INFLUENCE OF INTERGOVERNEMENTAL GRANTS ON THE ECONOMIC BEHAVIOR OF SUBNATIONAL GOVERNMENTS

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Abstract: The aim of the article is to provide a brief analysis of the influence of intergovernmental transfers on subnational government behavior and provision of services. The article attempts to integrate both the theoretical and empirical insights through fiscal federalism literature and from empirical studies. The article examines the effects of two basic types of transfers on provision of public services by using the indifference curve analyses. The article also describes the basic principles of grant design, and analyses fiscal discipline in accordance to dependence on intergovernmental transfers.

Keywords: intergovernmental transfers, grants, earmarked, non-earmarked grants, matching, non-matching grants, subnational governments

1. Introduction

Intergovernmental grants are an important source of revenue for local and regional governments, complementing their own revenues, which include revenues from taxation and non-tax revenues (fees, user-charges, rents, interests, etc.). Intergovernmental grants are usually the second important source of revenue after tax revenues. However, the governance of grants is complex, and practices vary widely across countries. There are many different kinds of intergovernmental transfer systems, and they have many different types of impact on subnational government finance. Some stimulate local spending, some are substituted for local and regional revenue efforts, some are equalizing, and some lead to more local government fiscal autonomy and decentralization than others. The aim of this paper is to provide a study on how the design, conditions, and principles of grants influence the behavior of subnational governments. According to my opinion, it is possible to analyze this problem from two points of views: from a microeconomic and macroeconomic level. The traditional microeconomic models on the effects of intergovernmental grants on a community are based on standard indifference curve analysis. From the macroeconomic point of view, we analyze the impact of grants on the fiscal autonomy and on the fiscal discipline of subnational governments in relation to the central government.

1.1 Objectives and Rationale for Providing Transfers

The central government can have the following objectives when providing grants to subnational governments. If subnational governments are responsible for providing a significant proportion of public services, the central government should compensate their need for resources beyond those left to their own exploitation.

Allocations by the central government to subnational governments have varying purposes, which affect their form and scope [PROVAZNÍKOVÁ, KRČMÁŘ, 2008, p. 71]:

1) Financing wholly or partly *the cost of services* or development programs which are of national significance, (i.e. which are regarded as consistent with national interests level, policies, and targets); these include contributing to spillovers, expenditures by regional authorities which confer benefits beyond their boundaries. If the central government does not pay grants to regional authorities this could lead to low levels of

provision of those services, or regional and local tax levels will become sub optimally high.

2) *Encouraging efforts* by regional authorities to develop programs and services in line with national policy.

3) *Stimulating growth* in regional economies, both to contribute to national growth and to reduce inter-regional disparities.

4) *Controlling subnational expenditure* to ensure compliance with national policies or standards.

5) *Securing an equal* or more equal *standard of services* or development.

6) *Compensate* subnational governments with a *low fiscal capacity, or relatively high expenditure needs, in order to avoid fiscal stress*. Inequalities in the ability of subnational governments to raise revenues and their need to spend, per each head of the population, may result in severe fiscal stress as affluent groups vote with their feet and poor needy authorities start to relocate to more prosperous authorities, and businesses do likewise.

7) *Assisting regions to cope with emergencies*. The central governments may try to restore the local and regional economies with adverse industrial structures, on the grounds of both equity and efficiency. High levels of local taxation may lead to cumulative decline as outward migration of the population and outward migration of business activity occurs.

These objectives are not mutually exclusive. In practice, systems of intergovernmental transfers can combine control with equalization. This can easily lead to inefficiencies, when a single grant is used to accomplish several objectives simultaneously. It is therefore important that the objectives of the grants be clearly stated, and that the grant design allows for a separation of objectives and independent steering and control of grant characteristics that contribute to each of these objectives.

There are many different kinds of intergovernmental transfer systems, but they have many different types of impact on subnational government finance. In principle we can recognize two major issues in grant design – whether *the grants should or should not require matching by the grant recipient* (non-matching or matching grant). Another issue *is whether the use of the grant proceeds should be left to the recipient's discretion or whether the use should be prescribed by the grantor* (non-earmarked grants or earmarked grants). These types of grants have different impacts on local and regional behavior. According to the theory, intergovernmental grants stimulate provision of local government services either by increasing the real income of local voters (the *income effect*) and/or by reducing the relative price of the services in question (the *substitution effect*). In both cases, local voters will demand more of the public good and service, according to their income and price elasticity of demand, respectively. Since real income has been increased, there will also be an increased demand for private sector goods and services, as long as the income effect exceeds the substitution effect. Hence, while a grant is paid to stimulate local government spending, it may also stimulate spending upon private sector outputs. It could also induce a reduction in local government taxation.

1.2 The Impact of Non-Matching and Non-Earmarked Grants

Economic theory [MUSGRAVES 1989, STIGLITZ 1997, BAILEY 1999], regarding the analysis of the impacts of transfers, use the indifference analysis. The problem is illustrated

by constructing a budget line and indifference curves for a given local government before receiving the transfer and after receiving the transfer. With a certain simplification, where it is assumed that the citizens-subjects of the given local government have identical preferences, the budget constraints of the given local government can be illustrated. This then illustrates various combinations of private and public goods which are affordable for the given local government. The indifference curves (I_1I_1 and I_2I_2) illustrate the preferences of the given local administration against sets of these goods.

A set of pre-grant equilibria and post-grant equilibria are drawn in Figure 1. The grant that aided local government goods is denoted by X (horizontal axis) and private goods is denoted by Y (vertical axis). The indifference curves I_1I_1 and I_2I_2 show alternative combinations of the two goods (public X and private Y) which the consumer are indifferent to. Lines *AB* and *FG* are the local government's alternative budget lines, showing various combinations of private and public goods that can be purchased with its income. Consumption of private goods before the grant equals ($0Y_1$) and the consumption of public goods equals ($0X_1$). To obtain $0X_1$ of public goods, Y_1A of private goods must be surrendered so that the tax rate paid by the consumers equals $Y_1A/0A$, where Y_1A is income measured in terms of private goods. The optimal combination assume that a non-matching grant is equal to *AF* or *BG* (which represents the same amount of grant measured in Y and X respectively) is given to the local government. As a result, the budget line shifts to *FG* (post-grant) and the new equilibrium is at E_2.
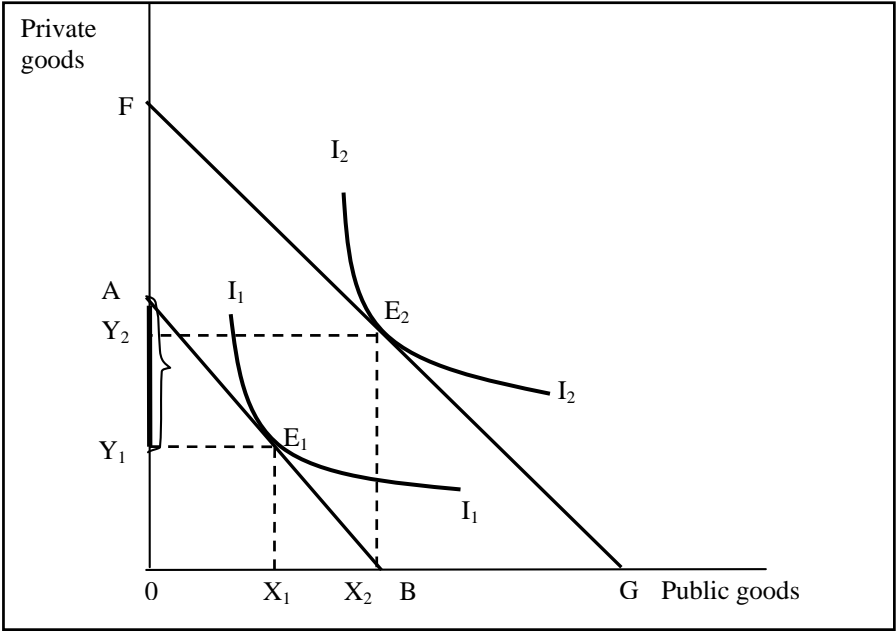

Figure 1 The Impact of Non-Earmarked Grants

Source: Adopted according to MUSGRAVES (1989) *Public Finance in Theory and Practice,* p. 462

The consumer in the local government now can afford more of both *X* and *Y*. Private goods consumption has risen by (Y_1Y_2) and public goods consumption has increased (X_1X_2). Part of the grant has leaked into the increased consumption of private goods rather that into the increased in provision of public goods, as may be expected. Since the consumption of private goods rises from $0Y_1$ to $0Y_2$, the amount paid in tax falls to $Y_2A/0A$ (tax reduction equals Y_2Y_1). Hence, there is an *only income effect,* which normally may be assumed to be positive and to increase the outlays of both public and private goods.

1.3 The Impact of Earmarked Grants

To compare the impact of earmarked grants against the impact of non-earmarked grants we only have to substitute private goods with public goods in the indifference analyses. Assuming that local government now produces two types of public goods (public good X and Y), the initial equilibrium is at E_1. After obtaining the non-earmarked grant, the budget line of the local government shifts to FG and the new equilibrium shifts to E_2. Provision of X increase to $0X_2$, and the costs to the central government is BG. If the central government gives a grant but earmarks it for the use of X (figure 2 represents shifts to the right $0V$, where $0V$ equal BG), only section RG of the new budget line will be available to the recipient, but equilibrium is again at E_2. Both types of grants secure the same increase in the provision of X to $0X_2$.
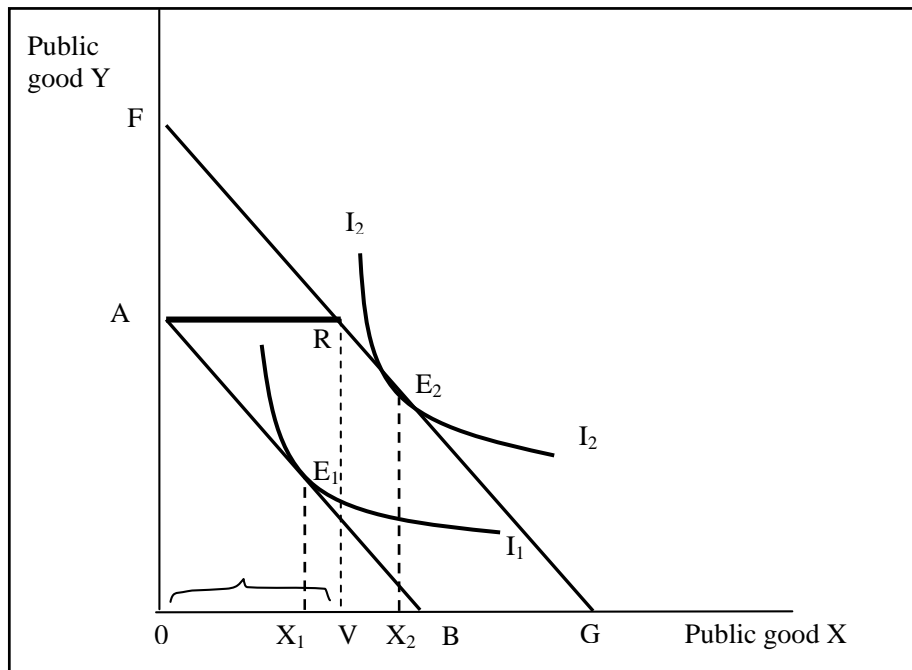

Figure 2 The Impact of Earmarked Grant

Source: Adopted according to MUSGRAVES *Public Finance in Theory and Practice,* p. 465 and BAILEY, S., J. *Local Government Economics. Principles and Practice,* p. 186

As STIGLITZ [1997] noted, there is no difference between the non-matching, non-earmarked grants, and non-matching earmarked grants. They would have exactly the same result as long as the amount of the grant is less than the amount of the financial resources that the local government itself would be willing to spend on this good. The grant substitutes the local financing of the good by a ratio of 1:1. In our particular case, if the grant is less than $0V$, there is no reason to earmark the grant for the use of X. An earmarked grant is more effective than non-earmarked grant only under the condition that the amount of the grant exceeds the amount of financial resources that would have been provided for the provision of the good by the local government.

1.4 Comparison of Matching and Non-Matching Grants

Matching grants reduce the absolute and relative costs of the grant-aided local government output, and so encourage consumption by consumers. These two types of grants are compared in Figure 3. The initial equilibrium is again at E_1, and E_2 is the new equilibrium with a matching grant. E_3 is the new equilibrium with a non-matching grants, the designed grants secures the same provision for public goods at $0X_2$. The reduction in the relative price of the

grant-aided good causes the budget line to pivot on point A (the price of *Y* being unaffected), since the maximum amount of *X* increases as a result of the grant from *0B* to *0G*. Hence, the equilibrium shifts from E_1 to E_2 and consumption of grant-aided good rises to *0X$_2$*. The consumption of *Y* also increased as a result of the income effect (to *0Y$_2$*). There is a substitution effect (movement to the right along the indifference curve), as well as an income effect (shift to a higher indifference curve).

This outcome could be compared with the payment of non-matching grant of the same amount by drawing budget line *FG*. Point E_3 represents the equilibrium securing with non-matching grants, which enables to provide the same level of public good *0X$_2$* as with the matching grant. The cost to the central government under the matching grant equals *E$_2$S,* and under the non-matching grant it equals *E$_3$S*. The same objective of securing a public good supply of *0X$_2$* can be thus secured at a lower cost with the matching grant, the difference being *E$_2$E$_3$.*
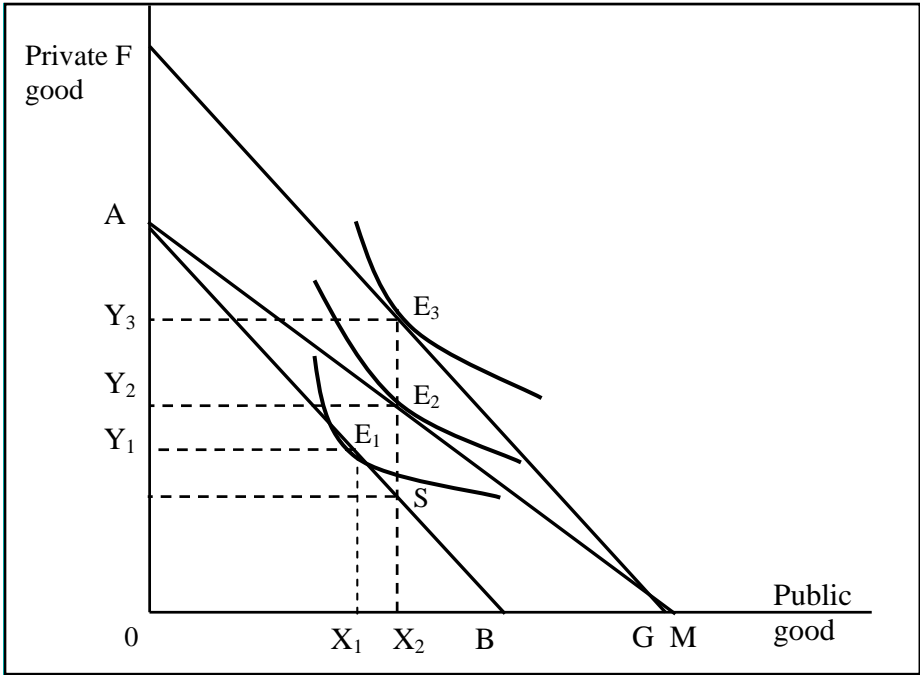

Figure 3 Comparison of Matching and Non-Matching Grants

Source: Adopted according to MUSGRAVES (1989) *Public Finance in Theory and Practice*, p.465

2. Principles and Design of Intergovernmental Transfer System

The conclusions mentioned above can be used in designing the grant/transfer and in selecting the appropriate type of grant. Some stimulate local spending, some are substituted for local and regional revenue effort, some are equalizing, and some lead to more local government fiscal autonomy than others.

Financing grants aim to provide subnational government with a source of revenue in addition to the subnational tax base. The central government may choose to provide financing grants, rather than to extend the subnational tax base or tax sharing arrangements.

In case the aim of the central government is a certain control of the level of taxation of the local governments, then the additional incomes to *finance certain services* are provided in the form of grants and transfers. To provide for the basic level of public goods and services, the best types of transfers/grants are *non-specific transfers.* The reason behind this is that the composition of the local goods is not uniform and may reflect specific needs and preferences

of the region. A number of countries utilize, for the allocation of such transfers/grants, certain formulas that are anchored in the legislation or on a discretionary decision. The discretionary decision, for example, can take the form of a long-term agreement with subnational government. It is customary for the distribution formulas to reflect the average or the normative costs of the basic set of services (averaging out variations in the basic set).

A second aim of financing grants is to provide the resources needed *to supply the service delivery programs imposed by central government,* or to reach imposed *minimum standards* for service delivery. Financing grants are generally based on average or normative service costs. In general, a financing grant for these purposes should be given in the form of *non-earmarked grants* (general purposes or block grants). If the grant is a non-earmarked, subnational government that are able to provide the service at less than average, or normative costs, can use the profits for other purposes. Determining normative costs for the central government is difficult because of asymmetric information. Therefore, average costs are often used as a temporary proxy, particularly in the first few years after new programs or minimum standards have been imposed. Once the central government has learned more about the cost structure of the service, it can, at a certain point, move to normative costs. Normative costs may have to be adjusted periodically.

Cost-covering grants are sometimes used to finance imposed programs. Since the subnational government may influence the service level, this might easily lead to overspending. Such grants should be used if cost and volume levels are fixed (norm budget financing) or bound by a ceiling.

It is difficult to find good criteria for the distribution of financing grants (whether non-earmarked or earmarked). Criteria used in distribution formulas may not reflect the real service costs and may not give incentives to economize costs. Population is often one of the criteria used, and this can make sense for the costs of publicly provided private goods that increase with the number of inhabitants. However, this is not a good criterion for the costs of public goods which decrease with the number of consumers.

Traditional grant theory [MUSGRAVES 1989, BAILEY 1999, STIGLITZ 1997, BAHL 2000] recommends *earmarked*, matching grants *to internalize positive spillover effects*. Earmarked grants provide a positive incentive for service provision, if the grants are paid on conditions that the services are actually provided. Spillovers vary with respect to their reach. Some may affect the nation as a whole while others mainly affect neighboring communities.

BLÖCHLIGER, KING [2006] recommend earmarked matching grants as efficient instrument to internalize national spillovers, but not to internalize regional spillovers because they would force the national taxpayer to pay for service that only benefit subnational taxpayers. Regional spillovers often occur because the appropriate size of the subnational government is different for different services, making it hard to create optimal jurisdictions. One way to solve the regional spillover problem is to increase the size of subnational governments so that they can provide a larger bundle of services.

A specific type of externality that could be internalized by a matching grant is the "information externality." Various types of institutional innovation that can be applied nationwide originate in individual subnational governments (in environmental policy, social security, etc.). The knowledge provided by such experiments travels relatively fast and it is not costly for other governments. Central government ought to support institutional innovation in order to internalize positive effects for "free rider" regions. For that purpose, the central government can use matching grants in which the costs and the risks of new programs put in place, locally, are shared. A matching grant is more supports of experimentation, since

it allows better sharing of information with central powers than a non-matching or non-earmarked grant.

Equalization can in principle proceed entirely *via horizontal grants*. The central government then imposes the obligations on jurisdictions, through a large tax base or low service costs, in order to transfer a part of their revenues to jurisdictions with a low tax base or high service costs (so called "Robin Hood" approach). This is the case, for example, in Germany. In practice, however, equalization often proceeds through vertical grants from the central government. This is particularly likely if subnational governments are, to a large extent, dependent on vertical grants for financing purposes.

Equalization can take place via *earmarked as well as non-earmarked grants*. The equalization component in a no-earmarked general purpose grant covers an average package of services, namely a package of average costs (mainly the basic subnational services and imposed programs or minimum standards). The equalization component in an earmarked grant will be applied exclusively to the earmarked services.

Intergovernmental grants are also an efficient instrument to compensate for *differences in service capacity* that result from costs differences (also called equalization of spending needs). Costs differences may have to do with natural circumstances (mountains areas), or with socio-demographical circumstances (demography, population density), depending on the expenditure responsibilities assigned to subnational governments.

Empirical evidence based on the survey on OECD countries [see more BLÖCHLIGER, KING 2006, JOURMARD, KONSGRUD 2003, BERGVAL 2006] illustrates that grants systems can lead to numerous inefficiencies. Grant system based on earmarked grants may result in poor-effectiveness in service delivery, can sometimes exceed the level at which spillover effects can be expected to be avoid, or may entail high administrative costs. Non matching earmarked grants may also encourage the recipient's jurisdiction to overspend.

A potential conflict between allocative and redistributive objectives can arise from an extensive reliance on earmarked grants. Earmarked grants could have adverse distribution consequences, since subnational governments are often required to match the grants together with a certain amount of local funds. Because poorer jurisdictions may lack this matching ability, this system has been identified as benefiting wealthier jurisdictions in some countries (e.g. China). To mitigate this bias, earmarked grants have been designed to contain an element of redistribution in some countries. (e.g. at the EU level, GDP per capita in individual countries and regions is a key eligibility criteria for most EU structural and cohesion funds).

Fiscal equalization transfers may also create poverty traps, by reducing subnational government incentives to introduce growth-promoting policies [JOURMARD, KONSGRUD, 2003]. Of particular concern are schemes that largely offset changes in local government own revenues by fiscal equalization transfers. The risk of poverty traps associated with fiscal equalization schemes has been considered an important issue in some countries, including Australia, Austria, Canada, Germany, and Japan. In Austria, it is estimated that on average 55 percent of additional revenues from the communal tax (which is the most important form of tax revenue of the local government's own tax system) are compensated by a loss of equalization grants. In extreme cases, Austrian local governments can lose up to 144 percent of the additional tax yields resulting from a larger tax base of the municipality. This reduces local government incentives to adapt local conditions so as to facilitate new companies within their jurisdiction. In Japan, also, an increase in local revenues reduces the level of the general grants from the central government: municipal governments only retain 25 percent of the increase in revenues, and the prefecture 20 percent. While such schemes offer few fiscal

rewards for developing the local tax base, disincentive effects could be muted by policy makers' efforts to attain other objectives, including employment creation.

In recondition of these problems, grant and transfer arrangement has been redesigned in many countries. Earmarked grants have been replaced by general-purpose grants in some cases (Canada, Finland, Iceland, and Sweden) and/or countries have reduced matching rates (Japan). Explicit performance criteria have been introduced to strengthen the incentive structure in grant and transfer systems and to place greater emphasis on outcomes in many countries (e.g. Australia, Brazil, Canada, and United Kingdom).

3. Dependence on Transfers and Fiscal Discipline of Subnational Governments

Theoretical and empirical studies suggest that financing through transfers is connected with "fiscal illusion." According to this theory the link between taxes and benefits is distorted or broken, and voters are less likely to sanction overspending by politicians. Local voters, local politicians, and regional representatives within the central legislature all receive fiscal or political benefits from grant programs without internalizing their full cost, causing them to demand to have more expenditures funded by grants than their own source of taxation. The vast empirical literature [MUSGRAVES 1989, STIGLITZ 1997] on so-called "flypaper effect" shows that a increase in intergovernmental grants rarely lead to tax reductions, and an increase in transfers stimulate much higher expenditures than do similar increases in locally generated revenues. According to [RODDEN 2002], transfer dependence (as opposed to local revenue mobilization) alters the belief about the sustainability of subnational deficits by allowing local politicians, along with their voters and creditors, to believe that the central government will ultimately be unable to ignore their fiscal woes. When a highly transfer dependent local government faces an unexpected fiscal shock, it may not have the flexibility to raise additional revenue, forcing it either to cut services, run deficits, or rely on arrears on employees and contractors. If the situation escalates into a fiscal crisis, it can claim, with some justification, that it is not responsible for the situation.

If successful in this strategy, eventually pressure from voters and creditors will likely be directed at the central government, which quite likely can resolve the crisis. It may be very difficult for the central government to resist political pressure from bondholders, banks, or public sector unions. Knowing this, transfer dependent governments face weak incentives to be fiscally responsible ex ante. Even if such subnational governments could take simple but politically costly, steps to avoid an impending fiscal crisis, it may be more rewarding to position themselves for bailouts. In fact, credit rating agencies are very explicit in assuming that in countries with high level of vertical fiscal imbalance (transfers as a percent of total subnational revenue), the central government implicitly backs the debt of the subnational governments. In such systems, the central government's own creditworthiness might be called into question if it fails to enforce a loan contract against a defaulting subnational government. Approached by creditors and facing the prospect of failing in its obligation to enforce property rights, the central government might see a bail-out as the simplest solution.

[RODDEN 2002, p.672] developed the hypothesis that "*the perceived probability of future bail-outs, and hence subnational deficits, increases with overall transfer dependence*". It is likely that rationality of bailout expectations depends on the structure of the transfer system and the flexibility built into the local tax structure in each country.

Empirical evidence lends no support to the simple proposition that higher levels of transfer dependence are associated with larger or faster growing deficits. The cross-section models show that higher level governments can assuage the intergovernmental moral hazard problem by cutting off the access of subnational governments to credit. Rodden's hypothesis is valid

only in countries where growing transfer dependence over time is associated with larger deficits, and where subnational governments are free to borrow.

4. Conclusion

The growth of subnational expenditure needs, in combination with insufficient subnational tax bases, and the unwillingness of central governments to increase the size of subnational tax bases (vertical imbalance), are not the only reason why grants have become an important part of subnational revenue. A substantial share of grants is also the result of disparities in tax bases or financial needs between jurisdictions that central governments want to correct (horizontal imbalances). A sizeable proportion of grants are due to the central government's imposition of service delivery requirements or the central government's encouragement of subnational spending through financial incentives.

From the executed analysis we may pronounce these general conclusions. Grant and transfer design have strong incentive effects on service delivery. Non-earmarked grants and earmarked grants have the same impact on local government spending because they have only an income effect. Earmarked grants are more effective than non-earmarked grants only under the condition that the amount of the transfer is higher than the amount that would have been provided by the local government. Matching grants have a greater stimulatory effect on local government spending, than equivalent of non-matching grants, because they have both income and substitution effects.

Non-earmarked general purposes and block grants are the most efficient instrument to finance subnational services. In the case of newly imposed programs, or minimum standards, earmarked non-matching grants cannot be entirely avoided (in the initial stage). If the central government wants to stimulate the provision of subnational services with spillover effects, earmarked matching grants can be the most appropriate instrument. Equalization can be achieved via horizontal grants (earmarked or non-earmarked) between subnational governments and additions, or subtractions, from general purpose grants.

Non-earmarked grants are usually a more efficient instrument for financing purposes than earmarked grants. Many countries have recently reduced their reliance on earmarked grants or redesigned them.

Extensive reliance on transfers lead to fiscal illusion, stimulate higher expenditures of the local government, and consequently worsen the fiscal discipline of local governments, and create a moral hazard problem.

Theoretical distinctions are not always easily applied to grants in practice. Countries have different traditions of decentralization, which are sometimes rooted in its culture or history. Reform of grant systems is a gradual process in which separate (group of) grants are revised sequentially and for different reasons.

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