Fiscal Federalism : (c) Intergovernmental Grants

Transfers among different levels of government are an important part of the Canadian fiscal system. The federal government makes substantial transfers to provincial governments : some Atlantic provinces receive more revenue from federal grants than they collect from their own tax revenue. At the same time, provincial governments make transfers to the municipal governments in the provinces. Most Canadian local governments receive about as much of their revenue from provincial government grants as they do from their own property tax revenue.

In other countries, the pattern of intergovernmental transfers is somewhat different. For example, the American federal government's transfers to state governments are much less significant than the Canadian federal government's transfers to provincial governments. In the United States, state governments do provide substantial transfers to municipalities in the state, just like the Canadian provincial governments do. In Australia, virtually all state government revenue comes from transfers from their federal government.

In Europe, there is an additional level of government, the European Union. The EU budget is financed by transfers from governments of individual countries ; the EU levies no taxes of its own. In Canada and the United States, intergovernmental transfers move "'down" : from higher level of government to lower level of government. But these transfers which finance the EU move "up" : from lower levels of government to a higher level of government. Transfers which are made from lower levels of government to a higher level are not restricted to Europe : in China regional governments transfer revenue to the central government.

Here the rationale for transfers flowing in one direction, or the other, will not be discussed. But Tiebout's model does provide an argument that some categories of public expenditure might best be left to lower levels of government. If there is any reason why taxation is best left under the control of higher level of government, then transfers would be needed to correct this **fiscal imbalance**. [1] What will be discussed in this section is the form of intergovernmental grants.

In Canada, there are two main types of federal programme which transfer money to the provinces. One, **equalization**, will be discussed in the next sub–section. The other type of programme is actually two programmes, called the "Canada Social Transfer" (CST) and the "Canada Health Transfer" (CHT). The CST and CHT are the result of the federal government splitting up (in 2004) the earlier "Canada Health and Social Transfer" (CHST) into two separate programmes. The earlier CHST replaced a transfer called the "Established Programmes Financing", which in

[1] Why might taxation best be handled by higher levels of government? One reason might be **tax competition**. Lower levels of government may try and compete with each other, in attracting residents and industry, by lowering tax rates. This competition may be harmful to all the competing governments : they all might lower their taxes in attempting to attract mobile factors, and wind up with lower tax revenues, but without having succeeded in attracting any new residents or industry. To the extent that factors are more mobile among municipalities than among countries, a national government would be less likely to indulge in tax competition.

turn was a consolidation (and modification) of four grant programmes, each targeted at a particular category of provincial spending.[2]

So the nature of federal grants to the provinces has changed somewhat. Previously (in the 1960s and the 1970s), the federal government's transfers were targeted at particular programmes : there was a transfer programme for health care, a transfer programme for higher education, and so on. Since then, the transfers come in the form of just two big grants. In the jargon of public economics : the earlier programmes (one for each category of provincial spending) were examples of **conditional grants**. A grant with no strings attached — so that the provincial governments could do what they wanted with the money — would be an example of an **unconditional grant**. There are some conditions attached to the CST and the CHT. (For example, in order to qualify for CHT money, provinces must agree to the principles of the Canada Health Act in providing medicare, and must agree to provide social assistance to immigrants from other provinces.) But the conditions are not very strict. As long as they adhere to these (fairly easy) conditions, provinces can do whatever they like with the money they receive through CHT and CST. These programmes are pretty close to being unconditional grants.

To analyze the theory of how different types of grants affect decision making by lower levels of government, consider a lower level of government which can spend some of its revenue on education, and the rest of its revenue on other categories of public expenditure (health care,social assistance, highway maintenance etcetera). In the absence of any transfers, the lower level of government could be viewed as choosing how to allocate some given amount of its own tax revenues on these two categories of public expenditure : "education" and "everything else". So it could be viewed as having a **budget line** : every additional dollar spent on education means a dollar less to spend on other categories of expenditure.

The (inner) red line in figure 4 illustrates such a budget line. Presumably, if the provincial government decision makers had preferences over spending on these different categories, these preferences might be represented by indifference curves between education and "other expenditure". The government would try to get to the highest indifference curve on its budget line, and would choose an expenditure pattern where their indifference curve was tangent to their budget line. (The indifference curves have not been drawn in figure 4, but the solution would look just like a standard consumer utility maximization problem.)

An **unconditional grant** (sometimes referred to, especially in the United States, as a **block grant**) involves a transfer of money to the lower level government. It increases the resources available to the lower level government, resources which can be spent on education or on other expenditure. The transfer does not change the relative prices of the different categories of expendi-

[2] Actually, between 1977 and 1995 there were two main federal transfer programmes, in addition to equalization : Established Programmes Financing (EPF), and the Canada Assistance Plan (CAP), which helped pay for welfare payments by the provinces. Prior to 1977, there were 4 main programmes.

ture : one dollar more spent on education still means one dollar less to spend on other categories. So, in figure 4, an unconditional grant shifts out the lower level government's budget line parallel. The change in the budget set is just like the change in an individual consumer's budget set when she gets an income increase : a parallel shift. How an unconditional grant affects the lower level government's spending depends on the government's preferences. Presumably its new choice of expenditure pattern is determined by a tangency of an indifference curve with the new, shifted–out (green, in the figure) budget line. How much expenditure on education goes up would depend on the income elasticity of the lower level government's preferred level of education expenditure. So with an unconditional grant, the size of the grant (from the federal government to the province) does not vary with the way is the money is spent by the province. An unconditional grant is a cheque for X dollars, which can be spent in any way which the province wishes.

A **conditional grant** is any sort of grant in which the amount of money received by the lower level of government depends on what the lower level of government does. The simplest sort of conditional grant is one in which the lower level of government receives a fixed amount of money, but the money must be spent on a particular category of public expenditure. This type of grant is called a **non–matching** conditional grant, and is depicted in figure 5.

In figure 5, receiving the grant shifts the lower level government's budget line to the right. That is because, in this example, the conditional non–matching grant must be spent on education, the expenditure category measured on the horizontal axis in the figure. For example, the central government might give the lower level of government 30 million dollars. But the grant has rules, set by the federal government : all the money must be spent on education. That shifts the budget line right by 30 million dollars: if the combination (x, y) was originally on the lower level of government's budget line, when there was no grant,then $(x + 30, y)$ is now on the budget line when the grant is introduced — where x is expenditure on education, and y is other expenditure, both measured in millions of dollars.

Now a shift right of the budget line is very similar to a parallel shift. The only difference between the (green) "after grant" budget line in figure 5 (depicting the conditional matching grant) and the (green) "after grant" budget line in figure 4 (depicting the unconditional grant) is that the line in figure 5 is truncated at the top. With a conditional non–matching grant, the lower level of government cannot choose a level of expenditure on education of less than $30 million (unless it wants to lose some of its grant).

But if the lower level of government wants to spend more than $30 million in total on education, then there should be no difference between the two grants. That is, suppose that the lower level government's indifference curve is tangent to the "after grant" budget line in figure 5 at a point below and to the right of the kink (which is located where the province's spending. on education is exactly the amount of the grant, $30 million) Then the utility–maximizing lower level government would wind up at exactly the same expenditure pattern with a conditional non–matching grant as with an unconditional grant.

For example,suppose that the lower level government's preferred expenditure pattern were

$(40, 50)$ in figure 4 : after it had received an unconditional grant of \$30 million. Now suppose that instead it had received a conditional non–matching grant of \$30 million,which it was required to spend on education. It can achieve exactly the spending pattern $(40, 50)$ by spending \$10 million of its own money on education, in addition to the \$30 million received from the higher level of government, and \$50 million of its own money on other expenditure.

Now, in the absence of any grant money, if it only had \$60 million of its own money to spend, it might have spent \$30 million on education and \$30 million on other expenditure. So if it got an unconditional grant of \$30 million, it would spend \$10 million of it on education, and \$20 million on other expenditure, getting it to the point $(40, 50)$. If it got a conditional non–matching grant of \$30 million, which **had** to be spent on education, it could still achieve the expenditure combination $(40, 50)$. It could **reduce** its own education spending from\$30 million to \$10 million, enabling it to increase its other expenditure from \$30 million to \$50 million. Add in the grant, of \$30 million spent on education, and its expenditure pattern is $(40, 50)$. Just because the grant money has to be spent on education does not mean that the lower level government cannot re–arrange how it spends its own money. [3]

So the theory makes a very strong prediction. It says that there should be very little difference between an unconditional grant, and a conditional non–matching grant of the same amount. The only circumstances in which the two grants should different effects would be cases in which the desired education expenditure by the lower level of government — in total — was less than the grant. In that case, the lower level of government would choose the expenditure pattern right at the kink in the green line in figure 5, spending none of its own money on education. In any other case, in particular whenever the lower level of government actually does choose to spend some of its own money on education, then a \$30 million unconditional grant should have the exact same effect on its spending as a \$30 million conditiona lnon–matching grant.

The theory does not actually fit well with the data. That is, it seems that it does matter for what category of expenditure a non–matching grant is officially designated. Even when a province spends well more than \$10 million on education, it reacts differently to a \$10 million conditional non–matching grant for education than to a \$10 million unconditional grant. It seems to spend more on education in the first situation.

So provincial (and state,and local) do not behave exactly like the rational utility maximizers in the theory. This empirical regularity — that conditional non–matching grants typically tend to increase spending by a lot on the category to which they are directed — is usually described as the **flypaper effect**. Why the name? Because, contrary to the theory, grant money seems to

[3] Of course, the higher level of government could add some more strings to the grant. It could require the lower level of government to spend some minimum amount of its own money on education in order to be eligible for the grant. Those sort of conditions sometimes are added to grants. But a grant with these extra conditions is no longer a "non–matching" grant. And conditional non–matching grants are a very common form of intergovernmental grant.

stick where it lands.

The other type of conditional grant which will be considered here is a **conditional matching grant**. Actually, the version analyzed here (and in figure 6) is a particular type of conditional matching grant, an **open–ended conditional matching grant**.

With a matching grant, the higher level of government "matches" the lower level government's spending on some category of public expenditure. An example of this sort of grant : for every dollar that the lower level government spends on education, the higher level government will contribute 50 cents. [4] In this example, the **matching rate** is 50 percent. If the matching rate were 40 percent, then the higher level of government would only contribute 40 cents for every dollar spent by the lower level of government on education.

With a matching grant, the total size of the grant depends on the amount the lower level of government spends on the targeted expenditure category. If the lower level of government chose to spend none of its own money on the targeted expenditure category, then it would receive no money from the higher level of government.

The effect of an open–ended conditional matching grant on the lower level of government's budget line is illustrated in figure 6. The slope of the original (red) budget line, relevant if there were no grants, is -1. But the slope of the new (green) budget line, relevant if the higher level of government institutes an open–ended conditional matching grant, is less steep. The matching programme lowers the "price" of education, in the figure. If the matching rate were 50 percent, then the slope of the new budget line would be $-2/3$. The effective price of education to the lower level of government would now be $2/3$, rather than 1. With a non–matching grant, every dollar less spent on "other expenditure" enabled the lower level of government to spend one dollar more on education. With a matching grant (with a matching rate of 50 percent), every dollar less spent on "other expenditure" enables the lower level of government to spend \$1.50 more on education : \$1 of its own money, diverted from "other expenditure", and the 50 cent matching contribution from the higher level of government.

The total dollar amount of the transfer in the diagram is just the horizontal distance between the two budget lines : the more that is spent on education, the higher is the size of the transfer.

Because the matching grant lowers the price to the lower level of government of providing education, it may have a strong effect in inducing that government to change its spending pattern. in fact, if the lower level of government's behaviour can be represented by "standard" indifference curves, then a matching grant must have a larger stimulative effect on the targeted category of expenditure than a non–matching grant of the same total size.

[4] If the grant were a **closed–ended conditional matching grant**, then the higher level of government would contribute 50 cents, for every dollar the local government spends on education, up to some maximum total contribution. If the grant is open–ended, then there is no limit on the total higher level government contribution, if the lower level government is willing to spend enough on education.

Figure 7 illustrates. In that figure, two types of intergovernmental grant are illustrated. The non–matching grant is represented by the (green) budget line with the same slope as the original (red) budget line which would prevail if there were no grants at all. The matching grant is represented by the (dark blue) line with the less steep slope.

The preferences of the lower level of government are represented by the indifference curves drawn in figure 7. Given these preferences, the lower level of government would choose the expenditure pattern A is it received the non–matching grant, and the expenditure pattern B if it received the matching grant instead. By construction, the higher level of government is paying the same total amount to the lower level of government in each case : the horizontal distance between the original (red) budget line and the point A is exactly the same as the horizontal distance between the original budget line and the point B. Put otherwise, both A and B lie on the same (green) line parallel to the original budget line.

But B is to the right of A. The price effect implicit in the matching grant has induced the lower level of government to spend more on education (and less on other expenditure) than it would were it to receive a non–matching grant of equivalent size. This must be the case, if preferences can be represented by indifference curves which are convex to the origin. The slopes of the indifference curves must get less steep as we move down and to th right along any budget line, such as the green one in the figure. That means that a tangency with a less–steep budget line (such as the dark blue one in the figure) must come to the right of the tangency with the more–steep budget line (such as the green line in the figure).

So, at least in theory, matching grants should induce more of an increase in total spending on the targeted expenditure category than any non–matching grant of the same total dollar magnitude. If, for some reason, the higher level of government wants to encourage lower government spending on a particular category of expenditure, then matching grants are the way to go.

Why might the higher level of government want to encourage the lower level government to spend on a particular category of expenditure, rather than on some other category? The higher level of government may have different preferences. Or there may be some **spillovers** of the benefits of some categories of expenditure, across jurisdictions. Spillovers are just externalities among governments. For example, some of the benefits of one town's education expenditure could accrue to residents of other towns. People are mobile, so that they often move after they have finished high school. The education spending in the child's home town then would benefit residents of the town to which she moved as an adult. If lower level governments ignore the benefits of their spending on other jurisdictions, we have a (standard) positive externality. To internalize the externality, the "Pigouvian" remedy is to **subsidize** the activity with the positive externality. That's exactly what a matching grant does.

Prior to the introduction of EPF in 1977, the Canadian federal government had 4 major conditional grant programmes. These programmes were a mix of matching and non–matching grants. One of the main reasons why these programmes were replaced by the EPF (and then by the CHST and then by the CHT and CST) was the perceived impact of the conditional grant

programmes on provincial government spending. In the 1970's provincial government expenditure on some targeted categories (particularly health care) was growing very rapidly, as was the amount of money the federal government was spending in conditional grants. Switching to EPF was a way for the federal government to put an upper limit on what they spent. [5] It also may have reduced the growth rate of provincial expenditures, since the matching feature of some of the grants may have been to some degree responsible for the rapid growth.

[5] One conditional grant programme, CAP, was not abolished until 1995. But long before then, the federal government made it closed–ended (the "cap on CAP") to control how much it was paying out to the provinces.