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CONTENTS

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Own revenues in federations: tax powers, tax bases, tax rates and collection arrangements in five federal countries

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1. INTRODUCTION

The purpose of the paper is to examine the four classic aspects of revenue assignment in fiscally federal countries[2]: (a) how are the taxes from which subnational governments receive revenues determined, (b) how are the bases defined and shared, (c) how are the tax rates set, and (d) which level of government administers the taxes. For each issue, we frame the question using a principled approach, provide five examples of how it is done and assess when possible if there are preferable outcomes. This allows us to carry out the task assigned to us by the conference organizers that was to provide information of potential relevance to Australian policy makers. The paper is thus divided into four parts. These four choices will be guided by economic and political factors and shaped by the constitutional/legal framework. We examine the case of five countries presented in alphabetical order throughout the paper; they are: Belgium, Canada, Spain, Switzerland and the United States. They were selected since they have a per capita income similar to that of Australia, include both new (Belgium, Spain) and old federal arrangements and in some cases face geographical circumstances similar to that of Australia (size, climate diversity…). More emphasis is put on Canada than other countries as a result of both its greater historical similarity to Australia and the knowledge of the author. We present in the Appendix table basic information on these five countries and on Australia.

2. THE POWER TO TAX; ITS ORIGIN

2.1 The principles

The right to tax is one of the two key powers along with the right to use force that distinguishes a government from a private actor. It allows the government to appropriate for its own use a share of the private income or output in its territory. Dysfunctional states will see this power more or less eroded.

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[2] We thus include countries that are de facto federal but that do not wish to use that term in their self-definition often for historical reasons.

Given the above, how this power is shared between more than one level of government is an important question in federal states. There does not appear to be a guiding principle as to what mechanism should be used to resolve this question. Bodies such as constitutional conventions that write the constitution of a new state need to address this question, but constitutions will evolve over time through amendments, judicial decisions and the emergence of unwritten norms. Thus at a given point in time, the taxing powers of the constituent units also referred to as subnational governments of a federation will be the result of a combination of these forces. This natural evolution is not to be decried as it allows adjustments for changes in economic realities such as a shift from a goods producing to a services producing economy (McClure, 2001). Guiding principles of constitutional conventions could be:

- a reasonable relationship between responsibilities and thus outputs of constituent units and revenues. We use outputs to cover three items: budgetary spending on goods and services and on transfers; tax spending through tax expenditures; and regulated mandatory private spending that substitutes for the other two spending and thus while a cost to society does not appear as government expenditure. This creates an indirect link between the principle of subsidiarity used to allocate responsibilities and the allocation of taxing powers;

- taking into account subsidiarity explicitly when making tax choices. Thus taxes that can be best levied at the non central level, best being defined in terms of economic (not administrative) efficiency, should be thus levied at that level. Given what the appropriate distribution of output responsibilities is likely to be, one is usually left with a vertical fiscal imbalance with the non-central constituent units in need of transfers from the central government.

Brennan and Buchanan (1980), treating the state not as a benign body pursuing the welfare of its residents but as a leviathan, argue for a large number of subnational units to facilitate mobility of taxpayers and reduce the tax collusion between tax units (p180).They argue that, 'At the lowest level of government, access to even minimally distorting taxes may be appropriate, because the discipline of mobility restricts the capacity of government'. At the central level, specific taxes such as excises and tax limiting rules are preferable to limit the rapacious leviathan. They favour tax competition between SNGs (subnational governments).

Wibbels (2005), on the other hand, argues that historical factors such as the differences in economic circumstances between regions at the origin of a federation explain the current distribution of tax power: the more regional elites have to lose, the less powers they want to see at the center.

2.2 The practice

Belgium

Belgium is a new federal country[3] (formally created in 1993) with two major sets of non-central constituent units: three regions that have some tax powers and three linguistic communities that do not. The Constitution does not list the specific taxes available to regions: article 177 states: *A law adopted by special majority vote as described in Article 4[4], last paragraph, fixes the methods of financing for regions.*

The tax powers of regions are the result of political bargaining between the majority richer Flemish group and the minority poorer French speaking group (Brussels and Wallonia) within an existing constitution. The first transfer of tax powers occurred in 1988 (Gérard, 2002). Flanders wants more decentralized tax power but this is opposed by Brussels and Wallonia who fear tax competition and a weakening of inter–regional solidarity. There has been no constitutional convention and judicial decisions do not appear to have played an important role, perhaps because the tax powers being shared are modern ones. The last agreement on sharing tax powers was reached in October 2011 as part of the political bargaining to form a central government.

Canada

Canada is an older federation (1867). The Constitution was the result of a joint proposal following several meetings (1864-1867) akin to a constitutional convention, by the political leaders of three British colonies (Canada which regrouped Ontario and Québec, New Brunswick and Nova Scotia) adopted by the British parliament as the British North America (BNA) Act. The central government can levy any kind of taxes: article 91.3 gives it the power of *The raising of Money by any Mode or System of Taxation* while the provincial governments were restricted to direct taxes: article 92.2 states they can use *Direct Taxation within the Province in order to the raising of a Revenue for Provincial Purposes*. A key judicial decision on the meaning of direct taxation allowed them to levy retail sales taxes in the 1930s[5].

Amusingly enough, when the federal government chose in 1991 to replace a manufacturer's sales tax by a VAT, namely the Goods and Services Tax (GST), some provinces went to court to stop this, arguing this was a taxation field reserved for the provinces - they lost[6]. The only areas of taxation solely reserved to the federal government are custom duties and excise duties (as opposed to excise taxes). Thus in the case of Canada, it is a combination of constitutional provisions and judicial interpretation that determines tax powers.

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[3] For a brief outline of the steps beginning in 1970 see http://www.belgium.be/en/about_belgium/country/history/belgium_from_1830/formation_federal_state/

[4] A double majority: a simple majority in each of the linguistic groups and 2/3 of the linguistic groups together.

[5] Privy Council decision of 1936 Attorney General of BC v Kingcome Navigation. A resolution was introduced in 1936 in the House of Commons by the federal government to amend section 92 of the BNA to make this power more certain. It was approved by the House but it was defeated in the Senate and thus not sent to Westminster.

[6] See Supreme Court of Canada June 25th1991 SRC 445
httpscc.lexum.org/en/1992/1992scr2-445/1992scr2-445.html

Spain

The post-Franco constitution allowed provinces to unite into autonomous communities (AC) but restricted these communities to tax fields not occupied by existing units (municipalities, provinces, and central government). This left them with little tax powers; over time, political agreements led to ACs first to receive revenue collected in their territories by the central government from a subset of taxes and then to obtain some powers with respect to these taxes. Thus in this case political negotiations played a key role.

Switzerland

The Swiss confederation became somewhat more centralized following a civil war in the 19th century but tax powers have remained highly decentralized and jealously guarded by the cantons. It was only in 1934 that an agreement was reached on sharing direct (income) taxation with the central (confederation) government with the cantons retaining 30% of revenues on a derivation basis at that time. In 2004, the cantons for the first time in Swiss history[7] initiated a referendum to defeat a proposed change in federal tax laws that would have reduced their revenues. Articles 126-135 set out the tax powers including the tax rates of the federal government. For example article 128 states:

> *1 The Confederation may levy a direct tax:*
> *a. of a maximum of 11.5 per cent on the income of private individuals*
> *b. of a maximum of 8.5 per cent of the net profit of legal entities;*
>
> *2 The Confederation, in fixing the taxation rates, shall take account of the burden of direct taxation imposed by the Cantons and communes.*
>
> *3 In relation to the tax on the income of private individuals, regular revisions shall be made to compensate for the consequences of an increased tax burden due to inflation.*
>
> *4 The tax shall be assessed and collected by the Cantons. A minimum of 17 per cent of the gross revenue from taxation shall be allocated to the Cantons. This share may be reduced to 15 per cent if the consequences of financial equalisation so require.*

One interesting aspect is that the access of the central government to the direct taxation field is subject to a time limit; it currently ends in 2020 (article 196-13 of the Constitution).

Hence in this case, precise tax powers are the result of an ongoing popular constitutional convention making decisions through a referendum mechanism.

[7] http://aceproject.org/ace-en/focus/direct-democracy/cs-swiss

United States

The tax provisions of the Constitution have been subjected to numerous reviews by the courts over time[8]. On one hand section 8, clause 1 states that (the central government) *The Congress shall have Power to lay and collect Taxes, Duties, Imposts and Excises, to pay the Debts and provide for the common Defence and general Welfare of the United States; but all Duties, Imposts and Excises shall be uniform throughout the United States*, while on the other section 9, clause 4 states that *No Capitation, or other direct, Tax shall be laid, unless in Proportion to the Census or Enumeration herein before directed to be taken.* Because of this clause and its interpretation by the Supreme Court, it was felt necessary to base the personal income tax on a constitutional amendment (XVI introduced in 1913): *The Congress shall have power to lay and collect taxes on incomes, from whatever source derived, without apportionment among the several States, and without regard to any census or enumeration*[9].

States are prohibited from taxing international trade (section 10, clause 2) and inter-state trade through a judicial interpretation of the Commerce clause (section 8, clause 3). Thus in this case, the courts played a key role in broadening central government taxation with a key issue (similar to the case of Canada) being the interpretation of the term direct taxes.

2.3 An assessment

It is not feasible to assess if the two principles outlined above were used or not in the process that led to the tax sharing processes described above. But the answer for the older federations is most likely no, with issues of interpretation of imprecise terms such as direct taxes playing a greater role. In the more recent federation, political bargains with the macro dimensions dominating the discussions seem to have occurred.

3. ASSIGNING AND DEFINING TAX BASES

3.1 Principles

The following principles seem to be appropriate:

1. Constituent units should not be allowed to levy custom duties. To allow this would negate the national control of international borders, a key aspect of sovereign states, and would be difficult to administer in practice. It could also lead to border constituent units setting duties to gain from imports mainly used in other constituent units[10].

2. Constituent units should not be allowed to tax trade between constituent units. To allow this would in some sense put within country trade on the same footing as international trade which is subject to national duties. This goes against the

[8] See the relevant discussion in http://www.law.cornell.edu/anncon/
[9] Even though a similar tax had been used to finance the Civil War.
[10] We know of only one country, Tanzania, where this behavior is in practice allowed with the rates of some custom duties levied in Zanzibar differing from those in the mainland (in 2007).

notion of a single country and a single market that is one of the aims of federal states.

3. Natural resources such as energy should be taxed at the central level to avoid inefficient labour mobility associated with rent seeking behavior linked with either lower taxes or higher provision of goods and services by the constituent units where the resources are located.

4. Given the preceding three principles, the taxation of capital (K: stock and income), consumption and labour income should take into account the geographic area of units at various levels of governments and the geographic mobility of the tax bases. Figure 1 outlines this relationship.

There are three standard ways of sharing tax bases: full autonomy by constituent units within constitutional/legal parameters; subnational surcharges on a common base with tax rates set by the constituent units; and sharing of tax revenues between the central government and subnational governments. These approaches differ in the degree of fiscal autonomy they provide to subnational governments, the ease of compliance and administration, the fairness and neutrality they are likely to produce, and the degree of inter-jurisdictional redistribution they can accommodate.

The first approach uses independent subnational legislation; subnational governments choose the taxes they levy and define their tax bases and as a consequence set the tax rates and administer the taxes.[11] This is the approach followed in Canada (although with some central government collection of the provincial Personal Income Taxes (PIT) and Corporate Income Taxes (CIT) Switzerland, and the United States. Choices are subject only to general constitutional or legal limitations. This approach can lead to high complexity of compliance and administration. This can occur if neighbouring jurisdictions choose different taxes (for example, if some levy retail sales taxes, but others levy VATs as is the case in Canada) or define their tax bases in different ways (as in the case of state CITs in the United States). Economic distortions can also occur if the tax systems of various subnational constituent units do not mesh, resulting in gaps or overlaps in taxation. These problems differ in importance from tax to tax; they can be tolerated if their costs are smaller than the benefits of decentralized government thus gained. Costs can be minimized through inter-governmental agreements among subnational constituent units or the imposition of national rules by a higher level of government on, for example, the definition and the allocation of the corporate income tax base.

[11] Subnational constitutions or laws may limit any of these, but self-imposed restrictions in the constitutions of subnational governments differ from restrictions imposed from above by law or as part of a national constitution.

Figure 1: **Relationship between levels of government and tax bases**

Level of government

Local | Intermediate (province, state…) | Central

K (physical) | Y (Labour) | Consumption | K (financial)

Tax Base

Note: tax bases are ordered from lowest to highest mobility while levels of governments are ordered by increasing size

A second approach is subnational surcharges. Under this approach, a higher level of government defines the tax base and collects both its own tax and surcharges set by subnational constituent units. If subnational units set no tax rates (thus zero), no income is collected. This approach avoids the problems that occur when different subnational jurisdictions define the tax base in conflicting ways, use different apportionment formulas, and administer the tax in different ways. Because of their power to set surcharge rates, subnational constituent units retain the most important attribute of fiscal sovereignty in the tax field. The ability to define the tax base and administer taxes is less important. A problem does exist, though, with providing incentives for the central government to collect a tax that it does not keep and, indeed, of trusting it not to keep the revenues it ostensibly collects for subnational constituent units. This is the approach in place in Belgium, while a variant has been used in Spain since 2011; such an approach was used de facto in Canada until 2000 for nine out of ten provinces.

The third approach, tax sharing, is akin to a transfer. Under this approach subnational governments receive fixed fractions of revenues from specific national taxes originating within their boundaries. The sharing rates are usually uniform across jurisdictions but often differ across taxes. Individual subnational constituent units do not have the power to alter the amount of revenue they receive from shared taxes. Although all subnational governments, acting as a group, can attempt to influence their share of revenues from these taxes, no subnational government, acting unilaterally, can hope to do so unless it is very large in a demographic, economic or political sense.

Finally, we should address the issue of tax base interactions. This occurs when the amount paid by a taxpayer for one tax affects the amount of another tax. For example, payroll taxes are usually a deductible expense in the calculation of corporate income and thus of corporate income tax. This also holds for natural resource royalties and in some cases taxes are levied on other taxes usually implicitly but sometimes explicitly.

3.2 The practice

Belgium

The regions of Belgium have access since 1989 to some own taxes and since 2002 to both own taxes and surcharges. The VAT and the CIT are solely central taxes while the regions can vary slightly the PIT rate but without changing the overall progressivity. They fully control taxes such as amusement and gambling taxes and set the rates of the inheritance tax with some control over its base (Verdonck, 2010). Changes have been negotiated in 2011 but their implementation is not done as of February 2012.

Canada

Canadian provinces have access to own taxes such as the PIT, the CIT , VAT type (QST or HST) or retail sales taxes, as well as excises (tobacco, alcohol, fuel, ...), and payroll taxes. They can set the bases, the rates and collect them. In 2011:

- Nine provinces use the federal PIT income as their tax base and thus have the federal government collect it for them;
- Eight provinces have the federal government collect their CIT;
- Five[12] provinces use the Harmonized Sale Tax, a VAT with one rate split between Ottawa and the provinces with each province setting its own rate and the collection done at the federal level. Three provinces levy a RST, one (Québec) levies its own VAT (the QST) and collects the GST for the federal government, and one levies no consumption tax[13].

Thus there is de facto harmonization of bases through collection agreements. Such a situation can be explained in part by the 1942 Wartime Tax Agreements (the so-called "tax rental" agreements) by which the provinces surrendered ("rented") all rights to impose three taxes to the federal government in exchange for fixed annual payments.[14] Such an outcome agreed with the recommendations of the Royal Commission of Dominion-Provincial Relations (commonly called the Rowell-Sirois Commission) that reported in 1940 and recommended, in order to avoid issues that arose from the Great Depression, that taxing powers and debt be centralized.

The PIT base was progressively shared after WWII, as shown in Table 1 One determinant of the shares shown in that table was that "opting-out" (also referred to as "contracting-out") was introduced in 1964. What this meant was that provinces that wished to do so would have a reduced federal PIT in lieu of transfers, provided they agreed to maintain the same programs as those financed by transfers. Only Québec proceeded to "opt-out" with the result that the federal income tax imposed in that province is lower than that imposed in the "rest of Canada" (ROC). Opting-out does not increase or decrease the revenues of Québec since transfers are reduced by an equivalent amount. It does, however, allow Québec to reflect its own preferences in tax matters over a greater share of personal income than other provinces(Lachance and Vaillancourt, 2001).

Payroll taxes and resource royalties, two sources of revenues for provinces, are deductible in the calculation of the federal CIT. Hence an increase in provincial payroll taxes reduces federal revenues while increasing its spending, since by

[12] The results of a mail-in referendum held in early August 2011 were released on August 26th.The HST was rejected by a margin of 55% to 45%. .As a consequence, a combined PST+GST should again be in place in April 2013.
See http://www.theglobeandmail.com/news/national/british-columbia/gary_mason/hst-defeat-brings-back-harder-edge-of-bcs-protest-politics/article2144389/ and http://www.fin.gov.bc.ca/pst-return.htm

[13] See Bird and Gendron (2010) for more on this

[14] Succession duties (inheritance taxes) were also included in these arrangements. The disappearance of death taxes as a result of inter-provincial tax competition in Canada following their abolition at the federal level is discussed in Bird (1978).

convention[15] the federal government pays such taxes. Also of interest is that Québec's VAT (QST) is levied on the sales price + the federal GST; thus a change in the GST rate directly affects QST revenues.

Table 1: Personal Income Tax (PIT) Revenues in Canada selected years 1947-2000

	Total PIT ($millions)	Federal % of PIT	% Federal in Québec	% Federal R.O.C. [b]	PIT as % GDP	% PIT ceded-ROC	% PIT ceded - Québec
1947[a]	660	100.0%	100.0%	100.0%	5.4%	5	5
1952	1,225	100.0%	100.0%	100.0%	5.5%	5	5
1954	1,309	98.1%	n/a	100.0%	5.6%	10	10
1957	1,676	97.6%	n/a	100.%	5.6%	10	10
1962	2,378	84.9%	83.5%	87.0%	6.2%	13	13
1967	5,112	71.4%	55.9%	75.8%	7.3%	28	52
1972	11,385	69.3%	50.7%	75.8%	10.3%	30	54
1977	23,656	60.4%	40.6%	69.0%	10.7%	39	55
1982	43,932	58.6%	38.1%	66.8%	11.6%	39	55
1987	70,333	59.3%	41.4%	66.0%	12.6%	39	55
1992	101,226	58.7%	43.0%	64.1%	14.5%	39	55
1997	120,956	60.6%	47.8%	64.5%	13.8%	39	55
2000	143,514	62.4%	48.4%	65.4%	13.6%	39	55

SOURCE: Bird and Vaillancourt, 2006.
Notes: a. Figures for year ending December 31.; b . ROC is Rest of Canada without Québec

Finally, one aspect of tax base sharing appears unique to Canada. The provinces operate provincial or regional (five in total) lotteries. The lotteries pay an annual amount to the federal government in exchange for it agreeing not to operate a national lottery; provincial lotteries were initiated in 1970 in Québec while Lotto-Canada existed from 1976 to 1979.

Spain

Spanish ACs operate under two tax regimes; the foral regime for the Navarra and Basque ACs and the common regime for the other fifteen ACs. Our discussion is focused on the common system. ACs do not levy a VAT or a CIT. ACs have access to 50% of the PIT base. Until 2010, they could set their own rate or by doing nothing see the central government rate used; since 2011 they must set a rate. They also have rate setting powers with respect to death and gift and gambling taxes (base setting also).

Switzerland

Swiss cantons levy their own PIT and CIT along with other taxes while the VAT is a federal tax. They collect the federal PIT and CIT. Gilardi et al (2010) note that the only limitation to cantonal tax autonomy is a provision in the federal constitution stipulating that the tax burden on the taxpayer should be commensurate with his or her economic capacity. This, along with a 2006 federal court decision prohibiting a

[15] Article 125 of the Constitution states that: *No Lands or Property belonging to Canada or any Province shall be liable to Taxation.* The federal government pays the equivalent of property taxes through Payments in Lieu of Taxes (PILT) http://www.tpsgc-pwgsc.gc.ca/biens-property/peri-pilt/index-eng.html

regressive personal income tax schedule put forward by the canton of Obwalden, precludes a declining tax rate schedule. Also, pursuant to article 129 of the Constitution, federal legislation that took effect in 1993 aimed at harmonizing the cantonal PITs, the cantons were given a transitory period of eight years to adapt their tax laws to the new standard set out in the federal law. A significant amount of tax harmonization was achieved at the end of 2000.[16].This harmonization means cantons must levy some taxes (article 2 of federal law: income and wealth taxes on individuals, profits and capital taxes on corporations); but since rates are not bound by a minimum, this is a weak constraint. Both the confederation and the cantons use a common tax base and a common list of tax exemptions/ deductions; however, the amount of each deduction/exemption is set independently by the confederation and each canton. There is no requirement for a harmonization of rates.

United States

American states can levy their own PIT and CIT as does the federal government; they also levy RST (VAT is not used) while the federal government does not levy a goods and services tax. They also levy various excises and payroll taxes. States collect their own taxes. There has never been federal collection of state taxes in the USA; for the PITs this was offered from 1972[17] to 1990[18] (see Stolz and Purdy, 1977) for a discussion of this proposal). The first state PIT and CIT were levied in 1911 in Wisconsin (Cordes and Juffras, 2012; Brunori, 2012).

3.3 An evaluation

One can distinguish here between the old (Canada, Switzerland, USA) and new (Belgium, Spain) federations. In the old federations, the distribution of tax powers does not respect the principles outlined above. In particular, the taxation of corporate income at the subnational level is not a recommended outcome. Attempts are made to mitigate this by using allocation formulas to attribute national profits between subnational tax units. In the new federations, the powers of the subnational governments appear more in line with the principles outlined above but a bit weak; the recent reform in Spain requiring ACs to set their own tax rates for PIT are a welcome step. There is no reason why progressivity must follow a national norm.

4. TAX RATES

4.1 Principles

From the viewpoint of subnational fiscal sovereignty, the capacity to set rates is clearly the most important power to have. The choice of rates is what allows subnational governments to choose at least at the margin the level of public services. This power rather than the one to set tax bases minimizes the compliance costs associated with collecting the required revenues since too much subnational latitude in

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[16] Loi fédérale sur l'harmonisation des impôts directs des cantons et des communes (federal law on the harmonisation of cantonal and communal direct taxes) http://www.admin.ch/ch/f/rs/642_14/index.html#id-8

[17] This is a provision of the 1972 General Revenue Sharing Bill, modified by the 1976 Tax Reform Act (IRC 6361-6362).

[18] See http://www.fourmilab.ch/ustax/www/t26-F-64-E-6361-6365.html for repeal details.

the choice of tax bases and in tax administration can create complexity and administrative and compliance burdens.
In this part of the paper, we focus on the personal income tax since it is in our opinion, the best tax for subnational constituent units given the mobility of tax bases and the type of services they provide.

4.2 The practice for the PIT

Belgium
The personal income tax is federal, but a positive or negative piggy-back tax can be used by the Regions. The Flemish Region is the only one to have used that possibility, through a lump-sum reduction of €125, introduced in 2006 for the tax year of 2008 (2007 income) for taxpayers with market incomes above €5,500 and below €21,000. If this income was above €21,000 and below €22,500, then this non-refundable credit was reduced by 10 cents for each additional euro, and thus tapered off at €22,250.[19]

This lump-sum amount increased over time reaching a maximum of €300 for 2009. For 2010 incomes (2011 tax collection), it was reduced to €125 for incomes between €5,500 and €17,250 with a 10% reduction applying to incomes above €17,250 and thus tapering off at €18,500[20]. It has been abolished for income year 2011[21]. Two reasons appear to have motivated this: the need to reach budget equilibrium and the objection by the European Commission in October 2010 that such a reduction was discriminatory against non-resident workers. Rather than fight this, the lump-sum reduction was abolished[22].

There are also regional investment incentives[23]:

- The Win-Win loan from an individual to a Small or Medium Enterprise with both located in Flanders. The maximum loan is €50,000 for a maximum term of eight years; 2.5% of the loan (maximum €1,250) can be claimed as a credit against tax payable each year;
- Investments in the Caisse d'investisssement de Wallonie with an annual reduction in PIT of 3.10% of the amount of bonds purchased with a maximum purchase of €2,500 (5x500);
- Loans between individuals for housing renovations up to €25,000 in Flanders with a 2.5% annual tax credit and a maximum loan period of 30 years.

So, overall, Belgian regions make little use of their limited tax rate setting powers. On October 11th 2011 an agreement has been reached by the various political parties on the sixth institutional reform but it has yet to be adopted by the Parliament.[24] One chapter of the agreement is dedicated to the increase in tax autonomy for the Regions. The most important federal grant to the Regions is withdrawn while the federal income tax is reduced by an equivalent amount, leaving tax room (about 25% of the base) for the Regions that they will need to use to maintain revenues through a piggy-

[19] Moniteur Belge 26 09 2006 p 50043
[20] http://fiscus.fgov.be/interfaoiffr/Sleutelformule/fc2010-0636.pdf
[21] http://fiscus.fgov.be/interfafznl/fr/downloads/fc2010-0542-1.pdf
[22] http://ec.europa.eu/taxation_customs/resources/documents/common/infringements/factsheet/2010/10/2010-10-1403-be-tax-personal_regio_fr.pdf
[23] http://docufin.fgov.be/intersalgfr/thema/publicaties/memento/pdf/MF2011_V01_partie1.pdf
[24] http://www.lachambre.be/kvvcr/pdf_sections/home/FRtexte%20dirrupo.pdf

back tax. Regions may differentiate tax rates across tax brackets, but their autonomy is limited in order to prevent tax competition. The progressivity of the federal income tax may not be reduced by the regional piggy-back tax except if the value of the reduction in progressivity does not exceed 1000 euro per year and per taxpayer.

Canada

Canadian provinces make full use of their tax rate setting powers. We will illustrate this in some detail for the PIT. We do this for the post-2000 period since the federal government modified the PIT rules in 1999. Starting in 2000, provinces were required to set their own tax brackets and tax rates, moving from a “tax on tax” system where they levied surcharges using the federal brackets and rates to a tax on income system [25]. We first examine the Canadian situation in 2008 (Guimond and Vaillancourt, 2010).

One can characterize a PIT system by either its formal or statutory attributes, or by its outcomes. The formal attributes are the number of steps in the tax schedule, the boundaries of such steps and the tax rates associated with each step. One outcome is the income tax payable at a given income level. We present information on both statutory aspects and outcomes of provincial PITs in Canada for 2008 in Table 2. We present information first for the nine provinces that use the Canada Revenue Agency to collect their PIT including the relevant mean, standard deviation and coefficient of variation. Information on Québec and the federal government follows for comparison purposes.

Table 2 shows that:

1. eight of the nine ROC provinces use from three to five brackets for PIT in 2008. Alberta has only one;
2. the minimum income for the first step up (2^{nd} bracket) varies from \$29,591 to \$39,136. No province uses the federal step up value, with all except Saskatchewan below it;
3. the coefficient of variation (CV) for the first step up is smaller than the other two CVs. The province with the step up values closest to those of the federal government is surprisingly Québec;
4. the rate for the lowest bracket varies from 6.05 to 11%; this last rate for Saskatchewan is very close to that of its neighbouring province Alberta which uses a flat rate of 10%;
5. progressivity varies from province to province. Saskatchewan has the lowest progressivity of non-flat tax provinces and BC the highest;
6. the variation (CV) in the tax burden goes down as income goes up (from 0.10 to 0.06), indicating perhaps greater concern for tax competition and tax induced mobility as income goes up;

[25] Sometimes Referred To As Tax On Income Or Toni

7. effective progressivity measured by the ratio of the PIT for an income of $200,000 / PIT for an income of $5,000 does not vary much, being highest in the two distinct (non tax) societies of Québec (language) and BC (climate)[26];
8. for high income individuals, the highest tax burden is found in Québec and the lowest in Alberta; while for low income individuals, Manitoba has the highest and Alberta the lowest tax burden.

Table 2: Rates per bracket, progressivity of rates, income threshold for the 2nd and last bracket, and effective tax burden as % of income, provincial PITs, Canada, 2008

2008-Marginal tax rate (%) rate per bracket	First bracket	Second	Third	Fourth	Progressiv-ity highest/ lowest rate	Income threshold for 2nd bracket	Income threshold for top bracket	PIT for 25000$ income	PIT for 200000$ income/ PIT for 25000$ income	PIT for 200000$ income/ mean PIT for this income
Newfoundland	8.2	13.3	16	n.a.	1.95	30216	60430	3242	23.0	101.7%
Prince Edward Island	9.8	13.8	16.7	n.a.	1.70	31985	63970	3483	22.3	109.3%
Nova Scotia	8.79	14.95	16.67	17.5	1.99	29591	93001	3322	23.5	104.2%
New Brunswick	10.12	15.48	16.8	17.95	1.77	34837	113274	3464	22.3	108.7%
Ontario	6.05	9.15	11.16	n.a.	1.84	36021	72042	3132	23.7	98.2%
Manitoba	10.9	12.75	17.4	n.a.	1.60	30545	66001	3622	21.2	113.6%
Saskatchewan	11	13	15	n.a.	1.36	39136	111815	3097	23.2	97.1%
Alberta	10	10	10	10	1.00	flat	flat	2670	24.2	83.8%
British Columbia*	5.06	7.7	10.5	12.29	2.9*	35017	97637	2659	25.9	83.4%
Statistics for nine provinces										
Mean	8.88	12.24	14.47	14.44	1.79	33419	95561	3188	23.1	-
Standard deviation	2.10	2.68	3.02	3.92	0.52	3365	16582	341.3	1.3	-
CV	0.237	0.219	0.209	0.271	0.289	0.101	0.174	0.107	0.6	-
Québec	16	20	24	n.a.	1.50	37501	75 001	3174	25.2	-
Federal	15	22	26	29	1.96	37886	123185	1935	24.1	-

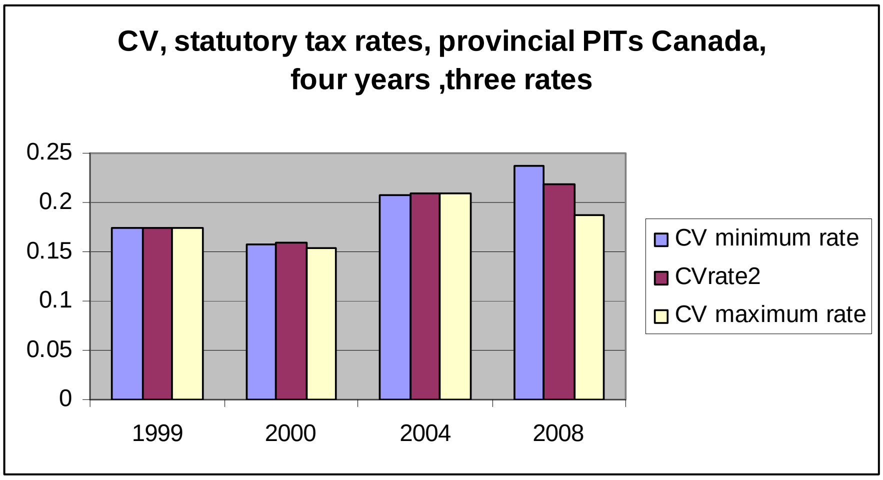
SOURCE FOR TABLE 3: Guimond and Vaillancourt, 2010 CV Coefficient of variation =standard deviation/mean.
Note: * the rate for the fifth bracket in British Columbia is 14.7%; n.a not applicable as no bracket and thus no such rate

How one reached the situation of 2008 can also be of some interest.

Figures 2 and 3 present the evolution over four years of the statutory tax rates and effective tax burdens for Canada. Both figures show higher CVs in 2008 than in 1999. Thus it appears that tax rate setting freedom allowed provinces to express their differing preferences for various degrees of progressivity more clearly as the time period over which this freedom was available lengthened.

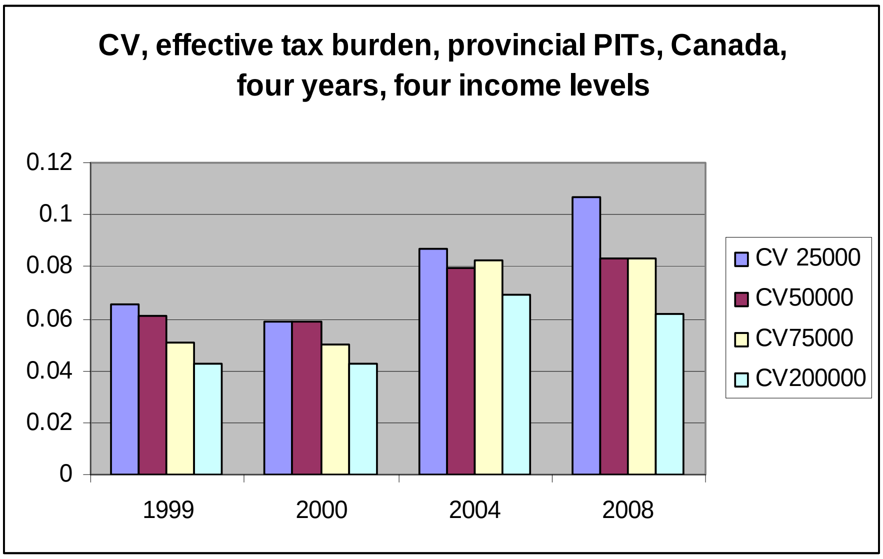
[26] Tax wise Alberta with no provincial goods and services tax and a flat provincial PIT is the most distinct province

Figure 2



SOURCE: Guimond and Vaillancourt, 2010 Chart 2. The CVs are for the minimum, the second and the highest statutory rate.

Figure 3



SOURCE: Guimond and Vaillancourt, 2010, Chart 3. The CVs are for incomes of $25,000, 50,000, 75,000 and 200,000.

Spain

The ACs have been able to offer various tax credits and to modify their tax rate on their share of the PIT since the 1990s. However, the tax rates established by the ACs must follow the same progressivity pattern as those of the central government and they must use the same number of brackets. But establishing a surcharge can circumvent this. Also, they may only establish tax credits in certain areas or for certain items: family and personal situation of tax payers, non-entrepreneurial investments and donations or gifts (Ruiz Almendral and Vaillancourt, 2006).

For 2011, four ACs (Andalusia, Asturias, Catalonia, and Extremadura) implemented PIT rates different and higher than the central ones. For example, in Catalonia, the community tax rate will increase to 23.5% for income between €120,000 and €175,000 and to 25.5% for income over €175,000. Andalucía has raised its community tax rate to 22.5% for income between €80,000 and €100,000 and to 23.5% for income between €100,000 and €120,000[27].

Ruiz Almendral and Vaillancourt (2006) presents the use of various tax credits by the ACs in 2005. We summarize it in Table 3.

Table 3 Main tax credits, Spanish autonomous communities, 2005

AC	Child related	Age related	Disability	Housing purchase	Entrepreneurial start-up	University attendance
Andalusia	√ BB	√	√	√	√	
Aragon	√BB					
Asturias		√		√	√	
Balearic	√CC	√	√			√
Canarias						√
Cantabria	√					
Castilla la Mancha						
Castilla leon	√ AR+BB +CC		√ 65+			
Catalonia	√ BB			√		√
Extramadura				√		
Galicia	√ AR+ BB					
Madrid	√ BB	√	√			
Murcia	√ CC			√		
La Rioja	√ BB			√		
Valencia	√ AR+BB		√ 65+	√		

Notes: AR: Annual reduction; BB: baby bonus; CC: Child care expenses

Source : Ruiz Almendral and Vaillancourt (2006) table 6

Switzerland

Swiss cantons have full autonomy in setting their tax rates. Table 4, derived from Gilardi et al (2010), shows the result of this for the PIT for two income levels. As the table illustrates, effective marginal tax rates vary substantially within each income level. For married individuals with an income of 50,000 CHF, tax rates range between 1% and 4%. Results not shown here indicate a tighter range at the 25,000 income level (0-2.1%) The tax rates vary more widely for higher income levels too. For individuals with annual incomes of CHF 200,000, the tax rate was slightly more than 4% in

27 https://outlook.umontreal.ca/exchweb/bin/redir.asp?URL=http://www.fitchratings.es/adjuntos/382_fitch_-_spanish_autonomous_communities_-_2011_draft _budgets.pdf
https://outlook.umontreal.ca/exchweb/bin/redir.asp?URL=http://www.euroweeklynews.com/money/ask-the-expert/tax-hikes-for-wealthy-in-spains-2011-budget.html

Schwyz, Zug, and Obwalden, but the rate was more than 12% in Glarus, Geneva, and Neuchâtel.[28] One should note that this neglects communal taxation of income.

Cantons also differ greatly in the progressivity levels of their tax rates, that is in the differences between tax rates for different income categories. The last column of Table 4 displays the ratio of the tax rates for annual incomes of CHF 200,000 and CHF 50,000, again from Gilardi et al (2010). On average, the tax rate for an annual income of CHF 200,000 is 3.43 times higher than the tax rate for an annual income of CHF 50,000. Basle-Country, Ticino and Geneva have the most progressive tax systems with a ratio above 6. Obwalden is the canton with the lowest progressivity with a ratio of just 1.68.

Table 4 Cantonal effective marginal PIT rates for a married childless individual, two income levels (CHF), Switzerland, 2007

Canton	50 000	200 000	Ratio of two rates
Zurich	1.93	5.74	2.97
Berne	3.78	11.15	2.95
Lucerne	2.70	6.70	2.48
Uri	2.64	11.34	4.29
Schwyz	1.81	4.24	2.35
Obwalden	2.57	4.31	1.68
Nidwalden	1.90	5.41	2.84
Glarus	5.34	12.46	2.34
Zug	1.20	4.30	3.58
Fribourg	3.74	9.48	2.54
Solothurn	2.67	7.71	2.89
Basle-City	3.21	8.94	2.78
Basle-Country	1.58	9.51	6.01
Schaffhouse	2.84	7.16	2.52
Appenzell Outer-Rhodes	2.76	6.28	2.28
Appenzell Inner-Rhodes	2.11	5.32	2.52
St. Gall	2.23	7.01	3.15
Grisons	2.12	7.64	3.60
Aargau	1.81	7.25	4.00
Thurgau	1.68	6.62	3.93
Ticino	1.23	7.83	6.35
Vaud	2.97	11.21	3.78
Valais	2.91	7.54	2.59
Neuchâtel	3.66	13.33	3.64
Geneva	1.61	13.17	8.17
Jura	3.71	10.71	2.88
Mean	2.577	8.17	3.43

SOURCE: Gilardi et al. (2010)

[28] Wealthy foreigners with residency but no occupation in Switzerland can apply for lump-sum taxation, which is typically very advantageous and also varies between cantons. In February 2009, the electorate of the canton of Zurich abandoned this tax practice in a referendum. Other cantons might follow.

How stable are these tax rates or put differently is there a race to the bottom? Gilardi et al (2010) find that:

- For low incomes there has been convergence towards a lower taxation level, or, in other words, a race to the bottom.
- For high incomes the majority of cantons decreased tax rates but a significant number of cantons increased tax rates since 1990. Hence, convergence towards a lower level of taxation did not occur.

United States

American states decide to levy or not a PIT and if they do, set the steps, rates, credits and so forth. We present evidence on their choices in Table 5. One should note:

1. The use by 43 states of a PIT with 41 levying it on a broad base and two(New Hampshire and Tennessee) only on interest and dividend income (Cordes and Juffras, 2012);
2. The non-use by seven American states (Alaska, Florida, Nevada, South Dakota, Texas, Washington, and Wyoming) of the PIT;
3. The wide use by the 41 broad base states of federal AGI (Cordes and Juffras, 2012); only five start off using their own definition of income. This last point is noteworthy, given as noted above that there has never been federal collection of state PITs in the USA;
4. The use by seven states of a flat tax rate on a broad income base;
5. The variation in the number of brackets from 1 to 10 and in the bracket.
6. The variability in tax rates - either minimum or maximum, with a CV of 0.64 and 0.63.

Cordes and Juffras (2012) report that as a consequence of the Great Recession, some states increased their income tax rates or broadened their base, but some also increased the threshold above which the highest rate applies.

4.3 An assessment

One sees a large variation in the use of subnational tax powers:

- Regions of Belgium use very little of the freedom they have. One wonders if the European Commission request was a sensible one or not;
- ACs of Spain use their powers more and more over an increasing share of the PIT; this increase may make this use more interesting;
- provinces, cantons and states fully use their tax rate setting powers in Canada, Switzerland and the USA. There is little evidence of a race to the bottom result.

There is little evidence that restricting subnational governments to using national progressivity is appropriate.

Table 5: # of brackets, first and highest statutory tax rates and threshold income to highest rate, American states PIT, 2008

State	No. of Brackets	First tax rate (%)	Highest tax rate (%)	Threshold income to highest rate
Alabama	3	2.00	5.00	$3,000
Alaska	n.a.	no PIT		n.a.
Arizona	5	2.59	4.54	$150,000
Arkansas	6	1.00	7.00	$30,000
California	7	1.00	10.30	$1,000,000
Colorado	1	4.63		n.a.
Connecticut	2	3.00	5.00	$10,000
Delaware	7	2.20	5.95	$60,000
Florida	n.a.	no PIT		n.a.
Georgia	6	1.00	6.00	$7,000
Hawaii	9	1.40	8.25	$48,000
Idaho	8	1.60	7.80	$23,963
Illinois	1	3.00		n.a.
Indiana	1	3.40		n.a.
Iowa	9	0.36	8.98	$60,435
Kansas	3	3.50	6.45	$30,000
Kentucky	6	2.00	6.00	$75,000
Louisiana	3	2.00	6.00	$50,000
Maine	4	2.00	8.50	$18,950
Maryland	7	2.00	5.75	$200,000
Massachusetts	1	5.30		n.a.
Michigan	1	4.35		n.a.
Minnesota	3	5.35	7.85	$69,990
Mississippi	3	3.00	5.00	$10,000
Missouri	10	1.50	6.00	$9,000
Montana	7	1.00	6.90	$14,899
Nebraska	4	2.56	6.84	$27,000
Nevada	n.a.	no PIT		n.a.
New Hampshire	1	5.00		n.a.
New Jersey	6	1.40	8.97	$500,000
New Mexico	4	1.70	4.90	$16,000
New York	5	4.00	6.85	$20,000
North Carolina	4	6.00	7.75	$120,000
North Dakota	5	2.10	5.54	$349,700
Ohio	9	0.649	6.555	$200,000
Oklahoma	7	0.50	5.50	$8,700
Oregon	3	5.00	9.00	$7,150
Pennsylvania	1	3.07		n.a.
Rhode Island	5	3.75	9.90	$349,700
South Carolina	6	0.00	7.00	$13,150
South Dakota	n.a.	no PIT		n.a.
Tennessee	1	6.00		n.a.
Texas	n.a.	no PIT		n.a.
Utah	1	5.00		n.a.
Vermont	5	3.60	9.50	$349,700
Virginia	4	2.00	5.75	$17,000
Washington	n.a.	no PIT		n.a.
West Virginia	5	3.00	6.50	$60,000
Wisconsin	4	4.60	6.75	$142,650
Wyoming	n.a.	no PIT		n.a.
D.C.	3	4.00	8.50	$40,000
Federal	6	10.00	35.00	$178,850
Average (%) 50 states	4.93	2.96	7.72	118606.58
Std Dev 50 states	2.28	1.90	4.85	190956.94

SOURCE: Tables 5 and 6, Guimond and Vaillancourt, 2010

5. TAX COLLECTION

5.1 The principles

The following factors play or should play a role in determining what level of government collects a given tax:

1. What government originated the tax? In general the level that originated the tax will collect it and even if it is later shared with other levels they may still collect it;
2. What is the degree of trust in financial matters between levels of governments? Can one level of government be trusted to remit amounts collected on behalf of another? This type of issue is particularly relevant in a single treasury system as in France;
3. What are the administrative costs of one or another arrangement? Are there economies of scale or scope with information cross-checking increasing revenues and reducing tax evasion?
4. What are the compliance costs associated with various administrative arrangements?

Overall, one wants a set of arrangements that minimizes administrative and compliance costs for an agreed to level of autonomy.

5.2 The practice

Belgium

Most taxes are collected free of charge by the central government with little debate on this point.

Canada

The PIT is collected free of charge by the federal government for nine provinces; Québec collects its own PIT. Over time collection arrangements have evolved to give more freedom to provinces in expressing their tax preferences. Québec which replaces $ for $ federal transfers by more tax room has a more child friendly PIT than ROC.

The CIT is collected free of charge by the federal government for eight provinces; Alberta and Québec collect their own.

The collection arrangements for the general tax on goods and services are:

- A Harmonized Sales Tax composed of the federal GST and a provincial equivalent with a provincially set rate is collected free of charge by the federal government in five provinces: British Columbia, Ontario, New Brunswick, Nova Scotia and Newfoundland;
- The federal GST and the provincial QST are collected by the Québec government with a payment of collection costs by the federal government;
- A provincial sales tax is collected by the province in Prince Edward Island, Manitoba and Saskatchewan.

All other provincial taxes (excises...) are collected provincially.

Spain

All major taxes are collected by the central government with when relevant no costs to autonomous communities.

Switzerland

All cantonal taxes are collected by the cantonal governments who also act as tax collectors for the central government for direct taxes (article 128 of the Constitution); they do not collect the VAT or other consumption taxes. Communes are responsible for collecting their own taxes but can pay cantons to do this for them.

United States

States collect their own taxes as does the federal government; there are no collection agreements or arrangements between levels of government.

5.3 An assessment

Arrangements range from central control to full autonomy with various forms of cooperation in between. There does not appear to have been studies of the optimal arrangements. We would argue that an independent agency jointly owned/managed by both levels of government would probably be the best combination of autonomy and low administrative and compliance costs.

6. CONCLUSION

We have shown above a fair amount of diversity in tax arrangements across five federations: two new ones and three old ones.

Tax arrangements were shown to be determined by a mix of constitutional conventions, legal decisions and political bargaining. Older federations showed a larger role of legal decisions in the allocation of tax bases than younger ones. These older federations also have a misallocation of capital taxation at the sub national level, reflecting the lower mobility of this factor at the inception of these federations.

Adapting constitutions to modern capital movements can be difficult as the recent ruling of the Supreme Court of Canada confirming the provincial jurisdiction over Securities and Exchange Commissions shows[29].

A recent(2000+) change in federal financial arrangements has been the greater role subnational governments in the taxation of personal income, the tax base most closely related to the public outputs they produce .This is the case in Belgium (2011), Canada(2000) and Spain (2010) as well as Scotland(2012) .While constituent units may prefer to spend the taxes levied by others and received by them as transfers , requiring them to be exercise more responsibility in setting rates and thus tax burdens increases their accountability to their electorate.

Finally it appears that diversity in the tax behaviour of constituent units even as extreme as that found in the USA does not appear to cause harm to federal states. Thus some diversity in the tax behaviour in major tax fields such as the personal income tax could be appropriate for Australian states.

[29] See REFERENCE RE *SECURITIES ACT*, 2011 SCC 66
http://scc.lexum.org/en/2011/2011scc66/2011scc66.html

APPENDIX - BASIC COMPARISON OF SIX FEDERAL STATES, 2008

	Australia	Belgium	Canada	Spain	Switzerland	USA
Population	21 015 690	10 516 660	33 316 000	44 310 870	7 583 861	304 228 300
Land mass	7 692 024	30 528	9 984 670	505 992	41 277	9 629 091
Density	2.73	344.49	3.34	87.57	183.73	31.59
GDP US$ PPP	831 247 090 050	377 861 664 400	1 300 243 994 930	1 434 159 454 650	329 853 279 130	14 369 400 000 000
GDP $ per capita PPP	39 553,64	35 929,82	39 027,61	32365,86	43494,11	47232,29
Largest SNG population	6 984 172 (New South Wales)	6 161 600 (Flanders)	12 936 296 (Ontario)	8 046 131 (Andalucia)	1 295 800 (Zurich)	36 756 666 (California)
Smallest SNG population	219 818 (Northern Territory)	1 048 491 (Brussels-Capital)	139 451 (Prince Edward Island)	311 773 (Rioja)	15 400 (Appenzel Rhodes-Intérior)	532 668 (Wyoming)
Population L/S	31.77	5.88	92.77	25.81	84.14	69.00
Highest SNG GDP pc*	48 724.35 (Northern Territory)	66 154.27[30] (Brussels-Capital)	65 819.43 (Alberta)	40937.53[1] (Madrid)	66 089.74 (Basel-City)	70 814.99 (Delaware)
Smallest SNG GDP pc*	30 179.53 (Tasmania)	24 864.21[1] (Wallonia)	26 945.06 (Prince Edward Island)	21 682.29[1] (Extremadura)	21 844.68 (Jura)	31 233.05 (Mississippi)
GDP L/S	1.61	2.66[1]	2.44	1.89[1]	3.03	2.27
% transfers to SNGs in central G budget	25.98	34.95	18.72	24.51	10.91	15.80[1]
% transfers from central in SNGs budget	45.89	69.30	14.10	29.57	10.21	26.76
% highest transfers in SNGs budget	78.0 (Northern Territory)	65 Wallonia(2006)	28.8 (Prince Edward Island)	49.9 (Galicia)	58.6 (Uri)	47.69 (Louisiana)
% lowest transfers in SNGs budget	40.9 (Australian Capital Territory)	47 Brussels(2006)	7.7 (Alberta)	-0.59 (Balearic Islands)	17.8 (Geneva	18.19 (Delaware)
Structure of SNG	6 States and 2 Territories	3 Regions % 3 linguistic communities	10 Provinces and 3 territories	17 Autonomous Communities (2 foral) and 2 autonomous cities	26 Cantons	50 States and 1 Federal District

Note: GDP per canton not available for Switzerland; personal income is used instead
Excluded from largest/smallest GDP and lowest/highest transfers: Canada: 3 territories; USA: District of Columbia; Spain: 2 autonomous cities, Community of Navarre and Basque Country.

SOURCES: OECD, Australian Bureau of Statistics, National Bank of Belgium, Department of Finance of Canada, Statistics Canada, Secretaría General de Presupuestos y Gastos de España, Secretaría de Estado de Hacienda y Presupuestos de España, Federal Department of Finance of Swiss, Federal Finance Administration of Swiss, US Census Bureau and Verdonck (2010)

[30] 2007 data

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