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Solidarity and the design of equalization: setting out the issues

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Abstract
Inter-jurisdictional differences originate in choices or situation disparities. Equalization refers to the latter only. Recent policies separate disparities of revenue potential from expenditure needs in various formula-based vertical or/and horizontal financial transfers. Whereas the RTS method (for "Representative Tax System) is

hoc systems, generalization and policy guidance are difficult.[3]

This paper is divided into four sections. Section one explores the rationale of fiscal equalization: what are the possible origins of fiscal differences in the relevant literature? Section two presents in graphical form revenue equalization in addressing four fundamental questions: the measurement of the revenue differentials, equalization formulas, how much equalization, and possible further adjustments. Section three turns to equalization schemes that incorporate expenditure needs/costs differentials: how to determine "standardized" expenditures; to measure disparities in needs or in costs? It also looks at the available methods for estimating expenditure needs/costs disparities. Section four concludes.

1 THE RATIONALE FOR EQUALIZATION

Most federal and decentralized States have experienced fiscal imbalance, vertical and horizontal, and have found the necessity to correct both over time. In a decentralized budget, vertical imbalance results from the fact that in most cases, major buoyant taxes are held by the federal government, while labour intensive functions, such as health, education and social services have usually been assigned to SNGs for reasons

overall envelope of expenditures, perceptions of what may be a need can easily escalate to completely unaffordable expenditure levels.

In a first attempt to delineate what should or should not be included in equalization, Box 1 reviews the possible origins of fiscal differences in the relevant literature. The logic behind this classification into five categories is twofold:
(i) Those items that are within the scope of decision and the fiscal management of SNGs should not be taken into consideration for equalization. They belong to the sphere of local autonomy and responsibility. [4]
(ii) "External" items that are outside their scope of decision should be compensated, at least partly, if they result in a significant spread in the relative fiscal position of SNG units. Generally speaking, involuntary or non-chosen differences are referred to as fiscal disparities.

Category A concerns resource equalization: taxable resources depend strongly on the geographic position of government units in the national territory (periphery or proximity of urban areas and economic centers), on the kind of economic activities or clusters, and on communication networks. Within an open market economy, SNGs cannot influence these characteristics, thus they must be treated as exogenous variables.[5]

Category B refers to the provision of local public goods and services at standard levels that are fixed by higher government tiers – the mandated functions. It raises the issue of correspondence between decision makers, beneficiaries and payers (Oates, 1972: 34): with the motto "he who decides should also pay", cost differentials are paid by the government layer that determines the standards. When this is not the case, the issue of needs equalization comes to the heart of the political agenda.

Category C deserves careful consideration of the possible origin of expenditure needs/ costs disparities. Cost disparities in input factors very often fall outside the SNGs' decision-making competence and should thus be taken into consideration for equalization. Considering needs disparities is more delicate because it may be problematic to link needs directly to the sheer increase in the volume of production or the number of beneficiaries.

[4] This is also the position of the Expert Panel on the reform of Equalization in Canada: "Expenditure needs should only take into account differences that are not under the control of governments". However, the Expert Panel concluded that "this is very hard to establish with precision and can vary from province to province", one of the arguments that led them to abstain from considering expenditure needs (Vaillancourt, 2007: 48).

[5] In the long term, one can argue that SNGs can increase their attractiveness for activities and newcomers through targeted fiscal operations. One could consider that a marketing of this sort is a choice variable in SNGs' hands and therefore falls outside equalization. However, if on the expenditure side local attractiveness depends on the SNGs' ability to provide specific services, on the tax side, this raises the controversial question of tax competition. Whereas the decision to reduce local taxation lies in local hands, the final result depends in fact on the relative position of each SNG compared to its rivals – a situation that is outside the control of a single local jurisdiction. The relation between equalization and tax competition is presently a disputed issue.

Box 1 Sources of fiscal disparities

A. Differences in the access to resources (Oakland, 1994). It takes two forms: (i) differences in the income and wealth of community residents, or (ii) differences in communal property and/or natural resource endowment.

Also: differences in SNGs' taxable resources (Dafflon, 1995); tax bases (Gilbert, 1996); taxable resources per head (King, 1997); economic position and opportunity (Dafflon and Vaillancourt, 2003); territorial distribution of the unequal tax bases (Bird and Vaillancourt, 2007: 260).

B. The amount of mandatory public goods that the SNGs must provide for exogenous reasons (Gilbert, 1996); needs per head (King, 1997).

Also: differences in the number of units of standardized service required per capita owing to demographic reasons: age structure, different participation rates in social programs by persons of different ages (Bird and Vaillancourt, 2007: 265).

Cost differences per unit of mandatory public goods (Dafflon, 1995; King, 1997; Dafflon and Vaillancourt, 2003).

C. Cost differences due to input-output relationship (Break, 1980, cited in Shah, 1996: 102).
Also: (i) differences in input costs, or (ii) the fact that some populations are more costly to serve than others (Oakland, 1994).

(i) Cost differences per unit of standardized public service (due to climatic or geographic features, density or distance factors, or (ii) differences in labour cost across regions (on the basis of real private sector wages) (Bird and Vaillancourt, 2007: 265);

Cost differences due to the natural conditions of service areas and the composition of the population (Break, 1980).

Differences (i) in the quantity and composition of input that is necessary for producing the public service, (ii) in factor or input prices, (iii) in physical characteristics (environmental factors), and (iv) in the socio-demographic composition of the SNGs' residents (Reschovsky, 2007: 402).

Economies of scale in the service provision (Dafflon, 1995; Dafflon and Vaillancourt, 2003).

D. Differences due to specific tastes of residents in the various SNGs or to policy decisions at the local level (Break, 1980);

Local preferences either for optional services or for quantities or quality above the minimum standard level in the provision of mandatory services (Dafflon, 1995; Gilbert, 1996; Dafflon and Vaillancourt, 2003).

E. Differentials attributable to SNGs' with respect to federal transfer payments (Break, 1980);

Local preferences among different forms of taxes and between taxation and user (Inman and Rubinfeld, 1996).

Differences under D and E result from local preferences and hence they need not be compensated by any kind of equalization or transfer payment.

If this rationale for equalization is accepted, the next and immediate question is whether revenue and expenditure needs equalization should be distinct. Equalization policies introduced in the seventies or before usually combined revenue and expenditure disabilities in one measurement formula. Today the trend is for separation. With different evolutions in taxation and decentralized functions, the political economy of equalisation is nowadays faced with four situations: SNG units with high tax potential could also have higher expenditure needs; but also high potential low needs; low potential high needs; and low potential low needs. A unique formula combining tax potential and expenditure needs cannot answer the four situations. The separation of revenue equalization from expenditure needs equalization must be observed.

2 REVENUE EQUALIZATION

Over the last twenty years, revenue equalization has taken such a wide variety of arrangements that organizing a coherent comparison is a challenge. In practice, the level of redistribution achieved depends on the equalization formula, but also on the effects of the ceiling and floor provisions, the generic solution and, more fundamentally, on the definitions of tax bases used to calculate the entitlements (Smart, 2004: 197). In this section, we present a schematized approach to revenue equalization with the help of a graphical tool that allows most of the specific schemes on this topic to be represented and thus easily compared with one another (Dafflon and Vaillancourt, 2003). There are four issues to be addressed, illustrated in Figure 1: measuring the fiscal capacity of SNGs, designing and calculating the equalization formula, funding the equalization policy and determining the target level of equalization. The objective here is to organize the theoretical arguments in order to sequence the fundamentals in a coherent way.

2.1 Measuring fiscal capacity

Measuring the fiscal disparities between SNGs, or setting out a benchmark indicator of their revenue capacities, along the horizontal axis on Figure 1, is the first problem. Measurement is not easily separable from the objective, and the indicator components often directly influence the calculation of the equalization entitlements. The basic concept is thus formulated: "jurisdictions with higher-than-average capacity should receive less (pay more); jurisdictions with lower-than-average capacity should receive

Box 2 Introducing RTS

[1] Selection of the SNGs' taxes which will serve for the calculation of tax capacity.
Which taxes and sometimes other revenue sources shall be taken into consideration? Using several taxes is usual but requires technical adjustments since tax bases from different tax sources cannot be simply added (Gilbert and Guengant, 2001: 65).Too many taxes create complexity, are costly to manage, lack transparency, cause iterative and endless negotiation on the range of taxes to be included in the calculation and the weight attributed to them (Bird and Slack, 1990; Wilson 2007: 350-352).)

[2] Calculation of the per capita yield of each tax, with reference to a standard tax rate (t*).
A "representative" result is obtained with the use of a standard tax rate schedule t* and not the rates applied in individual SNG. With t* and the same adjusted tax base, the calculation takes into account the potential tax resources of each SNG. There is no need to bother about the combination of taxes established at the sub -national level according to specific circumstances or preferences or political bargaining, nor about the question of benefit versus non-benefit taxation.

[3] Decision on the number of years to which the calculation applies.
The annual yield of a single SNG's taxes, even at t*, can be irregular depending on which sources of taxation are considered. Discontinuity in tax capacity indicators results in the variation of the annual amounts received or contributed. This "disturbing" effect brings uncertainty in SNGs' budgeting and planning. Continuity and predictability in the relative position of individual SNGs is essential. A longer period of calculation can smooth annual variations.

[4] For each tax source, calculate the "tax index" (TI) of local government "i" for tax "T".
Compare the results obtained for each SNG to the reference tax yield, normally the average value obtained for all SNGs. This comparison is at the core of the system. It permits the ranking of SNGs above or below average for a particular tax, thus giving the relative position of each government unit. The average tax yield, which corresponds to [average tax base B* × t*, pc], can be given the reference value of 100 points (E in Figure 1).

[5] Calculate the weighted indicator of tax potential (ITP) for each SNG by combining the series.
With several tax sources and as many series of SNGs' tax indices, the arithmetic for combining the series into one is not straightforward. The obvious step is to consider each of them in proportion to the total potential yield. But in practice "tax index" series are sometimes given weights that combine this with criteria such as volatility and risk. For example, the real property tax and the tax on motor vehicles have a reputation of delivering a reliable yield. On the contrary, taxes on mobile factors (such as the corporate profit) involve more risk (delocalization, tax competition, external shock, recession). The alternative view is that those tax yields are returns on investment resulting from SNGs' own efforts to enhance their local attractiveness. This category should weigh less in the average calculation, it is argued, as a reward (or an incentive and a mutual insurance) for SNG policies in a "more risky" environment.[6]

[6] The theoretical relation between risk-sharing arrangements and equalization belongs to the second-ntive a5>Tj/Tn7ave

For Barro (1986) and Boothe (1998), macro type indicators such as GDP per capita, national revenue calculated per government unit and per capita are more adequate methods than RTS and less susceptible to distortion which occurs when SNGs continuously adjust their tax system for competition, redistribution or to attract equalization benefits. The system is simpler and less costly (Wilson, 2007: 339). But for Aubut and Vaillancourt (2001) macro indicators serve an objective of redistribution rather than equalization: instead of equalizing the capacity to provide comparable levels of public services at comparable levels of taxation - to use the Canadian definition - they attempt to level per capita national income in the SNGs. Pros and cons of macro formulas for equalization versus RTS are examined in Wilson (2007). Switzerland is an interesting case in this respect because the 2008 new equalization system abandoned a macro indicator (national revenue per government unit per capita) for a RTS measure for two reasons. (1) Differences in the cantons' indices of financial capacity are too important according to whether the calculation is based on GDP or the national income (per government unit, per capita). Each data series mirrors the openness of the cantons' economies and mobility in a completely different manner.[7] Macro indicators are not sufficiently reliable as most economic parameters are characterized by geographical externalities. (2) The conceptual argument is that the measure of the cantons' capacity should reflect their ability to generate tax revenues only and not the state of their economy in a broader sense. If one considers some recent European experience in revenue equalization (Färber and Otter, 2003) one can find that recent references are almost exclusively to RTS for very similar reasons.

2.2 Equalization formulas

Designing the equalization formula is the second issue. In Figure 1, the line DEG

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ueah dwitheditaribuing c5.4(ghe fburdenlr the nb 7.5(erfn sSof)]TJ-18.48623T1.153 TD.0004

Box 3 Possible revenue equalization formulas

Revenue equalization formulas always integrate the measures of capacity and thus give the extent of solidarity. How much "high capacity" jurisdictions have to contribute and how much "low capacity" jurisdictions can claim is not a question of economic objective only. Policymakers seek to understand the equalizing mechanism in order to be able to choose between a sophisticated but not very readable formula and a simpler and more accessible but perhaps less precise one.

In horizontal equalization, a possible formula for the calculation of equalizing transfers (contributed or received) takes the following form:

$$( ) \quad TC \quad \frac{\left(P \quad [ITP \quad 100]\right)}{\left(P \quad [ITP \quad 100]\right)} \quad M \quad K$$

issue is: does the unit-by-unit initial per capita endowment along line DEG need a correction because it results in too large fiscal disparities? In the affirmative, the second question is how to finance equalization. Several answers are possible, each with pros and cons. Three of them are discussed below.

(1) The amount is financed out of the general resources of the paying unit(s) and established in their annual budget. This is a very flexible solution. Yet it has three main defects: (i) recipient governments are not sure that they will receive a comparable amount (in real value) from one year to another, which renders any medium term planning and policy-making very difficult; (ii) budgetary debates are subject to ad hoc political arrangements, with unstable contours by definition; (iii) the amount of equalization is at the mercy of the "high capacity" government units which will probably attempt to revise downwards their contributions.

(2) The method of calculating the equalization amount is explicitly stated in the constitution or in a law in the form of revenue sharing from at least one but preferably several specific tax sources used at the central level (vertical) or attributed to SNGs (horizontal). The advantages of this solution are: (i) with a specific legal foundation, the political debate on "how much equalization" takes place when the constitution is amended or the law is passed, and not on an annual basis when the budgets are decided; (ii) it avoids important variations in the available amounts if the tax sources are sufficiently diversified and chosen in such a way that macroeconomic cycles are partly alleviated. The drawbacks: (i) revenue sharing from specific taxes might be subject to the fluctuation of the economy, following ups and downs with perhaps pro-cyclical results; (ii) using only one tax source for sharing purposes may result in the government units not collecting it as vigorously as if it was their exclusive source of revenue since collection efforts reward in part other government units through the equalizing transfers.

(3) It is possible to solve these problems by establishing an equalization fund fed by the revenues of several tax sources and anchored in the constitution or the law. The fund serves as the source of yearly equalization payments but also contains a "rainy-day" element. Such a system holds not only the two advantages described above but also a third one: it can smooth equalization payments through leaving in the funds a part of the contributions in good years and tap this reserve in bad ones. This inter-temporal stabilization is the added value of this option.

The three solutions above do not separate vertical and horizontal funding. They have

implemented top-down. Solution (3) is very attractive from the point of view of

public revenues, and if they have no preference for autonomous revenues rather than transfers. In practice, the difficulty is to design an equalization formula that gives sufficient and significant solidarity funding without disincentive for economic or more specifically revenue base growth (Zimmermann, 1999: 168).[8]

3 EXPENDITURE NEEDS EQUALIZATION

Currently, there is a strong debate both in theory and practice about expenditure needs equalization (Färber and Otter, 2003; Kim and Lotz, 2007). The discussion is about (i) its necessity; (ii) the functions to be considered, (iii) the disparities that have to be taken into account: needs, expenditures or costs; (iv) the method for measuring needs, and (v) the consequences of the equalization policy in terms of efficiency, allocative neutrality, incentives, and equity. The distinction between differences in needs, costs, expenditures or need-capacity gap is far from evident and presents a great deal of conceptual and technical difficulties.[9]

This section deals with four selected problems. First, we present a stylized scheme that informs in a coherent manner the four issues parallel to those in revenue equalization. Second, we question whether cost disparities are genuine or result from SNGs' own choices, in which case they should not count for equalization. The third issue develops the argument that expenditure needs equalization should be vertical only. Fourth, we deal with the methods of need assessment.

[8] The common reference to Zimmermann cannot easily serve since it is related to the very specific German case issued from the re-unification. Careful investigation in textbook analysis and case studies shows that the question of disincentive with too high equalization payments is not a core issue. To the best of our knowledge, we could not find substantial evidence on this issue for another country. Thanks to Alan Fenna, Curtin University for raising our attention on this point.

3.1 Four issues in a stylised scheme

Figure 2 presents a stylised expenditure equalization scheme. As with Figure 1, four issues are questioned.

[1] First, which SNGs' functions are considered for equalization? If not all, then the vertical Y-axis would be drawn only for eligible expenditures. As in Figure 1, the monetary measure is in *per capita* terms.

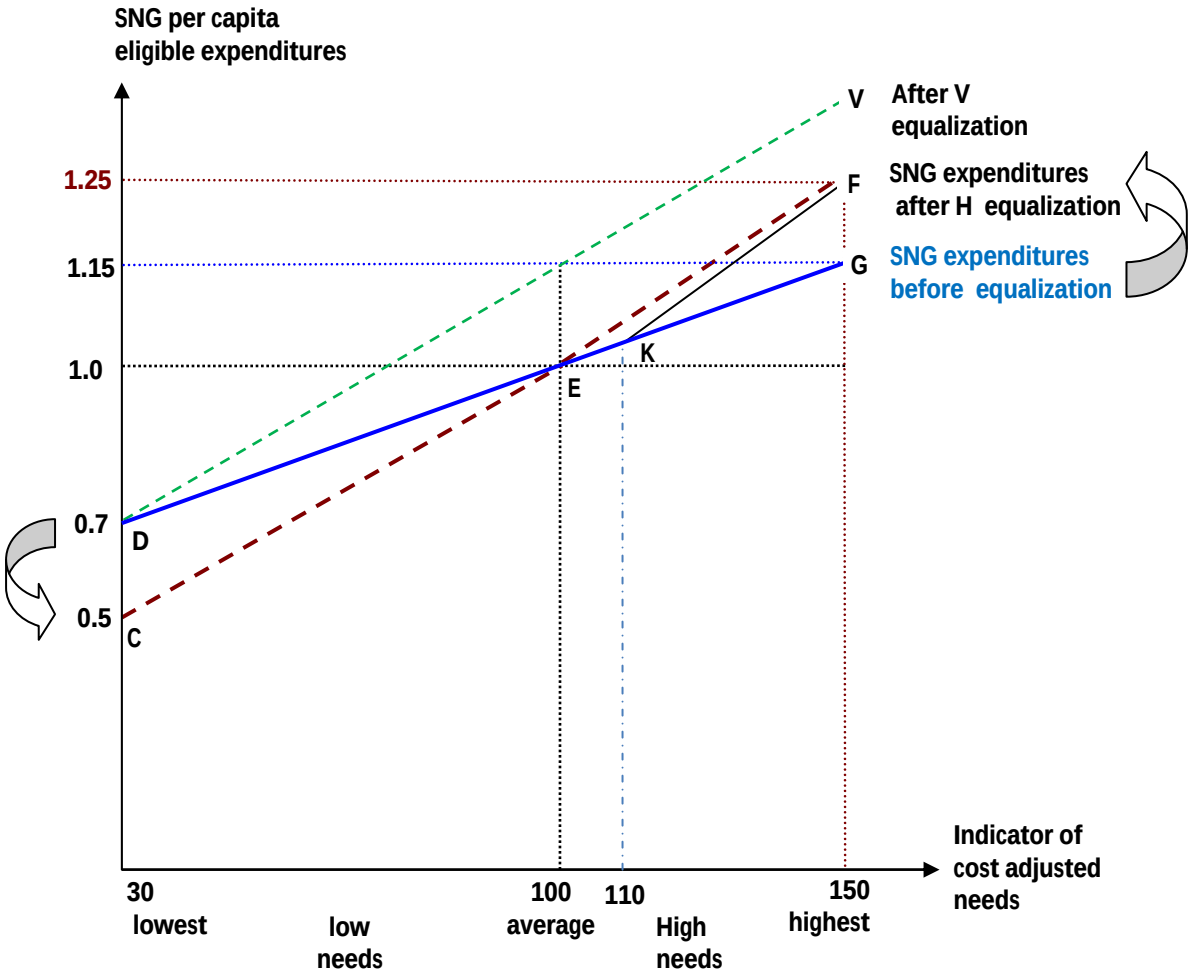
[2] Second, how should we rank SNGs for expenditure equalization? In answering this question recall that average *per capita* expenditure differences in providing a public service reflect two factors: need differences (Box 1, B above) and cost differences (Box 1, C).

Plausible factors related to needs differences are socio-demographic: the share in the total population of various age groups such as infants (post-natal care), elders (health care) and school age children, special needs, either temporary i.e. new immigrants (language skills acquisition, integration into society) or not e.g. aboriginal population. The relevance of many of these indicators depends on the role SNGs play in delivering specific public services and their share of expenditure thereof.

Various factors determine cost differences. Some are natural ones that vary with geography such as climate (snowfall, heavy rain), frequency of natural disasters (floods, earthquakes), topography (mountainous or desertic regions) and distance (remoteness from providers of inputs into public services). Others are demographic such as population density/urbanization. The difficulty is to estimate in monetary units the impact of such factors on costs. For many public services, labour is an important factor of production. Labour costs should be calculated using private sector wages for equivalent inputs and not on the basis of public sector wages which may reflect such political factors as the government's political philosophy or the relative strength of workers' unions (Courchene, 1998; Reschovsky, 2007: 402). But if e.g. snow removal is done only by public maintenance crews, then how does one distinguish between true differences in costs and the relative strength of unions in the SNGs, assuming that each sets its own wages (not set centrally)?

On the horizontal X-axis, we use a cost adjusted needs index. What does this mean? Let us assume that we have two regions with identical revenue capacity, one (A) with a proportion in its population of 10% of older individuals in need of specific health services and the other (B) with 30%. In terms of needs, (B) has higher needs. If the cost per % point of older population is 1 monetary unit, then (B) should receive 20 more units of resources than (A) to be able to provide the required services without having to levy more taxes than (A). Bu

Figure 2 A stylised representation of an expenditure



Source: adapted from Yilmaz S., Vaillancourt and Dafflon (2012: 123)

[3] The third issue is the equalization formula. Without equalization "needier" jurisdictions to the right of E spend less per capita than with equalization and ''un-needy'' ones to the left of E more. Note that per capita expenditures are for the population as a whole and not for the specific populations (older, immigrants…) that may be deemed to have specific needs. Horizontal equalization in this context means than un-needy SNGs spend less overall for their residents after equalization and pay for residents of other jurisdictions. Thanks to the equalizing grant, needier jurisdictions can now spend more to better satisfy the needs of their residents without additional tax effort. Thus, for example, for the neediest jurisdiction with a cost adjusted needs indicator of 150, equalization increases expenditures per capita from 1.15 to 1.25, but for an un-needy region with a needs indicator of 30, equalization with its diversion of revenues reduces public expenditures it can finance from 0.7 to 0.5. A balanced solution with horizontal (H) equalization requires that benefits and costs coincide. The importance of equalization depends on the equalization formula, which

gives the positions of the lines CE and EF around the central point E. It is conceivable that the slopes of these two lines are not the same.

[4] The fourth issue is whether an equalization policy would introduce further limits to the redistribution formula. In Figure 2, E represents an exactly neutral position; a jurisdiction at this point would neither pay nor receive any equalizing amount. But the central point need not be at E. Other equalization targets are possible. It can be debated whether jurisdictions with just above average needs should benefit from equalization; one could argue that this would be a disincentive to become more productive[10] or that measurement errors of needs are upward biased and thus that a cushion of say 10 % (e.g. 110, KF instead of EF in Figure 2) should be used. The equalization budget is also lower (KGF <EGF).

3.2 Genuine cost disparities versus political choices

We noted earlier in Box 1 that differences resulting from local choices (D and E) should be ignored. Figure 3 illustrates the difficulty of drawing the border line between genuine disparities and local preferences or management abilities that result in expenditure or cost differences (Reschovsky, 2007: 401-404). Scenario 1 relates to economies of scale and the related size of SNGs. Scenario 2 illustrates the difficulty of distinguishing between genuine higher production costs and X-inefficiencies.

Scenario 1: Impossible economies of scale or reluctance to cooperate

The jurisdictions face the usual simplified U-shaped production function for a local public good S (Reschovsky, 2007: 403). Start with the production function PF1 for SNG1. Resident beneficiaries pay for the service on a quid pro quo basis (for simplification: one resident, one unit of local service S, one tax unit - no spillover). The efficient solution is at *E* for a total of $N_{optimal}$ residents served. The *E* solution shows two key results: the minimal average cost at AC_1 and the total local public expenditure ($0N_{optimal}$*E*AC1) at the optimal level for PF1.

Consider SNG2: assume it has an identical production function PF1, but only N_2 residents. Average cost is AC2. Why is this so? There are three plausible answers.
(1) The number of beneficiaries is low because of socio-demographic characteristics of the resident population in SNG2.
(2) SNG2 is not in a position (for topographic reasons or distance) to cooperate with neighbouring SNGs in order to increase the number of beneficiaries towards $N_{optimal}$.
(3) SNG2 (for reasons of differences in preferences or the desire to remain autonomous) is not willing to cooperate with neighbouring SNGs?

In situations (1) and (2) cost differences should be considered in equalization because differences in unit costs do not result from a local decision. With (3), SNG2 should support the fiscal consequences of its decision. No equalization should make up for the difference in costs.

[10] In this domain also (see footnote 8) it is not easy to gather case study evidence that expenditure needs equalization could result in undesirable incentive (Kim and Lotz, 2008: 16). The OECD (2007) expressed some concerns about this issue related to cost equalization and productive efficiency.

Figure 3 Production functions for a sub-national public expenditure

Scenario 2: Genuine cost disparities versus X-inefficiencies

Consider a third local unit, SNG3 with production function PF3 characterized by higher production costs. Even with the optim

language or mixed religious classes to be mandated either centrally or by SNGs that pay horizontal equalization? Not only is it difficult to isolate variables that affect costs from variables that indicate differences in public good preferences, but the answers

(a) Horizontal expenditure needs/costs equalization would imply that SNGs with relatively low needs/ costs of service provision accept higher tax prices which allow subsidizing of other SNGs with relatively high expenditure needs/ costs. This would distort the relative local tax prices of public services and result in allocative inefficiencies. It penalizes SNG units which cooperate or strive to ban X-inefficiencies.

(b) Horizontal equalization has no rationality for those local public services that are financed through user charges. Pricing those services means that individual beneficiaries pay exactly for what they receive. Any violation of this rule would send a false price signal and disrupt the market-like process. From the point of view of economic efficiency it is both unrealistic and erroneous to imagine that user charges based on the polluter-pays principle (for example: fees for household solid waste collection; waste water treatment) or on the user-pays principle (drinkable water) would support an equalization supplement with the argument that the costs of services vary from one jurisdiction to another. The equity argument also holds: it would be inequitable to make users in a particular service precinct pay a price in excess of their benefits in order to cross-subsidize users in another precinct, whereas the latter would thus pay charges that are below the true costs of the public service they benefit from.

(c) For services that are financed through taxes, there is an information problem. Identifying the real needs and costs that justify equalization is a tremendous challenge (Reschovsky, 2007: 400-404). SNGs' functions are countless and a "perfect mapping"[11] does not exist for most of them. In case of differences in the level or quality of services, what would be the "adequate" mandated provision (distinct from choice)? If the causes are X-inefficiencies, new management methods must be imposed (by whom)? In this case, however, the aid should be vertical because only a higher tier of government is able to foster a scheme as much neutral as possible from an allocative point of view.

If vertical equalization is selected, what should it be? Figure 2 mirrors three alternatives. [1] With EF, SNGs with needs higher than average (100) will benefit. [2] KF introduces a cushion of 10 points (see subsection 3.1 fourth issue above). [3] The constitutional argument of "equal treatment" for all SNGs can explain the third possibility, represented by the line DV. Each SNG unit has positive expenditure needs,

assessment of needs leads to incentive problems with regard to the distribution of a common pool of expenditures. Normative benchmarks are not discussed here in detail since they do not rely on an attempt to assess objective needs but depend on an *a priori* optimal amount of spending, often based on expert judgments or political decision.

If the equalization policy aims at reforming the system in force, both the RCA and RES approaches face the challenge of controlling for the related expenditures. If the public expenditures in SNGs' accounts already contain elements of the equalization system that must be changed, they cannot be considered without correction – removing the equalizing component from actual

REFERENCES

Ahmad, E. (ed.), 1997, *Financing Decentralized Expenditures: An International Comparison of Grants*, Edward Elgar, Cheltenham, United Kingdom.

Ahmad, E., R. Singh and M. Fortuna, 2004, "Towards More Effective Redistribution: Reform Options for Intergovernmental Transfers in China", IMF Working Paper, no. 04/98, June 2004, Washington D. C.

Aubut, J. and R. Vaillancourt, 2001, "Using GDP in Equalization Calculations: are there meaningful Measurement Issues?", Working Paper, Institute of Intergovernmental Relations, Queen's University, Kingston, Ontario, Canada.

Auten, G.E., 1974, "The Distribution of Revenue-Sharing Funds and Local Public Expenditure Needs", *Public Finance Quarterly*, vol. 2, no. 3, pp. 352-375.

Barro, S.M., 1986, "State Fiscal Capacity Measures: a Theoretical Critique" in H.C. Reeves (ed.), *op. cit*., pp. 50-86.Bird, R. and E. Slack, 1990 "Equalization: The Representative Tax System Revisited," *Canadian Tax Journal,* 38 (4), 913-27.

Bird, R. and F. Vaillancourt, 2007, "Expenditure-Based Equalization Transfers", in J. Martinez-Vazquez and B. Searle (eds), *op. cit.*, pp. 259-289.

Birke, A. and T. Lenk, 2003, "The Measurement of Expenditure Needs in the Fiscal bution of Reve

Boothe, P. and F. Vaillancourt, 2007, *A Fine Canadian Compromise: Perspectives on the Report of the Expert Panel on Equalization and Territorial Funding Financing* Edmonton and Montréal; Institute for Public Economics and CIRANO, 100 pages; http://www.cirano.qc.ca/pdf/Perequation_07.pdf.

Bosch-Domènech, A. and C. Escribano, 1988, "Regional Allocation of Public Funds: An Evaluation Index", *Environment and Planning A*, vol. 20, no. 10, pp. 1323-1333.

Bradbury, K.L., H. Ladd, M. Perrault, A. Reschovsky, and J. Yinger, 1984, "State

Dafflon, B. and F. Vaillancourt, 2009, “The design of equalization: learning from the recent reforms of the Canadian and Swiss schemes”, paper presented at the Conference of the IAES, Rome, March 2009, mimeo.

Ecoplan, 2004, ”Kostenrelevanz und Gewichtung von Indikatoren im Lastenausgleich” Schlussbericht im Auftrag der Eidgenössischen Finanzverwaltung (EFV) und der KLonferenz der kantonalen Finanzdirektoren (FDK), Bern, 24 März 2004.

Eichhorst, A., 2007, ”Evaluating the Need Assessment in Fiscal Equalization Schemes at the Local Government Level”, *Journal of Socio-Economics*, vol. 36, iss. 5, pp. 745-770.

Färber, G. and N. Otter (eds), 2003, *Reforms of Local Fiscal Equalization in Europe*, Speyerer Forschungsberichte, no. 232, Speyer.

Fossati, A. and G. Panella (eds), 1999, *Fiscal Federalism in European Union”*, Routledge Studies in European Economy, London and New York.

Gilbert, G., 1996, Le fédéralisme financier: perspectives de microéconomie spatiale, *Revue Économique*, vol 47, no. 2, pp. 311-363.

Gilbert, G. and A. Guengant, 2001, »Effets redistributifs des dotations de l’Etat aux communes », Commissariat Général du Plan, GIS-CNRS, Paris.

Groupe d'experts sur la péréquation et la formule de financement des territoires, 2006,

Martinez-Vazquez, J. and B. Searle (eds), 2007, *Fiscal Equalization – Challenges in the Design of Intergovernmental Transfers*, Springer, New York.

Mau-Pedersen, N.J., 2003, "Challenges of the Danish Fiscal Equalization Scheme: Redistribution and Incentives", in G. Färber and N. Otter (eds), *op. cit.* pp. 131-162.

Mischler, P., 2009, *Fiskalische Disparitäten und Lasten Ausgleich*, LIT Verlag Zürich, Institute of Federalism Fribourg, Series, Etudes et Colloques 51.

Oakland, W.H., 1994, "Recognizing and Correcting for Fiscal Disparities: A Critical Analysis", in *Fiscal Equalization for State and Local Government Finance*, J. E. Anderson (ed.), Praeger, Westport, pp. 1-19.

Oates, W. E., 1972, *Fiscal Federalism*, Harcourt, New York.

Oates, W.E., 1999, "An Essay of Fiscal Federalism", *Journal of Economic Literature*, vol. 37, iss. **3,** pp. 1120-1149.

Oates, W.E., 2005, "Towards a Second-Generation Theory of Fiscal Federalism", International Tax and Public Finance, 12 (4), pp. 349-73.

OECD Organization for Economic Co-operation and Development (OECD) (ed.) 1981, *Measuring Local Government Expenditure Needs: The Copenhagen Workshop*, OECD Urban Management Studies, vol. 4, Paris.

OECD, 2007, "Fiscal Equalization in OECD Countries", Working Paper No. 4, Network on Fiscal Relations across Levels of Government: Paris.

Persson, T. and G. Tabellini, 1996, "Federal Fiscal Constitutions: Risk Sharing and Redistribution", *Journal of Political Economy*, 104 (5), pp. 979-1009.

Petchey, J., 1995, "Resource Rents, Cost Differences and Fiscal Equalization", *Economic Record*, 71 (215), pp. 343-353.

Rafuse, R.W., 1990, *Representative Expenditures: Addressing the Neglected Dimension of Fiscal Capacity*, Advisory Commission on Intergovernmental Relations, report M-174, December 1990.

Reeves, H.C. (ed.), 1986, *Measuring Fiscal Capacity*, Lincoln Institute of Land Policy, Cambridge, MA.

Reschovsky, A., 2007, "Compensating Local Governments for Differences in Expenditure Needs in a Horizontal Fiscal Equalization Program", in R. Boadway and A. Shah, *op. cit*., pp. 397-424.

Shah, A., 1994, "The Reform of Intergovernmental Fiscal Relation in Developing and Emerging Market Economies", *Policy and Research Series 23*, The World Bank, Washington D.C.

Shah, A., 1996, "A Fiscal NeedApproach to Equalization", *Canadian Public Policy – Analyse de Politiques*, vol. 22, no. 2, pp. 99-115.

Smart, M., 2004, "Equalization and Stabilization", *Canadian Public Policy*, vol. 30, no 2, pp. 195-208.

Smart, M., 2007, "The Incentive Effects of Grants", in R. Boadway and A. Shah (eds), *op. cit.*, pp. 203-223.

Tannenwald, R., 1999, "Fiscal Disparity among the States Revisited", *New England Economic Review*, July/August 1999, pp. 3-25.

Tannenwald, R. 2002, "Interstate Fiscal Disparity in 1996", *New England Economic Review*, third quarter 2002, pp. 17-33.

Usher, D., 1995, *The Uneasy Case for Equalization Payments*, The Fraser Institute, Vancouver B.C.

Vaillancourt, F., 2006, "Inclusion and Measurement Issues", in P. Boothe and F. Vaillancourt (eds), *op. cit*., pp. 45-64.

Von Hagen, J., 2000, “Fiscal Policy and Inte