

Boadway, Robin

Working Paper

National taxation, fiscal federalism and global taxation

WIDER Discussion Paper, No. 2003/87

Provided in Cooperation with:

United Nations University (UNU), World Institute for Development Economics Research (WIDER)

Suggested Citation: Boadway, Robin (2003) : National taxation, fiscal federalism and global taxation, WIDER Discussion Paper, No. 2003/87, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki

This Version is available at:

<https://hdl.handle.net/10419/52997>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



United Nations
University

WIDER

World Institute for Development Economics Research

Discussion Paper No. 2003/87

National Taxation, Fiscal Federalism and Global Taxation

Robin Boadway *

December 2003

Abstract

This paper considers lessons from the practice of fiscal federalism for guidance on new approaches to development finance. Despite the fact that inter-regional redistribution in a federation relies on a central government with strong fiscal powers, the form of that redistribution can be used as a benchmark for international development assistance financing. In a federation, finance for less-developed regions takes the form of equalizing transfers to sub-national governments. The objective of these transfers is to enable sub-national governments to provide comparable levels of public services at comparable tax rates, called fiscal equity, leaving them discretion to implement interpersonal redistribution schemes within their jurisdictions. This same principle of assuming that national governments rather than donor nations are responsible for vertical equity within their borders leads to the view that the ideal form of development assistance is a system of equalizing inter-nation transfers intended to enhance fiscal equity.

Keywords: fiscal federalism, equalization, development finance

JEL classification: H7, F35

Copyright © UNU-WIDER 2003

* Queen's University, Canada; email: boadwayr@qed.econ.queensu.ca

This study has been prepared within the UNU-WIDER and UN-DESA joint project on Innovative Sources for Development Finance, which is directed by Anthony B. Atkinson, and was presented at the WIDER Conference on Sharing Global Prosperity in Helsinki, 6-7 September 2003.

UNU-WIDER gratefully acknowledges the support to the project from the United Nations Department of Economic and Social Affairs (UN-DESA). UNU-WIDER also acknowledges the financial contributions to the 2002-2003 research programme by the governments of Denmark (Royal Ministry of Foreign Affairs), Finland (Ministry for Foreign Affairs), Norway (Royal Ministry of Foreign Affairs), Sweden (Swedish International Development Cooperation Agency-Sida) and the United Kingdom (Department for International Development).

Acknowledgements

The many comments of project leader Tony Atkinson and members of the project team are gratefully acknowledged.

The World Institute for Development Economics Research (WIDER) was established by the United Nations University (UNU) as its first research and training centre and started work in Helsinki, Finland in 1985. The Institute undertakes applied research and policy analysis on structural changes affecting the developing and transitional economies, provides a forum for the advocacy of policies leading to robust, equitable and environmentally sustainable growth, and promotes capacity strengthening and training in the field of economic and social policy making. Work is carried out by staff researchers and visiting scholars in Helsinki and through networks of collaborating scholars and institutions around the world.

www.wider.unu.edu

publications@wider.unu.edu

UNU World Institute for Development Economics Research (UNU-WIDER)
Katajanokanlaituri 6 B, 00160 Helsinki, Finland

Camera-ready typescript prepared by Liisa Roponen at UNU-WIDER
Printed at UNU-WIDER, Helsinki

The views expressed in this publication are those of the author(s). Publication does not imply endorsement by the Institute or the United Nations University, nor by the programme/project sponsors, of any of the views expressed.

ISSN 1609-5774
ISBN 92-9190-560-7 (printed publication)
ISBN 92-9190-561-5 (internet publication)

1 Introduction

This paper draws on ideas from the fiscal federalism literature—where transfers from better-off to less well-off regions are the norm—for guidance in the search for innovative new approaches to development finance. While it may be fanciful—or utopian—at present to regard the world as a whole as a federation, thinking of it in this way is an interesting point of reference. A *global equalization scheme* mimicking the way in which redistributive finance occurs in a federation would lead to a pattern of official aid that differs considerably from what we observe in practice. Contemplating such a scheme and the principles behind it helps us understand how far problems with different proposals for development funding are the result of the fact that there is no counterpart of a central government, and how far they are the inevitable outcome of the cooperative interaction of political entities with different objectives and interests.

It is worth highlighting at the outset some similarities and differences between decisionmaking and institutions in federations and those that might be feasible in a global setting. We have in mind relatively decentralized federations in which sub-national governments have independent fiscal responsibilities. OECD examples include Australia, Canada, Spain, Switzerland and the USA, while Argentina, Brazil, India, and Malaysia are examples from the developing world.

The similarities arise from the fact that, in both instances, the population is divided among governing states that have more or less autonomous authority over their fiscal affairs. Sub-national governments, like nation-states, raise revenues to provide goods, services and transfers to their residents. Moreover, the decisions of individual sub-national governments may be taken independently of those of others. This decentralization of authority gives rise to a number of relevant consequences.

- *Differences in average incomes.* Residents of different states will inevitably have different average incomes, and the states themselves will also be endowed with different amounts of natural wealth. As well, there will be different degrees of social and economic development. The disparities among sub-nations within nations may not be as great as those between nations. Nonetheless, qualitatively similar issues arise with respect to the desire to address these inequities through redistributive policies—the *vertical equity* issue.
- *Differences in fiscal capacity.* Related to the previous point, the decentralization of fiscal responsibility will inevitably lead to states differing in their abilities to raise revenues and in their needs for public expenditures. This implies that different levels of public services can be provided at given tax rates across states. In the absence of corrective measures, this can compromise efficiency in the allocation of resources across states by giving rise to fiscally induced relocation. As originally observed by Buchanan (1950), it also precludes the equal treatment of equals—*horizontal equity*—across the group of states as a whole.
- *Spillover benefits and costs.* Some policy issues transcend state borders and can only be addressed by coordinated policies. Thus, nationwide public goods (e.g., defence) provide benefits indiscriminately to residents of different sub-national jurisdictions. Spillover benefits or costs may occur from public goods and services that are delivered at the sub-national level (transportation facilities, cross-border pollution). And, goals of redistributive equity (income redistribution, poverty alleviation,

equality of opportunity, social insurance) may be viewed as national goals, analogous to national public goods. Decentralization can cause inefficiencies to the extent that cross-border spillovers of these sorts occur.

- *Fiscal externalities.* Related to the above, fiscal decisions taken by one government have indirect consequences for other governments because of the interdependency of markets for products and factors of production. Tax or expenditure changes in one jurisdiction may influence the allocation of factors or products across jurisdictions (fiscal competition). Alternatively, the burden of tax changes in one jurisdiction may be partly borne by agents in other jurisdictions, either at the same or a different level (tax exporting, vertical fiscal externalities). These fiscal externalities give rise to inefficiencies in the allocation of resources both within and across jurisdictions (Dahlby 1996).

Of course, offsetting these adverse consequences of decentralization are the benefits (Oates 1999). Sub-national levels of government can design their government programmes with the needs, preferences and values of local residents in mind. Moreover, they might be able to deliver public services and target transfers to their citizens more efficiently than a centralized government. The latter may be less informed and less accountable to local citizens. An important dimension of the case for decentralization is that it applies particularly to public services and targeted transfers that are important instruments for addressing economic and social development goals and redistributive equity more generally. Intergovernmental fiscal arrangements in federations are in large part devoted to ensuring that sub-national governments have the capacity, the incentives and the discretion for delivering these programmes in a way that fosters equity and efficiency in the nation as a whole (Boadway 2001).

Parallel to these similarities, there are some critical differences between the situation faced by a federation comprised of autonomous sub-national governments and the world economy comprised of independent nation-states. For one, the degree of mobility across state borders is typically much higher in federations than internationally. Citizens can move freely across borders; a common currency and a common set of legal and property rights institutions apply; and policies are better coordinated. While these differences in mobility lead to greater efficiency in the allocation of resources in the internal economic union, they also result in greater opportunities for inter-state externalities and spillovers, and therefore the need for coordinated or harmonized policies.

Another important difference is that there is likely to be much more consensus within federations than across nations for addressing the consequences of inequality of resources, incomes and opportunities across states. The fact of common nationhood may imply that, despite the possibly lower degree of inequality across sub-national jurisdictions, the will to redistribute—the sense of national solidarity—may be higher than exists between nation-states. And, the concern for horizontal equity may be more of a policy issue across sub-national governments in a federation than across nations in the world economy.

The most important difference is that a federation has a national government with substantive powers to address the adverse consequences of decentralized decisionmaking. These powers typically include some degree of influence or even coercion over sub-national governments. An important dimension of decisionmaking in a federation is the assignment of responsibilities between the national and sub-national

governments. Ideally, this is done in a way that represents the most reasonable compromise between achieving the benefits of decentralization while facilitating national equity and efficiency objectives. This is typically fostered by an asymmetric division of revenue-raising and expenditure responsibilities—a *vertical fiscal gap*—with the national government retaining the lion's share of revenue-raising, and transferring revenues in excess of its own requirements to the sub-national governments. Federal government presence in the most important tax fields along with its ability to design appropriate transfers to sub-national governments provides it with the instruments for addressing issues of redistributive equity, and avoiding to the greatest possible extent the adverse consequences of fiscal externalities and differences in fiscal capacity. Moreover, the fiscal dominance of the national government enables it to play an influential role in harmonizing taxation and expenditure policies of the sub-national governments to enhance the functioning of the federation.

The presence of a central government that attends to issues of nationwide interest and has the coercive powers of taxation and spending distinguishes a federation from a community of nations, whether that is the entire world or regional groupings like the EU. Since these latter groups have no strong central government, the ability to raise revenues and to address matters of inter-nation redistribution and efficiency are considerably compromised. These tasks must necessarily be based on voluntary agreement, perhaps facilitated by the delegation of administrative authority to a central institution. Nonetheless, the manner in which federal governments raise revenues for the purposes of development-type objectives might be instructive as a benchmark against which to evaluate possible new revenue sources to finance worldwide development.

A natural starting point is to contemplate the case in which there is a national government overseeing a fairly decentralized federal system consisting of several autonomous sub-national governments with independent fiscal authority. Both the accepted principles and the practice of fiscal federalism should be instructive in this regard. Using this as a benchmark, we can then consider financing arrangements in the more realistic situation in which a world government does not exist or does not have the coercive financial authority required to achieve the benchmark outcome. As a step towards that, we contemplate the hypothetical case of a federation without a central government after having discussed fiscal arrangements in a representative federation.

2 Revenue-raising in a federal setting

In a federation, the national and sub-national levels of government typically share the responsibilities for redistributive equity, poverty alleviation, and development. Many of the nation's public services, targeted transfers and development investments are provided under the authority of sub-national governments. As well, the latter typically apply redistributive tax-transfer systems alongside the national government, although the degree varies from federation to federation. The national government assumes overriding authority for ensuring that minimum standards of redistributive equity and opportunities apply nationwide. Even where sub-national governments are responsible for delivering important programmes for economic development, opportunity, and poverty alleviation, the federal government ordinarily assumes a significant share of the financial costs. In keeping with the project objectives, our concern is with the revenue

sources used to fund these programmes rather than the design of the programmes themselves.

We focus on an idealized federation, one that draws on best practices around the world. In such a federation, expenditure responsibility will be more decentralized than revenue decisions: there will be a vertical fiscal gap. The delivery of important public goods and services—including those in the health, education and welfare areas that serve important redistributive purposes—will be assigned to sub-national governments. The national government's dominance in raising revenue flows partly from the desire to maintain an efficient and fair national tax system, and partly from a need to finance transfers to the sub-national level. As discussed below, these transfers enable the federal government to achieve horizontal balance in the federation. They also enable the federal government to exert influence over sub-national programme design to insure that national objectives are met. Both the assignment of taxes and the design of the intergovernmental transfer system are relevant for our discussion of global revenue sources, and we consider them in turn. Before doing so, it is worth highlighting the nature of economic objectives in a federation and how responsibility for them is shared between levels of government.

In a unitary state, economic objectives can be conceptualized by a national 'social welfare function' which encompasses efficiency and equity objectives. Equity can be further disaggregated into vertical and horizontal equity dimensions in which comparable persons are treated comparably by the public sector (horizontal equity), and a common degree of redistribution (vertical equity) applies nationwide: all citizens have equal weight regardless of where they reside. In a federation, equity becomes blurred since persons are simultaneously citizens of two jurisdictions, national and sub-national. Vertical equity becomes a shared objective with the two levels of government both implementing policies that redistribute. The extent to which vertical equity is regarded as a national or a sub-national concern depends upon the extent to which social citizenship is viewed as being at the national versus the sub-national level, and that varies from federation to federation. Generally, there is a compromise in which sub-national standards of vertical equity interact with national ones. In these circumstances, horizontal equity can be violated for two reasons. First, if sub-nations adopt differing degrees of redistribution, there cannot be horizontal equity nationwide, and this can be regarded as a tolerable cost of achieving the diversity that federalism brings. Second, decentralization itself implies that different sub-nations will have different abilities to deliver comparable average levels of public programmes at comparable tax rates. Even if it is desirable that sub-nations have some responsibility for determining the extent of redistribution among their own residents, it might still be desirable to ensure that they have the opportunities to provide comparable services at tax rates that are comparable in other sub-nations if they so wish. This objective of enabling all sub-nations to have the potential to implement comparable programmes at comparable tax rates—potential horizontal equity—is referred to below as fiscal equity. It is a main objective of intergovernmental transfers.

2.1 Assignment of revenue-raising authority

The principles of assigning revenue-raising responsibility in federations have been widely documented, and the practice has been informed by the principles (McLure 1983). Since the tax-transfer system serves both a redistributive and a revenue-raising objective, issues of fairness, efficiency and administrative simplicity all have a bearing.

At the same time, specific forms of taxation may be used as a device for correcting inefficiencies in the allocation of resources that might arise because of externalities. Taxes may also serve as user fees or earmarking devices where one wants to abide by benefit taxation in limited areas or to create entitlements. It is generally agreed that the national government assumes major responsibility for nationwide efficiency—efficiency in the ‘internal economic union’—as well as sharing responsibility for redistributive equity. Moreover, the assignment of taxes should take account of the consequences of decentralization mentioned above: induced differences in per capita incomes and in fiscal capacity, spillovers and fiscal externalities.

These principles suggest that the national government should be assigned taxbases that are important for redistributive purposes, those that are mobile across sub-national boundaries, those that are unevenly distributed across jurisdictions, and those that might be difficult to administer at the sub-national level. By the same token, sub-national governments might be given access to taxbases that are not critical for redistribution, taxbases that are immobile, taxbases that do not induce large differences in fiscal capacity, and taxbases that are relatively easy to administer. With respect to the use of taxes as corrective devices or as sources of earmarked funds, their use depends on the jurisdictional scope of the activity to which they are directed.

By these criteria, the national government might have prior access to direct taxes on individuals, businesses and major natural resources. Sub-national governments might rely on property taxes, payroll taxes and various forms of consumption tax. This presumes that while businesses and capital might be highly mobile across sub-national boundaries, labour is not likely to be as mobile. Indeed, in what follows, we shall basically ignore issues associated with labour migration. Specific taxes used to price externalities might be applied nationally if the externality is national in scope (environmental externalities that cross sub-national borders) or at the sub-national level for externalities that are more local in nature (local congestion or pollution). This is necessary to ensure that the responsible level of government has an incentive to take account of all of the externalities: if externalities are nationwide, sub-national governments will have no incentive to respond to those that spill over into neighbouring jurisdictions and will therefore tend to set the tax rate too low.

These considerations are not cut and dried. There may be conflicts among the criteria, and in some instances there are mechanisms for resolving such conflicts. Natural resources are both immobile and unevenly distributed among regions, and that leads to conflicting arguments about assignment. If it is important for sub-national governments to have control over the development and taxation of natural resources, the immobility argument might hold sway. In this case, their unequal distribution will give rise to differences in sub-national fiscal capacities that can be addressed by a system of equalizing intergovernmental transfers. Consumption taxes (such as a value-added tax) might be difficult to administer at the sub-national level. Some taxbases can readily be used at both levels of government through harmonization agreements, so sub-national governments can piggyback on personal taxes set by the national government. This provides both levels with access to a broad-based revenue source, while at the same time allowing the national government to dominate the choice of base and rate structure. As well, many of the administrative problems of sub-national taxes can be resolved through the use of a single revenue-collection agency that serves both levels of government. The relevant point is that in a modern decentralized federation, it is desirable that both levels of government have discretionary access to broad-based

revenue sources. This can be accomplished in ways that do not compromise either the optimal design of such taxes or the costs of administering them by suitable institutions of tax harmonization and coordination.

While broad-based taxes are ideal for revenue-raising and have suitable equity and efficiency properties, there are a number of narrow-based revenue sources that are used with other objectives in mind. In some cases, the fact that they raise revenues is a bonus, or a ‘double dividend’. It is worth considering these individually since in some cases they are related to taxes that might be considered suitable as worldwide revenue sources.

- *Trade taxes.* Taxes on international trade are used in OECD countries as instruments of industrial policy rather than for raising revenue, and are typically national government policy instruments. On normative grounds, economists might regard the case for them to be weak, at least in countries that have ready access to broader sources of revenue. The motive for using trade taxes may be political, or it may be strategic (to exploit terms of trade advantages). In either case, by protecting local producers, they lead to worldwide production inefficiency, and one would not be tempted to view them as a model for raising revenues at the world level. This is particularly the case if trade taxes protect producers from imports of LDCs.
- *Specific excise taxes.* Although the bulk of tax revenues in federations comes from broad-based taxes, taxes on specific commodities are often used as well. Common bases include tobacco, alcohol and petroleum products, luxury items, and some services such as hotels and communications. Specific excises may be viewed as efficient revenue sources to the extent that demands are inelastic, despite the fact that this very inelasticity also renders them highly inequitable. In the case of luxuries, they may serve redistributive objectives. They may be used for tax exporting purposes. Sub-national governments often use them for revenue-raising purposes in federations where tax powers are otherwise highly centralized. Perhaps the most important motive is as devices for addressing externalities arising from the consumption of particular goods, such as health, or policing costs due to tobacco and alcohol consumption or congestion from petroleum products. To the extent that this is a justifiable motive, they provide a free source of revenue as a side benefit to the government that levies them, which typically includes sub-national governments. It seems equally likely that the motive for these taxes is paternalistic—to discourage persons from consuming the goods in question (hence, the term ‘sin taxes’).
- *Environmental taxes and levies.* Related to the externality argument is the more general use of taxes as devices for coping with environmental pollution (Sandmo 2000). In fact, despite the economic arguments for using taxes for this purpose, the extent of their use is limited. More often than not, regulatory remedies or subsidies are used and the potential double dividend is not exploited. Although there may be political economy reasons for this, there may also be serious monitoring and administrative costs associated with environmental taxes.
- *Gambling.* Revenues from gambling of various sorts can be important, especially for sub-national governments. In fact, gambling revenues are effectively equivalent to excises taxes, and as such are every bit as inequitable as taxes on tobacco and alcohol. However, one feature of them worth noting is that their revenues are often

at least partly earmarked for charitable purposes. This may make them a candidate for development financing, despite their adverse distributive properties (Addison and Chowdhury 2003). It seems likely that earmarked gambling revenues partly displace revenues that would otherwise be summoned for redistributive purposes.

- *Capital transaction taxes.* Sub-national governments often also impose taxes on various types of transactions, such as land sales, financial transactions and charges on financial intermediaries. These may be regarded as revenue sources that are easily administered, or as taxes that can be exported to non-residents. Otherwise, the economic case for them is not at all clear.
- *User fees.* Lower-level governments are often encouraged to use user fees to help finance public services. These can range for prices charged for local services (water, electricity, garbage) to school fees and user charges for health services. Since user charges are paid by those whom the services benefit, they have no potential as sources of finance for redistributive purposes except to the extent that the prices themselves are income-tested. The case for them as sub-national revenues sources is sometimes based on the argument that redistribution should be a national responsibility.
- *Seigniorage.* National governments obtain small amounts of financing from changes in the money supply. This can be a relatively costless source of revenue unless inflationary finance is used. In that case, inflation will impose its own tax on the economy.

While the revenue raised by these narrow taxes is relatively small, some of them can be important for sub-national governments whose own revenue-raising capabilities are limited. Indeed, it can be argued that in some federations, sub-national governments tend to rely too heavily on narrow taxbases with the result that the efficiency of the tax system is compromised. Unless narrow taxes have their own efficiency advantages, it is much fairer and more efficient to use broad-based taxes at both the national and sub-national levels of government. Moreover, the simultaneous use of broad taxbases can be achieved by agreements that retain a harmonized taxbase across the nation while at the same time allowing both levels of government to have the discretion to set their own rates.

There is a further complication in federations that is relevant for the case of world development financing. In a decentralized federation, sub-national governments typically engage in redistributive policies alongside those of the national government. National redistributive policies can crowd out sub-national redistributive policies. This is compounded by the fact that fiscal competition among sub-nations can induce a so-called ‘race-for-the-bottom’ in redistributive policies. In order to attract businesses and highly skilled persons, sub-national redistribution is competed down. This leads to an important role for intergovernmental transfers to which we now turn.

2.2 Intergovernmental transfers

In a federation, resources are transferred from the better-off to the less well-off via both the inter-personal tax-transfer system and intergovernmental transfers. The relative roles ascribed to these two mechanisms reflect the redistributive responsibilities that the

national government assumes. One can roughly think of the former as addressing vertical equity objectives and the latter horizontal equity (or fiscal equity) objectives. The reasoning is as follows.

Redistributive objectives are achieved by a number of instruments, including the income tax-transfer system, social insurance, in-kind transfers to the needy, and the provision of public services like health care and education. These diverse instruments reflect both the multiple facets of redistribution policy and the usefulness of certain types of policies as effective targeting devices. In federations, it is common for many of these policies to be delivered by sub-national governments, which finance part of the costs from their own sources. The national government typically retains sufficient influence over the structure of the income tax-transfer system, even if it is co-occupied by sub-national governments. But it also has an interest in influencing sub-national governments to design their programmes so that national norms of redistributive equity are satisfied. This is sometimes written into the nation's constitution. The national government relies on its system of intergovernmental transfers to pursue the national interest in a decentralized federation. (The same transfers also aim at enhancing efficiency in the internal economic union.) It is partly because of the need for transfers from the national to the sub-national governments that a vertical fiscal gap is required.

Transfers take two broad forms. First, they may be used as an instrument for influencing programme design of sub-national governments. Broad conditions can be attached setting out minimum standards that programmes in areas like health, education and welfare must satisfy to be eligible for the transfers. The extent of intrusiveness of such conditions varies from nation to nation, and is a source of concern in many federations. Conditional transfers are directed at vertical equity objectives, such as ensuring that adequate levels of equality of opportunity and public services for the needy are being provided at the sub-national level. Such conditionality has its parallel in development financing, despite the absence of the analogue of a national government.

Second, and more relevant for our purposes, transfers fulfil an equalization role. When the provision and partial financing of public services are decentralized to sub-national governments, different sub-nations will have different abilities to provide common levels of public services, resulting in horizontal inequities across the federation. The argument is best illustrated, following Buchanan (1950), using a simple example as a benchmark. Consider a federation in which sub-nations differ in per capita incomes. Suppose sub-national governments levy a proportional income tax and use the proceeds to provide equal per capita public services to all residents. (These are of the nature of private services rather than public goods, along the lines of important public services actually decentralized in federations.) If all sub-national governments levied the same rate of tax, the level of public services provided per capita would differ systematically with per capita sub-national incomes. Put differently, the *net fiscal benefit* (NFB) received per person of a given income level in a given sub-nation—the difference between the value of the public service provided and the tax payment—would differ across sub-nations, and the difference would be the same for all income levels. Nationwide horizontal equity would be violated. To correct for this horizontal inequity, a system of equalization transfers could be instituted which effectively compensated different sub-nations for differences in the amount of tax revenue they could raise by applying the common tax rate to the incomes of their residents.

With such an equalization system in place, the level of public services provided in each sub-nation would be the same, and horizontal equity would be satisfied. In fact, the outcome of the unitary state would be replicated. Interestingly, economic efficiency would be served as well. The same NFB differentials that give rise to horizontal inequity also provide a fiscal incentive for households and businesses to be misallocated among sub-national jurisdictions (Buchanan 1952). This is a rare instance in economics in which equity and efficiency arguments are mutually reinforcing.

This simple example is a caricature of reality, but it does serve to illustrate the main point. Equalizing transfers enable different sub-national governments to provide comparable levels of public services at comparable levels of taxation. In the real world, things are more complicated than in the simple benchmark example, and these complications affect the form of equalization transfers. Some of the complications are as follows:

- Sub-national budgets may have differing degrees of progressivity than assumed in the benchmark case, where proportional taxes are used to finance equal per capita benefits. If sub-national budgets are more progressive than that, a greater degree of equalization will be needed to eliminate NFB differentials (and replicate the financial features of the unitary state). By the same token, if they are less progressive, less equalization is called for. In the limit, if the benefit principle is applied at the sub-national level, no NFBs would arise and no equalization would be called for on horizontal equity grounds.
- There are other sources of NFB differentials besides differences in per capita incomes. For one, public services may not be made available equally to all persons, but may be targeted to certain groups in the society—school age children, the elderly, the disabled, the ill, the needy, and so on. Different sub-nations with different population mixes will have different needs for public expenditures if they are to provide comparable levels of these kinds of services to their populations. For another, sub-national governments may have access to source-based tax revenues such as those on natural resources, and this may give rise to significant differences in revenue-raising capacity. An equalization scheme should compensate for differences in needs and in capacities to obtain revenues generated at source.
- In the benchmark case it was presumed that all sub-national jurisdictions would behave alike, so that with full equalization, the outcome of a unitary state would be replicated. In fact, the essence of federalism is that different states have different needs and preferences for public goods and services, and exercise their discretion in very different ways. In these circumstances, there is a conflict between the desire to achieve horizontal equity and the desire to have sub-national governments exercise their own discretion. The compromise typically made is to arrange the equalization system so that sub-nations have the *potential* to provide comparable levels of public services at comparable levels of taxation without being compelled to conform. *Fiscal equity* is fulfilled when this potential is achieved.
- Some public expenditure takes the form of public goods rather than public services that are private in nature. In this case, the appropriate amount of equalization for horizontal or fiscal equity purposes becomes much more complicated, since there are economies of scale in the consumption of public goods. In fact, it seems more likely that the expenditure responsibilities decentralized to sub-national

governments are dominated by those that take the form of public services of a private nature.

Equalization according to these principles is employed in most federations (the major exception being the USA), as well as in many unitary states with respect to local governments. The nature of the schemes depends upon the extent of fiscal decentralization. In cases where expenditures are much more decentralized than taxes, equalization can be based largely on differences in need. Expenditure needs can be measured as crudely as total population, or they can be based on estimates of the standard costs of providing services of various sorts to particular segments of the population. In federations with more decentralized revenue-raising, equalization can also be based on the ability to raise revenues, and this can also take varying degrees of sophistication. In some cases, the ability to raise revenues from a representative tax system can be used. Alternatively, some more crude macro-based measure such as per capita incomes might suffice. Moreover, equalization can be based on 'gross' as opposed to 'net' systems. Net equalization refers to a purely redistributive system whereby revenues to transfer to the sub-national governments with below-average fiscal capacity come from levies imposed on those above the average. However, equalization more often takes the gross form whereby the national government makes transfers to some or all sub-national governments and finances them out of national general revenues. In this case, the allocation of transfers is based on relative fiscal capacities among sub-nations. The two cases differ mainly in the extent of vertical fiscal gap used to finance the system.

In either case, the important point is that the financing of public services provided by less well-off sub-national jurisdictions comes partly from transfers from better-off jurisdictions. These public services are a very important element in the arsenal of instruments used to address issues of redistributive equity and economic and social development. They are arguably more important than the redistribution that takes place as part of the national interpersonal tax-transfer system. The use of intergovernmental transfers for horizontal or fiscal equity purposes is therefore of great importance from a national equity point of view.

2.3 Cooperative behaviour by sub-national governments

Despite the reliance on the national government as an institution for fostering national equity and efficiency objectives in a federation, it is useful to consider the possibility that sub-national governments might also take initiatives voluntarily to achieve or to thwart these same objectives. Here and in the next sub-section, we take up these possibilities, with special emphasis on the revenue-raising function of sub-national governments. In decentralized federations, sub-national governments can have significant discretion in designing their programmes and in choosing their revenue structures. While this discretion enables them to serve their local residents more effectively, it also has the potential to induce inefficiencies and inequities in the national economic union. Some of these inefficiencies and inequities could be ameliorated by the harmonization of policies either undertaken voluntarily or negotiated collectively.

With respect to voluntary policy harmonization, the record is mixed. In the decentralized federations of Canada and the USA, opportunities do exist for sub-national governments to harmonize their broad-based revenue sources. Canada has a

formal mechanism for harmonizing personal and corporate income taxes, and provinces may choose to participate. The harmonization is limited to harmonizing taxbases and allowing for a single tax collection agency: provinces are allowed full discretion over tax rates. While most provinces participate in the personal income tax harmonization agreements, the largest provinces accounting for three-quarters of taxable income do not participate in the case of the corporate tax. On the other hand, for those that do not participate, their tax systems do not deviate significantly from those of the participating provinces. No doubt this is partly for historical reasons, since the current system evolved from one in which the national government was the sole income tax user. The record with respect to other taxes is more dismal. There is relatively little harmonization of provincial sales taxes with the national sales tax system, despite the possibility offered to them. And, for taxes that are mainly in provincial jurisdiction (resources taxes, property taxes), there is virtually no harmonization, much to the detriment of national efficiency. In the USA, there is even less harmonization, either of income taxes or state sales taxes. This may reflect in part the much larger number of US states than Canadian provinces. With respect to public services and transfers delivered by the provinces and states, there is again no voluntary harmonization (apart from that induced by national conditional transfers). On the contrary, there is some evidence that such programmes are used in a strategic way, such as to attract only the most desirable households to the jurisdiction.

Negotiated intergovernmental agreements that exist tend to involve both the national and sub-national governments. As well, they are somewhat difficult to negotiate and turn out to be ineffective. A prime example of this is the Agreement on Internal Trade in Canada, whose purpose and features are much like trade liberalization agreements among groups of nations (NAFTA, EU, WTO). While the articles of the agreement are potentially far-reaching, in practice the agreement is ineffective because it relies on voluntary compliance for enforcement. This is a consequence of the need to have unanimous agreement and of the fact that the fallback position is for the national government to assume responsibility for efficiency in the internal economic union. There are many examples of bilateral agreements between the national government and individual sub-national governments. But virtually all such agreements concern the interest of the residents of the sub-national government involved. There are almost no agreements involving inter-jurisdictional redistribution.

This mixed record of the effectiveness of intergovernmental agreements is again a reflection of the primary role that a national government plays in a federation. This tempers the lessons that can be learned for situations in which there is no effective central authority to mediate, influence and coerce state behaviour.

2.4 Free-riding by sub-national governments

Not only might it be difficult to rely on sub-national government to behave harmoniously, their behaviour might be overtly non-cooperative. This possibility exists because, as mentioned, a sub-national government's policies can have an impact on residents or government budgets in other jurisdictions. We have mentioned fiscal competition that arises between sub-national governments as a result of these fiscal externality effects. However, there can also be forms of vertical interaction between sub-national and national governments—so-called vertical fiscal externalities—that can

be detrimental to national efficiency and equity. These can take various forms (Keen 1998).

First, the fact that the two levels of government are taxing the same agents implies that policy changes at one level affect the budget at another. For example, if a sub-national government increases its income tax rate, and if income is variable, the induced reduction in the base will also reduce national tax revenues. Technically speaking, the marginal social cost of revenues will be perceived by the sub-national government to be too low. It can effectively spread part of the burden of raising its revenues to other jurisdictions.

Second, national government redistribution can crowd out redistribution at the sub-national level. Potentially sub-national governments can exploit this by limiting their own redistribution on the expectation that the national government will compensate.

Third, interdependence will arise if taxes paid at one level of government are deductible from taxable income at another level. A sub-national tax that is progressive could become regressive if it can be deducted before levying a progressive federal tax.

Finally, sub-national governments can sometimes manipulate the amount of transfers they receive from the national government through their fiscal policies. In the extreme case, they can exploit any soft budget constraint that might apply between the national and sub-national governments. The existence of these opportunities depends on the design of the transfer system and on the ability of the national government to commit itself to a given level of transfers regardless of the fiscal choices taken by sub-national governments.

2.5 Summary

In a well-functioning federation, sub-national governments are assigned responsibility not only for local public goods but also for policies that are crucial to the efficient and equitable functioning of the national economic union. These include important public services like health, education and social services, as well as some targeted transfers. Although this decentralization is motivated by concerns with efficiency and catering to local preferences and needs, the national government has a clear interest in the standards with which sub-national programmes might conform. To ensure that national norms of efficiency, equity and development are addressed, the national government typically retains a dominant position in the interpersonal tax-transfer system, which is one instrument for vertical equity. It also makes substantial transfers to sub-national governments to equalize the capacity of sub-nations to provide comparable levels of public services at comparable levels of tax rates, and to ensure that they have the incentive to provide programmes in conformity with the national interest. This implies a vertical fiscal gap, with the national government collecting more revenue than it needs for its own purpose and transferring the remainder to the sub-national governments. The latter are assigned sufficient revenue sources of their own, especially broad-based ones, to ensure that they are accountable to their constituents for the programmes they deliver. Ideally, their taxes are harmonized with those of the national government, and they are fully responsible for raising marginal revenues for determining the sizes of their budgets. The object of the national-sub-national fiscal arrangements is to obtain the

benefits of decentralized decisionmaking while at the same time avoiding its costs. The oversight role of the national government is critical to this objective.

3 A federation with no central government

In a federation, the national government plays a critical role in pursuit of redistributive equity alongside sub-national governments that deliver important public services. The balance between the two levels has shifted over the past several decades. Sub-national governments have become more important as the role of public services like health, education and social services as major redistributive devices has grown, and the virtues of decentralization have been realised. In some federations (Canada), the national government's expenditures are predominantly transfers, while those of the provinces are mainly on goods and services. This decentralization has put some stress on the ability of the national government to impose its redistributive objectives.

In the limit, decentralization would result in a federation with a weak national government. In this section, we pose the hypothetical question of how redistributive goals might be achieved in the limiting case where there is no effective national government. This serves as a useful benchmark against which to address similar issues globally.

It is worth first pausing to reflect on the nature of redistributive objectives in a federal setting, loose or otherwise. Redistribution is a key role of governments in any OECD nation. A cursory look at government budgets will confirm that a high proportion of spending is devoted to programmes with redistributive intent, not just those involving income redistribution but also public goods and services. For example, public spending on education, health and social services would be hard to justify on purely efficiency grounds. While it might be possible to conceive of sizeable redistribution being the consequence of a political process that reflects purely the self-interest of the voting population, these considerations alone seem inadequate to account for the scale of redistribution one actually observes. It seems more likely that there is some more fundamental social consensus or solidarity underlying the phenomenon. Some observers have equated this solidarity with a notion of social citizenship: one's membership in a nation entitles one not just to the legal and political rights that come with citizenship, but also with social and economic rights (Purdy 2001). In other words, the political community is also a sharing community, as if reflecting some social contract. These rights of social citizenship may be written into the national constitution, or they may simply reflect an ongoing social consensus. The extent of the social consensus will vary from nation to nation, and will vary within nations from time to time as political outcomes change.

In a federation, social citizenship is blurred by the fact that one is a citizen both of the country as a whole and of a sub-nation. There are two simultaneous concepts of solidarity, one nationwide and one sub-national. The balance between these two levels of solidarity can be the source of considerable tension within federations: to what extent should national solidarity trump sub-national solidarity? That is, to what extent should redistribution be the role of the national as opposed to the sub-national governments? The compromise will vary from federation to federation: national solidarity may be

relatively more important in, say, Germany than in Belgium, where sub-national solidarity in the linguistic communities is also important.

But even in highly decentralized federations, the relevance of social citizenship at the national level remains strong. The Canadian case represents a good example of this, given that it is one of the most decentralized federations in the world (although even here sub-national solidarity in certain regions can be important). The provinces deliver all the important public services and raise a substantial proportion of their own revenues through broad-based taxes. A great deal of redistribution occurs at the sub-national level of government. The national government also engages in redistribution, largely through the tax-transfer system. But, much of its redistributive activity involves intergovernmental transfers, and much of this is directed at achieving fiscal equity among provinces. Social citizenship is thus a compromise: the national government provides transfers to the provinces out of national general revenues to ensure that provinces have the potential for providing reasonably comparable public services at reasonably comparable levels of taxation. The provinces then choose their own fiscal policies more or less unfettered by national constraint. Even in this highly decentralized fiscal system, a high degree of consensus seems to exist for national social citizenship. Nonetheless, that consensus is perceptibly weakening as the nation gradually becomes more decentralized, although the direction of causation is unclear. Moreover, many of the instruments used to achieve social citizenship are the legislative responsibility of the provinces.

In contemplating a federation without a national government, two key differences with a standard federation must then be recognized. The first is that government-to-government transfers will be relevant for redistribution among regions since there is no national government that can collect revenues nationwide to transfer to sub-national governments or their citizens. Second, the issue must be faced as to the degree of social consensus that exists for ensuring that citizens of different jurisdictions have comparable capacities for providing public services and engaging in redistribution of all forms. One presumes that national social citizenship becomes much weaker in this context, and the extent of intergovernmental transfers that citizens might wish their sub-national governments to engage in will be less than in a full-fledged federation with a purposeful national government.

Let us presume that there is at least some degree of social consensus for redistribution from citizens of better-off sub-nations to those of less well-off sub-nations. Moreover, the principle of subsidiarity can be taken for granted: sub-national governments are accepted as being those most capable of implementing redistributive policies within their own jurisdictions. Thus, the relevant form of redistribution is sub-nation to sub-nation. We consider some features that such redistribution might take, treating separately the cases in which sub-national governments do and do not coordinate their activities.

3.1 Non-cooperative sub-national redistribution

To the extent that a consensus exists for some degree of solidarity among all citizens in the nation, individual sub-national governments in better-off regions acting on behalf of their own citizens will want to make transfers to less well-off jurisdictions. The situation is analogous to nations voluntarily contributing to an international public good: here the

public good is the total amount of the transfer, from which all nations simultaneously benefit. The economics literature has developed the characteristics of the outcomes that might be expected in a setting in which several nations make independent (non-cooperative) contributions to an international public good (Sandler 1992; Boadway and Hayashi 1999). Although the models are simplistic and the assumptions strong, the message of that literature is stark, even if it has only an element of truth. In fact, no matter how far the degree of solidarity or social citizenship extends across sub-national borders, the outcomes that are predicted when sub-national governments behave non-cooperatively differ considerably from those that could be expected to occur if a national government were overseeing interregional redistribution. The following summarizes some of the relevant results.

- The total level of transfers—the sum of the transfers of all better-off jurisdictions—is less than the optimal level. There is a free-riding problem associated with each nation’s contributions, implying that each sub-nation contributes less than it would in a coordinated approach, such as with a national government.
- Sub-nations that have the highest per capita incomes will contribute proportionately more than they would in the coordinated setting, the phenomenon of disproportionate burden sharing, and is a consequence of the Shibata-Warr neutrality theorem whereby income redistributions among contributors are fully offset by changes in contributions in equilibrium.¹
- Sub-nations with the highest populations will contribute disproportionately more than those with lower populations. This reflects the fact that the higher proportion of benefits of the contribution internalized, the larger the population. As a result, persons in more populous donor nations will tend to be worse off, all else equal.
- Increased contributions to the less well-off sub-nations from some outside source will crowd out voluntary transfers. Indeed, if increased contributions were financed by taxes imposed on the contributing sub-nations, the crowding-out would be full.

These predictions are somewhat surprising, but they are also cautionary. They point out the inefficiency and inequity of a system of voluntary transfers—inefficiency because the amount transferred is less than all contributing jurisdictions would agree to, and inequity because the contributions in equilibrium may bear no close relation to a jurisdiction’s well-being or ability to pay. The predictions also indicate that introducing small increments of transfers into a world in which sub-nations are making voluntary contributions can be effectively pointless. Thus, additional sources of revenues made available by, say, a new global tax source could be largely crowded out by reduced voluntary sub-national transfers. Equivalently, if the sub-nations collectively agreed to provide additional financing for transfers, this additional contribution would crowd out their voluntary transfers on a one-for-one basis, at least until the latter were fully crowded out.

¹ This theorem says that when a public good is financed by voluntary donations, the equilibrium level of public good is independent of the distribution of income. Any redistribution of income among contributors will be completely offset in equilibrium by equal and opposite changes in contributions. Moreover, any incremental contribution by the government will crowd out private donations on a one-for-one basis. See Shibata (1971) and Warr (1983).

The literature also suggests that the free-rider effects of a voluntary contribution equilibrium could be undone by a system of incentives. If subsidies are provided for voluntary transfers—analogueous to the tax incentives that are provided for individual contributions to charity—efficiency could be restored. Such a scheme would require either some national authority or coordinated action by the sub-national governments, as well as some source of revenue to finance the subsidies. All of these are ruled out in the non-cooperative case.

3.2 Cooperative sub-national redistribution

Given that non-cooperative sub-national outcomes are likely lead to inadequate levels of interstate redistribution and inequitable distributions of burdens, it is natural to consider the possibility of cooperative behaviour among sub-national governments. Cooperative outcomes should be possible since all jurisdictions can potentially gain relative to the non-cooperative case. Moreover, cooperative solutions should in principle lead to a fully efficient outcome in the sense that, as in the case with standard public goods, the sum of the marginal benefits to all donor sub-nations from redistribution equals the sum of the marginal costs.

In contemplating such cooperative solutions, we immediately confront the problems that arise in arranging the terms of the cooperative bargain when the gains from the bargain must somehow be divided among the various sub-nations. A cooperative outcome must achieve unanimous agreement, and this is notoriously difficult, especially where many governments are party to the negotiations. This is particularly the case when all sub-nations are involved, both net donors and net recipients of the transfers. As well, some dispute settlement mechanism is required to ensure that all sub-national governments abide by the agreement. In the absence of a central authority, this is difficult to achieve. As mentioned above, the record of achieving unanimous agreement among sub-national governments in a federal setting is not encouraging.

On the other hand, among nation-states progress has been made with respect to such agreements, although success has been much more pronounced where pure efficiency gains are at stake than those involving redistribution. The EU is a case in point, where agreements exist in a variety of areas including agriculture, competition policy, science and technology, regional policy, trade, and even social policy (Artis and Nixon 2001). In some cases, agreement was a long time coming and many compromises were involved. Moreover, sometimes the agreements were asymmetric in the sense that different countries participated to differing extents. Perhaps this illustrates that with enough persistence, agreements can be reached among nations even where redistributive policies are involved.

We proceed by setting aside the difficulty of bargaining to obtain some insight into the kinds of agreements that should be possible among sub-national governments acting in the absence of a national government. In principle, these ought to be able to mimic what a benevolent central government acting on the basis of a national consensus would implement. Taking that as a reference point, we can imagine two sorts of institutional mechanisms being negotiated among sub-national governments to finance redistribution from better-off to less well-off sub-nations—taxes on the better-off states or taxes on agents or their transactions. Since our focus is on the financing of development assistance rather than its use, we concentrate on the source of funds.

3.2.1 Taxes on sub-national governments

Sub-national governments might agree to tax themselves, that is, to make equalization transfers for the purpose of redistributing to the less well-off sub-nations. The question then is how ought the transfers be distributed among the contributing sub-nations. The answer depends upon a judgement as to what constitutes a fair allocation of the burdens of the transfers. Following the above discussion of intergovernmental transfers in a federation, the concept of fairness applied to sub-national jurisdictions is different from that applied to individuals in the case of a personal tax system. This is because the sub-nation consists of a distribution of households of different incomes. Presumably, in our hypothetical federation without a national government, sub-national governments would assume full responsibility for vertical equity within their borders. They may choose differing degrees of progressivity because of difference sub-national consensuses about the desirable amount of redistribution. Fiscal competition pressures may also affect their policies of redistribution. In either case, there is little that a system of transfers from jurisdictions can, or should, do to rectify this. To the extent that different jurisdictions have different preferences for redistribution, there is no good reason to override those differences. And, dealing with the adverse effects of fiscal competition for intra-jurisdictional redistribution is something with which a system of intergovernmental transfers cannot cope. Addressing that problem is, after all, one of the roles of a national government in a federation.

Given this, a suitable basis for fairness in a federation with only sub-national governments is fiscal equity. Full fiscal equity is equivalent to taking the normative position that citizenship in the nation carries with it some obligation of equal treatment nationwide, tempered only by the fact that sub-national governments should have the discretion for designing programmes for vertical equity within their jurisdictions. Equivalently, full fiscal equity involves ensuring that each sub-national government has the potential to be able to provide comparable public programmes at comparable tax rates to the residents of their respective jurisdictions.

In the context of a highly decentralized federation without a national government, the rights of social citizenship in this full sense may not reflect a societal consensus. Instead, the consensus might be that full fiscal equity is too extreme, and that some partial notion of fiscal equity is acceptable. In this case, the objective of the transfer system would still be to redress differences in the ability of sub-national governments to provide programmes to their citizens at given tax rates, but now only partially, so fiscal equity is imperfectly achieved. There is still no particular reason to override the redistribution sub-national governments undertake in their own jurisdictions.

Whatever degree of fiscal equity is deemed appropriate, the base that is suitable for determining the fair set of transfers is the same: only the rate of equalization applied to that base needs to differ. We have discussed in broad terms the principles of equalization in a federal setting. Those same design principles would apply here, although the degree to which equalization is pursued might differ. If full fiscal equity were the criterion—and this is a useful benchmark to use—transfers would equalize the ability of all sub-national governments to provide comparable levels of public services at comparable tax rates. The precise equalization formula would include elements reflecting both revenue-raising capacity and expenditure needs, and would depend on the policies implemented by the representative sub-national government, including both their tax structures and their expenditure programmes. A conventional standard case that

informs the revenue equalization system in some federations is as follows. Suppose sub-national taxes are roughly proportional to income when taken as a whole. And suppose that public services provided roughly equal per capita benefits to all households. Then an ideal equalization system for full fiscal equity purposes would be designed as follows:

- i) Representative taxbases would be constructed for all taxes used by sub-national governments. From this would be calculated the per capita base for each tax source in each sub-nation (b_{ij} for taxbase i in sub-nation j), and the average per capita taxbase nationwide (B_i);
- ii) Nationwide average tax rates (t_i) would be calculated as the ratio of total sub-national tax revenue from the base to the nationwide size of the base;
- iii) The per capita equalization entitlement for a sub-nation j from a taxbase i would be calculated as $t_i(B_i - b_{ij})$;
- iv) The above calculation would be done for each sub-nation and each tax type. A sub-nation's total equalization entitlement would be the sum of all per capita entitlements (positive and negative) from all tax sources multiplied by its population: $\sum_i t_i (B_i - b_{ij}) N_j$;
- v) The sum of entitlements over all sub-nations would be zero. Those with superior revenue-raising ability would be positive, and those with deficient revenue-raising ability would be negative.

In the above calculation—referred to as the *representative tax system* approach—the use of national average sub-national government tax rates ensures full revenue equalization. This rough and ready approach to equalization would be appropriate if sub-national fiscal structures roughly corresponded to those of the standard case.

Since spending programmes are targeted to particular groups in the population rather than being of equal per capita benefit to all, equalization entitlements can be adjusted to account for the fact that different sub-nations have different expenditure needs arising from the fact that their differing population mixes. A representative expenditure needs approach, analogous to the above, could be used. Differences among sub-nations in the per capita cost of providing a given level of a particular type of public service would be equalized. The procedure would be to estimate a national average cost of providing a unit of service to a person of a given demographic group. This cost would be combined with the number of persons of that group in each sub-nation to determine expenditure need for that service. Deviations from the average would then be equalized.

If the consensus is for less than full fiscal equity (or if the sum total of transfers is set exogenously), the above procedure could be revised accordingly. We can concentrate on the implications of partial fiscal equity for donor sub-nations. The simplest procedure would be to reduce each sub-nation's assessed equalization entitlement proportionately from the full equalization case. This would be equivalent to equalizing differences in per capita taxbases by less than national average tax rates, in the case of revenue equalization, and reducing the unit cost used for equalizing needs differences. Applying this procedure to the donor sub-nations would imply that proportionately less than full

fiscal equity was implemented not only between donor and recipient sub-nations, but also among all donors.²

The above procedures, though not unlike what is done in various federations on either the revenue or the expenditure-needs sides, appear to be complicated. Some observers have argued for a simpler procedure, such as basing equalization on a single macro measure, such as per capita sub-national income or consumption. This is the approach used by the EU, whose budget is financed by a proportionate levy on member states' GDP. Though this leads to a simpler calculation, it is conceptually problematic. Macro indicators are unlikely to be an accurate reflection of either the revenue-raising capacity of sub-national governments or their needs for expenditures. For example, they do not take account of the fact that different taxbases (e.g., resources versus capital income versus consumption) have different revenue-raising potential and typically are taxed at very different rates. Those who propose macro formulas typically have objectives other than simplicity in mind. Some treat inter-jurisdictional redistribution as being analogous to interpersonal redistribution and view the base as comparable to the ability to pay of the representative household (Barro 2002). However, as we have argued, there is a fundamental difference between interpersonal redistribution and inter-jurisdictional redistribution, the former being directed at vertical equity and the latter at horizontal equity. Nonetheless, if sub-national tax structures are sufficiently different, the representative tax system approach to equalization becomes difficult to implement, and one may be forced back to a simple macro measure.

While agreement on the set of sub-national transfers is primarily a matter of fiscal equity, sub-national agreement may go beyond that to include some provisions for harmonizing vertical equity within sub-national governments. This could be a way of dealing with the tendency for sub-national governments to compete down their redistribution programmes. It might also reflect a national consensus for norms of vertical equity or social citizenship, analogous to the harmonization of social protection in the EU. However, the existence of harmonized systems of social protection does not detract from the principles outlined above for the design of a system of equalization transfers.

3.2.2 Taxes on agents

An alternative means of raising revenues to transfer to less well-off regions is for sub-national governments to agree to tax agents directly. This is natural to consider since it has the potential to mimic what a national government would do. The manner in which tax revenues might be raised cooperatively depends on the structure of the tax systems employed by sub-national governments, as well as on the normative objectives of the national tax, including especially whether there should be common standards of equity applying nationwide (despite the absence of a national government). Some considerations are as follows.

A key factor in contemplating a new national tax in an otherwise fully decentralized system of sub-national governments is the perceived nature of nationwide equity. If the view is taken that vertical equity is the responsibility of sub-national governments, the

² Note that this procedure would leave the list of donor nations unchanged: all those with per capita taxbases above the world average would be included. One could also adapt to a lower level of transfers by removing less well-off middle-income countries from the list of donors.

most that might be expected from a national tax is that some degree of fiscal equity is achieved. Then, the ideal tax would be one that mimics the equalization scheme outlined above. A single tax at a common rate on a broad base would not be perfect since the revenues raised from each jurisdiction would not reflect its tax capacity or its own expenditure needs. If a separate tax rate could be applied in each jurisdiction, any pattern of sub-national incidence could be achieved, but one presumes that differential tax rates across sub-nations would not be an easy thing to negotiate.

Nonetheless, a broad-based tax at uniform rates would be an approximation of a fiscally equitable outcome. It would correspond with the macro approach to equalization. Suitable taxbases might include consumption or income. Indeed, if the tax were a direct one, it could be progressive. That would be appropriate if the vertical equity were the responsibility of the national government.

Even if there is agreement for a broad taxbase, there would be problems with administering the tax. In an ideal situation—such as exists in some federations—the taxbase would be harmonized among sub-national governments. A national tax could be piggybacked onto those levied by sub-national governments. There are different forms this could take, depending on the taxbase used. In the case of personal income taxes, a national surtax could be imposed on each agent's sub-national income tax liabilities (in which case sub-national progressivity is retained) or on sub-national taxbases. In the case of sales taxation, if a multi-stage tax is used sub-nationally, the national surcharge could be limited to the final stage. This would however require a significant degree of harmonization among sub-national sales tax systems. In the absence of such harmonization, piggybacking would be problematic since the amount of revenue raised in each sub-national jurisdiction would vary arbitrarily with the definition of the taxbase. If piggybacking is not feasible, the national tax would have to be collected on its own, but with significant administrative costs.

Suppose, however, that a broad-based national tax is implemented. A further problem concerns the crowding-out of sub-national government voluntary transfers. In the hypothetical context we are imagining of a nation without a national government, it is likely that better-off sub-national governments would make voluntary transfers to less well-off ones as long as there were significant disparities in well-being among sub-nations. The parallel is with voluntary intergovernmental transfers among nations in the real world. In the case of sub-nations, the case for voluntary transfers would be stronger because of the presumed solidarity among national citizens residing in different sub-national jurisdictions. To the extent that voluntary inter-jurisdictional transfers were undertaken—albeit inefficiently as discussed earlier—theoretical reasoning would suggest that they would be crowded out, perhaps on a close to one-for-one basis (the Shibata-Warr theorem). While that is not necessarily bad, given that the pattern of voluntary transfers is likely to be unrelated to a reasonable national equitable criterion, it does imply that more of a burden would be placed on raising revenues than would otherwise be the case. One way out of this dilemma would be for sub-national cooperation to include elements of both taxes on states and taxes on agents.

An alternative to a new national tax imposed on a broad base would be one imposed on a narrower base. This might be attractive for three reasons. First, a narrow-based tax, such as one on a readily identifiable class of transactions, might be easy to administer in the absence of a national government. But, there are serious problems with a narrow-based tax whose only attraction is ease of administration. To the extent that the demand

for the taxed item were elastic, inefficiencies would result. On the other hand, for less elastic bases, the tax would likely have adverse equity properties in the sense that their incidence would fall disproportionately on lower income persons. Moreover, the incidence of the tax by sub-national jurisdiction would bear no close relation to fiscal equity.

Second, the inefficiencies of a narrow tax will be avoided to the extent that the transaction involved emits adverse national externalities. (If the externalities are localized, presumably they will be taken care of by sub-national tax systems.) In this case, the revenues raised are seemingly costless from an economic point of view: the double-dividend argument (Sandmo 2003). However, relying solely on double-dividend taxation to raising revenues for less well-off jurisdictions is not without problems. These tax revenues will have a strong tendency to crowd out voluntary transfers made by sub-national jurisdictions or their residents. Also, the implicit incidence of these revenues on donor sub-nations will not correspond with what might be considered fair on fiscal equity grounds. However, this problem of the fairness of donor burden-sharing may be regarded as less pressing given that fiscal equity between donor sub-nations as a whole and recipient sub-nations has been improved. If the revenues raised from such seemingly costless means are insufficient, they could be supplemented by inter-jurisdictional transfers that took account of fiscal equity considerations.

Third, another efficiency-improving revenue source that might be collected on a coordinated basis is capital income taxation in one of its forms. Standard tax competition principles suggest that sub-national jurisdictions would compete down the tax rate on capital income relative to the optimal level. (There are considerations that temper this effect, such as the so-called hold-up problem that leads capital tax rates to be excessive.) To the extent that this is the case, a coordinated agreement to impose a national capital tax would yield a 'free' source of revenue along the lines of the double dividend from externality taxes. Similar considerations as to the usefulness of this source of finance apply.

4 Implications for global revenue sources

There are both parallels and differences between a hypothetical federation of sub-nations with no national government and the global economy consisting of many national governments. In both cases, a number of states exercise independent authority with no oversight from an upper-level government. Some states will be better off than others in one or more of the following senses: their average incomes are higher, they have greater endowments of resources, their level of economic and social development is higher, and the needs for public services and infrastructure are easier to meet. They exercise their fiscal authority not only to provide public goods that would not otherwise be provided by the private sector, but more important to promote redistributive equity through the tax-transfer system and the provision of important public services. And, since the states interact with one another in a broader economy, there will be various forms of fiscal spillover and fiscal competition that can lead to inefficiencies in resource allocation. There will presumably be some consensus by the citizens of better-off states to redistribute to those of less well-off states, whether out of altruistic motives or as a matter of ethical conviction. Taken together, the inefficiency of state fiscal interaction and the consensus to make it possible for citizens in less well-off states to advance

imply that there is some collective gain to be had from coordinated decisionmaking. Uncoordinated state decisionmaking will lead to the same sort of inefficiencies and inequities in the global economy of nations as in the national economy of sub-nations.

Despite these similarities, the differences among nations are likely to be more pronounced than among sub-nations. Income and development disparities across nations are likely to be more pronounced. Cultural, linguistic, religious, and ethnic differences will be greater. Institutional differences will be sharper. National political decisionmaking will give rise to greater variations in national policy choices than is the case across sub-nations within a given country.

These differences will be reflected in the international policy imperatives that will arise. National economies are likely to be more highly integrated than the world economy, although this distinction is becoming blurred with globalization. Labour is less mobile internationally, interdependencies in markets for goods and services are less, and the importance of spillovers crossing national borders might also be less. At the same time, because of the distinct sovereign nature of nations, certain types of transactions between them might be much harder to monitor, regulate and tax in an international setting than within nations. Good examples of this are financial capital and certain types of e-commerce. Nations are not able to tax these types of transactions at rates as high as they might prefer. With respect to world equity, it may be the case that the level of solidarity or social citizenship is less at the global level than the national level, so there may be more tolerance for fiscal inequity among nations than among sub-nations within a country.

The conceptual basis for addressing the inefficiencies and inequities in a world of nations—particularly the manner of raising revenues for international redistributive purposes—is similar to that in a highly decentralized federation in some fundamental respects. The sovereignty of nations implies that vertical equity among their citizens is primarily their responsibility. This is an issue of some importance from the point of view of considering new sources of global revenue, and the use to which it will be put. If one accepts the view that vertical equity is best ‘assigned’ to national governments, the main purpose of state-to-state redistribution is to achieve inter-state fiscal equity at least to some degree, that is, to reduce the gaps among nations in their ability to provide comparable public services and transfers at comparable levels of taxation.

This argument that pursuing fiscal equity is the appropriate basis for designing a system of development assistance is not innocuous. If instead one takes the view that the objective should be to further some notion of world vertical equity, the nature of optimal development assistance financing would be different. The criterion for financing development assistance would be vertical equity among individuals in the world rather than fiscal equity among nations. Financial instruments would then be judged and designed according to the incidence on persons of different income groups regardless of where they reside rather than their incidence on nations according to their abilities to finance public services. In other words, the ideal would be a system of progressive inter-personal taxes and transfers—a world income tax system—as opposed to a system of inter-state equalization transfers. This seems to be the clearest message that comes out of the fiscal federalism literature: *it should be fiscal equity among states rather than vertical equity among individuals that informs the design of a financing development financing system.*

This point of view presumes that nations are best placed to assume responsibility for vertical equity within their jurisdictions. That involves a serious value judgement and is also subject to some important caveats. For one, donor countries may not accept the view that recipient countries should be (or can be) responsible for redistributive equity within their own borders. Donors may be ‘paternalistic’ about national preferences for redistribution, just like altruistic donors within a country may prefer their charitable donations or the transfers of their governments to be tied to certain uses by recipients rather than having no strings attached. Second, even if donor countries are willing to accept recipient nations’ responsibility for vertical equity, there is still the possibility that fiscal competition entails inadequate levels of redistribution because of the race-to-the-bottom. These caveats need not be of primary concern to us to the extent that we focus on the raising of revenues from donor countries rather than their use by recipients.

What do these principles suggest about suitable sources of new revenues for financing development? Three separate classes of fiscal revenue sources can be distinguished: taxes on nations, taxes on global externalities, and taxes on transactions for which national tax rates have been competed down because of international mobility.³

4.1 Taxes on nations: a global equalization scheme

A system of taxes on the better-off nations to finance new development assistance for less well-off nations—effectively, a global equalization system—represents a purely redistributive source of revenue. It is the preferred form of redistributive taxation to the extent that one accepts the argument that vertical redistribution among households is the responsibility of nations themselves. An appropriate criterion for determining the allocation of tax burdens among nations is fiscal equity: a nation’s contribution should be related to its ability to provide some international standard of public services and redistributive transfers to its citizens at comparable levels of taxation.⁴ The principle of fiscal equity and how it could be made operational by a system of equalizing taxes and transfers has been discussed above. Here we point out the special problems that arise in an international setting.

- Since there is no world government, donor nations must agree cooperatively on the system of taxes to impose on themselves. This is a serious issue both because achieving unanimous agreement is difficult when the sharing of burdens is at stake and because there may be disagreement about the principles that should be used. One advantage of the fiscal equity criterion is that it is a principle that can be defended on normative grounds, and that is used in a federal context.
- Even if fiscal equity is a suitable objective, the global societal consensus may not be for full fiscal equity, that is, full social citizenship. Agreement must then be reached on the degree of partial fiscal equity to be pursued.

³ Other sources of revenue that are less related to our topic are discussed in other project-related WIDER Discussion Papers, such as a global lottery, SDRs, private donations, and emigrants’ remittances.

⁴ One could argue that a similar criterion should determine the allocation of development finance among less well-off nations, but the use of the funds is not our concern.

- Consensus may differ among donor countries. It may then be sensible to begin with agreement among a subset of countries, what is referred to as flexible fiscal architecture and discussed in Atkinson (2003).
- Putting fiscal equity into operation is more difficult in a global setting than in a federal setting. In the latter, sub-national government tax-expenditure policies are likely to be much less diverse than is the case among nations. That means devising a representative standard level and mix of public services, transfers and taxes against which to measure each nation's capacity is much more difficult internationally than among sub-nations in a federation.
- A system of national contributions should take account of contributions that nations would otherwise be making voluntarily. There are two dimensions to this. First, fiscal equity would suggest that a nation's assigned contribution or tax take account of all voluntary contributions that the nation might make. Second, the possibility of crowding-out discussed earlier must be addressed. The system could give not only credit for such transfers but perhaps also an additional incentive, much as national tax systems give additional incentives for household voluntary contributions. If the agreement were only among a subset of nations, the additional problem must be recognized that voluntary contributions of non-participants could be crowded out.

Given these difficulties, especially that of devising a suitable measure of a nation's capacity to pay, it may be necessary to fall back on a macro indicator of fiscal equity. It would have to be one that can be measured on a consistent basis across nations and that also is a rough index of fiscal equity. The one that comes to mind is the nation's GDP.

4.2 Taxes on international externalities

To the extent that certain types of activities give rise to externalities that transcend borders, taxes on these transactions would be potentially efficient sources of financing for global use. This is fully considered in Sandmo (2003), so there is little need to dwell on it here. However, some issues can be raised.

- International agreement is obviously needed here as well in order to establish the authority to implement such a tax. The tax may be implemented by an international tax collecting administration, or individual nations could be entrusted with collecting the tax and turning the proceeds over to an international authority.
- The global externality tax (or taxes) will at least partly displace national taxes that are already in place. This implies that some revenues that are currently going to national governments will be diverted to a world authority. Some account would have to be taken of this at least for some period of transition. That might be easiest to do to if nations also have a tax against which credit can be given.
- There will undoubtedly be design and compliance problems associated with externalities taxation to the extent that a given type of externality can come from diverse sources, some of which are difficult to monitor.

- A global externality tax system will do little to address the fiscal equity objective, at least among donor nations. However, it will serve to reduce fiscal inequities between donor and recipient nations.
- The problem of crowding-out will apply with respect to revenues generated from this source as well.

Despite these problems, it is difficult to argue against ‘free’ revenues that can be obtained from a tax on global externalities. Presumably the same principle would apply to obtaining revenues from the use of world resources that are not owned by any nation. Thus, valuable resources from international waters (fish, minerals, etc.) and the use of the atmosphere or outer space, such as by satellites, might be regarded as legitimate common property resources of the world community.

4.3 Taxes on internationally mobile taxbases

A third main source of finance for development use might be global taxation of taxbases that nations are liable to compete away because of international mobility, or that they underutilize because of monitoring problems. Examples include capital, especially financial capital, income (Grabel 2003), currency transactions (Nissanke 2003) and the taxation of internet transactions involving services that are difficult to monitor when they cross borders. In principle, international agreement should be possible for a harmonized increase in taxes of these types, given that non-cooperative tax competition is responsible for their low equilibrium tax rates. However, there are significant problems with relying on such taxes for financing new development assistance.

- There is a divergence of interests between net exporting and net importing nations that will make a cooperative solution difficult.
- The incidence of these taxes will not bear a close relationship with fiscal equity considerations, so they may not be regarded as ‘fair’ taxes. In the absence of a need for development assistance, cooperative agreements on taxing mobile taxbases would likely lead to the taxes collected being returned to the nation of origin.
- There will be significant administrative and compliance problems associated with taxing these transactions unless an international tax administration is instituted with significant powers of audit and information gathering.
- Crowding-out of national voluntary contributions will be an issue.

These considerations would also apply to global taxes levied on specific transactions simply because they are good revenue sources. Narrow-based taxes will either be distortionary or inequitable, and their incidence among nations would bear little resemblance to a fair allocation based on fiscal equity.

References

- Addison, Tony, and Abdur R. Chowdhury (2003). 'A Global Lottery and a Global Premium Bond'. WIDER Discussion Paper DP2003/80. Helsinki: UNU-WIDER.
- Artis, Mike, and Frederick Nixon (eds) (2001). *The Economics of the European Union*, 3rd Edition. Oxford: Oxford University Press.
- Atkinson, Anthony B. (2003). 'Innovative Sources for Development Finance: Over-Arching Issues'. WIDER Discussion Paper DP2003/88. Helsinki: UNU-WIDER.
- Barro, Stephen M. (2002). 'Macroeconomic Versus RTS Measures of Fiscal Capacity: Theoretical Foundations and Implication for Canada'. Working Paper 2002 No. 7. Kingston, Canada: Institute of Intergovernmental Relations. Available at: www.iigr.ca/publication_detail.php?publication=131.
- Boadway, Robin (2001). 'Inter-Governmental Fiscal Relations: The Facilitator of Fiscal Decentralization'. *Constitutional Political Economy*, 12: 93-121.
- Boadway, Robin, and Masayoshi Hayashi (1999). 'Country Size and the Voluntary Provision of International Public Goods'. *European Journal of Political Economy*, 15: 619-38.
- Buchanan, James M. (1950). 'Federalism and Fiscal Equity'. *American Economic Review*, 40: 583-99.
- Buchanan, James M. (1952). 'Federal Grants and Resource Allocation'. *Journal of Political Economy*, 60: 208-17.
- Dahlby, Bev (1996). 'Fiscal Externalities and the Design of Intergovernmental Grants'. *International Tax and Public Finance*, 3: 397-411.
- Grabel, Ilene (2003). 'The Revenue and Double Dividend Potential of Taxes on International Private Capital Flows and Securities Transactions'. WIDER Discussion Paper DP2003/83. Helsinki: UNU-WIDER.
- Keen, Michael J. (1998). 'Vertical Fiscal Externalities in the Theory of Fiscal Federalism'. *IMF Staff Papers*, 45: 454-84.
- McLure, Charles E. Jr. (ed.) (1983). *Tax Assignment in Federal Countries*. Canberra: Centre for Research on Federal Financial Relations, ANU.
- Nissanke, Machiko (2003). 'Revenue Potential of the Tobin Tax for Development Finance: A Critical Appraisal'. WIDER Discussion Paper DP2003/81. Helsinki: UNU-WIDER.
- Oates, Wallace (1999). 'An Essay on Fiscal Federalism'. *Journal of Economic Literature*, 37: 1120-49.
- Purdy, David (2001). 'Social Policy', in Mike Artis and Frederick Nixon (eds), *The Economics of the European Union*, 3rd Edition. Oxford: Oxford University Press, 240-70.
- Sandler, Todd (1992). *Collective Action: Theory and Application*. Ann Arbor: University of Michigan Press.

- Sandmo, Agnar (2000). *The Public Economics of the Environment*. Oxford: Oxford University Press.
- Sandmo, Agnar (2003). 'Environmental Taxation and Revenue for Development'. WIDER Discussion Paper DP2003/86. Helsinki: UNU-WIDER.
- Shibata, Hirofumi (1971). 'A Bargaining Model of a Pure Theory of Public Expenditures'. *Journal of Political Economy*, 79: 1-28.
- Warr, Peter G. (1983). 'The Private Provision of a Public Good is Independent of the Distribution of Income'. *Economic Letters*, 13: 207-11.