

Review of the Canadian Equalization and Territorial Funding System

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“Out of the crooked timber of the Canadian federation, no straight-forward equalization formula can be constructed”.

With apologies to Immanuel Kant

I. A FRAMEWORK FOR EVALUATING FISCAL EQUALIZATION IN CANADA

Before addressing the specific questions posed by the expert panel, it is necessary to provide an overview of rationale for equalization. This general discussion provides that framework within which I will address the questions posed by the expert panel.

The Constitutional Obligation

While the obligation of the federal government to make equalization payments to the provinces and territories was enshrined in the Canadian constitution in 1982, the wording is sufficiently ambiguous that it provides little guidance in designing or evaluating a specific equalization program. Section 36(2) states that:

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

What are reasonably comparable *levels* of taxation? In ordinary parlance, the level of taxation usually means the absolute amount of taxation. With this interpretation, the criteria for determining equalization payments to a province, such as Newfoundland, would be whether Newfoundland can provide a level of service that is comparable to other provinces if levies say \$5,000 per capita in taxes, when the other provinces also levy taxes of \$5,000 per capita. With this interpretation of the words “level of taxation”, equalization would be largely focused on “needs” variations, rather than the variations in fiscal capacity as conventionally defined in Canada’s equalization program. Most discussion of the constitutional objective has implicitly assumed that “level” of taxation should be interpreted as “rate” of taxation. However, the “level” of taxation is open to interpretation, and we should not automatically assume that it implies reasonably comparable “rates” of taxation. My reason for stressing this point will become clearer in a later section when I discuss the rationale for equalization and the interpretation of tax effort.

How much variation in public services is consistent with “reasonably comparable levels” of services—10 percent, 20 percent, or 50 percent variations? What services should be compared across provinces—services to individuals, services to business, or both? How should we interpret the “level” of public services? If one province introduces a new service, say pharamcare, would a strict interpretation of the constitutional require

an increase in funding to allow other provinces to provide a similar service, even if there is no demand for this service in the other provinces? Should variations in the cost of providing public services across provinces affect equalization entitlements? Should provincial capital expenditures be treated differently than provincial expenditures on current services? All of these issues concerning permissible variations in the standard of service, the applicable range of public services, and the measurement of services are complex and do not admit to simple solutions.

The constitutional obligation of the federal government to provide equalization grants is (in my view) deliberately vague because the issues regarding the appropriate level of equalization are complex and do not admit to simple solutions. Furthermore the objective of equalization may conflict with other objectives set out in the constitution or with other constraints imposed by the constitution and therefore it is best to think of the constitution as providing a description of a general objective that policy makers should try to achieve given the our other lofty goals and the constraints imposed by constitution and other policies.

While the constitution does not provide much guidance for the design of an actual equalization program, we still need a framework for developing and evaluating an equalization program. The rationale for equalization will determine, at least in part, the level and allocation of equalization payments to the provinces and territories. Here we will focus on the economic arguments for equalization, recognizing that there may be other frameworks, which put more stress on political issues and institutions, that might be utilized in addressing these issues.

What Is The Economic Rationale For Equalization?

There is a substantial economics literature on the rationale for fiscal equalization programs and Canadian economists have played a prominent role in the development of this literature. In particular, Robin Boadway, Canada's leading public finance economist, has made major contributions to the theory of equalization payments in a federal state and to the evaluation of the Canadian practice.¹ We will not undertake a systematic review of this literature, but rather, summarize some key points in that literature and then provide a brief critique of these theories. The three bases for equalization that we will consider are:

- fiscally-induced migration
- horizontal equity
- equalizing the marginal cost of public funds across provinces

¹ Boadway (2004) is one of his recent papers on equalization.

The Fiscally-Induced Migration Rationale

An efficiency argument for fiscal equalization grants can be based on the desire to avoid fiscally-induced migration. Many individuals are at least somewhat mobile and they may decide where to live and work based on their real after-tax incomes and the provision of public services by a province. If some provinces have a greater fiscal capacity than others, they can provide a given level of provincial services at lower tax rates than in other provinces.² Some individual may migrate to take advantage of these net fiscal benefits, defined as the gap between the value of provincially provided public services and the provincial taxes.³ The reallocation of the labour force based on differences in net fiscal benefits is known as fiscally-induced migration.

Fiscally-induced migration leads to a misallocation of the labour force among the provinces if workers will migrate from provinces with low fiscal capacity to provinces with high fiscal capacity until the net gain from migration is eliminated. An efficient allocation of labour across provinces requires that their wage rates (reflecting the marginal productivity of labour) less migration costs should be equalized between provinces. Differentials in net fiscal benefits arising from differentials in fiscal capacity create artificial incentives to migrate, resulting in too many workers in provinces with high fiscal capacity. As a result the marginal productivity of labour (net of migration costs) will be lower in the high fiscal capacity province than in the low fiscal capacity provinces, and the economy's aggregate net output will not be maximized.

The differences in fiscal capacity that cause distortions in the allocation of labour across provinces are the source-based taxes levied by provinces (such as corporate income taxes and taxes on the economic rents from natural resources). However, fiscally-induced migration might also occur if (as seems likely) provinces engage in different degrees of income redistribution through their tax and expenditure policies.

The federal equalization grants to the provinces with deficient fiscal capacity help to reduce fiscally-induced migration. The complete elimination of fiscally-induced migration would mean the complete equalization of provincial fiscal capacities, i.e. Alberta and Ontario's fiscal capacities would have to be equalized down to a common provincial standard. This could be accomplished through a "net" equalization scheme whereby the provinces with "excess" fiscal capacity directly contribute to the pool of revenues that are used to fund the payments to the provinces with "deficient" fiscal capacity. Our current "gross" equalization scheme, whereby the federal government makes payments to the provinces with deficient fiscal capacity, does not completely equalize fiscal capacity. Aside from being "inadequate", a gross equalization scheme may create further distortions and inequities if, for example, equalization entitlements are largely driven by natural resource revenues in Alberta while the burden of the federal taxes that are used to finance the transfers falls on Ontario residents. This issue will be discussed in more detail in the section dealing with equalization entitlements arising from natural resource rents.

² Here I will use the term, fiscal capacity, in the usual sense of a larger per capita tax base. Later I will discuss an alternative view of fiscal capacity.

³ I will treat the provincial and local government sectors as one level of government.

The efficiency losses from fiscally-induced migration will depend on the extent of labour market mobility and the net fiscal benefit differentials across provinces.⁴ While Canadian workers are undoubtedly mobile, there are many factors besides net private and public benefits that determine location of work and resident. The pecuniary and non-pecuniary costs of interprovincial migration may be high, limiting the response to differential net fiscal benefits.

Are the net fiscal benefit differentials large enough to generate significant interprovincial migration? Figure 1 shows, largely for illustrative purposes, the net fiscal differentials between Alberta and the other provinces in 1999 and 2004.⁵ The first figure shows the tax differential for a family of four with an income of \$75,000 in the other provinces compared to Alberta. In 2004, this tax differential ranged from \$4377 in Quebec to \$1372 in Ontario. The second figure shows the adjusted provincial program expenditure differential for a family of four.⁶ In 2004, some provinces such as Quebec spent more than Alberta, while other provinces, notably Nova Scotia, spent less on provincial programs. The third figure combines the expenditure differentials with the tax differentials to show the net fiscal benefit differential between Alberta and the other provinces for a family of four earning \$75,000. In 2004, differential was negative in all provinces, i.e. in Alberta the gap between adjusted provincial program spending and taxes was larger than in any other province. The net fiscal benefit differential was especially large for Nova Scotia. Our calculation indicate the Nova Scotia family would have a net fiscal gain of \$8,227 in 2004, in terms of higher provincial spending and lower provincial taxes, if it moved to Alberta.

Are these differences in net fiscal benefits differentials large enough to induce significant migration to Alberta? To judge this, several other considerations need to be taken into account. One is housing costs. The final figure shows the net gain from moving to Alberta by subtracting housing cost differentials from the net fiscal differentials.⁷ According these calculations, in 2004 a family of four would gain \$7,461 in moving from Toronto to Calgary. A family in Vancouver would gain \$6,623, while a family in Halifax would gain \$6,623. In the other provinces where there would be a financial gain in moving to Calgary, the gains are less than \$2,500 for families in Fredericton and Charlottetown and virtually zero for a family in Winnipeg. Families in Saskatoon, Montreal, and St. John's would be worse off if they moved to Calgary.

While these calculations cannot be conclusive with regard to the magnitude of the pecuniary incentives for inter-provincial migration, they indicate that the greatest incentives to move to Alberta are from the "have" provinces, Ontario and British

⁴ See Watson (1986) and Wilson (2003) on the efficiency loss gain from equalization grants. Neither of these studies includes the other labour market distortions, such as regionally extended EI benefits, in their analysis of the efficiency effects of fiscally induced migration.

⁵ The calculations were based on data in the section of the Government of Saskatchewan's budget documents, "Intercity Tax Comparisons".

⁶ Adjusted provincial program expenditure is defined as total provincial and local expenditure minus debt service and resource development expenditures. In addition, four percent of current deficits (surpluses) were subtracted (added) to reflect the anticipated future interest payments from the current deficit (surplus). The expenditure data were obtained from Cansim Matrix 3850001.

⁷ The housing cost differentials are based on the data in the "Intercity Tax Comparison" data and compare the mortgage etc costs in Calgary with the largest city in each of the other provinces.

Columbia, and the only “have not” province where there is a strong pecuniary incentive to move to Alberta is Nova Scotia. Perhaps most significantly, they show that there is little or no fiscal incentive, net of housing cost differentials, for families to move to Alberta from Saskatchewan or Manitoba, the two provinces where migration to Alberta might be expected to be especially sensitive to fiscal differential because of geographic proximity and cultural affinity.

Of course, there are many other pecuniary, as well as non-pecuniary, factors that affect migration decisions. Among the latter are the physical, cultural and climatic attractions of different regions cities, the strength of personal attachments to family and friends, and the costs of moving furniture and belongs to a new city. All of these factors affect the cost of inter-provincial migration.

Moving can be thought of as an investment, and therefore households should take into account the capitalized values of the net fiscal benefits and housing cost differentials. How can a household predict their net fiscal gain in moving to Alberta when these could vary substantially because of wide swings in oil and natural gas prices? These price changes would also significantly affect the value of a couples’ house as well. The depletion of conventional oil and natural gas reserves in Alberta may also significantly reduce non-renewable resource revenues in Alberta. All of these considerations suggest that a well-informed household would probably apply a very high discount rate to the net fiscal benefits in making their decisions about where to live and work.

Overall, while the impact of net fiscal differentials on the inter-provincial migration decisions ideally should be investigated using sophisticated econometric techniques, the calculations in Figure 1 suggests that they may not be very strong. Of course, it should be borne in mind these calculations reflect the impact of the existing equalization program and the net incentive for migration would probably be considerably stronger in the absence of the equalization program.

In assessing the efficiency effects of fiscally-induced migration, it is important to consider other labour market distortions. Unfortunately, these other labour market distortions have been generally ignored in the policy discussions about the efficiency effects of fiscally induced migration and this is a major lacuna in the literature on fiscally-induced migration and equalization.

Some labour market distortions may arise from capital market imperfections. For example, workers in depressed regions may not be able to borrow the funds required to finance a move to a region with higher employment opportunities. In this case, there would be too little inter-provincial migration and any fiscally-induced migration (by implicitly subsidizing migration) might help to overcome these cost and lead to an improvement in allocation of labour in the economy. Second, and more importantly, federal and provincial government policies that inhibit labour mobility. It is widely felt that extended employment insurance benefits in high unemployment regions reduces the incentive for workers to move to areas with lower unemployment and more secure employment opportunities. Industrial subsidies to regions with high unemployment also reduce the need for labour market adjustment through out-migration. Our political system, both at the federal level and at the provincial level, seems to be biased against labour mobility as a means of adjusting to long term trends in regional economic growth.

Obviously, in Quebec, mass out migration of the Francophone population is not considered a viable option, but the politicians in other provincial governments also garner power and prestige from the size of their population, and therefore have biased policy choices in favour of employment maximization, instead of productivity maximization. The federal government, by bowing to the regional pressures, may acquiesce in these biases.

If fiscally-induced migration causes a decline in aggregate productivity, workers in the “have” provinces must earn lower pre-tax wages than workers in the “have not” regions. But the opposite is true in Canada. The persistently lower wage rates and higher unemployment rates in most of the “have not” regions indicate that there are inadequate labour market adjustments. Fiscally-induced migration, far from reducing aggregate output, may actually offset the policy-induced labour market distortions, especially those created by the Employment Insurance system, which prevent labour market adjustment. In other words, if workers are induced to move from Nova Scotia to Alberta because of their net fiscal benefit is higher in Alberta, then there is a net efficiency gain for the Canadian economy reflected in the higher wage and salaries that such workers earn in Alberta. Any fiscally-induced migration in Canada, at least at current levels, is probably efficiency-enhancing because workers earn higher wages and salaries in the “have” provinces than in the “have not” provinces.

In conclusion, fiscally-induced migration, in the current Canadian context, does not provide a strong basis enhancing the equalization program.

Fiscal Equity

Equalization grants help to fulfill the goal of achieving horizontal equity within Canada. Indeed, it has been argued, by the Economic Council of Canada and by Robin Boadway in particular, that the principle of horizontal equity is a cornerstone of the Canadian federation. This principle means that the public sector should provide the same net fiscal benefit to all Canadian who have the same standard of living. This is basically the “equal treatment of equals” concept applied to all levels of government. Boadway argues that citizenship confers on all Canadians the right to equal treatment by the public sector, regardless of the province of residence. The strong version of this ethical position, if accepted, would justify complete equalization of fiscal capacity across provinces, thereby allowing provincial governments with low fiscal capacity to provide the same net fiscal benefit to their resident as are provided in provinces with high fiscal capacity.

While Canadians’ commitment to equality is undoubtedly strong, fiscal equity provides only a very slender reed upon which to build case for a comprehensive equalization program.

First, the principles of horizontal and vertical equity are usually applied to a particular government, be it the federal, a provincial, or a local government, and not to the public sector as a whole. Applying the principle to the entire public sector seems to ignore the very federal nature of Canada, that the federal and provincial governments are

sovereign in their respective areas of jurisdiction. It can be argued that if the commitment to fiscal equity was so strong, Canadians would have adopted a unitary form of government, instead of the federal form, and they would not have vested the ownership of natural resources with the provinces. The fact that Canadians have opted for a decentralized federation, rather than a centralized form of government that would be most capable of achieving fiscal equity, is evidence that fiscal equity is an important, but not a paramount goal for Canadians. It is one goal, among many, that Canadians would like to satisfy to the greatest degree possible given the problem of simultaneously trying to satisfy other, possibly conflicting, goals. In other words, The principle of fiscal equity is not backed by a shared ethical preference that it is so strong that it trumps all other considerations in the design of our fiscal system.

This is evidenced by the numerous policies where governments depart from the principle of horizontal equity because this principle, even if it is valued, conflicts with other desirable policy outcomes. For example, taxing capital gains at half the rate of other forms of income surely violates the principle of horizontal equity at least to some degree. Another example is the employment insurance program. The expected net benefit from EI for a bank teller in Edmonton is lower than that for a bank teller in St. John's. In the 1990s, the federal government lowered its tax rate in the eastern provinces to combat cigarette smuggling, but maintained higher rates of tax on cigarettes in western Canada. These examples, and other examples that could added, reveal that the principle of horizontal equity is more honoured in the breach than in the observance. Canadians have other values and there are important constraints that would make the simple-minded pursuit of "fiscal equity" a huge policy error.

How much variation across provinces in the net fiscal benefits is consistent with the constitution goal of providing reasonably comparable levels of services at reasonably comparable levels of taxation? Is a 10 percent, 20 percent, or a 50 percent variation in net fiscal benefits consistent with the constitutional mandate? We have no precise guidance on this question, but in other areas of public life, we are willing to accept large deviations from strict equality because other values and constraints are important. One example is the variation in the number of eligible voters in federal and provincial constituencies. These variations mean that the residents of Atlantic Canada are over-represented in the federal parliament, and rural voters are over-represented in the federal parliament and the provincial legislatures. However, Canadian courts have ruled that these large variations in effective voting power are permissible because practical issues and countervailing factors such as "geography, community history, community interests and minority representation may need to be taken into account to ensure that our legislative assemblies effectively represent the diversity of our social mosaic".⁸ If equality of representation in provincial and federal legislatures can be readily compromised by the need to consider other practical issues and countervailing factors, "reasonable comparability" in public services and level of taxation should also have a very liberal interpretation. In my view, the net fiscal differentials that are illustrated in Figure 1 are well within the ball park of "reasonably comparable services at reasonably

⁸*Friends of Democracy v. Northwest Territories (Commissioner)*, 1999 CanLII 4256 (NWT S.C.)

comparable levels of taxation”, and they do not provide any justification for a major expansion in equalization payments.

Like fiscally-induced migration, the principle of horizontal equity is a very slender reed upon to construct a comprehensive fiscal equalization program that would eliminate net fiscal benefit differentials in Canada.

Equalizing the Marginal Cost of Public Funds

A third justification for fiscal equalization can be made in terms of trying to equalize the marginal cost of public funds across governments. This rationale for equalization has received much less attention than the two previous topics, and I have a particular interest in this topic because Sam Wilson and I were among the first to argue that it provides a rationale for equalization.⁹ For these reasons, I will describe this rationale in more detail and perhaps with greater enthusiasm, if not outright parental pride.

To begin, we need to clearly define the concept of the marginal cost of public funds (MCF). It is widely acknowledged that taxes can affect consumption, savings, labour supply, and investment decisions, resulting in a less efficient allocation of resources. We can think of this efficiency loss as a decline in the size of the “economic pie”—the value of goods and services produced and consumed in the economy, including the value of leisure time and the quality of the environment. The shrinkage of the economic pie is what economists mean by the efficiency cost of the tax system. The MCF measures the loss, including the additional distortion in the allocation of resources, that occurs when a government raises an additional dollar of revenue. Consequently, it usually costs a society more than a dollar to raise an additional dollar of revenue because of the additional distortions in resource allocations caused by a tax rate increase, and therefore the MCF usually exceeds one.

The marginal cost of public funds will depend on tax sensitivity of the tax base. For example, if a 10 percent increase in the tax rate causes the tax base to decline by 5 percent, then the marginal cost of public funds would be 2.00. In other words, for this tax base, raising an additional dollar of tax revenue costs the private sector two dollars because of tax avoidance and tax evasion. If the tax base were completely insensitive to tax rate changes, then the marginal cost of public funds is 1.00. In other words, if a tax rate increase would not cause any changes in taxpayer behaviour, such that the tax base is completely insensitive to tax rate changes, the raising an additional dollar of tax revenue costs the private sector one dollar.

In the simplest case, where a government imposes only one tax on a tax base, B_i , at the tax rate t_i , then the MCF for the government will be:

$$MCF_i = \frac{1}{1 - t_i \phi_i} \quad (1)$$

⁹ See Dahlby and Wilson (1994).

where ϕ_i is the percentage reduction in the tax base from a one percentage point increase in the tax rate (expressed as a positive number). The higher the value of ϕ_i the greater the greater the tax sensitivity of the tax base.

The MCF concept helps to clarify the concept of fiscal capacity. Conventionally, fiscally capacity has simply been based on the size of a province's tax base (adjusted for population). The representative tax system (RTS) formula that is used to calculate equalization grants in Canada and other countries simply assumes that fiscal capacity is measured by the size of the province's tax base. However, a "large" tax base does not imply a high fiscal capacity if that tax base is highly sensitive to the tax rate. In other words, if we think of fiscal capacity as the ability to raise tax revenue at a low cost, then fiscal capacity depends on the tax sensitivity of the tax base, as well as the size of the tax base. From this perspective, a natural definition of fiscal capacity is:

$$FC_i = \frac{B_i}{\phi_i} \quad (2)$$

That is, fiscal capacity is inversely related to the tax sensitivity of the tax base, and proportional to the size of the tax base, B_i , (adjusted for the size of the population).

This framework gives us some insight into how equalization grants can be used to minimize the total cost of raising a given amount of tax revenue in a federation. Just as a multi-plant firm minimizes the total cost of producing its output by allocating production across its plants until the marginal cost of production is the same in all plants, so a federation will minimize the total raising any given amount of revenue by equalizing the MCFs across the provinces. Federal equalization grants to the "have not" provinces help to equalize the MCF across provinces. To illustrate this, consider a simple framework in which there are only two provinces, i and j , and let us assume that FC_i is less than FC_j either because province i has a smaller per capita tax base or a more tax sensitive tax base. In order to equalize the MCF between the two provinces in raising a given amount of tax revenue, R , the equalization grant from received by province i and paid by province j would be:

$$E_i = \left(\frac{FC_j - FC_i}{FC_j + FC_i} \right) R \quad (3)$$

In other words, the equalization grant to province i would depend on the difference in the provinces' fiscal capacities, where fiscal capacities are measured using the definition in equation (1), divided by the total fiscal capacity and R is the standard amount of revenue to be raised by both provinces. We will call the grant formula in (3) the *efficient tax system* (ETS) formula because it calculates the grant that would implement an optimal tax system in a federation, i.e. one that minimizes the total cost of raising a given amount of tax revenue in a federation by equalizing the MCF across the provinces.

Implementing this formula, for the more general case where there are multiple tax bases would require estimating the tax sensitivity of each tax base in each province. This would require a complex econometric estimation procedure, and we do not have any studies that have done this. Therefore, this framework cannot be implemented at the

current time. Nonetheless, in spite of its impracticality, this framework provides a number of insights into the calculation of equalization grants.

- The RTS formula for equalization grants is a special case of the ETS formula when the tax bases in all of the provinces have the same degree of tax sensitivity. In other words, the RTS formula will equalize the MCFs in the special case where tax sensitivity of the tax bases is the same in all provinces.
- Conversely, if the tax sensitivity of a given tax base varies across provinces, then the RTS will not adequately compensate provinces with highly sensitive tax bases. For example, it might be the case that the tax bases of a small province, such as New Brunswick, are more tax sensitive than the tax bases of a large province, such as Ontario, because, in the case of a sales tax, it is easier for taxpayers to engage in cross-border shopping in a small province if only because the “average” taxpayer lives closer to a border in a small province. For similar reasons, the costs of migration to another province may also be lower in a smaller province, making the personal income tax base more tax sensitive in a small province. Furthermore, it may be easier for investors in a small province to find alternative opportunities and to shift capital to another jurisdiction in a small province. One insight from the ETS formula is that the RTS formula, by ignoring differences in tax sensitivity, may not provide equalization to small provinces.
- A major problem that has plagued the Canadian equalization system is how to deal with tax bases that are nominally the same, but qualitatively different. For example the current equalization formula contains six different definitions of the oil revenue plus the shared revenues from the offshore activities for Newfoundland and Nova Scotia.¹⁰ The proliferation of tax bases for oil under the RTS system is a recognition that different sources of oil production represent different amounts of fiscal capacity because they generate different levels of economic rent. Variations in economic rent are, of course, simply a reflection of variations in the tax sensitivity of the bases. Thus, under the RTS system, there is an implicit recognition that the tax sensitivity of the tax base matters in defining fiscal capacity, even though tax sensitivity is not explicitly recognized in the RTS approach. The problem with the RTS approach to variations in tax sensitivity is that using a very narrow definition of tax bases exacerbates the tax back problem, i.e. the reduction in equalization that occurs when a recipient province’s tax base increases. With narrowly defined tax bases, it is more likely that a recipient province will have a major share of a tax base and therefore it will suffer a relatively large reduction in its equalization grant if its tax base increases. The ETS solution to the problem of variations in the “quality” of the oil revenue tax bases would be to adjust each oil base by its perceived tax sensitivity. Such an approach, even if the adjustments for tax sensitivities were rough and ready, might reduce the tax back effect. More research is required in order to evaluate the usefulness of this approach.

¹⁰ The tax bases are new oil, old oil, heavy oil revenues, mined oil, third-tier oil, and other oil and gas revenues.

- The RTS approach to equalization does not yield sensible results when tax bases are completely insensitive to tax rate changes, i.e. when $\phi = 0$. If the tax base is completely inelastic, provinces have the same fiscal capacity, regardless of the size of the tax base, because the MCF is equal to one. This insight explains why the attempt to use RTS to calculate equalization payments for property taxes is so problematic. A large property tax base, reflecting higher land rents because of scarcity, does not create a greater ability to raise revenue at a lower total cost, only the ability to raise a given amount of revenue at a lower tax rate.

Thus the ETS approach to fiscal equalization provides insights into the inherent problems in trying to use the RTS to calculate equalization grants, and provides rationales for deviating from strict application of the RTS approach under appropriate circumstances.

Conclusion

Fiscally-induced migration, horizontal equity, and equalizing the MCF, taken together, provide a firm basis for the provision of equalization grants in Canada. However, the standard of equalization that we should try to attain is by no means clear given the wide range of factors that should affect this decision. My main conclusion is that there is no pressing need to expand the scope of the equalization system, by for example adding a needs component, and that a suitably revised RTS system, with partial equalization of non-renewable resource revenues and property taxes, would be an adequate basis for equalization over the long-term.

II. KEY QUESTIONS ON EQUALIZATION AND TERRITORIAL FORMULA FINANCING

Linking Overall Funding Levels to Trends in Provincial Fiscal Disparities

What indicators of fiscal disparities would be relevant in evaluating funding levels for equalization?

There are a number of measures of fiscal disparities that could be used to evaluate the equalization program. One important set of measures could be developed are the marginal cost of public funds (MCFs) for the main taxes for each province. As I have indicated in Section I, an important function of the equalization program is to reduce differences in the MCFs across provinces. Unfortunately, we do not have a comprehensive set of measures of the MCFs for the provinces, and therefore the computation of these MCFs should be a high priority for the federal government or for any agency that is charged with the responsibility for administering the equalization program.¹¹

In the absence of calculations of the MCFs, the conventional measures of fiscal capacity used to compute equalization entitlements provide basic indicators of fiscal capacity differentials, although, as I have stressed in Section I, the conventional measures are flawed because they do not reflect the tax rate sensitivities of the tax bases.

Finally, measures of the net fiscal benefits and housing cost differentials between the provinces, such as those displayed in Figure 1, are useful indicators of the differences in taxation and services between provinces and the incentives to migrate between provinces. More comprehensive measures, including measures that incorporate the cost of services, and public sector performance indicators (such as provincial education test scores) might be useful supplementary measures of differential fiscal performances, although such measures always have to be interpreted with care.

Regardless of the measures that are used to evaluate fiscal capacity differentials, judgments will always have to be made concerning how large the differentials should be and whether the marginal cost of reducing the fiscal capacity differentials is greater than or less than the marginal benefit from reducing them. The existence of fiscal capacity differentials does not imply that equalization funding should be increased, given the costs that higher taxation imposes on taxpayers across the country and the opportunity cost of funds that would be used to increase funding of equalization. Indeed, it might be the case that we are currently “over equalizing” in the sense that the marginal benefit from an extra dollar allocated to equalization is less than its marginal cost. The equalization standard is both a “political” and an “economic” question because it reflects Canadians’

¹¹ Dahlby (1994) contains some computations of the MCFs for the provinces in 1994. These computations are out of date and were based on several restrictive assumptions, including the immobility of taxpayers between provinces.

commitment to equality and the economic and constitutional constraints that affect the cost of achieving these goals.

Allocating Equalization Among Provinces

Are multiple standards of equalization among provinces reasonable and sustainable over the long term? If so, what principles or evidence should determine how they vary among provinces?

As I indicated in Section I, the smaller provinces' tax bases may be more tax sensitive than the tax bases of the larger provinces. Because the RTS formula implicitly assumes that tax bases have the same tax sensitivity in all provinces, the RTS formula may systematically understate the equalization entitlements of the smaller provinces if the objective of the equalization program is to reduce the disparities in the MCFs across the provinces. However, we do not have any econometric studies on the tax sensitivity of provincial governments' tax bases that would provide empirical support for this view. In the absence of such information, it is probably best to apply the same standard in calculating the equalization entitlements of all of the provinces.

Whether the smaller provinces tax bases are more tax sensitive than those of the larger provinces should be a high priority research topic.

Is the exclusion of some natural resource revenues and user fees from equalization consistent with "reasonably comparable treatment" of receiving governments?

If the motivation for the equalization program is to reduce fiscally-induced migration and improve horizontal fiscal equity, user fees levied by provincial and local governments should not be included in the equalization program unless the user fees exceed the marginal cost of providing the service. Only the gap between the user fee and the marginal cost of the service represents a tax that contributes to the government's fiscal capacity. Since it is impractical to determine which user fees in which provinces exceed the marginal cost of providing the service, the practical solution is to exclude all user fees. (Vehicle licence fees should not be considered user fees in this context because the payment of the fee is not closely related to an individual's usage of a province's highway and road systems.)

The exclusion of some natural resource revenues in the equalization formula is discussed in another section below.

Should equalization incorporate expenditure need measures?

There are major conceptual and practical problems with introducing a needs component in the equalization formula. At the conceptual level, there are problems in defining “needs” for public services, as opposed to the level of public services that are actually “demanded”. In common usage, a need is something basic and essential. Viewed in this way, a “needed” public service would be a basic level of service that is essential in a modern state. It can easily be argued that needed public services, defined in this way, are currently provided to all, or virtually all, Canadians, given the current level of taxation and intergovernmental grants, and therefore there is no need to include “need” in the equalization formula.

Of course, the advocates of a needs component do not define “needs” in this way. They think of needs as the expenditure required to fund the average level of service actually provided by the provinces. Demographic, environmental, and cost variations mean that the funding required to provide the average level of service will vary across provinces. Actual program expenditures also reflect differences in preferences or the priority assigned to public services across provinces. It is not clear why a stronger preference for a public service in one province should necessitate increased federal funding to other provinces. Suppose Ontario decides to greatly expand its spending on public housing. In many formulation of the needs component of equalization program, this would result in higher equalization entitlements in all recipient provinces. Would the increased payments to those provinces really reflect increased “need” in those provinces when the spending is taking place in Ontario to solve an “Ontario problem”?

In addition to these conceptual problems, there are many practical problems with implementing a needs component to the equalization formula. Incorporating variations in the cost of services is a crucial element in any needs based system. One of the key determinants of cost is the level of public sector wages and salaries, but incorporating this factor directly in the formula would create a huge incentive problem because provinces would be able to grant more generous wage settlement to their employees and at the same time increase their equalization entitlement. To avoid this, an index of the average private sector wages and salaries could be used as an index of cost. But under this formulation, Ontario might qualify for equalization. See Kryvoruchko (2005). This would greatly increase the cost of the program or reduce the entitlements of the Atlantic provinces.

It would also be difficult to identify the other components of “need” that should be included in the formula. Provinces could always argue that they have particular circumstances that increase their cost of providing a standard level of service, and the number of components included in the formula might mushroom. The only obvious criteria for determining which variables should be included in the needs component would be their statistical correlation with actual spending. Choosing the “right” regression model to “explain” provincial government spending would become a highly contentious and “political” procedure.

A needs component in the equalization formula would create many more opportunities for provinces to adopt fiscal and regulatory policies that would increase

their equalization entitlements. If, as in the Kryvoruchko (2005) study, the number of unemployed is included in the needs component, a province would have an incentive to its minimum wage or to offer short-term employment programs that allow workers to qualify for employment insurance. These policies would increase unemployment in the province, thereby increasing its “needs” entitlement under equalization. Another factor that is sometimes touted as a needs factor is the level of provincial debt. See MacNevin (2005). However, basing equalization payments on the level of provincial debt would only encourage and reward irresponsible fiscal behaviour by the provinces.

Given these conceptual and practical problems, I recommend that a needs component should not be used in calculating equalization entitlements.

How can the measurement of revenue capacity from natural resources and property tax revenues be improved under equalization?

The problems that natural resource revenues and property taxes create for the equalization formula have common origins—the inelasticity of the tax bases and the absence of a corresponding federal source of tax revenue—but we will deal with natural resources and property taxes separately.

Treatment of Natural Resources Revenues

The most thorough recent discussion of the problem of incorporating natural resource revenues in the equalization formula is contained in Feehan (forthcoming). My views on the treatment of natural resource revenues are largely consistent with Feehan’s recommendations, especially with regard to the partial inclusion of natural resource rents in the formula. There may be some differences in our proposals, which I will outline below.

First, I will begin by reviewing the reasons why natural resource revenues should be treated differently than other sources of revenue in the equalization formula:

- Provincial ownership of natural resources. This implies different treatment from other revenue bases because “the crown cannot tax the crown”. Feehan has argued that the high tax-back rate for natural resource revenues effectively nullifies the “ownership” of the resource for a recipient province.
- Development and pricing incentives. High tax back rates on natural resource revenues create incentives for provinces to under-priced resources to create jobs, leading to uneconomic development of some resources and excessive environmental damage.
- Affordability. Equalization is financed by federal taxes, and the federal tax base does not include the natural resource royalties that gives rise to a significant amount equalization entitlement. It does not make sense to impose high personal and corporate income taxes across the country in order to make substantial equalization

payments to the Atlantic provinces and Quebec arising from resource revenues in western Canada. The burden of this policy would largely fall on Ontario residents, with deleterious effects on equity and economic efficiency.

- Variations in economic rents. Differences in the economic rents that natural resources generate are not fully captured by the current system. For example, the average oil field in Saskatchewan does not generate the same economic rent as the average oil field in Alberta. Differences in the “quality” of resources have created pressures to define the resource bases very narrowly, exaggerating the tax back problem.
- Volatility. Natural resource revenues are volatile because of fluctuations in world prices. Full inclusion of natural resource revenues would lead to wide swings in equalization entitlements.
- Development and infrastructure costs. Provincial governments may incur significant infrastructure costs in developing their natural resource revenue potential.

As documented by Feehan (forthcoming), various committees over the last 25 years have recommended the partial inclusion of natural resource revenues in the equalization formula, based on some or all of the factors cited above. The recommended partial inclusion rate varies from report to report, but as Feehan notes, something in the 20 to 30 percent range is a common recommendation.

If, for the sake of argument, a partial inclusion rate of 25 percent were adopted, it would be appropriate to adopt a 10 province standard, rather than the current five province standard which was largely adopted to remove Alberta’s resource revenues from the equalization standard. With a 25 percent inclusion rate, natural resource revenues from all of the provinces should be incorporated in the standard. A second proposal would be to combine all natural resource revenues in a single equalization category. This would avoid the problems of having to define a large number of bases which exaggerates the tax back effects. It would also eliminate the problem of the “artificial” bases that have been devised to compute equalization entitlements. An example is “sales of Crown leases” because the sale of a crown lease is not a tax, but a mechanism for collecting economic rent. See Courchene (2004).

In simple terms, the entire equalization entitlement with regard to natural resource revenues could be calculated using the following simple formula:

$$E_i = 0.25(\bar{R} - R_i) \tag{4}$$

where E_i is the per capita equalization entitlement for province i ’s from natural resource revenues, \bar{R} is the average per capita natural resource revenue calculated over the 10 provinces, and R_i is the per capita natural resource revenues received by province i . This formula would limit the tax back effect from increases in natural resource revenues in recipient provinces to 25 percent multiplied by one minus the province’s share of the total population. Consequently, the tax back rate would be just under 25 percent for the Atlantic provinces and around 19 percent for Quebec. These relatively low tax back rates would improve the incentives for the recipient provinces to efficiently price and develop their resources.

I have not been able to calculate the implications of this proposal for the equalization entitlements for the individual provinces or for total equalization payments. However, computations of a similar proposal in Feehan (forthcoming, Figure 2) suggest that there would have been a 15 percent increase in total entitlements and the Saskatchewan and British Columbia would have received the bulk of the increased entitlements if this proposal had been adopted in 2001/2002.

One distinction from Feehan's recommendations should be noted. He recommends that the equalization formula ultimately should be based on a measure of the province's natural resource rent potential as opposed to the actual revenues that the provinces raise from natural resources. I think that attempting to estimate natural resource rents would be fraught with statistical and conceptual difficulties making this proposal extremely difficult to implement. Furthermore since provinces do not directly tax economic rents, Feehan's proposal would move the equalization system further from a system that is based on the actual sources of revenues collected by the provinces. I think that, with a partial inclusion rate of 25 percent or lower, most of the problems concerning disincentive effect would be addressed, and there would be little additional gain in going to an economic rent measure. Consequently, I believe that the proposal could be implemented using actual natural resource revenues instead of estimates of economic rents.

Treatment of Property Tax Revenues

I have addressed the problem of incorporating property taxes in Dahlby (2003a and 2003b), two PowerPoint presentations that I made to the Fiscal Arrangements Committee Conference on the Equalization of Property Tax Revenues in June and November, 2003. Those presentations have been provided to the expert panel, and here I will try to summarize my proposal for incorporating property taxes in the equalization formula.

As I argued in Section I, the equalization program helps to improve economic efficiency by reducing disparities in the marginal cost of public funds (MCFs) across provinces. Central to this view is the notion that fiscal capacity depends not only on the size of the tax base, but also on the tax sensitivity of the tax base. The RTS system can help to equalize the provinces' MCFs under "normal" conditions, i.e. if the tax sensitivities of the tax bases are finite and approximately the same for all provinces. The RTS system does not work very well when the elasticities of the tax bases with respect to tax rates are either very close to zero or very large.

To illustrate these ideas, consider the case where the property tax base only consists of land used for housing, and the supply of land in each community is completely inelastic. The value of land will be high in the communities where the land is relatively scarce. This is illustrated in Figure 2, where the supply of land is lower in community 1 and in community 2. The rental value of land and the market value of land will be higher in community 1 than in community 2. Suppose a property tax is imposed on the value of land used for housing. The MCF from imposing a property tax will be

1.00 in both communities, even though the property tax base is larger in community 1 than in community 2 because property tax base is completely inelastic in both communities. Therefore both communities will be able to raise the same amount of tax revenue at the same “cost”. The only difference is that community 1 will be able to raise revenue at a lower tax rate than in community 2. If the two communities are otherwise identical and the demand for public services is not closely related to the demand for housing (a strong assumption), then both communities will demand the same level of public services, where the following condition is satisfied:

$$MB_g = MCF \cdot MC \quad (5)$$

where MB_g is the marginal benefit from the public service, MC is the marginal cost of producing the service, and MCF is the marginal cost of public funds, which would be equal to one in both communities.

As shown in Figure 3, both communities would choose the same level of service because the MCF is the same in both communities, but community 1 could finance its expenditures at a lower tax rate than community 2. This example shows that size of the tax base is not a good measure of fiscal capacity when the tax base is completely inelastic in supply. Unfortunately, the RTS approach to equalization simply uses the size of the tax base as a measure of fiscal capacity and if the RTS system were applied in this context it would imply an equalization grant for community 2. However, as a numerical example in Dahlby (2003a) illustrates, this would be inappropriate because it would make the residents of community 1 worse off than in community 2 even though members of both communities have the same net fiscal benefit from their local government.

The most important lesson that this simple model illustrates is that it is inappropriate to use the RTS approach in calculating equalization entitlements when the tax bases are completely inelastic.

However, this simple model has to be modified when applying it to the property taxes levied in Canada because the property tax base is a combination of a tax on the value of land (which is highly inelastic in supply in many communities) and capital (which is highly elastic in supply in almost all communities). Therefore the overall elasticity of the tax base is difficult to determine and may vary between communities. For example, the supply of land for housing purposes in Vancouver is more inelastic and land represents a larger share of the value of housing property than say in Edmonton. Even under these conditions, the value of property tax base is not a good indicator of the fiscal capacities of different communities, as is illustrated in example 2 in Dahlby (2003a). For these reasons, we should not slavishly apply the RTS formula in calculation of equalization entitlements.

In Dahlby (2003b), I recommended a simple procedure for modifying the RTS formula in calculating equalization entitlements for property taxes. If the property tax base differentials between communities were solely based on differences in the supply of land, we would expect to see an inverse relationship between property tax values and property tax rates. See Figure 4. That is, if community 2 had twice the per capita property tax base of community 1, it would levy half the tax rate in order to collect the same tax revenue and provide the same level of public services. In contrast, the RTS

system assumes that if community 2 had twice the tax capacity it could chose to raise twice as much revenue at the same tax rate. What we in fact observe is something between these two extremes, communities with higher property tax bases collect more tax revenues, but at somewhat lower tax rates. This suggests that a workable definition of the differential fiscal capacity between community 2 and community 1 is, *holding everything else constant*, the difference in the per capita tax revenues that they raise, or:

$$\begin{aligned} \text{Fiscal Capacity Differential} &= t_2 B_2 - t_1 B_1 \\ &= t_{\text{ave}} E_{\text{RB}} (B_2 - B_1) \end{aligned} \quad (6)$$

where t_i is the property tax rate in community i , B_i is the per capita value of property in community i , t_{ave} is the average property tax rate in the two communities, and E_{RB} is the elasticity of property tax revenue with respect to property tax bases:

$$E_{\text{RB}} = \frac{\Delta R}{R} \frac{B}{\Delta B} \quad (7)$$

This elasticity reflects the willingness of voters to raise more revenues from property taxes when their property tax bases are higher. It therefore reflects the de facto fiscal capacity increase associated with higher property tax bases. Consequently, the equalization entitlements with respect to the property tax base could be calculated as follows:

$$E_i = t_{\text{ave}} E_{\text{RB}} (B_{\text{ave}} - B_i) \quad (8)$$

where E_i is the per capita equalization entitlement of province i and B_{ave} is the average per capita property tax base. Note that the E_{RB} coefficient simply modifies the RTS formula to reflect the observed increase in fiscal capacity from larger property tax bases.

The E_{RB} elasticity can be estimated from data on property tax revenues and property tax values using regression analysis that also takes into account other factors that affect taxation and spending decisions at the community level such as the level of intergovernmental grants and demographic variables that reflect variations in the preferences for public services. Obviously, estimating this elasticity is an important aspect of this approach, but it seems to be a feasible. Indeed, there was an estimate of 0.72 for E_{RB} in the background documents provided by the Department of Finance at the time of the November 2003 meeting. Therefore at the time of the November 2003 meeting, I proposed a “72 Percent Solution” to the calculation of residential property tax equalization entitlements, i.e.:

$$E_i = 0.72 t_{\text{ave}} (B_{\text{ave}} - B_i) \quad (9)$$

In other words, based on the econometric evidence that provided by the Department of Finance, it would be appropriate to calculate equalization entitlements for the residential component of property taxes by taking into account only 72 percent of the deviations from average per capita property values. This approach was much simpler than the “stratified” approach that the Department of Finance was considering at that time, and it

seemed to yield similar aggregate entitlements. Although more work could be done on refining the estimate of E_{RB} , this way of calculating equalization entitlements has the advantage of being relatively simple and having at least some grounding in public finance theory. Let me add, in conclusion, that throughout I am assuming that market values can be used to calculate equalization entitlements. I think that the approach that I have outlined here could eventually be extended to commercial, industrial, and agricultural property, although more research would be required to determine the appropriate values for E_{RB} in these cases.

Could aggregate (e.g. macro approaches) measures of revenue capacity provide a simpler alternative to current methods? Should the RTS be retained in whole or in part? Could one combine both RTS and macro measures?

An equalization formula based on a single macro variable, such as per capita gross provincial product or personal income per capita, would not be a better way to determine equalization entitlements because it would not adequately reflect the tax practices and the fiscal capacities of the provinces. For example, personal income is not directly related to fiscal capacity because inter-provincial differences in corporate profits, non-renewable resource revenues, and size of excise tax bases are not reflected in personal income differences. The same is true of provincial GDP measures. For all its flaws and complexity, basing equalization entitlements on some measures of the tax bases that the provinces actually utilize is the preferred approach because it based, however imperfectly, on what the provinces actually tax. Furthermore, under a macro approach, the equalization standard is very arbitrary, and there would still be adverse incentive effects, with regard to tax rates and economic development policies.

Improving the Stability and Predictability of Payments

Should Equalization and TFF payments be made more stable and predictable? What is the best way of doing so without undue effects on other desirable program objectives?

Table 1, which is derived from the study by Kryvoruchko (2005) shows that there have been very large swings in the equalization payments to individual provinces and in total equalization payments. These year to year fluctuations in equalization payments to provinces reflect economic shocks that affect provincial revenues in the short-term. If one thinks of the equalization program as addressing fiscal capacity differentials that arise from long-term differences in the economic structures of the provinces, then the equalization program should not try to address short-term fiscal shocks. In this view, the fiscal capacities and equalization entitlements should be based on multi-year averages of the indices of the fiscal capacities of the provinces and not on annual estimates. Therefore, I would recommend that equalization entitlements be based on 3 to 5 year moving averages of the fiscal capacity indices of the provinces. This would help to make

the equalization entitlement to the provinces more predictable, which would help in provincial and federal budgeting and improve accountability and transparency.

Of course, provinces would be exposed to greater variations in their total revenues from short-term fiscal shocks, but the appropriate response to these short-term fiscal shocks is for the provinces to run higher deficits (or lower surpluses) when they have adverse shocks and to run large surpluses (or lower deficits) when they have beneficial shocks. The provincial governments in Canada have ample capacity to borrow to smooth short-term fluctuations in their revenues, and therefore this should not impose undue hardships on provincial governments. It also makes the provincial governments more responsible for their fiscal outcomes and may improve their incentives to adopt sound fiscal policies.

Transparency, Accountability and Governance

Would a permanent advisory commission (or other mechanisms) on matters of allocation and disparity trends significantly improve transparency and accountability to Canadians? Is it needed?

I believe that a permanent advisory commission on the equalization payments would be a useful institution in the Canadian context. Given the constitutional commitment to equalization, it seems to be anomalous that equalization entitlements are entirely determined by the federal government. Although there are consultations with the provinces, these seem to be concentrated in the last year of the 5 year agreements and there is little on going public discussion of changes to the equalization formula. The closed nature of the process has contributed to some of the problems with the equalization system, such as the high tax back rates on natural resource revenues that might have been identified and addressed with a more open institutional framework.

Although there has been considerable academic research on equalization, much of it dates from the early 1980s when the Economic Council of Canada produced a major report on the equalization system. We need to have more academic research on the basic or fundamental aspects of equalization that would over the long-term lead to changes and improvements in the equalization system. I would recommend that any permanent advisory committee have a substantial research budget and that it to sponsor fundamental research on equalization. (Too much of the academic writing on equalization simply surveys what we already know and what we like to know). Given the substantial inter-governmental transfers in Canada, it would be very beneficial to devote more resources to investigating issues in intergovernmental finances.

Linking Overall Funding Levels to trends in Northern Costs of Service

What indicators of costs of services would be relevant to evaluating the funding levels for the TFF?

While I may not be in favour of a needs component for provincial equalization grants, I recognize that the Territorial Funding Formula has to be based on needs because the territories have relatively little capacity to raise tax revenues. The Australian approach to equalization, where need is a major component of the equalization formula, might work for the territories, but not for the provinces, because the Canadian provinces have much greater tax powers than the Australian states or the Canadian territorial governments. The higher cost of providing services in Northern Canada in the Territorial Funding Formula.

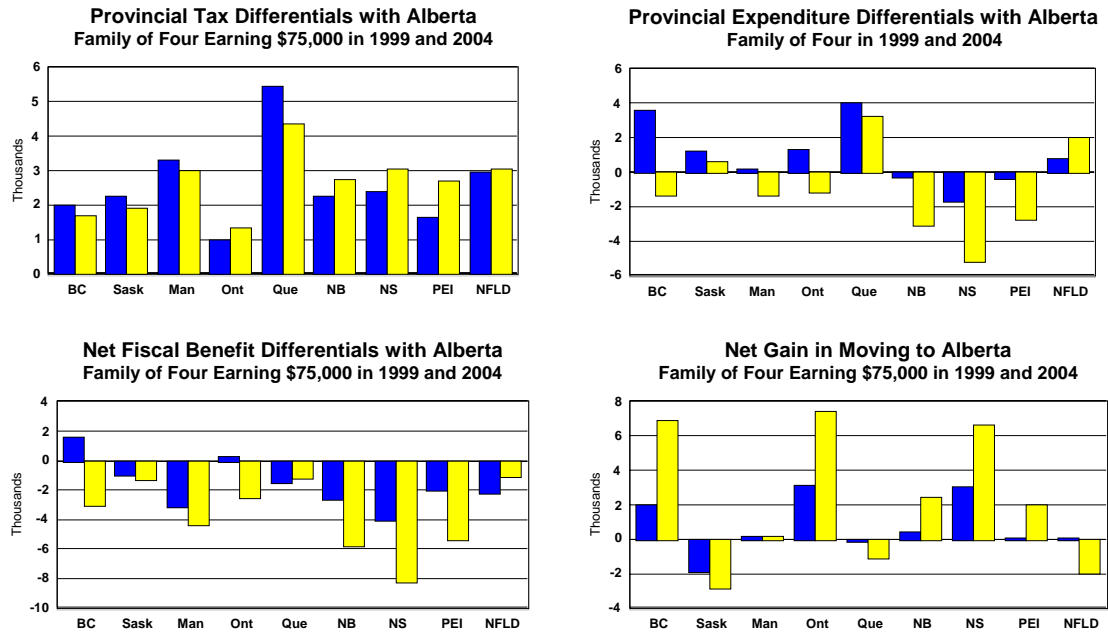
References

- Boadway, Robin (2004) "The Theory and Practice of Equalization" *CESifo Economic Studies* 50(1): 211-254.
- Courchene, T.J. (2004). "Confiscatory Equalization: The Intriguing Case of Saskatchewan's Vanishing Energy Revenues" *Choices* 10(2), Institute for Research on Public Policy, Montreal.
- Dahlby (2003a) "Equalization and the Property Tax Base" a PowerPoint presentation prepared for the Fiscal Arrangements Committee Conference on the Equalization of Property Tax Revenues, June 12, 2003, Ottawa.
- Dahlby (2003b) "Equalization and the Property Tax Base" a PowerPoint presentation prepared for the Fiscal Arrangements Committee Conference on the Equalization of Property Tax Revenues, November 21, 2003, Ottawa.
- Dahlby, B. (1994) "The Distortionary Effect of Rising Taxes" in *Deficit Reduction: What Pain; What Gain?* edited by R. Robson and W. Scarth, The C.D. Howe Institute, 1994, 44-72.
- Dahlby, B. and L.S. Wilson (1994) "Fiscal Capacity, Tax Effort, and Optimal Equalization Grants" *Canadian Journal of Economics* 27(4):657-672.
- Feehan, James (forthcoming) "Equalization and the Provinces' Natural Resource Revenues: Partial Equalization Can Work Better" draft chapter
- Kryvoruchko, Iryna (2005) "Redistributive Effectiveness of Three Equalization Alternatives: Representative Tax, Macro-Based and Fiscal Needs Systems. Evidence for Canada. working paper presented at the Canadian Economics Association meetings, Hamilton, Ontario.
- MacNevin, A.S. (2005) *The Canadian Federal-Provincial Equalization Regime: An Assessment* Canadian Tax Paper No. 109, Canadian Tax Foundation, Toronto.

Watson, W.G. (1986) "An Estimate of the Welfare Gains from Fiscal Equalization"
Canadian Economic Journal 19:298-308.

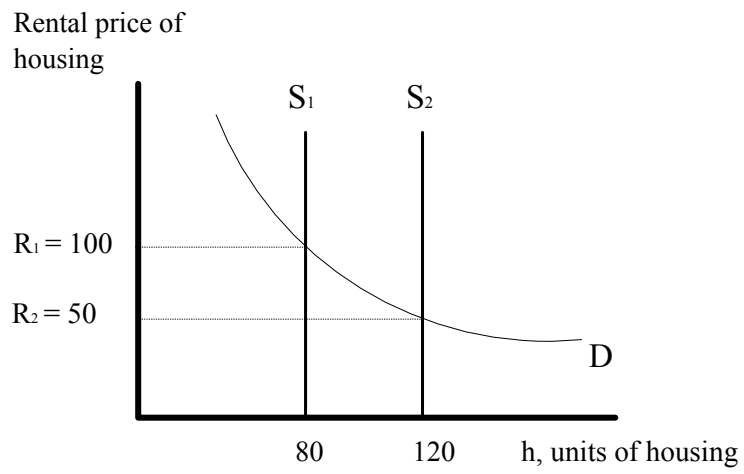
Wilson, L.S. (2003) "Equalization, Efficiency and Migration: Watson Revisited"
Canadian Public Policy 29(4): 385-396.

Figure 1 Net Fiscal Benefit and Housing Cost Differentials



Source: Government of Saskatchewan Budget Documents

Figure 2 Supply of Land and the Rental Price of Housing



**Figure 3 Determination of the Optimal Level of Public Services
Financed by a Completely Inelastic Tax Base**

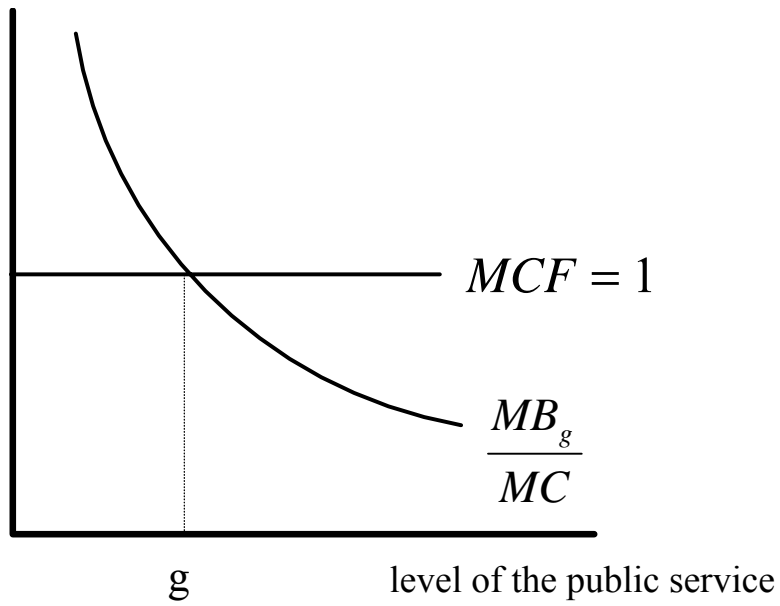


Figure 4 Relationship Between Property Tax Bases and Property Tax Rates

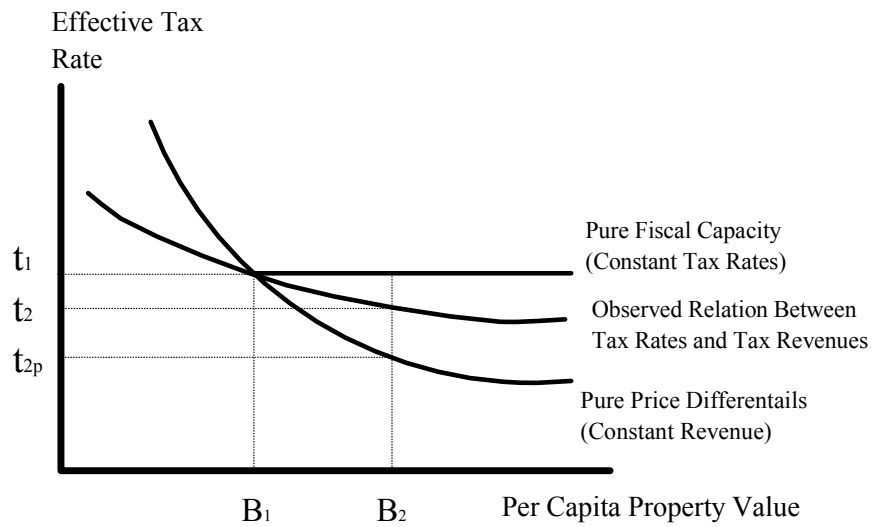


Table 1 Annual Variations in Equalization Payments

Year	NFDL	PEI	NS	NB	QC	MB	SK	Average p/c EQ Payment	National p/c EQ Payment
1996	1711.7	1379.2	1198.9	1201.2	566.1	958.3	172.6	1026.9	731.4
1997	1825.4	1530.6	1378.2	1398.9	581.3	2049.6	8.1	1253.2	778.8
1998	2159.5	1976.9	1455.2	1694.0	738.1	802.1	434.3	1322.9	926.5
1999	2007.9	1878.8	1312.4	1534.9	599.1	1113.1	533.7	1282.9	847.6
2000	2184.1	1987.7	1533.4	1532.0	768.0	1167.6	173.9	1335.2	950.8
2001	2226.8	2060.6	1448.6	1761.7	721.4	1215.6	492.0	1418.1	966.3
2002	2180.9	1623.2	1203.1	1529.2	713.8	1157.1	0.0	1201.0	871.1
Average p/c EQ Payment over 1996-2002	2042.3	1776.7	1361.4	1521.7	669.7	1209.1	259.2		
Province's Share of Total EQ Payments	0.11	0.02	0.12	0.11	0.48	0.13	0.03		
Standard Deviation	201.9	263.9	129.2	185.0	84.2	397.6	225.6		
Coefficient of Variation (STDEV/AVE)	0.099	0.149	0.095	0.122	0.126	0.329	0.870		

Source: Kryvoruchko (2005)