 percent in 1998–99 and over the same period, tax revenue as a proportion of total State general government operating revenue fell from 39 percent to 31 percent. Over the same period, the contribution to total State general government operating revenue by general revenue grants increased from 35 percent in 1998–99 (FAG) to 45 percent in 2005–06 (GST revenue).

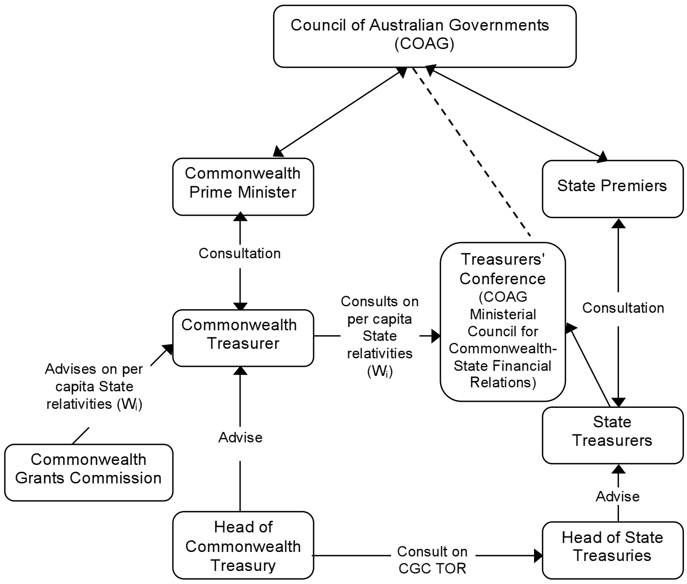
Grant distribution consultative framework

The institutional framework for determining the grant distribution to States is outlined in Figure 1. Central to the process is the Council of Australian Governments (COAG) which is the peak intergov-

[8] See Collins and Warren(2007), Table 1.

Figure 1

Consultative Framework



ernmental forum in Australia and involves the Prime Minister, each State's Premier and a representative from local government. Consultation and cooperation between the Commonwealth Government and States in specific policy areas is facilitated by over 30 Commonwealth-State Ministerial Councils under COAG. Both Ministerial Councils and COAG can initiate, develop and monitor the implementation of policy reforms of national significance requiring cooperative action. When formal agreement is needed, this is embodied in an intergovernmental agreement.

One such instance is the Intergovernmental Agreement on the Reform of Commonwealth-State Financial Relations (IGA), which resulted in the establishment from 1 July 1999 of the Ministerial Council for Commonwealth-State Financial Relations[9] (the "Treasurers' Conference"). Its functions include oversight of IGA and its regular review; oversight of the operation of the GST; discussion on the Commonwealth Grants Commission (CGC) recommendations on relativities prior to the Commonwealth Treasurer making a determination; and making recommendations to the Commonwealth Treasurer on GMA.

Grant distribution methodology

Critical to the allocation of s. 96 grants amongst States is the advice provided by the Commonwealth Grants Commission (CGC) to the Commonwealth Treasurer on their allocation. The CGC's terms of reference require it to redress any *horizontal fiscal imbalance* by developing per capita relativities which provide all States with the same fiscal capacity to provide services to their populations if they make the Australian average effort to raise revenue and operate at the average level of efficiency.

The objective of horizontal fiscal equalisation (HFE) in Australia is therefore focused on compensating disadvantaged States for their expenditure disabilities (due to their relatively high *per capita* costs for providing public services) and revenue disabilities (having relatively small *per capita* tax bases). No consideration is given to inefficiencies arising from their own discretionary policies. Rather than *performance equalisation,* the focus is on equalising per capita *capacity equalisation* in a way that does not force the adoption of uniform policies across States. In assessing that capacity, the CGC treats all Specific Purpose Payments (SPP) from the Commonwealth to States as simply another revenue source (unless the CGC is directed to quarantine these grants – which is more the exception than the rule[10]).

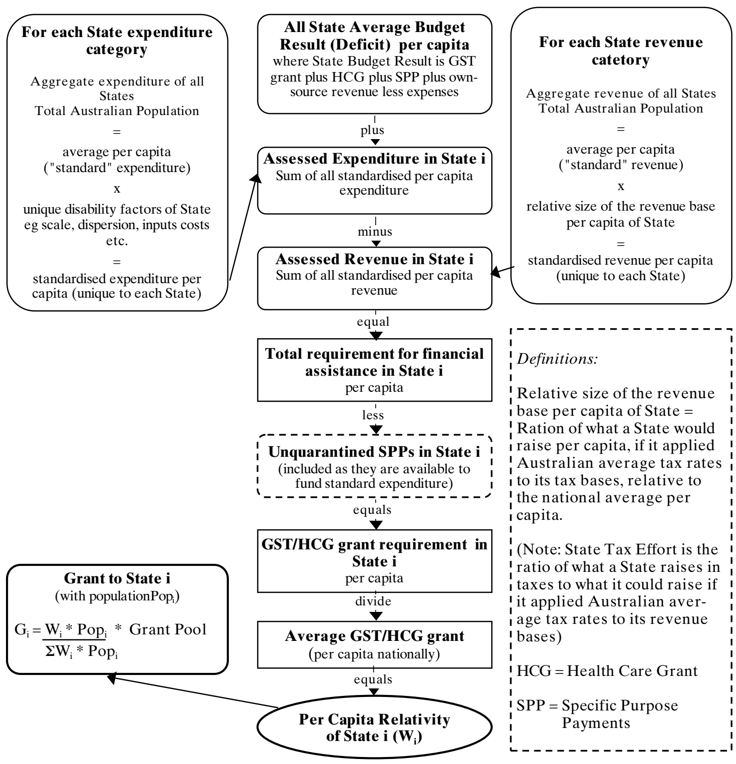
The precise methodology applied by the CGC in preparing State relativities (W_i) is outlined in Figure 2 along with how it is applied to derive each State's share of the grant pool. In practice, this pool includes both the revenue from the GST and the total of all (unquarantined) Health Care Grants (HCG) allocated under the Health Care Agreement between the Commonwealth Government and each State. The resulting distribution of the GST/HCG pool detailed in Table 4 provides all States with the same fiscal capacity to provide services to their populations, if they make the Australian average effort to raise revenue and operate at the average level of efficiency.[11]

[9] For a description of COAG, see www.coag.gov.au/ministerial_councils.htm
[10] "Quarantined" SPPs are a small proportion of total SPPs and have historically related to direct grants to non-government schools and local governments.

[11] For the 2007 CGC report to the Commonwealth on relativities, see<www.cgc.gov.au/state_finances_inquiries/2007_update_report2/>

Figure 2

Applying HFE Principles in Australia



Source: Attachment B, 2007 CGC Report on State Revenue Sharing Relativities, 2007 Update, p. 70.

The future

With the introduction of the GST in 2000 and the repeal of various State taxes, the proportion of State revenue subject to the HFE process increased 100 percent (between 1998–99 and 2005–06). This is at a time when State tax revenue rose by only 25 percent. Unsurprisingly, past concerns with the HFE methodology are now the focus of considerably greater attention with two issues in the forefront. Firstly, there has been a long standing concern that the emphasis on ensuring an equitable distribution of the grant pool between States has come at too high a price in terms of economic inefficiencies. While the CGC asserts that its approach is State policy neutral, in practice this is not the case. States' policies directly influence the CGC estimates of national averages (as shown in Figure 2). In the case of taxes, this can mean that a State's effort to grow its tax base (and economy) with rate or base changes can result in a transfer of these benefits to mendicant States. This can act as a disincentive to a State implementing efficiency improving reforms.

The second area of concern has been the comprehensiveness of the Australian approach. The current approach is sophisticated in that some 40 categories of State expenditure are identified (which with many

Table 4

Distribution of the GST/HCG "pool" and the effect of horizontal fiscal equalisation in 2006–07

	Population 31 December	GST relativities (W_i)	Weighted population (1) x (2)	Share of GST/HCG "pool"	Unquarantined HCGs	Share of GST revenue (5) – (6)	GST/HCG "pool" share less: equal per capita distribution of "pool"	GST/HCG "pool" share less: distribution of "pool" by State Household Final Consumption Expenditure
	mn		mn	AU$mn			AU$ per head	
	(1)	(2)	(3)	(5)	(6)	(7)	(8)	(9)
NSW	6.864	0.873	5.994	13,821	2,787	11,034	–293	–366
VIC	5.128	0.896	4.593	10,591	2,018	8,573	–242	–282
QLD	4.090	1.024	4.188	9,656	1,607	8,049	54	171
WA	2.073	1.005	2.083	4,804	826	3,978	10	52
SA	1.562	1.189	1.856	4,280	689	3,591	434	565
TAS	0.490	1.549	0.760	1,752	179	1,573	1,266	1,553
ACT	0.331	1.146	0.379	874	106	768	335	–209
NT	0.208	4.328	0.902	2,079	94	1,985	7,672	7,546
Total	20.746		20.754	47,856	8,304	39,552	0	0

Source: Commonwealth of Australia, 2007-08 Budget Paper No. 3, Table 1, Table 10, www.budget.gov.au, Australian Bureau of Statistics, ABS Cat. No. 5220.0 Australian National Accounts: State Accounts, 2006–07, www.abs.gov.au factors applied to each results in some 359 expense factor assessments) and 37 State tax bases. However, there is doubt about whether all this sophistication achieves a superior equalisation outcome (Warren 2006, 82). A related concern is the CGC's inclusion of HCGs and SPPs in its analysis. This is despite the level and initial distribution of HCGs and SPPs being determined in direct discussions between individual States and the Commonwealth. In effect, the action of the CGC in subtracting SPPs from a State's total requirement for financial assistance when allocating a grant pool that includes both GST and HCGs usurps the intent of the direct Commonwealth-State discussions on the level and distribution of these payments.

While there have been numerous calls for change to the current HFE methodology, at no stage have these proposals recommended the abandonment of HFE principles in the allocation of grants between States in Australia. What is at issue is the precise methodology applied and its comprehensiveness. Reforms proposed include:

1. Quarantining some or all SPPs and HCGs from the HFE methodology.
2. Reducing the reliance on a complex array of both tax and expenditure variables when applying HFE principles.
3. Removing some taxes from HFE consideration to provide an incentive for States to rely more heavily on such taxes.
4. Benchmarking "standard" revenue (in Figure 2) to less than 100 percent of the actual average per capita revenue.
5. Distributing less than 100 percent of the general revenue grants through the equalisation pool.

While change will no doubt come slowly to the institutional framework designed to address VFI in Australia, there is growing acceptance that some change is inevitable in order to address the adverse efficiency impact of the past emphasis on equity in the distribution of grants amongst the Australian States.

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Fiscal Equalization: The Case of German Municipalities

Thiess Buettner* and

Fédéric Holm-Hadulla**

Given increased mobility of capital, many countries face difficulties in taxing corporate income. Some observers fear a race to the bottom and wonder whether international economic integration has gone too far. In fact, experience with the finances of local jurisdictions – cities, towns, and municipalities – suggests that governments operating under conditions of high mobility are forced to rely more heavily on the taxation of property and land than on personel and corporate income taxes. Although this is true for local governments in most countries, it is not true for Germany.

Germany currently has about 12,500 municipal governments, each of which runs its own budget, employs public servants and raises revenue from various sources. These municipal governments have some tax autonomy in the sense that they decide on the actual tax rate of land tax and of business income tax. But, quite contrary to what might be expected, the revenue share of business tax is substantial in this case, and the average statutory tax rate is suprisingly high. Even after the 2008 tax reform it is above 13 percent.

While the strong reliance on business taxation seems to contradict conventional wisdom, it is important to emphasize that there are some specific institutions that govern the fiscal policies of local jurisdictions in Germany. Most notably, German municipalities are subject to a system of vertical and horizontal fiscal transfers. Closer inspection reveals that this comprehensive system of fiscal equalization can partly explain why local governments rely so heavily on business income tax.

There are basically two features of municipal finances in Germany that could explain the unusual tax mix and the heavy reliance on business taxes:

(1) The fiscal equalization system tends to reduce the marginal cost of using business income tax in a setting with high mobility.
(2) The fiscal equalization system provides protection against revenue fluctuations that are inherent to business income taxation.

It should be pointed out, however, that there are further institutional characteristics in Germany that play an important role. Most important, the tax law is given and tax collection is generally centralized at the state level. Otherwise, one could expect that the administrative complexity of business taxation would overwhelm local authorities. Moreover, local business taxation in Germany is further simplified due to a system of formula apportionment that avoids many of the problems of profit-shifting between affiliated firms, an issue which in the context of multinational corporations has recently received considerable attention. Furthermore, until the 2008 reform, the business tax was deductible in personal and corporate income taxation, implying that the effective burden on firms was lower.

Sources of funds

Besides user fees and income from private sector activity, municipal governments in Germany obtain funds mainly from three sources. First, municipalities receive a 15 percent share of personal income taxes paid by its residents and a share of VAT. The municipalities have no discretion with regard to the tax rate, and tax collection is centralized at the state level.

Second, local municipalities raise their own tax revenue. This relates mainly to the local business tax and to the land tax. Except for special cases, the business tax is essentially a tax on the profits of local

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Table

Main sources of municipal public funds in North Rhine-Westphalia in 2005

	Mean	Std.Dev	Min	Max	CV[b]
	in € per capita				
Local business tax revenue	361.7	236.2	25.10	1,486	0.653
Land tax revenue	119.2	20.12	69.82	238.9	0.169
Shared tax revenue[a]	295.9	50.67	181.7	469.2	0.171
Fiscal equalization grants	207.5	133.2	0	599.5	0.642

[a] Shares from personal income taxes and VAT. – [b] Coefficient of variation.

Source: Own calculations and Statistical Office of North Rhine-Westphalia.

firms. While the tax law is a federal law that applies equally to all municipalities, the municipal council decides on the actual tax rate. With regard to land taxation, again, all responsibilities of tax administration, including assessment, are centralized at the federal or state level. There are, however, two tax rates that the municipality determines: one is levied on land devoted to agricultural use and the second to land used for residential and commercial purposes.

A third source of municipal funds comprises grants from the state governments. Most notably, all German states (except for Berlin, Bremen, and Hamburg which have city-state governments) engage in a system of fiscal transfers from the state to the municipal level. While a part of these vertical transfers are paid as matching grants, the lion's share of grants is unconditional, in that recipient governments can freely decide upon their use. However, the distribution of these funds takes place through systems of *fiscal equalization* at the level of the states. These systems determine grants based on indicators of *fiscal capacity* and *fiscal need*. The latter is basically the conceded budget per resident; the former is a measure of tax revenue at standardized tax rates. If a jurisdiction displays a fiscal capacity above fiscal need, it will not receive equalization grants, and in some settings, it may even be a net contributor to the fiscal equalization system. If its capacity falls short of fiscal need, however, the jurisdiction is a recipient of grants such that grants partly compensate for the gap between fiscal need and fiscal capacity.

In order to illustrate the relative importance of the respective sources of revenue, the Table provides information on the composition of municipal revenue in North Rhine-Westphalia, Germany's largest state.

The data reveal several characteristics of municipal finance in Germany. First, municipalities strongly rely on rather distortive taxes. In particular, average per capita revenue from the local business tax is more than three times larger than revenue from the land tax. At the same time, local business tax revenues display substantial inter-jurisdictional disparities. As indicated by the coefficient of variation, the dispersion of local business tax revenue is almost four times larger than the dispersion of land tax revenue.

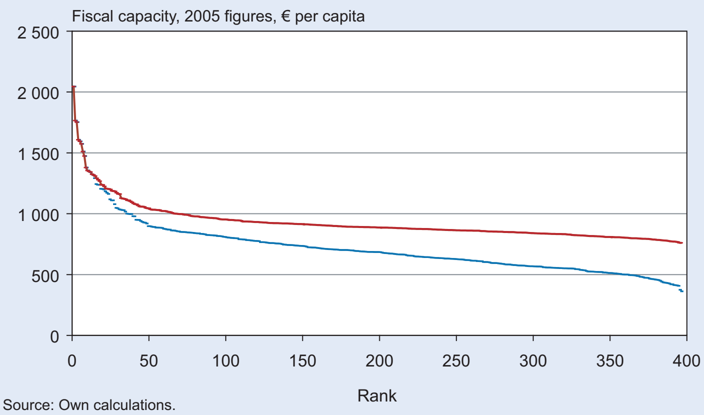
The last line of the Table highlights the prominent role of fiscal equalization in municipal finance in Germany. On average fiscal equalization transfers amount to more than a quarter of total revenues. However, dispersion is also very high with respect to this source of revenue. While some jurisdictions (with low fiscal need and high fiscal capacity) are not eligible for fiscal equalization, others receive rather substantial transfers from the state.

The role of fiscal equalization grants

We can distinguish at least three effects of fiscal equalization on municipal budgets. First, since equalization grants are financed through vertical trans-

Figure 1

FINANCING AND REDISTRIBUTION FUNCTION OF FISCAL EQUALIZATION



Source: Own calculations.

fers, they raise funds disposable to local governments. Second, due to its redistributive nature, fiscal equalization compensates for disparities in the fiscal capacity of jurisdictions. Third, fiscal equaliza-tion provides insurance against revenue shocks since an unexpected change in revenues will be partly compensated by offsetting changes in equalization grants.

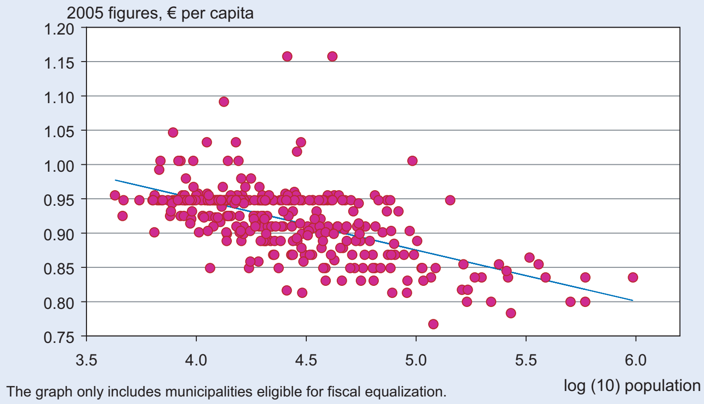
The substantial impact of equalization grants on the amount of funds available at the lower level as well as its redistributive nature are illustrated in Figure 1. The horizontal axis ranks all 396 municipalities in North Rhine-Westphalia according to fiscal capacity, and the vertical axis measures revenues in per capita-terms. Municipalities with large funds are closer to the left of the diagram. The lower curve shows fiscal capacity before fiscal equalization whereas the upper curve shows the revenue capacity, i.e., the sum of fiscal capacity and equalization grants. As the figure shows, most municipalities receive additional funds from equalization. Only municipalities that display an unusually large fiscal capacity do not. This is illustrated by the fact that the curves overlap in the left corner of the diagram. Moreover, the slope of the upper curve is flatter, which indicates that the disparities between more and less wealthy jurisdictions are reduced by fiscal equalization.

While the transfers can be expected to create important income effects on municipalities, it should be noted that those effects would actually tend to result in low rather than high tax rates. Thus, they cannot explain why business tax rates are so high. However, the systems of fiscal equalization that are in place in Germany also produce strong incentive effects on tax rates. Basically, the fiscal equalization systems reduce some of the costs associated with using business income taxes as a source of local funds. This is a result of the negative relationship between fiscal equalization grants and fiscal capacity. In particular, since fiscal capacity is usually determined by multiplying the tax base by a certain standardized tax rate, fiscal equalization grants are essentially determined by the local tax base. In the presence of fiscal equalization grants the revenue consequences of a change in the local tax base are partly offset by changes in the grants received. Figure 2 provides some indication of the importance of this effect in Germany by depicting the marginal degree of redistribution faced by municipalities in North Rhine-Westphalia that receive equalization grants. The marginal degree of redistribution is defined here as the fraction of a unit increase in business tax revenues that is implicitly appropriated by the transfer system. This fraction is displayed on the vertical axis. The figures point to a substantial degree of fiscal redistribution. On average more than 86 cents of an additional euro of business tax revenues is transferred; only 14 cents remain with the budget of the municipality.

The rather strong degree of redistribution has potentially important consequences for tax policy. In order to illustrate this, let us consider the impact of an increase of the local business tax rate. In addition to withdrawing resources from the private sector, a higher tax effort depresses the local tax base. This is due to an outflow of capital and the discouragement of private investment, which usually go along with higher tax rates. The reduction in the tax base due to taxation results in an excess burden that raises the *marginal cost of funds* and provides a strong incentive to lower tax rates. Since a decrease in the tax base is compensated with an increase in transfers, however, fiscal equalization works in the opposite direction. The disincentive to tax mobile capital that is usually faced due to an adverse effect on the tax base is compensated by an increase in grants. Thus, in the presence of fiscal equalization, tax rates will generally be higher than in a situation without redistributive transfers. Recent literature on fiscal federalism has stressed the role of fiscal equalization in altering the incentives faced by local tax policy. In particular, it has been shown that redistributive intergovernmental transfer

Figure 2

MARGINAL DEGREE OF REDISTRIBUTION IN NORTH RHINE-WESTFALIA



The graph only includes municipalities eligible for fiscal equalization.
Source: Own calculations.

schemes in general may induce governments to raise even possibly distorting taxes (Smart 1998; Koethenbuerger 2002). Hence, the rather strong degree of redistribution experienced by the municipalities in all German states and illustrated for North Rhine- Westphalia in Figure 2 might serve as an explanation for why, despite its distortive effects, local business taxation plays such a prominent role in municipal finance in Germany. In fact, Buettner (2006) identifies this incentive effect of the marginal contribution rate as an important tax driver in the context of German municipalities.

The close relationship between equalization transfers and local taxing capacity gives rise, however, to further incentive effects on the tax policy of local municipalities. In this context, it is important to note that business income tax revenues are not only a problematic source of local funds due to the mobility of tax payers. Fluctuation in business income taxes resulting from the varying fortunes of firms also leads to a strong fluctuation in tax revenue. Facing debt limitations, municipalities are less able to engage in tax and expenditure smoothing and, hence, the attempt to rely on shaky tax revenues implies further budgetary problems that undermine steady policies. In this situation, fiscal equalization serves as an insurance mechanism that provides assistance, in particular in times of unfavorable revenue developments, and contributes to more stable sources of revenues. Given the large degree of redistribution inherent to the Geman equalization system, it can well be expected that a substantial degree of insurance is provided, even if practical implementation issues result in a considerable time lag.

Comparing US municipalities with those in Germany, Buettner (2007) has found that in fact own-source revenues of US municipalities display much less fluctuation than the tax revenues of German municipalities. At the same time the role of fiscal equalization transfers in restoring fiscal balance is much more important in Germany when compared with state and federal grants in the US. Nevertheless, empirical evidence points to higher expenditure fluctuations in Germany. This indicates that another incentive effect is present that is related to moral hazard. Perhaps the large degree of protection provided by the equalization system allows German municipalities to rely much more on unstable revenues like business taxes rather than on land taxes. In comparison, US municipalities cannot rely on grants for fiscal stability and thus must resort to property taxes.

Conclusion

Given the large differences in taxing capacity, the systems of fiscal equalization are quite effective in ensuring that municipalities with small revenues have financial means that are not vastly different from the average. The system further provides some insurance against revenue fluctuations that helps municipalities to provide a steadier flow of services. However, the fiscal equalization system also generates important incentive effects.

The incentive effect that originates in a reduced tax rate sensitivity of the budget can be seen, to a limited extent, as a means to improve the efficiency of local finances. This relates to the existence of fiscal externalities that arise in tax competition. When governments raise taxes on mobile tax bases, such as business income, they may just induce a reallocation of mobile firms and hence cause an inflow of capital to other jurisdictions. This contributes to a rise in the tax revenue of these jurisdictions. If local governments only consider their own revenue losses and neglect this beneficial effect on other regions they will set taxes at an inefficiently low level. In this case fiscal equalization transfers may be interpreted as Pigouvian subsidies (Wildasin 1989) that induce a more efficient local tax policy. However, the large degree of redistribution seems problematic. The reason is that the taxation of mobile capital not only distorts the interregional allocation but also lowers overall capital demand in the economy. Therefore, an almost complete redistribution might over-subsidize taxation in the sense that it also refunds tax-induced reductions in the tax base that reflect a reduction in total capital supply (Bucovetsky and Smart 2006).

Another disincentive effect of the large degree of redistribution is related to the choice of the revenue structure. Here, we might observe a moral hazard problem in the sense that jurisdictions are tempted not to rely on rather stable land taxes but on unstable business taxes.

A further problem relates to interjurisdictional heterogeneity. German municipalities differ considerably in size and show a rather skewed distribution in terms of population size and density. This corresponds to a skewed distribution in terms of tax revenue both in absolute value and on a per-capita basis such that tax revenue is disproportionally higher in large cities as compared to small municipalities. As a consequence, fiscal equalization tends to systematically redistribute from large cities to small and, perhaps, peripheral jurisdictions. This could potentially have important distortionary effects on the spatial structure of the economy. To avoid those effects, systems of equalization tend to have special provisions for cities.

All this suggests that the equalization system needs to support municipalities in their difficult task to finance local budgets without reducing their responsibility too much. In this regard, it seems generally advantageous for municipal fiscal equalization to take place at the state level so that different institutional settings can be compared and discussed.

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Reform of the Swiss Fiscal Equalisation System

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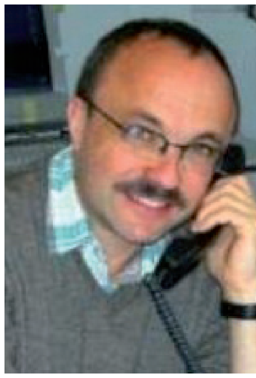


While Germany and Austria continue to grapple with general federalism reforms, Switzerland approved a complete overhaul of its fiscal equalisation system by a majority of almost 65 percent in a 2004 referendum. The enormity of this project is evident in the fact that 27 of the 196 articles of the Swiss constitution have since been amended. The reform came into effect at the beginning of 2008.

This article begins with a brief overview of Swiss federalism and its longstanding equalisation system, looking at the various shortcomings that prompted the federal government and the cantons in 1992 to undertake a joint, comprehensive reform of the system. This is followed by a presentation of the reform of fiscal equalisation and task allocation between the Confederation and the cantons, otherwise known as the new fiscal equalisation system. The report ends with an appraisal of the new system.

Swiss federalism and the past fiscal equalisation system

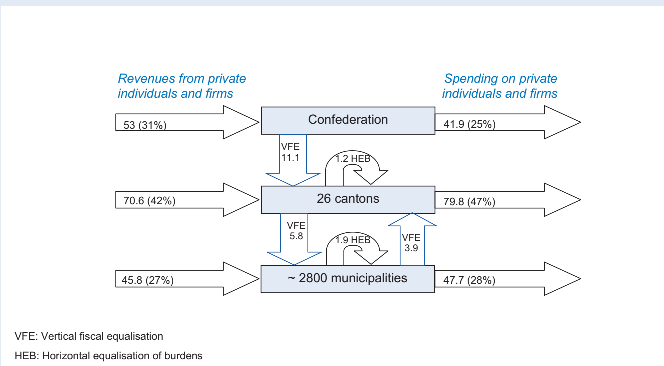
Alongside direct democracy, the federal structure is one of the key founding principles of Switzerland. Each of the 26 cantons has its own constitution in addition to that of the Confederation. The local authorities or municipalities, of which there are some 2,800, also enjoy a high degree of autonomy under the cantonal legislation. In Swiss-style federalism, any task or jurisdiction not specifically assigned to the Confederation under the federal constitution falls within the competence of the cantons. The same applies for taxation: the cantons are allowed to levy all taxes to which the Confederation is not exclusively entitled. As all constitutional amendments require a referendum passed by a majority of the electorate and a majority of the cantons, the barriers to change are high.

Accounting for almost 75 percent of overall state spending and some 69 percent of state revenues, the subnational units (i.e., the cantons and municipalities) play a very important role in the Swiss federal state (cf. Figure 1). The imbalance between the expenditure and revenue side is corrected by a system of vertical fiscal equalisation. The Confederation's sources of revenue are the personal income tax, the value added tax and various excise duties. Taxes on individual wealth, firm capital and expenditure are levied at the cantonal and local levels only. Earnings-related direct taxes, i.e. personal and corporate income tax, are levied at all three federal levels. The taxation autonomy of cantonal and local authorities was curbed to a certain extent in 2001 through the introduction of formal tax harmonisation, which seeks to simplify the canons of taxation, the assess-

Figure 1

Fiscal Federal Structure in Switzerland, 2005

in CHF billion



Source: Own synopsis based on the official 2005 financial figures published for Switzerland.

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ment basis and procedures. As before, the tax burden (tax rates, allowances and deductions) is determined at the cantonal and local levels.

The former fiscal equalisation system was introduced in Switzerland in 1959. It was further developed in the decades that followed, sprawling out of control to become a disordered and confusing system of vertical fiscal transfers from the Confederation to the cantons. The Swiss system had very little horizontal fiscal equalisation such as that of the German Länder, for instance. But Switzerland's vertical fiscal transfers did have an element of horizontal equalisation, as most of the funds were raised by the "financially strong" cantons. For some of the less privileged cantons, fiscal transfers from the Confederation accounted for up to 50 percent of their overall revenues.

The two main elements of the former fiscal equalisation system were:

- cantonal share in the revenues from direct federal taxes, fuel excise tax and the earnings of the Swiss National Bank, and
- conditional (earmarked) grants and compensation from the Confederation to the cantons (federal contributions).

The amount transferred was determined by the cantons' financial strength, covering four components: 1. the cantonal income per capita, 2. the cantonal and local tax revenues per capita, 3. the average cantonal tax burden, and 4. the percentage of mountainous terrain in the cantons. The financial strength index was used to divide the cantons into three groups: the financially strong, the financially average and the financially weak. The financially strong cantons had a low share in federal taxes and low subsidy rates for the federal contributions. Conversely, the financially weak cantons had a higher share in federal taxes and higher contribution rates.

The allocation effect of fiscal equalisation per se amounted to some CHF 2.8 billion in 2006 (approximately EUR 1.7 billion). The Confederation as well as most of the cantons viewed this as insufficient.

Over time, areas of overlap have developed between the Confederation and the cantons in terms of tasks and expenditures. Although healthcare, education and culture are primarily the responsibility of the cantons (and municipalities), the Confederation – as a financial contributor – also has an important say in these issues. There is also shared responsibility for social services and transportation and for the environment, regional policy and agriculture. In effect, the sharing of expenditures favours executive federalism and restricts the cantons' autonomy. Nonetheless, compared with other states, Swiss federalism can still be said to allow its subnational units substantial autonomy.

The new fiscal equalisation reform package

With a view to stepping up the cantons' autonomy, improving the controllability and effectiveness of fiscal equalisation and halting the trend towards executive federalism, the federal government and the cantons embarked upon an extensive overhaul of the federal fiscal relationships in 1992. This reform package comprises the following six elements: the disentanglement of tasks, an overhaul of the co-operation between the Confederation and the cantons, the fostering of intercantonal cooperation with equalisation of burdens, the equalisation of financial strength (resource levelling), the equalisation of financial needs (compensation for special burdens), and hardship relief as a temporary interim instrument.

Disentanglement of tasks

Of the 31 tasks previously shared, 15 were completely transferred to the cantons' responsibility and six

Table 1

Disentanglement of tasks (some of the main tasks that have been reassigned)

Tasks assigned solely to the Confederation	Common tasks between Confederation/cantons	Shared cantonal tasks	Tasks assigned solely to a canton
Old-age pensions Disability pensions Motorways National defence	Health insurance Scholarships Urban transportation Regional transportation Nature, landscape, noise prevention and water protection	Cantonal universities Technical colleges Advanced medicine and specialist clinics Waste disposal Wastewater treatment	Homes for the disabled, the elderly and the handicapped Special schools Scholarships for general schools

placed under federal responsibility. This disentangled a total of some CHF 5 billion (around EUR 3 billion). As a rule, tasks were allocated on the basis of the subsidiary principle: public tasks were only assigned to the Confederation if the cantons could no longer take them on. This is the case for national public goods, i.e. those benefiting a broad circle of users across all regions. Under the new system, apart from those tasks assigned exclusively to the Confederation or the cantons, there are now very few shared and common tasks (cf. Table 1).

Table 2

Average size of Swiss cantons compared with EU territorial units

	Switzerland	European Community (1987)		
	Cantons	NUTS1	NUTS2	NUTS3
Subnational units	26	71	183	1044
Inhabitants (in millions)	0.28	4.9	1.8	0.4
Surface area (1000 km^2)	1.6	35.6	13.3	2.8

Note: NUTS = *Nomenclature des Unités Territoriales Statistiques* (nomenclature of territorial units for statistics)

Example for Germany
NUTS1 = Federal *Länder*
NUTS2 = *Regierungsbezirke* (primary administrative division of a *Land*)
NUTS3 = *Kreise* (district)

Source: Statistisches Jahrbuch (2004), p. 64; Bundesamt für Statistik (1999), p. 23; Eurostat 1998.

Vertical cooperation between the Confederation and the cantons

Because so many vertical fiscal transfers are currently conditional grants and are calculated on the basis of the costs incurred and the financial strength, the cantons with high subsidy rates have sought to receive high federal contributions. Such incentives have distorted the priorities for tasks and created inefficiencies in the performance of public tasks.

To overcome this problem, the new system provides for a new form of vertical co-operation between the Confederation and the cantons, designed along the same lines as New Public Management. For those tasks of national interest, where the Confederation calls upon the cantons to perform them, it will in future confine itself to taking strategic decisions. The cantons are responsible for operational matters. The Confederation has to negotiate its interests in partnership with the cantons. The results of such negotiations are drawn up in programme agreements. Here, the cantons are required to consider overlying interests, while the Confederation provides global contributions for programmes instead of, as up to now, conditional contributions to specific projects. This new vertical cooperation should ensure a more efficient use of funds, as the cantons are free to optimise their use of federal funds within the negotiated scope.

However, this element of partnership is not consistent throughout the new fiscal equalisation system. For instance, the Confederation can enact decrees on subsidies, if necessary by means of unilateral legislation. There are also provisions in place should negotiations break down between the Confederation and a canton. This has given the Confederation, a priori, a stronger negotiating position than the cantons. Furthermore, it is authorised to sanction any "inappropriate action" on the part of the cantons.

Intercantonal co-operation with equalisation of burdens

Until the mid-twentieth century, most of the Swiss population lived, worked and used public services in one and the same canton. Nowadays, hundreds of thousands of people commute across cantonal borders every day. This is so often the case in Switzerland because, compared with the subnational units of other countries, Swiss cantons are very small (cf. Table 2) with an average surface area of around 1600 km^2. The smallest canton (Basel Town) is only 37 km^2. The public services of one canton are increasingly being used by those living in other cantons, resulting in spillovers (geographical external effects). The absence of co-determination rights and inadequate contributions to the costs of central services mean that the population receives insufficient support. The principle of fiscal equivalence is thus violated. Particularly in urban regions, there is now a geographical mismatch between those paying the costs, those reaping the benefits and those making the decisions.

The spillover compensation is primarily a matter for the regional authorities affected. Under the new system, the Confederation merely provides the instruments required. To ensure that solutions can be found in partnership between cantons on an equal standing, the provider must offer certain services in

Table 3

The former financial strength index and the new resource index

Criteria for determining the cantons' financial strength	
Former financial strength index	Resource index under the new system
• Per capita income • Tax revenues per inhabitant • Average tax burden (reciprocal) • Percentage of mountainous terrain (reciprocal)	• Taxable income of individual taxpayers • Earnings from taxable assets of individual taxpayers • Taxable profit of firms Per cantonal inhabitant in each case

return, particularly by creating cost transparency, guaranteeing the same rights and obligations for all cantons involved, and by institutionalising co-determination rights for the paying cantons. The proposed solution can be seen as a step towards fiscal equivalence. Instead of actually merging cantons as a means of adapting institutions to urban growth – something that is not really a political reality in Switzerland for the foreseeable future – this serves as a functional solution. However, there is still the danger that the beneficiary cantons may prefer to continue their free riding. For this reason, the new system allows the Confederation, under certain circumstances, to exercise a contractual obligation at the request of the cantons.

Equalisation of financial strength

The equalisation of financial strength, known as "resource levelling", is used solely for redistribution purposes and is now clearly separated from allocation objectives on the basis that each objective has an instrument, in each case the one that best suits.

Replacing the former financial strength index, the resource index is based on the cantonal tax potential. Unlike before, the cantons will no longer be in a position to directly influence their financial strength, specifically via their tax policy.

Equalisation of financial needs

There are two elements to the equalisation of financial needs. First, geographic cost compensation takes account of the higher expenses incurred by mountainous cantons as a result of their sparse population and the difficult topographical conditions. Secondly, socio-demographic cost compensation takes account of the additional expenses incurred by conurbations as a result of their unfavourable population structure. Due to the phenomena connected with urban sprawl, the percentage of population groups costing the community more than they contribute in cantons with large towns is far above average in comparison with the surrounding areas and the national average.

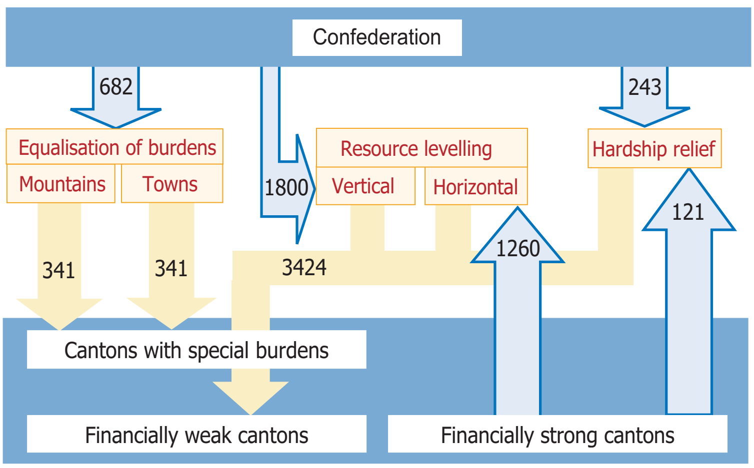
Hardship relief

If the new fiscal equalisation system consisted only of the previous five elements, the transition from the old system to the new one would have resulted in some of the poorer cantons losing out on revenues from federal sources. Given that it would have been difficult to explain, leading up to the referendum, why the financially weak cantons appear to come off the worst in switching to the new system (even if this is supposed to be so under the new criteria for resource capacity and special burdens), it was decided to set up a transitional hardship relief fund of CHF 365 million (approximately EUR 220 million). The Confederation finances two thirds of this, with the rest coming from the cantons. The hardship relief fund can be interpreted as an attempt to distribute the reform profits fairly, i.e. compensating those who

Figure 2

FISCAL FLOWS UNDER THE NEW SYSTEM

in CHF million



Source: Information brochure for the Swiss referendum of 28 November 2004.

lose out and moving the system closer to a win-win situation.

Just how strong the redistributive effect of the new fiscal equalisation system should be is a matter of political debate. In 2007, Parliament decided to increase the redistribution fund by some 50 percent, from around CHF 2 billion to over CHF 3 billion a year (EUR 1.2 billion to EUR 1.8 billion; cf. Figure 2).

Appraisal of the new fiscal equalisation system

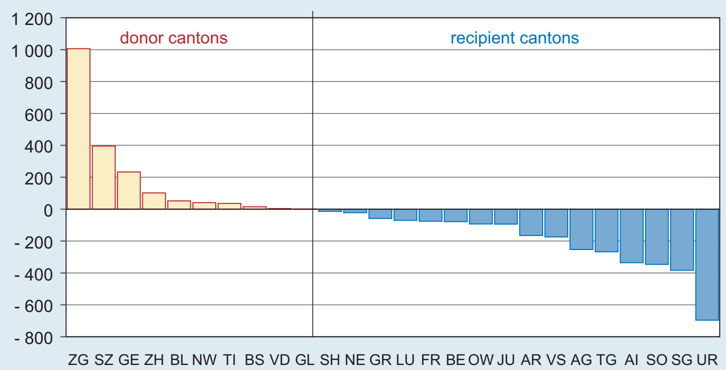
The constitutional principles were only agreed upon in 2004. It then took almost three years to pass the implementing legislation. This came into effect at the beginning of 2008. Thus we have not yet had much experience with the new fiscal equalisation system, and it will take another few years before certain elements can even be implemented.

To a certain extent, the impact of the new system will depend on how the cantons respond to the various transfers. A financially weak canton receiving additional funding with the fiscal equalisation system can respond in three ways: it can cut taxes, increase spending or reduce debt. The financially strong cantons that find themselves with a greater burden under the new system can opt to raise taxes, cut spending through more efficient provision of state benefits, or increase debt. In anticipation of the new system, some of the winning cantons already decided in 2005 to lower taxes, thereby intensifying intercantonal tax competition.

Figure 3 shows how the 26 cantons are likely to be affected by the new fiscal equalisation system. Overall, as the chart shows, the cantons with the greatest burden are, for the most part, those previously classified as financially strong. However, this chart only shows the transfer payments. If the impact of the overhaul of vertical and horizontal cooperation were to be taken into account, probably all cantons would come out winners. The fact that the cantons will increasingly receive payments not earmarked for a specific purpose means that they can make better use of each

Figure 3

DIRECT FINANCIAL IMPACT OF THE NEW FISCAL EQUALISATION SYSTEM:
Overall balance after hardship equalisation
burden in Swiss francs per inhabitant (model calculation 2004/05)



Source: Own calculations,based on EFD and KdK (2007), p. 31.

franc transferred for their own residents than under the previous system.

A wide range of criticism of the new fiscal equalisation system was voiced in the parliamentary debate and prior to the referendum:

- The left-wing parties and the trade unions objected to the fact that tax competition continues to exist among the cantons and is merely made "more tolerable" by the new system. They threatened with an initiative to amend the federal constitution so as to limit the differences in the cantons' tax burdens to ± 20 percent of the national average.
- Western Switzerland, which more closely resembles France in its approach, tends to make more demands on the level of public spending than German-speaking cantons. The French-speaking cantons claimed that the new system did not take sufficient account of this.
- Some legal experts in constitutional law were concerned that the Confederation may under certain (albeit very restrictive) conditions force dissident cantons to provide horizontal co-operation and financial compensation for spillovers in regional tasks.
- Advocates of the social state feared its demise as the disentanglement of tasks gives the cantons a broader sphere of competence. These were supported in their opposition to a certain extent by the social welfare offices of the Confederation and the cantons, which feared losing some of their authority ("pillarisation").
- Some financially weak cantons in mountainous regions would have preferred to see an even greater distribution of revenues among the can-

tons. They have now shifted their attention to trying to retain the previously hidden inter-regional redistribution as part of regional and sector-specific policies (e.g. for transport, environment, agriculture). The new fiscal equalisation system wants – if not quite explicitly – to replace this somewhat inefficient and ineffective redistribution scheme with the new transfer system, in other words, to gear the regional and sector-specific policies to allocation and growth objectives.

- Some financially strong cantons opposed the new fiscal equalisation system as they felt they were being too heavily burdened and would lose their international competitiveness. These cantons, which are most heavily burdened under the new system, were in fact the ones that rejected the reforms in the referendum.

Such criticism has had little effect, however. The referendum was passed by a majority of the electorate (64 percent) and by 23 of the 26 cantons.

It is also interesting to see that the OECD believes these reforms reduce regional disparities to an internationally comparable level and afford the cantons greater financial autonomy. It notes that, with the possibility of forcing cantons to cooperate, Switzerland is entering new territory within the OECD. Therefore, and based on Switzerland's experience to date, it could well play a key role in promoting horizontal cooperation.

Concluding remarks

- The new fiscal equalisation system is an important and necessary step towards strengthening Swiss federalism.
- The new fiscal equalisation system takes intercantonal tax competition to a tolerable level.
- Further federalism reforms will be required in the medium to long term. Most of the present cantonal boundaries were set by the Congress of Vienna back in 1815, and these no longer correspond to today's population centres and economic poles. Such a long-term reform can only succeed if, as evidenced in the preparations for the new fiscal equalisation system, it is conducted in close co-operation with the cantons. However, the initiative in this respect must come from the cantons themselves.

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How Corporate Tax Competition Reduces Personal Tax Revenue

Ruud de Mooij and

Gaëtan Nicodème*

Declining corporate tax rates in Europe during the past decades have fuelled fears of tax competition. Indeed, governments successively undercut each others' tax rates in order to attract mobile tax bases. This is considered to be harmful for European welfare since it might create a race-to-the-bottom, which could ultimately erode corporate tax revenues and impose a threat to the financing of the European welfare states. The fears of tax competition have been played down, however, by observations on corporate tax revenues as these have remained remarkably stable over time. Yet, new research shows that the revenue implications of corporate tax competition do not show up in lower corporate tax revenue but in lower personal tax revenue. This article explains how this occurs and estimates the magnitude of its impact.

The corporate tax rate-revenue puzzle

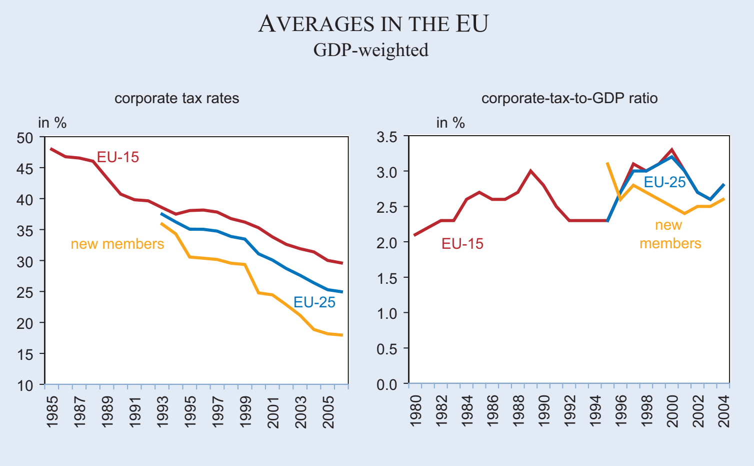
Statutory corporate tax rates in Europe have been falling ever since the early 1980s. The left panel of Figure 1 shows this by means of GDP-weighted averages in Europe. The average rate in the EU-15 has dropped from 48 percent in 1985 to below 30 percent in 2006. In the new member states, it has fallen from around 36 percent in 1993 to 18 percent in 2006.

While rates have fallen, corporate tax revenues have remained remarkably stable during the past decades. This is shown in the right panel of Figure 1. In fact – although heavily influenced by the economic cycle – corporate tax revenues, expressed as a percentage of the gross domestic product, have increased broadly from about 2 percent in the early 1980s to between 2½ and 3 percent in more recent years.

The discrepancy between falling corporate tax rates and increasing corporate tax revenues is generally seen as the consequence of a widening of the corporate tax bases. Indeed, corporate tax rate reductions have been accompanied by base-broadening policies in many OECD countries, e.g. by means of reduced investment tax credits, loss offset rules, interest deductibility and fiscal depreciation. If this explained the corporate tax rate-revenue paradox, fears for a race to the bottom would indeed be misplaced. Yet, studies on average effective tax rates of companies reveal that these have been falling too (Devereux et al. 2002). It suggests that base-broadening policies have not made up for the adverse revenue implications of rate reduction and that the rate-revenue puzzle remains partly unresolved.

Recent studies have tried to seek alternative explanations for the puzzle. For instance, Auerbach (2006) suggests that the reduction in losses that can be offset can partly explain the rise in the implicit tax rate on corporations in the United States. Becker and Fuest (2007) argue that pre-tax profitability in the economy has increased in light of globalisation, thus causing higher profit shares and a broadening of the corporate tax base. Finally, Devereux et al. (2004) suggest that a rising share of the financial sector in the economy is a potential explanation for the growing share of corporate profits in the economy.

Figure 1



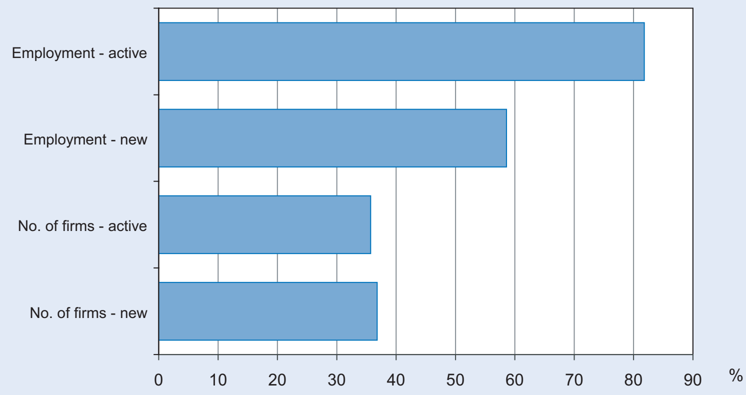
Source: European Commission, Structures of taxation systems - DG TAXUD.

* Ruud de Mooij: Erasmus University Rotterdam and CPB Netherlands Bureau for Economic Policy Analysis. Gaëtan Nicodème: European Commission and Solvay Business School. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They should not be attributed to the European Commission. Correspondence via e-mail: radm@cpb.nl or gaetan.nicodeme@ec.europa.eu.

In a recent paper, we have explored an alternative explanation for the puzzle: income shifting from personal to corporate income (De Mooij and Nicodème 2008). In particular, entrepreneurs need to decide on the legal form of doing business. This choice can be influenced by the difference between personal and corporate income taxes. Indeed, if entrepreneurs are taxed more lightly under the corporate tax regime than under the personal tax regime, they will be encouraged to shift their legal form towards incorporation. Some authors find that the corporate share of business income has indeed increased during the past decades in a number of countries. For instance, Weichenrieder (2005) reports that in Austria, the corporate share increased from 50 percent in the mid-1970s to 75 percent today. In Germany, it rose from less than 40 percent to around 55 percent. The question is, however, how important are taxes for the incorporation decision, given that various non-tax factors are usually important in the firm's choice of incorporation as well. If taxes turn out to be important, it will shed new light on the corporate rate-revenue puzzle and the consequences of tax competition. In particular, if falling corporate tax rates under the pressure of tax competition induce entrepreneurs to change their legal form from the non-corporate into the corporate form, the revenue implications will show up partly in lower personal tax revenue rather than lower corporate tax revenue. The overall adverse revenue implications from tax competition might then be more substantial than would be envisaged from observations on only corporate tax-to-GDP ratios.

Figure 2

CORPORATE SHARE OF BUSINESS ACCORDING TO FOUR DIFFERENT INDICATORS



Source: Eurostat: Business Demography in Europe.

European data on legal form of business

In our analysis on the impact of taxes on the degree of incorporation, we exploit panel data from Eurostat on business demography in Europe. It contains aggregate information on 17 European countries, for 6 years between 1997 and 2003, and for 60 sectors (see Schrör 2005 for a description) on firms in three different legal forms:

- Personally owned firms that have no limit to personal liability, i.e., sole proprietorships (SP) that are subject to personal taxation.
- Private or publicly quoted joint stock companies with limited liability (LL) for those owning shares. This category captures corporations that are subject to corporate taxation.
- Partnerships (PA), consisting of personally owned limited and unlimited liability partnerships. Included are also other legal forms, such as co-operatives and associations. Partnerships belong to a hybrid category of companies that can be taxed under either the corporate income tax regime or the personal income tax.

Because of the uncertainty about the tax treatment of partnerships, we concentrate on an indicator that divides the share of enterprises registered as limited liability (LL) companies by the sum of companies with limited liability (LL) and personal liability firms (SP), i.e. $CORP = LL/(LL+SP)$.[1]

The data contain information on the number of active firms and the number of enterprise births per year. Apart from count data on the number of firms, there are data on employment shares in each of the three legal forms, both for active firms and enterprise births. We therefore consider four indicators for the share of the corporate sector in the economy:

- The corporate share in the total number of active firms.

[1] In De Mooij and Nicodeme (2008), we also consider shares where we add partnerships to either corporate or non-corporate firms. The results of the regression analysis remain qualitatively unchanged.

- The corporate share in the total number of new firms.
- The corporate employment share of active firms.
- The corporate employment share of new firms.

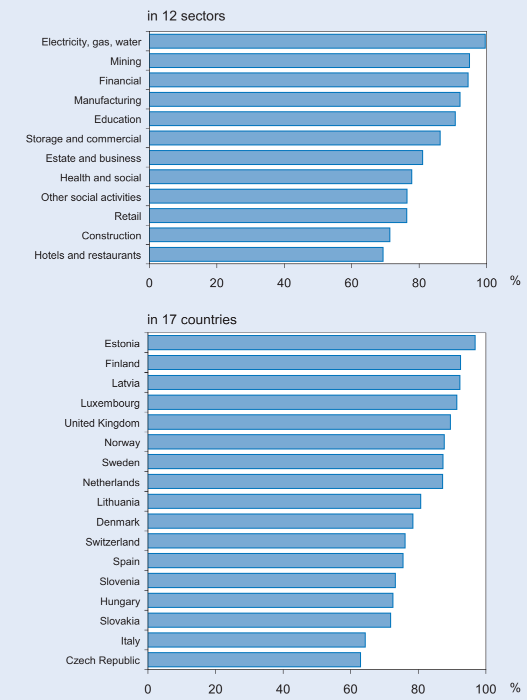
Figure 2 shows the mean corporate share of business for all four indicators, i.e. averaged over all countries, years and sectors. It shows that the corporate share in terms of the number of companies (36 percent for active and 37 percent for new firms) is substantially smaller than the corporate share measured in terms of employment (82 percent for active firms and 59 percent for new firms). Hence, corporations, on average, employ more people than companies in the non-corporate form. This holds in particular for more mature enterprises.

The upper panel of Figure 3 shows the mean of the corporate employment share of active firms per sector. In general, we observe that the incorporation rate exceeds 90 percent in mining, utilities, the financial sector and manufacturing. It is around 70 percent in construction and some service sectors (hotels and restaurants, health and social work, social activities, retail).

The degree of incorporation differs also across countries, which is shown in the lower panel of Figure 3. It shows the corporate employment share of active firms for all 17 countries in the sample, averaged across years and sectors. The employment share varies between 63 percent in the Czech Republic to 97 percent in Estonia. Note, however, that before 2001 Estonia, Latvia and Slovenia only considered larger firms and thus used different definitions of corporate share. Nevertheless, Finland and Luxembourg feature corporate employment shares of over 90 percent.

Figure 3

CORPORATE EMPLOYMENT SHARE OF ACTIVE FIRMS



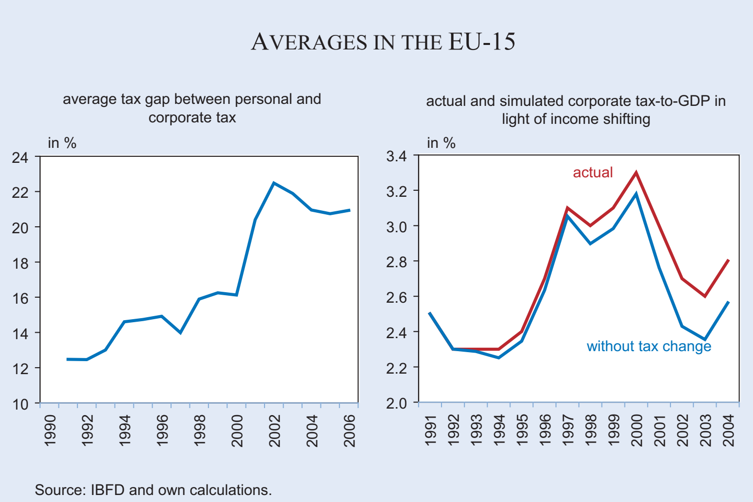
Source: Eurostat: Business Demography in Europe.

How important is income shifting?

To assess the systematic impact of taxes on incorporation decisions, we regressed the degree of incorporation to the tax differential between the corporate and the non-corporate form. Following Mackie-Mason and Gordon (1997) and Goolsbee (2004) we used the statutory corporate tax on small business and the top personal income tax rate to approximate the relevant tax rates for the respective legal forms. In doing the regressions, we included several dummies and control variables such as the minimum capital required to start a business and the number of procedures required to start a business.

From the regressions, we inferred a quantitative indication on the impact of taxes on incorporation decisions. In particular, we found that a larger tax difference between personal and corporate taxes exerted a significantly positive effect on the degree of incorporation. This is consistent with income shifting. The so-called semi-elasticity of the tax share, measuring the percentage change in the corporate tax share in response to a 1 percentage-point change in the tax differential between corporate and the non-corporate sector, was found to be equal to 1.0. This value can be compared to previous studies, using US data. Some of these find smaller effects of taxes. For instance, with the same specification and data for the US, Goolsbee (2004) reported a semi-elasticity of 0.4 for the corporate employment share. MacKie-Mason and Gordon (1997) considered the share of corporate assets in the US and found a somewhat lower semi-elasticity between 0.03 and 0.2. Other studies, however, have reported larger elasticities for income shifting. For example, estimates by Gordon and Slemrod (2002) suggested that a 1 percentage-point increase in the tax differential between corporate and personal taxes increased reported labour income by 3 percent. Using data for the OECD, Fuest and Weichenrieder (2002) estimated that a 1 percent-point reduction in the corporate tax rate

Figure 4



Using our estimate, we have simulated the impact of tax changes on the corporate tax-to-GDP ratio. In doing so, we first compute the tax difference between the top personal tax and the reduced corporate tax averaged for the EU-15 between 1991 and 2006. It is shown in the left panel of Figure 4. We see that the average tax gap rose from around 12 percentage points in the early 1990s to more than 20 percentage points in recent years. This is primarily the result of decreasing corporate tax rates, which fell from an average of 41 percent to 27 percent. The right panel of Figure 4 shows how this might have influenced the corporate-tax-revenue-to-GDP ratio. In particular, it shows two alternative developments of the tax-to-GDP ratio in the EU-15 between 1991 and 2004. The first is the development of the actual corporate tax-to-GDP ratio. The other line shows the simulated development of the corporate tax-to-GDP ratio if the tax gap between personal and corporate taxation had remained unchanged since 1991. It is constructed by subtracting the revenue effect associated with income shifting from the personal to the corporate tax induced by the rising tax gap since 1991 from the actual tax-to-GDP ratio. The difference between this line and the actual corporate tax-to-GDP ratio thus yields insight into the corporate tax gain from income shifting. We see from the right panel of Figure 4 that this gain has gradually increased over time to around 0.25 percentage points in recent years. The legal form choice in combination with a rising tax gap since the early 1990s thus explains 0.25 percentage points of the stabilization of the corporate tax-to-GDP ratio during the past 15 years.

increased the fraction of corporate savings in total private savings by some 2.6 percent.

Policy implications

Our result has important policy implications. For instance, for an average European country, it indicates that for each euro ex-ante reduction of corporate income tax, 24 euro cents are regained in terms of corporate tax revenue through income shifting from personal to the corporate tax. Hence, the corporate tax relief that is initially estimated to cost one euro will cost only 76 euro cents after firms have responded with their choice of legal form. However, this regain in corporate tax revenue will come at the expense of a decline in personal tax revenue. Therefore, this behavioural effect does not create a regain in government revenue in general.

The elasticity of income shifting via the legal form of doing business is also large compared to other behavioural consequences of corporate taxes. De Mooij (2005) reviewed the empirical evidence on several of these effects, including distortions in investment, the financial structure of companies, international investment location and profit allocation by multinationals. He has found that the largest revenue effects are related to the channels of foreign direct investment (revenue gain of 12 percent for an average EU country) and international profit allocation (revenue gain between 20 and 30 percent). The channels of investment and financial structure yield much smaller effects. Our estimate of 24 percent for income shifting via the legal form of business is large compared to the other behavioural effects.

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Political Support and Tax Reforms: An Italian Example

Paola Profeta*

Tax reforms are at the centre of the economic and political debate in all European countries. Changes in the personal income tax schedule have been recently implemented or planned in several European and OECD countries. A general trend is to reduce the complexity of income tax rates. Between 2000 and 2005 most of the OECD countries cut the number of tax brackets, with the exception of Canada, Portugal and the US, which added one instead. Nevertheless, the effect on tax progressivity is not clear, because there has mainly been a reduction in marginal tax rates at the top of the income distribution and at the bottom, while tax rates for the middle classes have generally remained unchanged (Bernardi and Profeta 2004).

A clear example of reforms moving in this direction is Italy. Reforms of personal income tax (IRPEF) are included in the political agenda every year. In 2001 the center-right government introduced a personal income tax reform that was to be implemented in successive phases. A first phase, implemented in 2003, focused on reducing taxes for the bottom income levels. Together with a second phase, implemented in 2004, the reduction of taxes produced higher gains for low-income and high-income individuals than for those with incomes in the middle range. In 2007 the new center-left government introduced additional changes in the personal income tax design, the redistributive impact of which was mainly focused on low-income groups. Equity and efficiency arguments are often advocated to justify these changes: the reduction of bottom tax rates has been largely justified by equity arguments, and the reduction of top tax rates by incentive-efficiency arguments.[1] Financial constraints are also crucial to limiting tax rates reductions at all levels of income and prevent them from being applied to the numerically stronger income-groups.

However efficiency and redistributive issues do not exhaust all forms of motivation for taxation and tax reforms. Political constraints are also a crucial determinant of tax reforms. Many governments introduce tax reforms prior to an election as an attempt to attract votes, especially from undecided voters who may be decisive for winning elections. In this article I will argue that this motivation was crucial for the 2004 Italian personal income tax reform.

The introduction of political considerations into the economic analysis of public policy reforms may prove a successful approach. This may be particularly appropriate in the analysis of tax reforms, since taxation represents one of the hottest issues on the economic agenda and a crucial issue for voters' decisions. However, applied political economy contributions in this area are still quite limited. It is thus interesting to see how the aim of gaining political support may drive political decisions with respect to tax reforms and to understanding how this mechanism works in specific cases.

A probabilistic voting approach

The literature on political economy has provided many approaches for including political arguments into the economic analysis of redistributive public policies (see Persson and Tabellini 2000 and, for taxation, Hettich and Winer 2000). One of the main conclusions of these studies is that to be implemented and sustained, public policy reforms not only need to be economically feasible (on financial, efficiency and equity grounds) but also politically feasible, i.e., they need voters' support (for an analysis of social security, see Galasso and Profeta 2004).

Interestingly, to gain political support, politicians need not target the numerically stronger groups of voters. A possible strategy for a government to obtain political support for a reform is to attract undecided voters. In many cases their decision can have a decisive effect on the outcome of elections. The attempt to win their vote may thus prove to be more successful than trying to attract groups of voters that are numerically stronger.

This idea is appropriately captured in a probabilistic voting model (Coughlin 1992; Lindbeck and Weibull 1987) which underlines the potential role of undecided voters. This approach highlights the importance of swing voters – ideologically neutral individ-

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[1] Atkinson (2004) provides alternative models to explain the evolution of top incomes in connection with taxation.

uals – who can be easily won by either party by adopting an appropriate policy in their favour. Thus, the political success of a party depends on its ability to attract swing voters, i.e., the more mobile voters.

In Profeta (2007) I considered three groups of individuals of different size – rich, middle-income and poor – and two political parties (A and B). Before the election takes place, each party, simultaneously and independently of each other, commits to a policy platform. Each party chooses a platform that will maximize its expected number of votes. The individuals are heterogeneous with respect to their ideological preference for a party. This includes a common component measuring the general popularity of a party and an individual component representing his/her ideology. Since ideological preferences are established between the announcement of the party platforms and the election, the outcome of the elections is uncertain.

This political game determines the equilibrium between personal income tax rates for each group and the level of a general transfer financed by the taxes on personal income.[2] The budget has to be balanced.

Each group of individuals has neutral voters or "swing voters", who are indifferent to the two parties. The identity of the swing voters is crucial for the party when considering whether it should deviate from a common policy announcement or not. Suppose party A decides to decrease the taxes of group 1, which is financed by a budget-balanced increase of taxes to group 2. Party A expects a gain of votes from group 1 equal to the number of swing voters in group 1, and a loss of votes from group 2 equal to the number of swing voters in group 2. If group 1 has a higher number of swing voters than group 2, this will lead to a net gain of votes. As a consequence, each party tries to attract the more mobile voters.

I obtained the following two predictions on the average tax rate on personal income, the intuition of which is straightforward:

- Groups with a higher income will pay a higher tax rate (progressivity). A higher tax rate for richer individuals has a direct negative effect on their utility, but a larger positive effect on the utility of all groups due to an increase in the total level of transfer. Moreover, groups with a larger tax base will pay a higher tax rate. Given the budget-balanced constraint, it is more convenient to impose a higher tax on groups with a larger tax base (more numerous and/or richer). If middle-income individuals are more numerous, this tax base effect may explain why it is very difficult to decrease their tax rates in order to avoid a large loss of revenues.
- Groups with more relative political influence, i.e. containing more swing voters, will pay a lower tax rate. This is because they are more attractive for the party.

Elections in Italy

These predictions are in line with what happens in many countries when governments discuss and formulate tax reforms.

In Profeta (2007) I analyzed the 2004–05 Italian personal income tax reform implemented by the center-right government with the explicit motivation of attracting the large number of swing voters. The reform comprised a rearrangement of tax brackets, tax rates and deductions. The first step of the reform was targeted to the bottom incomes by introducing a new scheme of deductions leading to a no tax range for incomes below EUR 7,500 (for employees). Tax brackets and tax rates were also rearranged (Table). The second intervention was a deeper change in the tax schedule, as presented in the Table. The initial proposal, however, was in fact a much more radical modification of the tax design, including total exemption from taxation for individuals with income below EUR11,000 and two tax brackets only (Table). These changes produced two main results: (i) a reduction in the total level of revenues, due to lower taxes for all income groups, and (ii) higher gains for low-income (first phase of the reform) or high-income individuals (second phase) than for middle-income ones. The original proposal would have favoured the richest individuals even more.

I argue that these government choices were driven by electoral pressure. At the time of the reform, capturing the swing voters was decisive for winning the next elections and the issue of taxation was used as an instrument to reach this goal. Some interesting

[2] Notice that policy-space is multidimensional, and a Nash equilibrium of a majoritarian voting game may fail to exist. However, a probabilistic voting approach is appropriate also for addressing this issue.

Table

Irpef brackets and tax rates

Irpef 2002		First step (2003)		Second step (2004)		Initial proposal		Irpef 2007	
brackets (euro)	tax rates (%)	brackets (euro)	tax rates (%)	brackets (euro)	tax rates (%)	brackets (euro)	tax rates (%)	brackets (euro)	tax rates (%)
0–10,329	18	0–15,000	23	0– 26,000	23	0–100,000	23	0–15,000	23
10,329–15,494	24	15,000–29,000	29	26,000– 33,500	33	over 100,000	33	15,000–28,000	27
15,494–30,987	32	29,000–32,600	31	33,500–100,000	39			28,000–55,000	38
30,987–69,722	39	32,600–70,000	39	over 100,000	43			55,000–75,000	41
over 69,722	45	over 70,000	45					over 75,000	43

Source: Italian Ministry of Economics and Finance; http://www.mef.gov.it/.

survey data confirm this argument. Taxation was a crucial issue in the policy platform proposed by the government. During the electoral campaign in 2001, the centre-right coalition set taxation at the centre of its economic program, promising to the electorate to "cut taxes for everyone". This resulted in increased trust on the part of the voters: a poll conducted by UNICAB in 2001 found the right-wing coalition to be more credible than the opposition on such issues as taxation, security and immigration. In April 2004, according to a poll conducted by ISPO, 19.6 percent of the people who voted for the winning coalition found taxation the most important issue in contrast to an average of only 11.3 percent for the total sample. However, after a few years the taxation issue led to an increased number of disappointed individuals among those voters who had supported the elected government in the 2001 elections, because the promised "tax cut" had not yet been implemented. According to an ISPO poll in February 2004, 70 percent of the Italians thought that taxes were too high and unequally distributed among citizens. Interestingly, this criticism was almost uniformly distributed across the different political parties, meaning that this was not an "ideological" issue but an issue over which voters tended to be ideologically neutral. This also suggests that it was a quite popular issue, and that it could move voters.

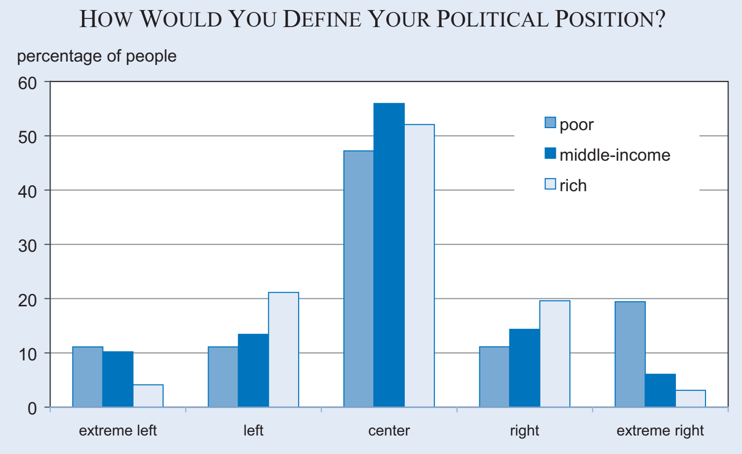
Before the 2004 reform an increasing number of voters claimed to be undecided about how they would vote at the next elections. According to ISPO polls, in October 2004, 12 percent of those who had voted for the winning party declared they were dissatisfied, while in November 2004 this percentage increased up to 17 percent. Taxation issues were responsible for much of this discontent: in November 2004, more than 40 percent of those who had voted for the winning party declared they were disappointed by the government's decisions about taxes (ISPO, 12/11/2004). Moreover, people who had said they were undecided were generally dissatisfied (55 percent in October 2004, 59 percent in November 2004, ISPO 2/11/2004). A survey conducted by Fondazione Rodolfo De Benedetti revealed that in November 2004 about 30 percent of the total population was undecided about how they would vote in the next elections.

These survey results suggest that during 2004 the Italian government realized that the number of undecided voters was increasing and that to attract them it would be essential to win the next elections. It also realized that a crucial issue was taxation, an issue over which voters evaluated the effects of the proposals independently of their ideology. While the promise of a tax reform was able to attract votes during the electoral campaign of 2001, most of the discontent of voters towards the government in 2004 was caused by the delay in its implementation. Thus, in 2004 the government implemented tax reform as a top priority to re-attract disappointed, undecided voters.

However, survey data also show that the swing voters concentrated at the "centre" of the political spectrum were almost uniformly distributed among income classes (Figure). Thus, the specific redistributive strategy of the reform, which tended to favour high-income and low-income individuals but not the middle class, turned out not to be the best strategy to win elections. In particular, while many "swing voters" can be attracted by tax reform, no survey evidence supports the fact that, for example, the group of "rich" voters contained more swing voters than middle-income groups.

Using the answers of Italian citizens to a survey conducted by Fondazione Rodolfo de Benedetti to the

Figure



Source: Author's calculations on Fondazione Rodolfo De Benedetti data (2004).

question, "Which party would you vote for if there were elections next Sunday?", I show in a simple multilogit analysis that the outcome "center-right coalition" had a predicted probability of 0.4488, while the outcome "center-left coalition" of 0.4037, and the outcome "undecided" of 0.1474 (Profeta 2007). This result confirms that capturing the votes of swing voters would have been decisive in winning the elections. However, while being at the centre of the political spectrum was significant in increasing the probability of undecided, and thus of being a potential swing voter, being poor or rich was not significant in affecting the probability of being undecided. Thus, the identity of the swing voters did not depend on their income.

Therefore, while personal income tax reform was an appropriate strategy to attract the undecided voters, the specific design of the reform was not entirely appropriate, since swing voters were not concentrated in the income groups that gained more from the reform.

It is interesting to note that the 2006 elections were won by the center-left coalition by a small number of votes, meaning that the electoral race was very close and undecided voters turned out to be decisive. To confirm that taxation is one of the main issues of the Italian policymakers' agenda, the new government introduced in 2007 additional changes in the personal income tax design (tax brackets, tax rates and a general shift from deductions to tax allowances, see the Table), the redistributive impact of which was mainly focused on low-income groups. This was clearly driven by political reasons, since individuals ideologically close to these groups supported the new government. However, swing voters again seem to be concentrated around the middle-class, whose recent declarations of disappointment towards tax issues should be seriously taken into account.

Conclusion

In Italy, as in many other countries, tax reforms are one of the main points in the economic agenda of the government. Their success may crucially influence the outcome of elections. The Italian center-right government realized this in 2004 and introduced a personal income tax reform. The specific design of the reform was, however, not appropriately targeted to swing voters. In 2006 the elections were won by the center-left coalition, which, in turn, immediately introduced several changes in the personal income tax design.

The applied probabilistic voting approach may help us to understand the political feasibility and success of tax reforms in many respects, such as the redistributive impact of taxation, progressivity, horizontal equity, tax complexity, tax neutrality, tax competition etc.

It is also useful to understand why, in spite of being economically desirable, structural reforms are often politically unfeasible and thus fail to be implemented, while marginal and parametric adjustments tend to prevail.

These arguments obviously apply beyond the field of tax reforms and may in general produce interesting insights for the analysis of redistributive public policies.

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Direct and Indirect Tax Revenues

Governments are frequently encouraged to rely less on direct taxes and more on indirect taxes, an issue that has recently received considerable attention in politics and academia. It is argued that a greater reliance on indirect taxes is more efficient and that direct taxes have undesirable redistributive effects. The efficiency cost of taxation is lower with indirect taxation because the tax base is more broadly defined than with income taxes. Since indirect tax rates can be lower, they reduce the deadweight loss of taxation. Also, attempts by taxpayers to engage in tax avoidance or even tax evasion are less likely with indirect taxes. Thus, the consequent conclusion is that indirect taxes should finance a higher share of government expenditures. However, redistributive policy is less effective with indirect taxes since indirect taxes are levied anonymously and can only be indirectly adjusted to the income status of households.

A more detailed look at the government finances of OECD countries reveals that the share of indirect

Table 1

Tax structures in the OECD area

	1965	1975	1985	1995	2005
Personal income tax	26	30	30	27	25
Corporate income tax	9	8	8	8	10
Social security contributions	18	22	22	25	26
(employee)	*(6)*	*(7)*	*(7)*	*(8)*	*(8)*
(employer)	*(10)*	*(14)*	*(13)*	*(14)*	*(15)*
Payroll taxes	1	1	1	1	1
Property taxes	8	6	5	6	6
Taxes on goods and services	38	33	34	32	32
Other taxes	1	1	1	3	3
Total	100	100	100	100	100

Source: OECD (2007).

Table 2

Taxes on goods and services as percentage of total taxation

	1965	1970	1975	1980	1985	1990	1995	2000	2005
Canada	40.5	31.7	32.0	32.6	31.8	25.8	25.4	24.2	25.4
Mexico				51.2	64.8	55.3	53.9	53.0	56.7
United States	22.8	20.0	19.5	17.6	18.8	17.4	18.0	16.1	17.4
Australia	34.7	32.0	29.3	31.1	32.8	27.8	29.0	28.7	27.8
Japan	26.2	22.4	17.3	16.3	14.0	13.7	15.8	19.3	19.4
Korea			61.1	62.7	59.5	46.7	43.1	38.3	34.3
New Zealand	27.9	27.2	24.2	22.3	23.1	33.6	33.4	34.7	32.1
Austria	37.4	37.4	34.5	31.5	32.6	31.5	28.0	28.2	28.4
Belgium	37.2	35.8	27.4	27.2	25.4	26.5	25.7	25.3	25.3
Czech Republic							32.2	31.6	31.3
Denmark	41.4	38.8	34.3	37.5	34.3	33.0	32.1	32.1	32.2
Finland	42.5	39.6	31.9	35.3	33.9	32.5	30.2	29.0	31.3
France	38.4	38.1	33.3	30.4	29.7	28.4	27.3	25.7	25.3
Germany	33.0	31.8	26.9	27.1	25.7	26.7	28.0	28.1	29.0
Greece	48.8	48.2	46.8	41.2	42.7	44.5	41.3	35.3	34.6
Hungary							40.6	40.5	39.7
Iceland	62.7	61.3	63.0	59.9	61.1	51.3	48.7	44.8	40.4
Ireland	52.6	52.4	46.5	43.7	44.4	42.3	39.8	38.3	37.8
Italy	39.5	38.7	29.4	26.5	25.4	28.0	27.3	27.9	26.4
Luxembourg	24.7	20.5	20.9	21.5	24.3	24.8	26.7	27.2	28.8
Netherlands	28.6	27.8	24.2	25.2	25.6	26.4	27.2	29.1	31.7
Norway	41.1	42.8	37.6	35.3	37.5	35.5	38.6	31.8	27.9
Poland							35.2	36.3	36.7
Portugal	47.6	47.2	42.6	46.5	43.7	44.2	40.8	37.5	39.3
Slovak Republic								36.1	39.7
Spain	40.8	35.9	24.2	20.7	28.7	28.4	28.6	29.6	28.0
Sweden	31.2	28.2	24.3	24.0	26.6	25.0	27.8	24.6	26.1
Switzerland	34.2	30.2	22.4	23.0	21.9	21.2	21.9	22.5	23.6
Turkey	53.9	49.4	41.3	25.6	36.0	27.9	37.6	42.0	49.3
United Kingdom	33.1	28.8	25.0	29.2	31.5	31.1	35.3	31.9	30.3
OECD Average	38.4	36.1	32.8	32.5	33.7	31.9	32.4	31.7	31.9

Source: OECD (2007).

taxes has decreased. Table 1 shows the share of different taxes in tax revenues from 1965 to 2005. Indirect taxes are taxes on goods and services. The share decreased from 38 percent in 1965 to 32 percent in 2005. The share of personal income and corporate income tax stayed roughly at the same level – approximately 35 percent. In contrast, social security contributions gained in fiscal importance. Their share rose from 18 percent to 26 percent over the reported time span. If social security contributions are excluded, the share of indirect taxes over direct taxes – defined as taxes on goods and services over personal and corporate income tax – increased.

Table 2 gives a more disaggregated view. The share of taxes on goods and services varies widely over countries. For instance, as of 2005 the US has had the lowest share (17.1 percent) whereas Mexico has the highest share (56.7 percent). From 1965 to 2005, the share decreased in almost all countries. Exceptions are New Zealand, Luxembourg and the Netherlands. Possible explanations for the divergence between the general policy discussion and the actual development of tax shares might be that income tax rates have indeed decreased over time (in particular capital income tax rates) and indirect tax rates have increased while income tax bases have become more broadly defined. This means that income taxes have not lost their fiscal importance as one might assume based on a comparison of statutory tax rates on income.

M.K.

Reference

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Ease of employing workers

To protect workers against unfair employment practices, exploitation of labour or discrimination governments tend to enact laws. But in many cases laws developed to protect workers often hurt them. Especially youth, women and the unskilled suffer under strong regulations. Their employment opportunities vanish, because, as the World Bank determined in 112 studies for their current "Doing Business" edition, rigid labour regulation reduces jobs. Therefore those affected often work in the informal sector of the economy. There they receive no social benefits and have less protection. But, as the World Bank elucidates, more flexible labour regulations boost job creation, without necessarily abandoning protection.

Table

Business regulations in international comparisons: Employing workers, 2008

Overall rank[a)]	Employing workers rank		Employing workers: Difficulty of hiring index (0-100)	Rigidity of hours index (0-100)	Difficulty of firing index (0-100)	Rigidity of employment index (0-100)	Non-wage labour cost (% of salary)	Firing cost (weeks of salary)
1	1	Singapore	0	0	0	0	13	4
2	13	New Zealand	11	0	10	7	1	0
3	1	United States	0	0	0	0	8	0
4	23	Hong Kong	0	0	0	0	5	62
5	10	Denmark	0	20	10	10	1	0
6	21	United Kingdom	11	0	10	7	11	22
7	19	Canada	11	0	0	4	13	28
8	37	Ireland	11	20	20	17	11	24
9	8	Australia	0	0	10	3	20	4
10	42	Iceland	33	40	10	28	12	13
11	94	Norway	61	40	40	47	14	13
12	17	Japan	0	20	30	17	13	4
13	127	Finland	44	60	40	48	26	26
14	107	Sweden	17	60	40	39	32	26
15	49	Thailand	33	20	0	18	6	54
16	20	Switzerland	0	40	10	17	15	13
17	156	Estonia	33	80	60	58	33	35
18	4	Georgia	0	20	0	7	20	4
19	36	Belgium	11	40	10	20	55	16
20	137	Germany	33	60	40	44	19	69
21	92	Netherlands	17	40	70	42	18	17
22	96	Latvia	50	40	40	43	24	17
23	40	Saudi Arabia	0	40	0	13	11	80
24	43	Malaysia	0	0	30	10	15	75
25	62	Austria	11	60	40	37	31	2
26	124	Lithuania	33	80	30	48	31	30
27	61	Mauritius	0	20	50	23	6	35
28	32	Puerto Rico	44	0	20	21	13	0
29	87	Israel	11	60	0	24	6	91
30	131	South Korea	11	60	40	37	13	91
31	144	France	67	60	40	56	47	32
32	75	Slovak Republic	17	60	30	36	35	13
37	157	Portugal	33	60	50	48	24	95
38	154	Spain	78	60	30	56	33	56
42	164	Luxembourg	67	80	40	62	13	39
45	81	Hungary	0	80	10	30	34	35
46	57	Bulgaria	17	60	10	29	23	9
48	145	Romania	78	80	40	66	31	8
53	56	Italy	33	40	40	38	37	2
55	166	Slovenia	78	60	50	63	19	40
56	55	Czech Republic	33	40	20	31	35	22
74	78	Poland	11	60	40	37	21	13
100	142	Greece	44	80	40	55	28	24

a) Overall ranking on the ease of doing business according to World Bank's "Doing Business 2008". Ranking on the ease of doing business are the average of the country ranking on the 10 topics covered in "Doing Business 2008" (Starting a business, Dealing with licenses, Employing workers, Registering property, Getting credit, Protecting investors, Paying taxes, Trading across borders, Enforcing contracts, Closing a business).

Source: The International Bank for Reconstruction and Development/The World Bank, Doing Business 2008, Washington 2007.

To measure the regulation of employment the World Bank, in its "Doing Business", presents a detailed survey of employment regulations. Using the rigidity of employment index, it measures non-wage labour costs and firing costs. The rigidity of employment index is the average of the sub-indices: difficulty of hiring index, rigidity of hours index and difficulty of firing index. All sub-indices have several components and assume values of between 0 and 100, with higher values indicating more rigid regulation. The difficulty of hiring index measures, among others, whether fixed term contracts are prohibited for permanent tasks or the ratio of minimum wage for a trainee or first-time employee to the average value added per worker. The rigidity of hours index has five components including whether night work is restricted, whether weekend work is unrestricted, whether the workweek can consist of 5.5 days etc. The difficulty of firing index has eight components: whether redundancy is disallowed as a basis for terminating workers, whether the law requires the employer to consider reassignment or retraining options before redundancy termination, whether priority rules apply for redundancy etc. Averaging the scores and scaling the result with 100 yields a final index for every country. The non-wage labour cost indicator measures all social security payments and payroll taxes related with hiring an employee as a percentage of a worker's salary. And finally the firing cost indicator measures the cost of advanced notice requirements, severance payments and penalties due when terminating a redundant worker, expressed in weekly wages.

On the basis of all measurements, Denmark is one of the top performers in World Bank's 2008 "Doing Business" ranking regarding the flexibility of labour regulations. Workers there have flexible labour regulations that give them the opportunity for a job in the formal sector and easy transitions from one job to another (Table).

The main focus of "Doing Business" is always the reform of regulations. In the field of labour regulations the Czech Republic was the top reformer. The government adopted a new labour code that provides for more flexible working hours. Hours can be averaged over a year if established by collective agreements. Additionally it eases restrictions on dismissals. It also reduces notice periods for dismissals from three months to two. But severance pay rose by a month. In Latvia the maximum duration of fixed-term contracts was extended to three years (from two). This makes it easier for enterprises to hire new workers when demand is high without imposing high costs for dismissal if demand declines.

But also in Western Europe there were reforms in labour regulations in 2006/2007. The Netherlands and Switzerland both made working hours more flexible. Former restrictions on weekend work were eased. In the Netherlands the allowable overtime hours were increased by law. The Spanish reforms enable employers to change workers' contracts more easily from fixed term to open ended. The reforms have lowered non-wage labour costs and some types of severance payments and have offered incentives to make temporary workers permanent.

To lower dismissal costs, the World Bank recommends that especially the rich countries – e.g., OECD member countries – offer unemployment insurance rather than severance pay. In Austria employers contribute to a fund from withdrawals can be made for a worker who is made redundant after three years of employment. In Italy employers deposit a portion of each employee's salary into a designated fund over the course of the employment relationship. In both countries employers are not obligated to pay additional severance when dismissing workers because of redundancy. In contrast, Slovenia has made its labour regulations more rigid, reducing the maximum duration of fixed-term contracts to 24 months.

N.H.

Income Maintenance during Unemployment

Table 1

Net replacement rates: initial phase of unemployment[a)], 2001 and 2005

	Single person no children		One-earner married couple two children	
	2001	2005	2001	2005
Luxembourg	86	86	89	89
Portugal	82	82	77	77
Switzerland	70	70	84	85
France	69	67	71	67
Netherlands	67	65	71	70
Norway	64	64	69	70
Slovak Republic	54	64	64	58
Canada	64	63	77	78
Denmark	64	63	76	75
Italy	52	63	62	70
Spain	63	62	75	75
Sweden	65	62	73	69
United States	62	62	56	56
Germany	60	60	75	73
Belgium	58	58	55	56
OECD	56	56	64	64
Austria	55	55	69	68
Finland	59	54	80	76
Japan	59	54	57	53
Iceland	48	51	56	60
Poland	49	51	54	56
Czech Republic	52	50	65	61
Korea	55	48	55	48
United Kingdom	41	41	63	60
Hungary	43	40	49	55
New Zealand	40	38	44	46
Turkey	39	38	22	38
Greece	34	36	45	47
Australia	36	33	66	65
Ireland	28	31	54	59

[a)] 100% of average wage (AW) level.

Source: OECD, Benefits and Wages: OECD Indicators, 2007 Edition.

One of the key objectives of benefit policy is to prevent people's living standards from dropping to unacceptably low levels. For short-term unemployed persons with access to unemployment benefits, existing tax-benefit systems provide very different degrees of income replacement across countries. For single people who previously earned the national average wage, the net replacement rate (the ratio of income out of work to income in work, after taking account of taxes and benefits) in 2005 was 56 percent on average across the 29 OECD countries. The net replacement rates were below 40 percent in Ireland, Australia, Greece, New Zealand and Turkey, but were 70 percent and above in Switzerland, Portugal and Luxembourg. On average of OECD countries, the out-of-work benefit generosity was the same in 2005 as in 2001 (Table 1).

In general, net replacement rates tend to be higher for families with children, since family-related additions to unemployment benefits and other benefit entitlements reduce the relative drop in household resources. In 2005 the net replacement rate for a one-earner married couple with two children was 64 percent compared to 56 percent for single persons on average of OECD countries. Net out-of-work income was most generous in Luxembourg, Switzerland and Canada, whereas it was least generous in Greece, New Zealand and Turkey. On average, the out-of-work benefit generosity did not change since 2001 (Table 1).

Table 1 considers net replacement income during the initial period of unemployment following any waiting period and thus does not capture country differences in benefit duration and/or changes of benefit levels overtime. Long-term unemployed people may continue to receive unemployment insurance or else receive unemployment assistance, social assistance or no out-of-work benefit at all. Net replacement rates after five years of unemployment are shown in Table 2. In general, they are significantly lower than during the initial phase of unemployment. Whereas in 2005 the net replacement rate at the initial phase of unemployment was 56 percent for a single person, for a long-term unemployed it was only 32 percent on average of OECD countries. Its level was 3 percentage points lower than in 2001. The reduction of the benefit level was extremely high in the Slovak Republic (34 percentage points) and in Germany (18 percentage points).

For a one-earner married couple with two children the generosity of out-of-work benefits in 2005 dropped by 11 percentage points during an unemployment spell of five years. On average of OECD countries the net replacement rate reached a level of 53 percent for long-term unemployed. Its level was 4 percentage points lower than in 2001. The reductions

Table 2

Net replacement rates: long-term unemployment[a)], 2001 and 2005

	Single person no children		One-earner married couple two children	
	2001	2005	2001	2005
Denmark	61	59	78	77
Ireland	50	52	72	76
Austria	51	51	67	64
Iceland	48	51	73	74
Netherlands	49	50	62	61
Belgium	44	48	55	56
Sweden	49	48	72	70
Switzerland	53	48	79	70
Finland	51	47	84	77
Luxembourg	43	43	63	65
United Kingdom	41	41	71	67
Norway	41	39	75	73
New Zealand	40	38	44	46
Germany	54	36	63	62
Australia	36	33	66	65
OECD	35	32	57	53
Czech Republic	36	31	74	65
France	33	31	54	54
Japan	28	29	59	60
Poland	30	28	50	50
Canada	24	24	54	54
Spain	23	23	39	35
Hungary	21	20	44	50
Portugal	17	19	52	55
Slovak Republic	52	18	98	37
Korea	20	17	56	46
United States	7	7	40	40
Greece	0	0	2	2
Italy	0	0	0	0
Turkey	1	0	-2	0

[a)] 100% of average wage (AW) level.

Source: OECD, Benefits and Wages: OECD Indicators, 2007 Edition.

of unemployment benefits were highest in the Slovak Republic (61 percentage points), Korea (10 percentage points), Switzerland (9 percentage points) and Czech Republic (9 percentage points) (Table 2). Germany, which reduced benefit levels for long-term unemployed singles considerably hesitated to reduce unemployment benefits for families in the same way.

W.O.

Reference

OECD, Benefit and Wages: OECD Indicators, 2007 Edition.

Migration of Health Professionals

Migration of highly skilled workers is currently a widespread phenomenon and has received increasing attention in the health sector; growing concerns about the shortage of health professionals due to migration have repeatedly been voiced. Reasons for the migration of health professionals are differences in the organization of the health sector, which leads, for example, to different remuneration systems. Also population aging and changing technologies affect the demand and supply of health professionals across countries so that migration may well be promoted by these changes. One way to look at the issue of migration of health professionals is to compare the share of foreign-born health professionals in the total number of health professionals across countries. Table 1 lists the respective shares for nurses and doctors. The highest share of foreign-born nurses can be found in Switzerland, Australia, Luxembourg and New Zealand. In these countries more than 20 percent of nurses are foreign born. Countries with a share below 1 percent are Poland, Mexico and Finland. A more pronounced employment pattern can be observed for doctors. Here the countries with a share above 30 percent are Australia, Canada, UK, Ireland, Luxembourg and New Zealand. Countries in which foreign-born doctors are of least importance (i.e. the share is below 5 percent) are Poland, Mexico and Finland.

The above data do not provide any information about whether the foreign-born health professionals also received their training abroad or what countries of origin are most important. As to the former, Table 2 shows the number and the share of foreign-trained doctors for various countries. As of 2005 the biggest share can be found in New Zealand, followed by the UK and, with some distance, Australia and Canada.

As to the latter issue, one could assume that migration of health professionals is from low-income to high-income countries, reflecting a more advanced state of medical technology and higher wages in high-income countries. Figure 1 lists the total number of foreign-born doctors and nurses in the OECD by country of origin (top 25). The figure indeed confirms that migration of health professionals is mainly from relatively low-income to high-income countries. As to doctors, there are three notable excep-

Table 1

Practising health professionals by occupation and place of birth in OECD countries, circa 2000

Country of residence	Nurses	Doctors
	% total (excl. unknown places of birth)	
Australia	24.8	42.9
Austria	14.5	14.6
Belgium	6.6	11.8
Canada	17.2	35.1
Switzerland	28.6	28.1
Germany	10.4	11.1
Denmark	4.1	10.9
Spain	3.4	7.5
Finland	0.8	4.0
France	5.5	16.9
United Kingdom	15.2	33.7
Greece	9.7	8.6
Hungary	3.1	11.0
Ireland	14.3	35.3
Luxembourg	25.8	30.2
Mexico	0.2	1.5
Netherlands	6.9	16.7
Norway	6.1	16.6
New Zealand	23.2	46.9
Poland	0.4	3.2
Portugal	13.9	19.7
Sweden	8.9	22.9
Turkey		6.2
United States	11.9	24.4
OECD	10.7	18.2

Source: OECD (2007).

Table 2

Foreign-trained doctors in selected OECD countries, 1970s and 2005

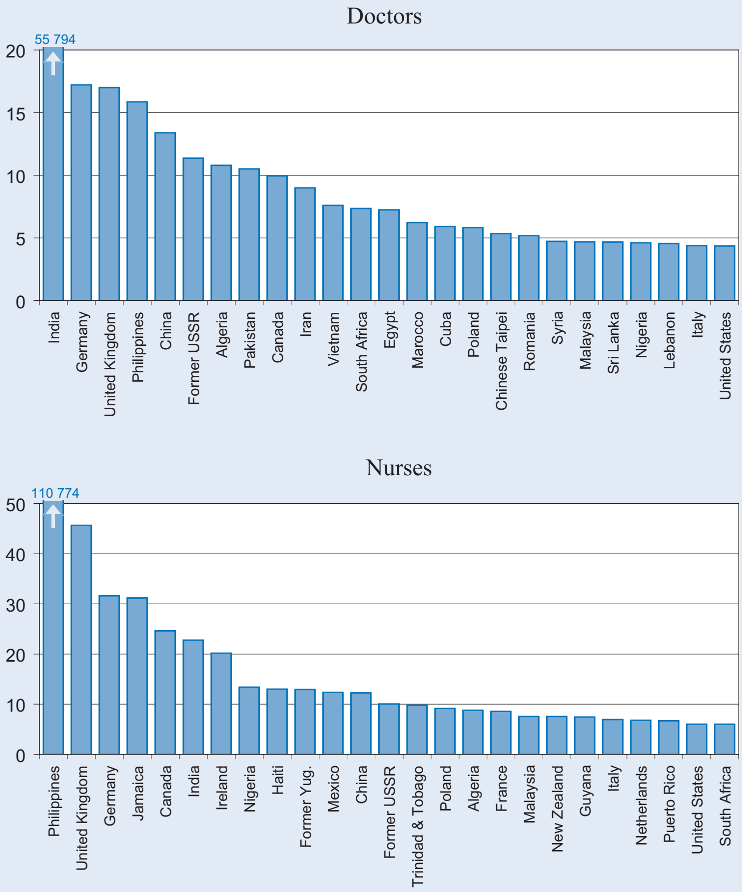
Country of residence	Number	% of the total workforce	Number	% of the total workforce
	1970s		2005	
Australia	4,385	24	14,553	25
Canada	11,244	31	13,715	22
Germany[a)]	5,605	5	18,582	5
Denmark	235	3	2,769	11
Finland	68	1	1,816	7
France	600	1	12,124	6
United Kingdom	20,923	26	69,813	33
Netherlands	102	1	3,907	6
New Zealand	934	27	3,203	36
Portugal[a)]	79	1	1,830	4
Sweden	561	5	5,061	5
United States	70,646	22	208,733	25

[a)] Foreign nationals.

Source: OECD (2007).

Figure

FOREIGN-BORN DOCTORS AND NURSES IN THE OECD
BY MAIN COUNTRIES OF ORIGIN[a], CIRCA 2000
in 1 000



a) Top 25

Source: OECD (2007).

tions: the UK, Germany and, to a lesser extent, Canada. In the former two countries the number of doctors who migrated is almost the same, roughly 17,000. In contrast, the number of nurses who migrated are well above 40,000 in the UK and slightly above 30,000 in Germany. Ireland also ranks quite high in the list with 20,000 nurses who were born in Ireland but work abroad.

M.K.

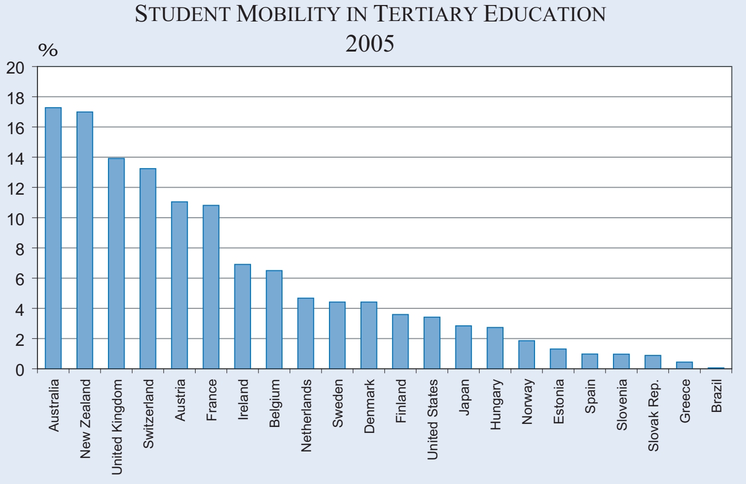
Reference

OECD (2007), *International Migration Outlook,* Paris, 162–99.

Student Mobility

Globalisation affects national economies in a variety of ways. For instance, physical and financial capital becomes more responsive to location-specific factors such as infrastructure and taxes. Another resource that becomes more mobile in the wave of globalisation is human capital. Educated workers may decide to work in a foreign country because of wage considerations or infrastructure (e.g. universities, research institutes). People may also decide to go abroad at an earlier stage in order to receive part of their education in a foreign country. Reasons for student mobility range from the quality of the education system to the fact that tuition fees may differ across countries. Not surprisingly, student mobility is most pronounced for tertiary education. In 2005 over 2.7 million tertiary students were enrolled outside their country of citizenship. Figure 1 shows the percentage of students enrolled in different countries which come from a foreign country as of 2005. The definition for student mobility as used in the Figure is students who travelled to a foreign country for the purpose of tertiary study. In terms of the share of international students in a country's total number of students, the most important destination countries of international students are Australia, New Zealand, the UK and Switzerland.

Figure 1



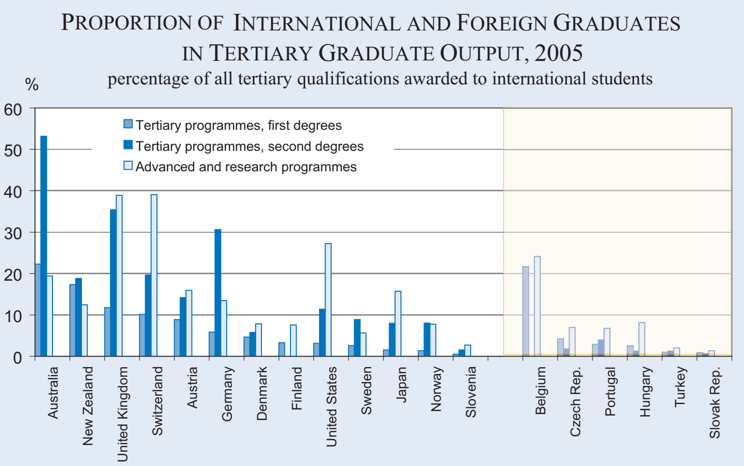
Source: OECD (2007).

The share in tertiary enrolment ranges from approximately 17 to 13 percent. The US is in the middle field, with many European countries having a share of tertiary enrolment which is above the US level.

These shares include enrolment in tertiary education programmes independently of whether students receive a fist degree, a second degree or whether they participate in advanced research programmes. A more nuanced view can be gained by having a disaggregated look at enrolment shares. Figure 2 shows the shares of tertiary enrolment in programmes where students receive their first degree, second degree and where they participate in advanced research programmes. The UK, Switzerland and the US have the highest enrolment shares in advanced research programmes, whereas Australia appears to be an important destination country for students who receive a second degree. All in all, the data shows that countries differ with respect to their intake of foreign students (relative to domestic students) and thereby with respect to the attractiveness of the different types of tertiary education they offer.

M.K.

Figure 2



Source: OECD (2007).

Reference

OECD (2007), *Education at a Glance*, Paris, 298–325.

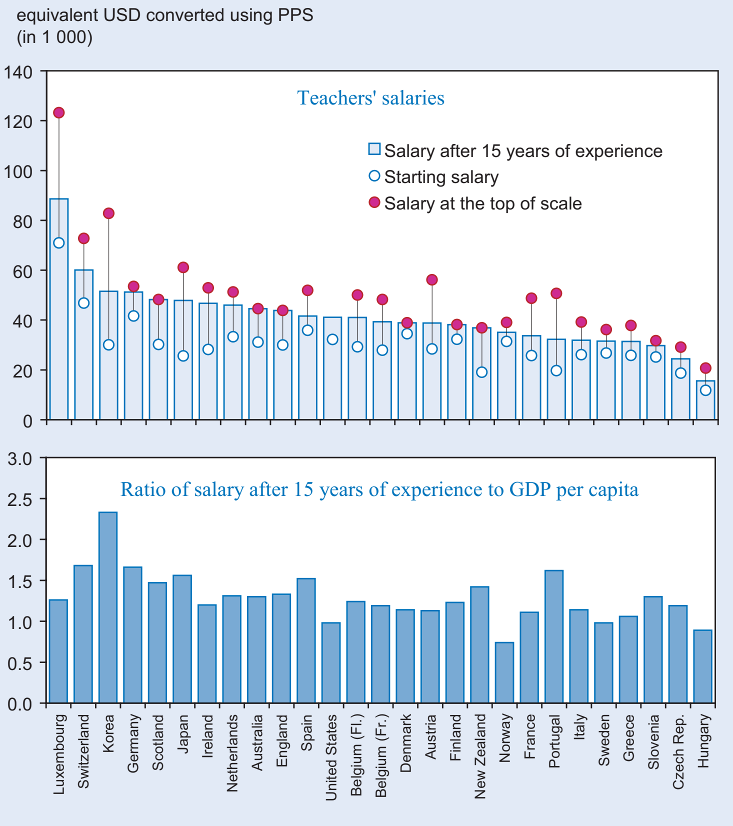
Teachers' Salaries

Ensuring that there is a sufficient number of skilled teachers is a key concern in all OECD countries. Teachers' salaries are a policy factor that affects both the demand for and supply of teachers. In addition, salaries and working conditions can be important influences in developing and retaining skilled and effective teachers. Comparing salary levels at different career points allows for an analysis of the structure of the career progression and promotion possibilites available within the teaching profession.

International comparisons of salaries provide illustrations of the compensation received by teachers for their work. These figures create only a snapshot of the complete system of compensations and the resultant welfare inferences that can be made. Large differences between the taxation and social benefit systems in OECD countries as well as the use of financial incentives make it important to exercise caution when comparing teachers' salaries.

Figure

Annual Statutory Teachers' Salaries in Public Institutions in Lower Secondary Education, 2005



Source: OECD (2007).

In the Figure, teachers' salaries in lower secondary education are examined in absolute terms at three career points: starting, mid-career, and top-of-the-scale. The annual statutory salaries with 15 years of experience range from less than USD 16,000 in Hungary to over USD 51,000 in Germany, Korea and Switzerland and exceed USD 88,000 in Luxembourg. Salaries at the top of the scale are on average around 70 percent higher than starting salaries, although this differential usually varies between countries largely in accordance with the number of years it takes for a teacher to progress through the scale.

Among other considerations, countries invest in teaching resources relative to their ability to fund educational expenditure. Comparing statutory salaries to GDP per capita is a way of assessing the relative value of teachers' salaries among countries. Comparisons with GDP per capita provide a basis for standardised comparisons. Salaries for teachers with at least 15 years experience in lower secondary education relative to GDP per capita are relatively low in Hungary (0.89) and Norway (0.74) and highest in Korea (2.33). In most countries salaries of teachers are up to 100 percent higher than average per capita income (Figure).

W.O.

Reference

OECD (2007), *Education at a Glance,* chapter D3.

New At DICE Database

New interface for institutional comparisons

Ifo's Database for Institutional Comparisons in Europe (DICE) has redesigned its interface. DICE will continue to provide country-comparative information on institutions, regulations and the conduct of economic policy but, with its new interface, it offers users much quicker access to any of our new main topics, namely Business and Financial Markets, Education and Innovation, Energy and Natural Environment, Labour Market and Migration, Public Sector, Social Policy, and Values. Since mid-April DICE offers the user a quicker overview of the topics contained, and faster access to current tables, reports and charts, as well as to the archived content and time series. Additionally, DICE now provides expanded search functions.
At present DICE contains about 2,800 country-comparative tables, charts and reports on institutions, regulations and economic policy covering European countries as well as several major non-European countries.
Check out the DICE database at
www.cesifo.de/DICE.

New entries

In the first quarter of 2008 the DICE Database received approximately 120 new entries, consisting partly of updates of existing entries and partly of new topics. Examples of new country-comparative information include the following subjects:

- Index of Globalization (according to KOF)
- Childcare Typology
- Fees and Characteristics of Centre-based Childcare,
- Capital Income Tax on Interest and Dividends
- Property Tax
- Tax Burden on Companies in Europe
- Poverty Rates for Children and for Families by Employment Status
- Direct Public Expenditures on Educational Institutions and Subsidies for Households and Other Private Entities
- National Minimum Wages of Younger and Less Experienced Workers
- Energy Consumption and Electricity Generation
- Taxation of Residential Property

Forthcoming Conferences

Liquidity: Concepts and Risks
Munich, 17 October 2008 to 18 October 2008

Various notions of liquidity and of liquidity risks have emerged from different angles of economic research. Recent turmoil in the global financial system has, however, shown that the interplay between these different liquidity concepts and liquidity risks is most important for understanding real-world crises. This conference will provide a forum to discuss these interrelations and thereby contribute to a more integrated view on liquidity and liquidity risk.
Scientific organisers: Gerhard Illing, Falko Fecht and Klaus Duellmann
Submission deadline: 30 June 2008

Annual Conference of The Society for Economic Design (SED) 2008
Michigan, 15 June to 17 June 2008

Submission deadline: 15 April 2008

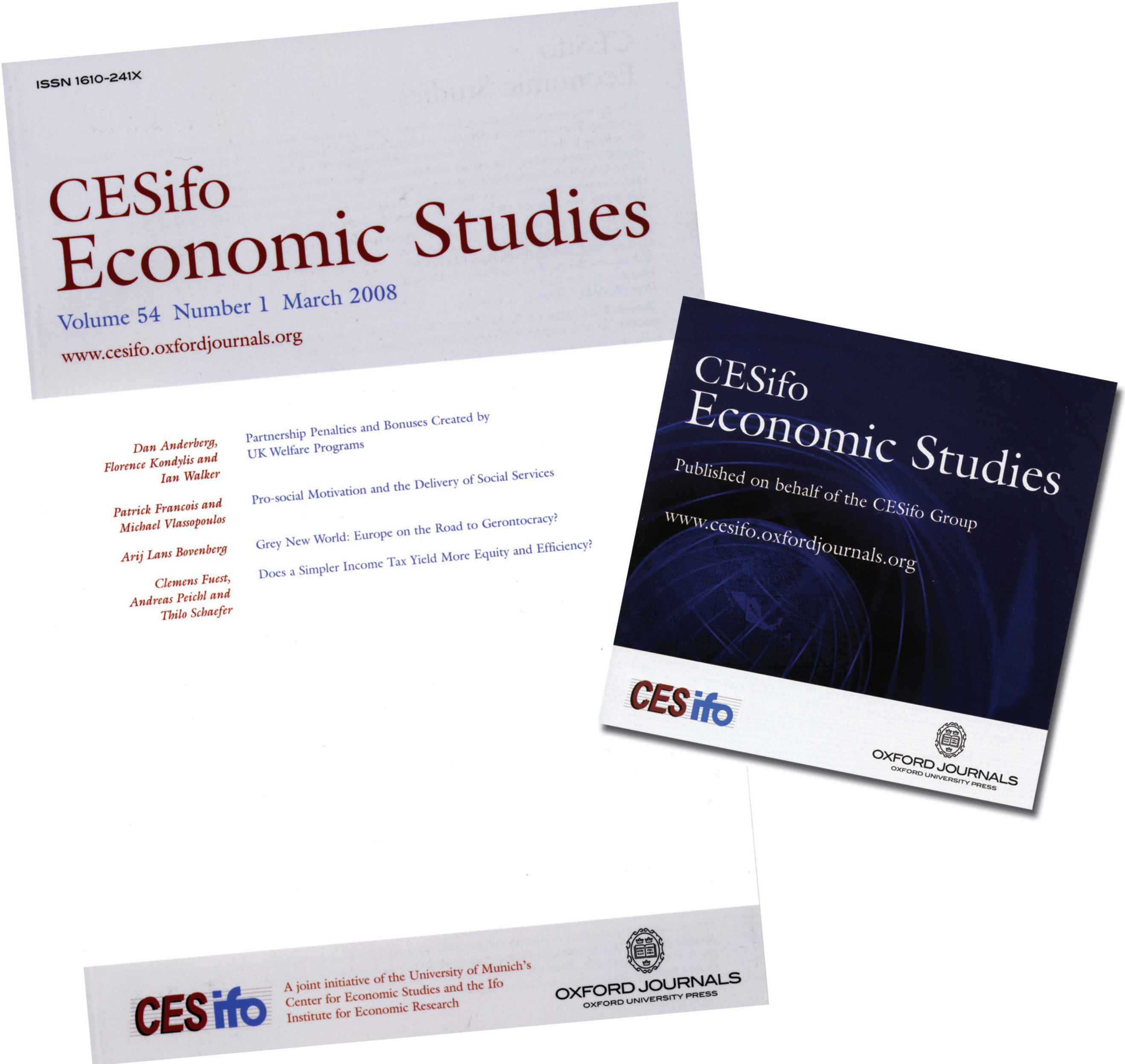
New Books on Institutions

Presidentialism, Parliamentarism, and Democracy
Jose Antonio Cheibub
Cambridge University Press, 2007

Internationalisation and Economic Institutions: Comparing the European Experience
Mark Thatcher
Oxford University Press, 2007

Institutions and Norms in Economic Development
Mark Gradstein and Kai A. Konrad (eds)
MIT Press, 2007

Handbook of Antitrust Economics
Paolo Buccirossi (ed)
MIT Press, 2008


ISSN 1610-241X
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Volume 54 Number 1 March 2008
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The database DICE was created to stimulate the political and academic discussion on institutional and economic policy reforms. For this purpose, DICE provides country-comparative information on institutions, regulations and the conduct of economic policy.

To date, the following main topics are covered: Business and Financial Markets, Education and Innovation, Energy and Natural Environment, Labour Market and Migration, Public Sector, Social Policy, Values. Information about Basic Country Characteristics is provided for the convenience of the user.

The information of the database comes mainly in the form of tables – with countries as the first column – but DICE contains also several graphs and short reports. In most tables, all 27 EU and some important non-EU countries are covered.

DICE consists primarily of information which is – in principle – also available elsewhere but often not easily attainable. We provide a very convenient access for the user, the presentation is systematic and the main focus is truly on institutions, regulations and economic policy conduct. Some tables are based on empirical institutional research by Ifo and CESifo colleagues as well as the DICE staff.

DICE is a free access database.

Critical remarks and recommendations are always welcome.
Please address them to
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or
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