

Extracts from
Indonesia: Decentralization—Managing the Risks

“Grants Systems and Management”

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I. GRANTS SYSTEMS

A. The Indonesian Context

Intergovernmental grants or transfers will remain the main means of financing local government in Indonesia. The law requires the central government to transfer at least 25 percent of domestic expenditure revenues through the general grant, or, on the basis of FY1999/2000 figures, some Rp 36 trillion. This is far bigger than the roughly Rp 4-5 trillion in shared resource revenues.

Table 1. Indonesia—Central-Regional Grants

Grant Program	FY 1999/2000 Budget
SDO grant	19,498
Development fund for villages	811
Development fund for regencies	5,775
Development fund for provinces	3,183

Source: BAPPENAS.

It is also considerably larger than the current general transfers (SDOs and Regional Development Funds—see Table 1) provided to the regions. Moreover, despite the consolidation of many specific grants into the development funds for the regions and villages, these grants are still mainly operated as specific grants. Annex III shows how the previously existing specific grants were mapped into the development fund, and shows that only part of the development funds are genuine general purpose grants.

Because of the central government's legal obligation to transfer 25 percent of revenues, and the need to contain the central deficit, government faces difficult trade-offs. It needs to decide whether it wants the general grant to be used for capital as well as recurrent spending. It then needs to decide whether it wants to retain part of the earmarked grant programs, or even expand them in light of the upcoming decentralization. And it needs to decide whether it can cut some of its own centrally managed capital programs in light of decentralization.

The government's budgetary trade-offs become less steep if it succeeds to transfer sufficient centrally financed personnel to the regions along with the decentralization of functions. A considerable part of central government personnel is already in its regional bureaus, and part

of the wage bill can be shifted. These trade-offs should be led by considerations of what type of grant can best finance what function.

General grant. For the decentralized functions that are truly local, and have little spillover effects, the general grant should finance service provision. The general grant should be able to cover normal capital requirements and standardized recurrent needs. The grant should also be sufficient to cover the minimum service requirements as defined by central government. The general grants will be less suited for financing the needs of backward regions that, for instance, have a backlog in school or roads construction. Such special needs could be better covered by a specific grant. Some countries, for example, India, have a separate grants program for the poorest provinces, because their needs are too different from the average state to be covered by the general grant scheme.

Given the current state of the statistical system in Indonesia, the grant formula can only provide a fairly broad indication of expenditure needs of the regions. Therefore, if many minimum standards are to be covered by the general grant, and if this grant is to cover regions with widely different needs, there is more risk of a mismatch between actual spending needs and grant allocation. The limited revenue raising possibilities of the regional governments would then imply that the central government could be forced to foot the bill, and risk macroeconomic stability. Thus, in the short-run, specific grants will continue to play a role in Indonesia's system of intergovernmental fiscal relations.

Specific grants. For truly decentralized functions, without spillovers, and without binding minimum standards, specific grants are no longer needed. These funds could be channeled through the general grants scheme. Examples of such grants are:

At the district level: the grant for district road development, basic infrastructure, district markets, small scale industry development, and the block grant for subordinate area development.

At the provincial level: the grants for provincial road improvement, the development of regional art and culture and rural extension services.

Some specific grants that are currently provided to provinces could perhaps be better provided to districts, if at all, because they are aimed at financing district level functions. Among those are special purpose grants for elementary school improvement and health facilities.

If government feels strongly about minimum standards of service delivery (e.g., in the area of education, health, and environmental protection), it could provide financial incentives by means of a specific grant. However, the government should be wary of too many specific grants, not only because of the difficulty in effective monitoring of such grants, but also because they can easily become an excuse for line ministries to hold on to the power they would lose in the course of decentralization.

Specific grants that meet part of the expenditure needs assessed by the general allocation formula should best be taken into account in the general grants scheme as a source of revenue. This requires that these special grants be determined before the general grants allocation is made.

B. Main Issues in Establishing a New Grants System

One of the key questions the authorities will need to address is the operation of the proposed equalization grants system.

The importance of equalization to Indonesia has been described, in a number of countries, as “the glue that holds the nation together.” It is based on the simple proposition that all people of a nation are entitled to a reasonably similar standard of government services so that people in remote regions can have access to, say, educational opportunities and health care at a standard similar to those in the larger cities. It is therefore pleasing to note that one of the objectives of the Fiscal Balance Law is to lessen differences between regions in their ability to finance services for which they are to have responsibility.

There are a number of important issues to be decided in designing an equalization system. An overarching issue is how to decide the quantum of funds to be devoted to equalization grants. Should the size of the transfer be specified in the legislation of the national parliament? Not many countries have adopted the sharing of total central government revenues to the extent specified in the Indonesian legislation, and some that have (such as Australia) abandoned the experiment after only a few years because it did not allow sufficient flexibility in national fiscal policy. A different approach has been developed by Canada, which specifies an upper limit, as a percentage of national GDP, that equalization cannot exceed.

An issue related to the size of the transfer is the **scope of equalization** in terms of expenditure responsibilities. Is it to be confined to recurrent expenditures or will it also take some account of capital needs? If the latter, it is generally not wise to take the need for major capital works into account, since these can create distortions in the annual distribution of capacities to provide recurrent services and are best approached on a broader basis, perhaps through a nationwide development budget. But equalization can well extend to ongoing and minor capital works programs, such as for schools and local roads.

A key question will be whether to address **absolute needs or relative needs**. In many countries, equalization is a relative process. In Australia, for example, the capacities of the States are equalized to the average level (per capita) of service provision, assuming the application of average effort to raise revenue. It would, however, be possible to equalize to an absolute or minimum standard (such as the provision of nine years of education) which all regions should achieve. But it is usually more practical to use tied grants to raise standards where they fall short of national minima.

This raises the question of **accountability**. Most equalization systems, particularly in larger, more diverse countries, operate through general-purpose (untied) grants. This enables

different units of government at the same level to develop different methods of service provision to be most suited to their individual circumstances and the aspirations of their people. While there may be a question whether, in a country such as Indonesia, such a system can achieve adequate accountability for the funds expended from the center, the monitoring of outputs rather than inputs (e.g., the standards actually reached in education or the progress of indicators of health status) may, at least in the first instance, achieve the same objective.

In most countries, some degree of **flexibility** is considered necessary. For example, where the units of government to be equalized are small in terms of financial capacity, it may well be desirable to give them scope for co-operative efforts in service provision. A very small district is likely to find it more efficient to contract out some services to neighboring regions or to another level of government (or the nongovernment or private sector) rather than trying to provide everything itself.

The equalization systems of developed countries generally rely on the identification and estimation of **disabilities** (influences beyond a government's control that affect what it needs to spend on providing services or can raise from a particular kind of taxation). Australia has developed a very elaborate system of measuring disabilities for both expenditures and (implicitly, through the estimation of revenue bases) revenues.

Most developing countries, however, lack the statistical base for such complex methods. Particularly in the early stages of development of an equalization system, the use of a few simple **indicators** (such as area or the proportions of relevant populations, like school age children or the elderly) is likely to be all that is feasible. Such systems can be elaborated over time as databases, administrative capabilities and technical expertise are developed. Some suggestions that may be relevant to Indonesia are put forward at the end of this section.

Whether it is a disabilities or an indicators approach that is taken to the measurement of relative need for funding, it is unusual, and not generally very helpful, to specify in legislation or regulations, the variables that are to be used. If any such guidelines are to be provided, they should be in only the most general terms and give the agency doing the task the capacity to develop its assessment methods as it gains experience and confidence in the information it has available to it.

Whatever approach is used, it is vital to maintain the **neutrality** of the system between the units of government to be equalized. **It is fatal to confidence in the system if governments can manipulate it to their own advantage.** This means, among other things (see below) that the indicators to be used must be free from government influence. Where this is not considered to be feasible, either to maintain stability (such as the use in China of the number of public servants in each region) or for other reasons, a more policy-neutral system should be developed as quickly as possible.

C. Organization and Procedures

A system of determining and administering the equalization grants needs to be devised in which both the units of government for which transfers to be equalized as well as outside observers (such as interested academics) can have confidence.

There are many approaches to this issue around the world. In a number of countries, a government department (often the Finance Ministry, as in Canada and China) operates the equalization system. This can work quite well, provided that there is confidence in the integrity of the department, that its methods are fully transparent, and that outcomes are seen as free from political influence. It is helpful if the decision-makers are known and are not anonymous civil servants. There is a question to be answered here about the status of submissions on equalization issues that are made by central government agencies, and how these are treated in comparison with those of recipient governments or associations of recipient governments. It may or may not be considered appropriate to give higher status to central government submissions, but if not, the appearance of impartiality under a departmental structure may be hard to achieve. If equal status is to be given to all submissions, the establishment of an independent authority is an advantage.

It is the stated objective of the Governance Law that the Secretariat operating the equalization system should do so with integrity, expertise, and independence. This may be easier to maintain by the use of an independent agency, outside the departmental structures. Such an agency, the Commonwealth Grants Commission (CGC), is used in Australia.¹ In South Africa, the Financial and Fiscal Commission (FFC), the agency administering the grants system, has constitutional status and, while this may be helpful in some circumstances, it is not the case in Australia where the CGC, with 66 years of experience, is accepted as both impartial and professional. How confidence in the equalization system may be achieved and maintained under whatever structure, is discussed below.

If there is to be some sort of grants commission, the first question relates to **membership**. Indonesia's draft law indicates that this will be a matter for presidential decree. How is this to be decided? How many members are there to be and what kinds of qualification are to be sought? Are governments, or levels of government, to nominate members? Is the commission to be a standing body or to be replaced (as in India) after a fixed term? While practices vary widely, some conclusions can be drawn.

- (i) Large commissions, particularly if their members are part-time, are likely to operate in a different way from small commissions. South Africa's FFC has around 20 members, but some are full time, and there is only a relatively small secretariat. Australia's CGC has only four members (it has had as few as three in the past), but meets more often and has a larger secretariat of up to 50. Decision making is likely to

¹See Part II of this Report, "Intergovernmental Grants in Australia."

be easier with a small commission and, for this reason, the secretariat staff of the larger commission may have greater influence on outcomes.

- (ii) There is no reason why individual governments, levels of government, or associations should not nominate commissioners, provided that those nominated have the required skills, are of sufficient standing and are broadly acceptable to both the granting and recipient governments. Governments may, indeed, have more confidence in a commission if they have some say in its membership. But it is obviously essential that commissioners are not beholden to any individual government.
- (iii) There are considerable advantages in a standing commission over a term commission. The experience of India, where not only the commission but also its secretariat are replaced after each inquiry (usually every five years), is to be avoided. It leads to each successive commission reinventing the wheel.

Perhaps even more important than these sorts of questions are the operating practices of the equalizing authority, whether department or commission. It would be hard to overstate the need to give recipient governments full opportunity to make their problems and views known or for transparency in both operations and outputs. While Indonesia will need to devise its own ways of meeting these requirements, the experience of Australia's CGC, as discussed in the attachment, is worth noting. In its full-scale reviews (reports on which are made each five years or so), the CGC:

- (i) provides discussion papers simultaneously to all State governments and the national Treasury, and ensures that all responses and other submissions are distributed to all parties;
- (ii) provides for successive rounds of submissions from the States and the national Treasury so that each has full opportunity to comment on the arguments of others;
- (iii) holds conferences on functional or more general issues, which allow State and national government experts in such areas as education and health to exchange views with each other and the CGC;
- (iv) visits each State in turn to conduct discussions with officials in their capital cities and in city and country areas (including, often, very remote areas) to talk with service providers at schools, hospitals, police stations, gaols, and so on to get their "on the ground" views on service provision and cost issues;
- (v) makes shorter follow-up visits to state capitals later in the review period to allow States to provide supplementary views;
- (vi) sends out its reports simultaneously to all governments;

- (vii) supplements its reports, as soon as possible after their release, with extensive working papers providing full details of CGC decisions and the reasons for them, and a program enabling those that are interested to make alternative calculations; and
- (viii) opens conferences to the public and provides reports and extracts of working papers free of charge to researchers (though charges have recently been introduced for those using CGC materials for profit).

It is worth noting that even in the preparation of its more routine annual update reports, the CGC provides an opportunity for the parties to comment on how it proposes to treat changes in State administrative structures and financial relations between the national government and the States (e.g., the transfer of functions from one level to another).

Indonesia's grants system will have little chance of acceptance if there is a belief that it has simply been imposed from the top. Clearly, it will take much time and much patient consultation to build up confidence in the system. In this as in many other respects, the self-imposed time limits for setting the grants system in place seem to us to be impossibly short.

D. Information and Data Requirements

The assessments on which a grants commission might recommend a distribution can be as narrow or as extensive as the available data permits. In Australia, the assessments now cover all recurrent expenditures and revenue sources of the States, but such a wide scope is not essential. In China, for example, where the system is still being developed, the range of assessments is being expanded and is yet far from complete in its coverage. As long as the intention to expand is indicated and the assessments that are done are not thought to take the distribution away from what might be the end result, taking short cuts is an acceptable, and often necessary, procedure.

The data required of a grant distribution system are of two types—those relating to the accounts of the recipient units of government, and those relating to the assessments of expenditure needs and revenue capacities. Unless absolutely necessary, it is better if the accounting data of the recipient governments do not influence the assessments, except to the extent that they are inputs into decisions about current average levels of service or revenue raising. As noted earlier, it is important to avoid “grant design inefficiencies” under which recipient governments can influence the size of their grant funding by changing their policies.

Data used in assessments can be from any source as long as they can be truly used to measure either differences in revenue bases, differences in the possible demand for services or differences in the unit costs of providing services. However, there are several attributes apart from their relevance to the assessments that make some data more appropriate than others for the task. They are:

- That data should be available for each unit of government. If not, it must be possible to use the data for one region as also being an appropriate indicator of need in others. This is sometimes possible when measuring differences in unit cost, but rarely otherwise.
- That data should be comparable across units of government. This is important to the end result and is usually a very time consuming task. Lack of comparability and inaccuracies in the data can have major distributional consequences.
- That data should preferably be sourced to an independent authority. This is important to minimize “grant design inefficiencies” and most countries use their central statistical agencies extensively as a source of these data. It is known that the Indonesian Central Statistical Bureau has many good data sets available.
- That data should be known to be updated annually or on some other known frequency such as at the time of a population census, data from which will usually be a major source of information. It is important that the system not be subject to either constant changes as data become unavailable, or to rapid changes in distribution of funding because of changes in assessment methods. Stability of data sources usually gives greater stability of results.

The data used for revenue assessments will often need to be tailored to the legislative base of the revenue source being assessed. While GDP per capita, for example, might be thought to be an adequate measure of differences in the value of land being used for productive purposes, it is obviously better if the actual value of that land, based on a standard approach to valuing, can be collected. It might be acceptable in such cases to derive the data from the recipient governments if it is known to be sufficiently comparable and free of manipulation.

Such direct measures of a revenue base are not always available and general measures of economic activity, such as GDP per capita, household income or value added by an industry sometimes need to be used. Such data are often unreliable at anything less than “whole-of-nation” level and should be looked at closely for comparability before being used.

When looking at data on which to base expenditure needs assessments, those relating to differences in demand are much more likely to be available than those relating to unit cost differences. Data on where demand for services is emanating from is often used as a management tool, and similarities between regions in their management task will often create similarities in the data they collect.

Influences on regions’ unit costs differ widely and are much more difficult to measure. Even on the demand side, however, it will be easier to get data on raw measures of demand such as the number of school age children than it will be to get information on the extent to which different types of students in the appropriate age group might have different demand patterns. It is easy enough to show that old people use more hospital services per capita than the

average, and to count the relative number of old people in each region's population, but much harder to decide what weighting to use when calculating their relative impact on demand for services.

Before the assessments are finalized, it is beneficial to give them a "reality" check to make sure they are sufficiently robust to be accepted in the regions. It is particularly important here to see that the assessments of those regions that are to be detrimentally affected can be justified. The best way to do this reality check is to have gathered policy information on at least the big issues in each function and know why a region's per capita expenditure or revenue might be expected to be greater or less than in other regions. It is particularly important, where relevant, to be able to show that a region has a particularly low or high figure because of a different policy approach. Making such information available is part of the transparency of the system that we believe to be vital to its acceptance. In Australia the information on policy differences was originally collected by the CGC because no other government agency had a need for it. However, it is now seen as critical to improving national public sector efficiency and is collected by the Productivity Commission, a central government authority charged with responsibility for recommending how this can be achieved.

States now habitually look at the comparable financial and nonfinancial data when setting their budgets and the central government agencies responsible for distributing special purpose funds between the States also use it.

E. Assessment Models and Formulae

The first question faced by many designers of assessment-based grants distribution systems is whether the assessments are to cover both revenue capacities and expenditure needs. In countries that have large areas with widely varying influences on the costs of providing services it is better to include both.

This is the approach taken by Australia. Because of the inconsequential access to own-source revenue at the district level in Indonesia, it is appropriate that the Fiscal Balance Law requires that expenditure needs as well as revenue capacities be assessed. It is not the approach taken by Canada but several of its provinces, particularly those on the Atlantic coast, have been urging that expenditure needs be included in their system.

The question of the standard to which the regions are to be equalized is also very important. In Canada, because the provinces have greatly different per capita capacities to raise oil revenue, they apply a revenue standard that is the average of the middle provinces and thus let the rich provinces keep the benefit of some of their "excess" capacity. This works well for Canada, but it means that equalization is only partial and that some provinces will always be able to provide better services or have lower taxes than others. Such a policy may be necessary in Indonesia if the oil rich regions are to share in the resource revenues as outlined in the Law.

The planned revenue sharing will create even more inequalities in revenue capacity than exist at present. Unless the oil rich provinces are found to have very high expenditure needs, the amount of funds available for the general allocation distribution will probably not be sufficient to overcome the revenue capacity differences and “negative” grants will be calculated. Such an outcome would indicate that these provinces were receiving too much funding from revenue sharing alone and that some of the resource-based revenue should be repaid. This would no doubt be unacceptable.

A more practical approach would be to leave the excess with the recipient provinces but begin to phase it out over time, either by changing the revenue sharing arrangements or by increasing the funds available for the general allocation distribution. **Given the need to maintain a strong macroeconomic policy capacity in the central government, the mission would urge a review of the revenue sharing arrangements as soon as possible.**

While some phasing-in arrangement may well be necessary, it would be highly desirable to indicate to the regions that the longer-term objective is to equalize to the national average. They would then know that their levels of funding are likely to be changed in relative terms over a given period, and could plan and budget accordingly.

There are several approaches that can be taken to measuring the differences between regions in revenue capacity and expenditure needs. The appropriateness of using them changes as a grants system matures and the data and other information systems improve.

At the extremes, the assessments can be based on either per capita differences (PCD) or equal per capita (EPC). The PCD approach assumes that all the differences in per capita expenditure or revenue are due to differences in need and the actual levels of expenditure or revenue can be used as indicators of need. In applying EPC, the assumption is that all the differences in per capita expenditure or revenue are due to policy differences and that the assessment of each region’s needs should be the same in per capita terms. In different circumstances, either of these approaches may be appropriate.

In the early stages of a system’s implementation, it is probably better to have all functions included in the equalization budget and, where necessary, make a simple assessment such as PCD or EPC rather than leave some functions out of the process. If it is likely that the new system will result in dramatic redistributions that will be difficult for regions to manage, it is also better to err on the side of PCD assessments because these tend to substantiate the pre-existing distribution. In these circumstances, however, it is also probably beneficial to let the regions know that it is intended to reduce the PCD assessments over time and thus increase the degree of equalization.

Between the PCD and EPC approaches lies the more realistic assumption that only part of the difference between regions’ levels of expenditure and revenue are due to what were referred to earlier as disabilities—influences beyond regions’ control that result in differences in per capita expenditure and revenue levels. Assessments that work to identify these disabilities are more demanding of data and time, but obviously result in a more equitable distribution. It is

also likely to be more acceptable in being based on a more thorough approach to assessing needs and capacities. It is the approach discussed in detail on the Appendix outlining the Australian system.

The principle behind the Australian approach, known as the factor assessment method (FAM) is that the per capita expenditure a region needs to incur to provide the standard level of services is that standard expenditure compounded by the per capita difference in the region's demand for services and unit cost of providing services. In revenue assessments, it is the national average per capita revenue raised at standard rates of tax, compounded by the extent to which the region's revenue base differs, in per capita terms, from the standard revenue base.

Obviously, judgment has an extensive influence on all assessments, even those using the PCD and EPC approaches. This is not a concern as long as the recipient governments have confidence in those making the judgments and the results of the judgments are made sufficiently transparent. The Australian system, one of the most complicated and developed in the world, still relies on judgment in all its aspects and could not exist without it. The important thing is to use whatever data are available, to make the judgments impartial, to be prepared to admit to the use of judgment and to open the results to discussion to see whether better data can be provided to improve the foundations for the use of judgment.

II. AN EQUALIZATION TRANSFER SYSTEM FOR INDONESIA: MODEL AND SIMULATION

This chapter discusses the technical steps needed to develop an equalization transfer model, and presents some simulation results using Indonesia's provincial level data.² It first provides the general framework of the transfer formula, which aims to ensure that provinces with similar levels of revenue capacity are able to provide similar levels of public services. It then details the procedure for estimating revenue capacities and expenditure needs of 26 provincial governments (excluding Jakarta). The exercise results in a set of hypothetical transfers from the center to the provinces under the 1999/2000 budget. These results are then compared with the actual transfers made to the provinces (based on 1997/98 data) to assess the formula's ability to reduce regional disparities.

The method used to calculate the provincial revenue capacities and expenditure needs in this section may be considered overly simplified and the quality of data can certainly be improved. It should be noted, however, that the exercise carried out here is only intended to provide an illustrative example of how an equalization transfer formula (for general allocations to provinces or districts) with a minimum data requirement can be constructed, rather than providing the exact model for Indonesia. The following sections discuss the methodology and the results. The final section provides some suggestions on the short- and medium-term strategy to improve the equalization model.

A. Formulas for Equalization Transfer

Roughly speaking, there are four possible types of formula for equalization transfers:

Type A: *Formulae that consider not only the equalization of revenue capacities, but also adjust for the expenditure needs of different regions.* Applications of this type of formula can be found in Australia, Germany, Japan, Korea, and the United Kingdom. Such formulas are demanding in terms of data requirements, particularly those on expenditure needs.

A typical formula of this type is as follows:

$$TR_i = N_i - C_i - OTR_i \quad (1)$$

where N_i is the expenditure need of the i^{th} region, and C_i is the revenue capacity of the i^{th} region. $N_i - C_i$ measures the gap between the expenditure need and revenue capacity. OTR_i

²This exercise can easily be replicated by the authorities using district-level data available to the Ministry of Finance and Ministry of Home Affairs.

represents other transfers (e.g., specific purpose transfers) the i^{th} region receives from the center that are used to meet part of the expenditure needs assessed by the model. This formula states that the central government transfer will fill the difference between each region's expenditure need and revenue capacity, to ensure that a region with standard tax effort will be able to provide a standard level of public services.

There is a question of how to match the sum of the entitlements ($\sum_i TR_i$) calculated from the above formula with the available pool for transfers. In theory, the pool can either be larger or smaller than the total entitlement. A commonly used method is to adjust the size of the transfer proportionally according to the size of the pool. Let TT be the size of pool for transfers. Then the actual transfer to the i^{th} region is:

$$ATR_i = (TT/\sum_i TR_i)TR_i$$

where ATR_i stands for actual transfer to the i^{th} region, and TR_i is calculated using equation (1).

Another way to match entitlements with funds available is to use a coefficient, α , in front of the fiscal gap, $(N_i - C_i)$:

$$TR_i = \alpha(N_i - C_i) - OTR_i \quad (2)$$

where α is chosen in such a way that $TT = \sum_i TR_i$. A variation of this method is to apply this coefficient to N_i , instead of $(N_i - C_i)$, that is,

$$TR_i = \alpha N_i - C_i - OTR_i \quad (3)$$

where α is chosen in such a way that $TT = \sum_i TR_i$.

A third way to match entitlements with funds available is to include a "standard transfer" in the formula:

$$TR_i = ST_i + N_i - C_i - OTR_i \quad (4)$$

where ST_i is the standard transfer to the i^{th} region. It is calculated by multiplying a standard amount of per capita transfer with the population in region i . The standard per capita transfer can be positive or negative, and its magnitude is determined in such a way that $TT = \sum_i TR_i$.

Type B: *Formulas that consider only the equalization of revenue capacities.* An example is the formula used in Canada. This type of formula has a relatively weak requirement for data and is easy to implement. But it ignores the potentially large differences in special expenditure needs across regions.

A typical formula of this type (often called representative tax system) is as follows:

$$TR_i = P_i (B/P - B_i/P_i)t \quad (5)$$

where TR_i is the transfer from the center to the i^{th} region, P_i is the population of the i^{th} region, B_i is the tax base of the i^{th} region, P is the total population of the country, B is the total tax base of the country, and t is the country's average effective tax rate on the tax base. $B/P - B_i/P_i$ measures the gap between the national average per capita tax base and the i^{th} region's per capita tax base. This formula states that the central government transfer will bring the revenue capacity of the below average region up to the national average.

In Canada, regions with below average capacities ($TR_i > 0$) receive transfers from the central government, and regions with above average capacities ($TR_i < 0$) receive no transfer but are not required to contribute to the pool for transfers. In Germany, however, the interstate equalization transfers are made directly across states—states with above average capacities contribute funds to a pool that is distributed to below average states.

A variation of this formula uses a different “average” per capita tax base as the benchmark level for comparison. Namely, the national average B/P is replaced by the average of a group of regions. The selection of this group can be used as an instrument by the central government to adjust the intensity of the equalization effort. If the central government selects a group that yields a group average lower than the national average, the transfer scheme becomes less than “full” equalization and requires a smaller pool of fiscal resources.

An equalization transfer scheme based on this type of formula assumes that per capita expenditure needs of all the regions are the same. This is an oversimplification and may create a new source of regional disparity if the costs of providing public services differ vastly across regions. However, if a country has relatively insignificant regional cost differentials or data on such cost differentials are not available, this formula may be a convenient option to consider.

Type C: *Formulas that distribute equalization transfers based on some “needs” indicators.* Revenue capacity is not considered in these formulas often because such data are difficult to obtain. India, Italy, and Spain use this type of formula. There are varieties of indicators that can reflect the expenditure needs of regions, and the choices are very much dependent on expenditure assignment and the government's objectives. Typical indicators (often used in combination with weights) used to determine regions' expenditure needs include: per capita income level; poverty incidence; unemployment rate; population density; area; infant mortality; life expectancy; school enrollment rate; infrastructure (e.g., length of roads and railways); other indicators of development level (e.g., electricity consumption and number of telephone lines).

Type D: *Formulas that distribute equalization transfers on an equal per capita basis.* Such formulas are used in Germany's VAT sharing, Canada's EPF, England's NDR, and in a number of Indonesia's general purpose grants under Inpres. Compared to the above three types of transfers, equal per capita transfer is least demanding for data, but has relatively weak equalization effects.

A comparison of the four types of formula. Type A formula provides the potential for full equalization. Compared with other types of formula, it is the more complex but more accurate in measuring horizontal fiscal resource needs. Of course, it is more demanding for data. Type B and Type C each ignore a major aspect (capacity or need) of the horizontal equalization, and thus are less effective in addressing regional disparities. However, they require less data and may be appealing for countries that intend to start an equalization transfer system on an experimental basis. Type D is probably least effective in terms of equalization, but is also least demanding for data.

Application to Indonesia. Data that are readily available and can potentially be made available for an Indonesian grants commission would permit the use of a simple version of Type A formula. In the rest of this section, we will employ equation (3) as the equalization formula for simulation.

B. Measuring Revenue Capacities

This section discusses the methodologies for estimating local governments' revenue capacities (C_i). The next section will discuss the estimation of expenditure needs (N_i).

Revenue capacity is defined as the ability of a government to raise revenues from its own sources and revenue sharing arrangements. There are several ways to measure the revenue capacity of a subnational government. In many developed countries, revenue capacity is measured using data on major tax bases and standard (average) tax rates. This method measures the revenue capacity of a region by the revenue that could be raised in that region if the regional government taxes all the standard tax bases with the standard tax effort. The formula is as follows:

$$C_i = \sum_j B_{ij} * t_j \quad (7)$$

where C_i is the i th region's tax capacity, B_{ij} is the i th region's j th tax base, and t_j is the standard (e.g., national average effective) tax rate on the j th tax base. It is important to apply the standard tax rate to the region's tax base rather than the region's own effective tax rate, in order to ensure that the regions with high tax efforts are not penalized and regions with low tax efforts are not rewarded. In other words, if the region's effective tax rates are higher than the national averages, the transfer it receives does not decrease as a result; if the region's effective tax rates are lower than the national average, the transfer it receives does not increase as a result.

Applying this method involves several steps:

Step 1: Select the tax bases. In practice, information on some tax bases (e.g., many small tax bases) may not be available or is costly to obtain. Therefore, instead of exhausting all the tax bases, revenue capacity is often measured using several major tax bases as a proxy. In the case of Indonesia, at least the vehicle tax, vehicle transfer tax, and land and building tax should be used to estimate provincial governments' revenue capacities, and the development tax, street

lighting tax, land and building tax, and land rents should be used to estimate district governments' revenue capacities.

Step 2: *Collect data on the selected tax bases.* One can use the previous year's (or several years' average) data on tax bases. There are also cases where tax bases (e.g., a property tax) are assessed every few years (say, three years) since an annual assessment may be too costly. Some of these data may be readily available from various departments of the central or subnational governments. If the data are provided by subnational governments, it is important to have well established rules on the reporting and auditing procedures as well as penalties on false reporting.

Step 3: *Select the standard tax rates.* There are many different ways to calculate the standard tax rate on a particular tax base. Several examples are: (1) the effective tax rate for the whole country; (2) the arithmetic mean of all regions' effective tax rates; (3) the arithmetic mean of selected regions' effective tax rates.

Step 4: *Calculate revenue capacities using equation (7).*

The method described above requires detailed and accurate information on major tax bases, which may not be readily available in many countries, including Indonesia. In some countries, revenue capacities may be measured indirectly by employing some income or output indicators. The frequently used indicators include: (a) Gross Domestic Product (GDP) of the region; (b) personal income (sum of all incomes received by the residents) or disposable personal income of the region; (c) total retail sales of the region. However, since Indonesian local governments do not derive income from any of the major tax bases (e.g., the VAT, sales tax, or income taxes), it is not justifiable to apply these proxy measures to estimate local revenue capacities. Better proxies for estimating Indonesia's local revenue capacities may include gasoline consumption, electricity consumption, and retail sales.

Because we have not had access to data on Indonesia's local tax bases or other proxy indicators, in the following simulation exercise, we simply use 1997/98 actual revenue collections as the basis for estimating provincial revenue capacities. We assume that each province's revenue capacity in 1999/2000 is proportional to its actual collection in 1997/98, and apply the estimated national average revenue growth rate to all provinces. An earlier chapter shows the estimates of 26 provincial governments' revenue capacities, taking into account the new rules on oil and gas sharing (3 percent of onshore oil revenue and 6 percent of onshore gas revenue to be distributed to provincial governments based on production origin). It also gives the existing revenue capacities before oil and gas revenue sharing.

It is important to note, however, that ideally one should not use the local governments' actual revenue figures in past years to measure their revenue capacities. If the actual figures are used, the transfer a local government receives from the center becomes largely a variable controlled by the subnational governments own tax effort. The local governments would thus have the incentive to under collect their own revenues in order to attract more transfers from the center.

In some countries, this system has encouraged subnational governments to shift budgetary revenues to incomes outside the budgetary system. Nevertheless, if a country has to develop an equalization transfer system before accurate information on tax bases becomes available, actual revenue collections is often the second best choice. This is also the practical experience of China, which in the first few years of its implementation (1996–97) of the equalization transfer system, used actual revenue collection as a proxy for revenue capacity. Over the past two years, it has developed a better database on tax bases and applied the more advanced method of revenue capacity estimation, as described above.

C. Measuring Expenditure Needs

This section discusses a commonly used method to determine expenditure needs of subnational governments. This method is used by many countries, including the United Kingdom, Australia, Japan, and Korea. It divides the total expenditure of a subnational government into many different categories and for each category estimates the need of this government. The total expenditure need of a subnational government is the sum of the estimated needs for all these categories.

In our exercise on Indonesia, the expenditure need of each province is broken down into five categories: education, health and social welfare, government administration, infrastructure, and economic development. These five categories are constructed by consolidating the 20 sectors under the Indonesian economic classification. For each category, we develop a formula to estimate the expenditure needs of the provinces. The variables used in these formulas are considered the most important determinants of the expenditure and are those for which data are readily available.

The variables used to determine the needs under the five categories are:

- **education:** number of school age children, average number of years of education;
- **health and social welfare:** population, proportion of old age population, average life expectancy, infant mortality;
- **government administration:** population, percentage of urban population;
- **infrastructure:** length of local roads, share of poor roads in total length of local roads, population density; and
- **economic development:** population, per capita GDP, poverty head count ratio.

Determining the expenditure need of each province involves three steps:

Step 1: *Determine the share of each expenditure category in total expenditure.* The share of each expenditure category in total expenditure (including routine and development expenditures) is calculated using actual expenditure data for 1997/98 (see Table 2 below):

Table 2. Provincial Expenditure by Category, 1997/98

(In billions of rupiah)

	Actual Amount 1/	Share
Education, Culture, Religion, and Sports	2,262	18.9%
Health and Social Welfare	441	3.7%
Government Administration	5,893	49.1%
Infrastructure	1,588	13.2%
Economic Development	1,808	15.1%
Total	11,992	100.0%

Source: Calculated using data from the Ministry of Finance.

1/ As the government wage bill is not included in Indonesia's current sectoral classification of expenditure, it is assumed that its distribution across sectors is identical to that of routine expenditure.

The total expenditure need of 26 provinces in category k (k = education, health, etc.) equals the weight (α_k) multiplied by the total expenditure need of all categories. Denoting total provincial need of all categories by TN, the total expenditure need in category k is

$$TN_k = \alpha_k * TN$$

Step 2. Calculate the expenditure need for each category and then sum up these needs to get the province's aggregate expenditure need. The general formula for calculating expenditure need in category k can be written as:

$$N_{ki} = \text{Measurement Unit}_{ki} * \text{Average Per Unit Cost}_k * \text{Adjustment Coefficient}_i$$

where k standards for the kth expenditure category, such as education, health and social welfare, government administration, etc. Measurement unit refers to the number of units that receive services from the provincial government. Average per unit cost is defined as total provincial expenditure on category k divided by the measurement unit (e.g., the average per unit cost of education is the ratio of the total expenditure on education to the total number of school age children in all provinces). We use the most recent data available for this calculation. The adjustment coefficient is a combination of factors that differentiate the unit cost of the service in the province from the national average.

Step 3: Determine the expenditure need of each province in category k. For education (k=E), the expenditure need of province i is calculated using the following formula:

$$\begin{aligned} N_{iE} &= (TN_E/U_E) * U_{iE} * (0.2(E_i-1)+1) * C_i \\ &= \alpha_E * TN * U_{iE} * (0.2(E_i-1)+1) * C_i \end{aligned} \quad (8)$$

where N_{iE} is province i 's expenditure need for education, $\alpha_E=0.189$ is the weight assigned to education, TN_E is the 26 provinces' total expenditure need for education, U_E is the total school age population in 26 provinces, U_{iE} is the school age population in province i , E_i is the ratio of the national average number of years of education to that in province i , and C_i is ratio of province i 's living cost to the national average. Note that the coefficient of 0.2 on E_i is intended to discount the magnitude of adjustment to the unit cost (TN_E/U_E) demanded by E_i and ideally should be determined by a regression using actual educational expenditure data by province. Since such data are not available, we simply assume it be 0.2 for illustrative purposes.

For health and social welfare ($k = H$), the expenditure need of province i is calculated using the following formula:

$$\begin{aligned} N_{iH} &= (TN_H/P) * P_i * (0.3(LE_i-1)+1)*(0.2(IF_i-1)+1)*(0.4(OLD_i-1)+1)*(0.6(C_i-1)+1) \\ &= \alpha_H * TN * /P * P_i * (0.3(LE_i-1)+1)*(0.2(IF_i-1)+1)*(0.4(OLD_i-1)+1)*(0.6(C_i-)+1) \end{aligned} \quad (9)$$

where N_{iH} is province i 's expenditure need for health and social welfare, $\alpha_H=0.037$ is the weight assigned to health, TN_H is the 26 provinces' total expenditure need for health and social welfare, P is the total population in 26 provinces, P_i is the population in province i , LE_i is the ratio of the national average life expectancy to that in province i , IF_i is the ratio of province i 's infant mortality rate to the national average, OLD_i is the ratio of the percentage of elderly population (over age 60) in province i to the national average, and C_i is ratio of province i 's living cost to the national average. Again, the coefficients on IE_i , IF_i , OLD_i , C_i are assumed in our simulation, but should ideally be determined by a regression using actual health and welfare expenditure data by province.

For government administration ($k=G$), the expenditure need of province i is calculated using the following formula:

$$\begin{aligned} N_{iG} &= (TN_G/P) * P_i * (5\log^2(UBN_i)+1)* (0.6*(C_i-1)+1) \\ &= \alpha_G * TN * /P * P_i * (5\log^2(UBN_i)+1)* (0.6*(C_i-1)+1) \end{aligned} \quad (10)$$

where N_{iG} is province i 's expenditure need for government administration, $\alpha_G=0.491$ is the weight assigned to government administration, TN_G is the 26 provinces' total expenditure need for government administration, P is the total population in 26 provinces, P_i is the population in province i , UBN_i is the ratio of percentage of urban population in this province to the national average,³ and C_i is ratio of province i 's living cost to the national average. Again, the coefficients on IE_i , IF_i , OLD_i are assumed in our simulation, but should ideally be determined by a regression using actual health and welfare expenditure data by province.

³The logarithmic formulation is used to generate a U-shape relationship between variables—that is, higher unit costs obtain for extremely low and very high densities.

For infrastructure (k=I), the expenditure need of province i is calculated using the following formula:

$$\begin{aligned} N_{iI} &= (TN_I/LR) * LR_i * (\log^2(PD_i)+1)*SPR_i \\ &= \alpha_I * TN^*/LR * LR_i * (\log^2(PD_i)+1)*SPR_i \end{aligned} \quad (11)$$

where N_{iI} is province i's expenditure need for infrastructure maintenance and development, $\alpha_I=0.132$ is the weight assigned to infrastructure, TN_I is the 26 provinces' total expenditure need for infrastructure, LR is the total length of provincial roads in 26 provinces, PD_i is ratio of the population density of province to national average, LR_i is the length of provincial roads in province i, SPR_i is the ratio of poor quality roads as percentage of the total length of provincial roads to the national average.

For economic development (i=D), the expenditure need of province i is calculated using the following formula:

$$\begin{aligned} N_{iD} &= (TN_D/P) * P_i * (0.3(PGDD_{i-1})+1)*(0.3(PVT_{i-1})+1) \\ &= \alpha_D * TN^*/P * P_i * (0.3(PGDD_{i-1})+1)*(0.3(PVT_{i-1})+1) \end{aligned} \quad (12)$$

where N_{iD} is province i's expenditure need for economic development, $\alpha_D=0.151$ is the weight assigned to economic development, TN_D is the 26 provinces' total expenditure need for economic development, P is the total population in 26 provinces, P_i is the population in province i, $PGDP_i$ is the ratio of national average per capita GDP to that of province i, PVT_i is the ratio of poverty head count ratio of province i to the national average.

Step 3. *Sum up province i's needs in the five categories to get the total expenditure need of the province:*

$$\begin{aligned} N_i &= TN^*[\alpha_E * TN^*/U_E * U_{iE} * (0.2(E_{i-1})+1)* C_i \\ &+ \alpha_H^*/P * P_i * (0.2(LE_{i-1})+1)*(0.3(IF_{i-1})+1)*(0.4(OLD_{i-1})+1)*(0.6(C_{i-1})+1) \\ &+ \alpha_G^*/P * P_i * (5\log^2(UBN_i)+1)* 0.6*((C_{i-1})+1) \\ &+ \alpha_I^*/LR * LR_i * (\log^2(PD_i)+1)*SPR_i \\ &+ \alpha_D^*/P * P_i * (0.3(PGDD_{i-1})+1)*(0.3(PVT_{i-1})+1)] \end{aligned} \quad (13)$$

where N_i is the total expenditure need of province i.

Table 3 presents the calculation results of provincial level expenditure needs and the adjustment coefficients for the five expenditure categories.

Table 3. Provincial Governments: Estimation of Expenditure Needs, 1999/2000

Province	Edu. Adj. Coef.	Education	Health Adj. Coef.	Health & Social Welfare	Adm. Adj. Coef.	Administration	Inf. Adj. Coef.	Infrastructure	Econ. Adj. Coef.	Econ. Dev.	Dati I
Total	0.97	1751.30	1.00	341.24	0.93	4,561.68	0.75	1,229.03	1.00	1399.75	9283.0
DI ACEH	1.07	41.80	1.08	7.63	1.00	94.30	0.95	62.9	1.00	29.1	235.8
SUMUT	1.00	116.99	1.07	21.96	0.99	271.58	1.20	106.3	0.89	74.5	591.3
SUMBAR	1.08	46.54	1.14	9.00	1.01	106.57	0.38	14.3	0.93	30.1	206.6
RIAU	1.23	47.87	1.16	8.31	1.12	107.71	0.67	30.3	0.93	27.3	221.4
JAMBI	1.06	24.90	1.07	4.68	1.04	60.64	0.35	10.7	0.97	17.4	118.4
SUMSEL	1.00	80.34	1.11	14.75	0.94	166.96	0.18	12.3	0.97	52.7	327.1
BENGGKULU	1.06	86.94	1.09	2.82	1.05	36.40	1.81	65.2	1.04	11.1	202.5
LAMPUNG	0.93	62.88	1.01	12.37	1.04	170.27	0.60	38.9	1.16	58.2	342.5
JABAR	0.98	332.24	1.02	73.47	0.94	903.10	2.25	174.2	0.93	276.3	1759.3
JATENG	0.86	229.09	0.80	43.78	0.89	646.90	0.33	22.3	1.09	244.2	1186.2
DI YOGYA	0.95	20.42	0.82	4.40	0.93	66.74	0.59	9.8	0.94	20.8	122.2
JATIM	0.90	243.63	0.91	56.37	0.88	730.76	0.10	5.4	0.96	244.9	1281.1
KALBAR	1.19	43.34	1.19	7.95	1.04	93.00	0.63	33.8	0.92	25.4	203.5
KALTENG	1.27	21.87	1.17	3.50	1.30	52.18	1.84	25.5	0.91	11.2	114.2
KALSEL	1.11	29.25	1.18	6.27	1.03	73.49	0.70	17.6	0.92	20.1	146.7
KALTIM	1.21	24.29	1.06	4.51	2.03	115.32	2.96	120.6	0.80	13.9	278.7
SULUT	1.03	22.28	0.97	4.71	1.00	65.12	0.66	16.3	1.05	21.1	129.4
SULTENG	1.04	19.33	1.16	4.13	1.05	50.05	0.78	36.9	1.13	16.6	127.0
SULSEL	1.17	75.99	1.08	15.02	1.12	208.41	0.88	43.6	1.04	59.3	402.3
SULTRA	1.23	22.72	1.29	3.96	1.35	55.28	0.97	38.0	1.20	15.1	135.0
BALI	1.05	21.73	0.89	4.73	1.09	77.46	2.24	50.1	0.93	20.2	174.2
NTB	0.91	33.12	1.21	7.42	1.11	91.24	1.07	52.6	1.25	31.6	216.1
NTT	1.08	36.74	1.10	7.37	1.59	142.42	0.06	4.9	1.40	38.5	229.9
MALUKU	1.18	27.36	1.28	4.92	1.10	56.55	0.80	42.7	1.11	17.4	149.0
IRJA	1.55	28.02	1.37	4.90	1.74	83.27	3.75	166.1	0.95	13.9	296.3
TIMTIM	1.63	11.60	1.50	2.31	1.74	35.96	0.96	27.8	1.41	8.9	86.6

Source: Fund staff estimates

D. The Simulation Results

Using equation (3), and assuming total transfer to province i (T_i) consists of general purpose transfer and specific transfers that meet certain needs assessed by the formulas in Section 3, the entitlement of province i is:

$$T_i = N_i - C_i \quad (14)$$

where N_i is given by equation (12). Since the available funds for distribution (TT) is normally different from the sum of all provinces entitlements ($\sum_i T_i$), a coefficient β is applied to each N_i so that $TT = \sum_i (\beta N_i - C_i)$. The amount of transfer that should be received by province i is:

$$T_i = \beta N_i - C_i \quad (15)$$

Using the above formula, a few provinces (e.g., Riau) may receive negative transfers, as their revenue capacities exceed their expenditure needs adjusted by β . Assuming that negative transfers are politically not acceptable, we impose a zero minimum transfer to these high capacity provinces, and scale down other provinces' transfers proportionally. Column 6 of Table 4 shows the amounts of transfers calculated using the above formula with a zero β minimum provincial transfer. For comparison, the actual transfers in 1997/98 are also presented in Table 4.

E. Does the Transfer System Equalize?

The transfer model presented above aims to equalize the provinces abilities to provide public services at similar levels of tax effort. While equalizing per capita income is not the direct objective, due to a high positive correlation between income and revenue capacity, and a negative correlation between per capita income and expenditure need, a transfer system like the one suggested above should also have strong redistributive effects on per capita income.

The following regression is conducted to test the hypothesis that the transfer system based on the proposed formula equalizes per capita income across provinces:

$$PCT_i = a_0 + a_1 PCGDP_i \quad (16)$$

where PCT_i is the per capita transfer to province i , and $PCGDP_i$ is the per capita GDP of province i . If a_1 is negative and statistically significant, it means that the system has a significant equalization effect.

Table 4. Provincial Governments: Expenditure Needs, Revenue Capacities, and Transfers, 1999/2000

(In billions of rupiah)										
	Total Expenditure Needs	Existing Revenue Capacity	Oil and Gas Revenue	Total Fiscal Capacity	Formula Based Transfer	Formula Transfer (min=0)	Actual Transfer 1997/98	Per Capita Formula Transfer	Actual Per Capita Transfer	Per Capita GDP
Total	9,283	3,661	382	4,043	5,240	5,240	5,826	28	31	2,400
DI ACEH	236	73	64	137	99	96	177	25	46	2,414
SUMUT	591	252	1	253	338	329	507	30	46	2,908
SUMBAR	207	80	0	80	126	123	81	28	19	2,497
RIAU	221	209	158	368	(146)	0	83	0	21	2,777
JAMBI	118	51	4	55	64	62	71	26	30	1,874
SUMSEL	327	146	21	167	160	156	102	22	14	2,376
BENGGULU	203	26	0	26	176	172	70	122	50	1,745
LAMPUNG	343	69	0	69	273	266	95	40	14	1,585
JABAR	1,759	660	26	686	1,073	1,044	921	27	23	2,530
JATENG	1,186	395	0	395	791	770	1,047	26	35	1,951
DI YOGYA	122	67	0	67	55	54	138	18	47	2,421
JATIM	1,281	623	12	635	646	628	1,153	19	34	2,604
KALBAR	203	60	0	60	143	139	90	38	25	2,822
KALTENG	114	78	0	78	36	35	153	21	94	3,692
KALSEL	147	77	0	77	69	68	72	23	25	2,755
KALTIM	279	181	91	272	7	7	92	3	40	5,990
SULUT	129	41	0	41	88	86	86	32	32	2,119
SULTENG	127	35	0	35	92	90	168	46	87	1,731
SULSEL	402	140	0	140	262	255	100	34	13	1,791
SULTRA	135	26	0	26	109	106	77	64	46	1,431
BALI	174	113	0	113	61	60	56	21	19	3,418
NTB	216	37	0	37	179	174	86	52	26	1,360
NTT	230	37	0	37	192	187	95	52	26	1,123
MALUKU	149	35	0	35	114	111	87	53	42	1,906
IRJA	296	135	4	139	157	153	142	79	73	4,419
TIMTIM	87	13	0	13	73	71	76	85	91	1,186

Sources: Ministry of Finance; and IMF staff estimates.

The regression result confirms the hypothesis, with a_1 being significantly negative. From the fitted line shown in Chart 2, one can see a clearly negative relationship between per capita transfer and per capita GDP, indicating a significant redistributive effect of the proposed transfer system. The regression results are as follows

$$\text{Regression I: } PCT_i = 62.0 - 5.02 PCGDP_i \\ (-0.01) \quad (-2.13)$$

R-square = 0.16, No. of observations = 27, Degrees of freedom = 25.

For comparison, we also used the actual transfer figures in 1997/98 to run the same regression. The resulting a_1 is statistically insignificant and the R-square is only 0.01, showing not even a slight correlation between per capita transfers and per capita GDP levels. This suggests that the current transfer system has not effectively achieved redistributive goal. The regression results are as follows:

$$\text{Regression II: } PCT_i = 33.2 - 0.54 PCGDP_i \\ (0.002) \quad (-0.01)$$

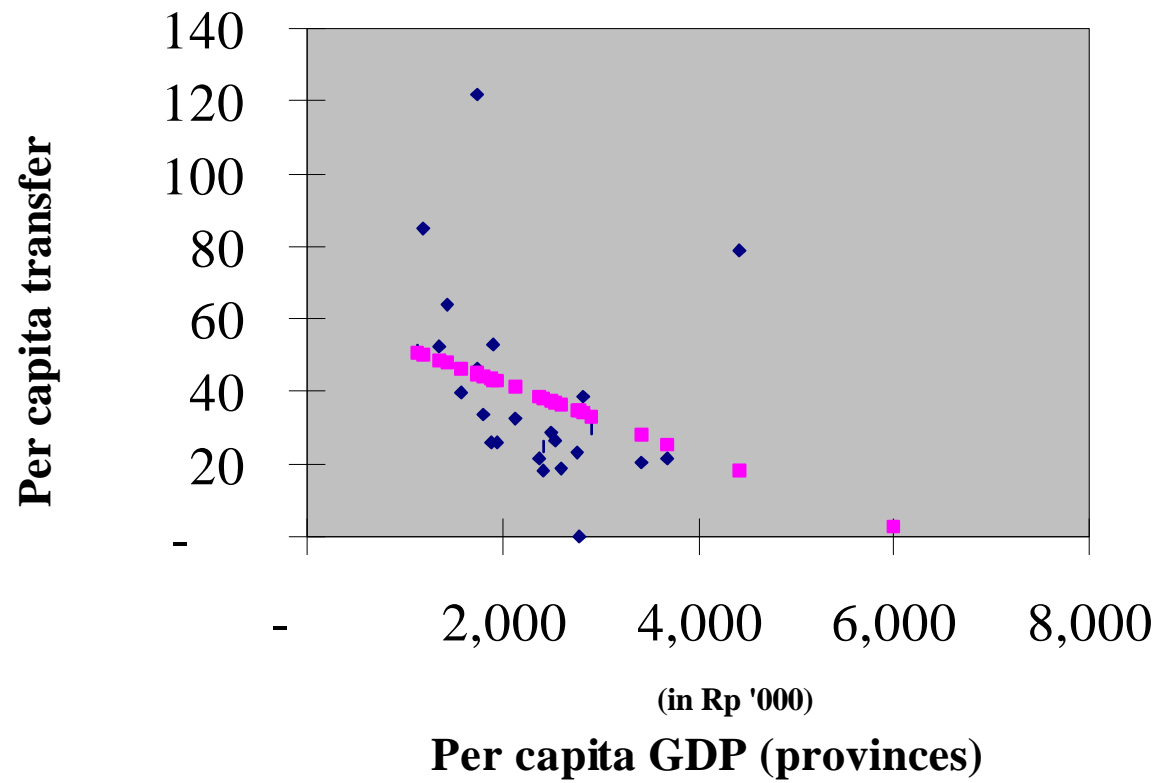
R-square = 0.01, No. of observations = 27, Degrees of freedom = 25.

F. Steps Toward an Effective Equalization Model

Moving from the current transfer system to a “full equalization” system may not be feasible in the short-run due to political constraints, resource constraints, and lack of data. A pragmatic approach is to gradually improve the database that supports the operation of the equalization system, adjust the formula (including better selection of variables and coefficients), and expand the size of the new transfer scheme to achieve a better equalization result. The mission recommends the following steps for the government to consider:

- Establish, in the next one or two months, a joint working group consisting of staff members from the Ministry of Finance, the Ministry of Home Affairs, and academicians. The main task of this working group will be to construct a database for future use of the equalization transfer system. It should also attempt to construct alternative models and conduct simulations under various assumptions regarding revenue and expenditure assignments. An early start of the preparation for the database and models is absolutely imperative if a new system is to be implemented in fiscal year 2000/2001. The database and staff of the working group can be transferred to a Grants Commission when it is formed later this year or early next year.
- If the implementation of a new transfer system based on a set of traditional needs indicators (along the lines suggested by this section) leads to a drastic change in grants distribution, and therefore becomes politically infeasible in the short run, a possible solution is to include the current number of civil servants as an additional needs indicator. The inclusion of this indicator will mitigate the magnitude of deviation from the current distribution. The importance of this indicator in the model,

Chart 2. Equalization of a New Transfer System



as reflected by the coefficient applied to it, should be gradually reduced over the next few years to achieve a better equalization effect and to minimize the incentive for overstaffing local governments.

- In cooperation with the Tax Administration, the working group should make a major effort to collect data on provincial and district tax bases, as well as the bases of the land and building tax. However, if it turns out to be unrealistic to obtain satisfactory information on tax bases in the near future, it should develop alternative proxy measures for estimating local revenue capacities for fiscal year 2000/2001. In that case, the objective should be to complete the construction of a database on tax bases in two to three years.
- Detailed expenditure data by province (district) and by sector should be collected and used to estimate the adjustment coefficients (or relativities in the terms of Australian grants commission) on unit costs. Once such data become available, various expenditure needs measures should be tested in order to select the most significant factors that influence unit costs.
- In the initial stage, the model can use a relatively small number of indicators and expenditure categories for simplicity and transparency. Addition of new variables to the model should typically be justified by evidence that the influence of these variables on unit costs is statistically significant.
- During the stage of model design, the working group should conduct hearings, preferably in all provinces and selected districts, to collect information about revenue capacities, extraordinary expenditure needs, and the possible impact of alternative arrangements on local finances. Once the system starts operating, the Grants Commission should publish its calculation method and results annually, so that each province and district can prepare its budget according to the expected amount of transfers.