THE DESIGN OF EQUALIZATION GRANTS: THEORY AND APPLICATIONS

Jorge Martinez-Vazquez and Jameson Boex

PART THREE
COUNTRY CASE STUDIES

PART THREE: COUNTRY CASE STUDIES

There are a number of published accounts of decentralization policies in developing and transitional countries. However, the focus of such studies rarely includes a detailed discussion and critical analysis of the equalization mechanisms. In Part Three of this module, we attempt to provide an overview of equalization mechanisms in a cross-section of countries.

We have attempted to gather a number of country case studies that provide not only a geographical cross-section of countries, but more importantly, a cross-section that represents the array of levels of sophistication in the design of equalization transfers. These examples range from the basic allocation mechanism used in Nigeria to the sophisticated equalization system in place in Latvia. In many cases, the case studies in this module do not limit themselves merely to a description of the equalization mechanisms in these countries, but instead seek to provide an analysis of the current system and provide recommendation on how each system can be improved.

An overview of **Nigeria**'s federal structure, and the role of its Federation Account is presented in Section 1. The case study describes the multi-factor allocation mechanism used in Nigeria, analyzes the incidence of transfers, and highlights the problems with the current allocation formula.

The government of **Malawi** is seeking to transform intergovernmental fiscal relations from a highly centralized system of governance to a decentralized system where many government services are to become the responsibility of the country's local government assemblies. Section 2 presents the analysis of equalization transfers, capital development grants and deconcentrated health expenditures in Malawi.

Ecuador is embarking on an ambitious program of fiscal decentralization. The government's reform program is summarized in the *Proposal for the new administration model for Ecuador (2000)*. Section 3 presents a review and critique of the proposed transfer system, which includes an equalization component.

The fourth case study included in this module considers the reform of **Russia**'s equalization fund, known as the Fund for the Financial Support of the Regions (FFSR).

The FFSR was introduced in 1994 as part of Russia's transition reforms. Substantial reforms of the FFSR were proposed for the 1999 budget year. Section 4 presents an analysis of the proposed reforms of the FFSR in October 1998. As part of the analysis, the report simulates alternative transfer schemes under a variety of policy options.

The final case study reviews the changes in **Latvia**'s equalization fund from 1995 to 1999. Section 5 analyzes how Latvia's equalization mechanism works, highlights the main problems and issues, and presents several options for reform. Some of these options for reform are simulated at the end of the section using 1999 budget data.

CASE STUDY 1:
THE FEDERATION ACCOUNT IN NIGERIA

1.1 Overview of Nigerian federal system

The Nigerian fiscal system and the country's system of fiscal federalism are defined to a large extent in the Nigerian constitution of 1999. The constitution prescribes three levels of government: a federal government, state governments (36 states are defined in the constitution, plus the Federal Capital Territory Abuja) and local government areas (774 of such county-like districts currently exist). The constitution defines the expenditure responsibilities of each level of government (Table 1.1). Between two-thirds and three-quarters of public sector spending is done by the federal government, while state governments account for approximately 20-25 percent of public sector spending. Local governments account for roughly for 5 percent of public sector spending. Overall public sector spending (spending by all levels of government) accounts for about 20 percent of GDP.

The Nigerian constitution also defines the manner in which resources are shared among the different levels of government. Revenues are highly centralized, with most federal revenues (mostly corporate income taxes and petroleum taxes) flowing into the Federation Account, which is shared between the three levels of government. The state and local government shares of the Federation Account are distributed using allocation formulas. The federal value-added tax does not flow into the Federation Account, but is similarly shared between all levels of government on a formula-basis. Jointly, the Federation Account disbursements plus the VAT apportionment are referred to as the Federal Allocations.

The current assignment of revenue sources (Table 1.2) was set forth in Decree 21 issued in 1998 under military rule (Taxes and Levies, Approved List for Collection; September 30, 1998). While most significant revenue sources accrue to the Federation Account at the federal level, the decree also assigns a number of smaller taxes to each level of government. State governments collect most personal income taxes, some minor taxes, and certain levies and fees, while local governments are assigned a number of minor rates, licence fees and market taxes.

A central theme in federal relations in Nigeria is oil revenue. Oil production is concentrated in ten states, mainly in the Niger River delta. Oil revenues are federally collected, but shared in part on a derivation basis: 13 percent of oil revenues is shared with the oil-producing states on a derivation basis, while the remaining oil revenues are paid into the Federation Account and distributed among all levels of government.

The Federation Account is administered by the *National Revenue Mobilization Allocation and Fiscal Commission*. The make-up of the commission is constitutionally-defined, comprising the Federal Minister of Finance, and representatives from each of the states (typically the State Finance Commissioners and State Accountants-General). The commission meets in Abuja on a monthly basis to allocate the previous month's tax receipts among the recipient governments. While local governments are not directly represented in the Commission, local governments receive their allocations directly from the Federation Account. Since the local governments allocations do not pass through state accounts, state governments have no financial control over the disbursements to local governments.

Few other intergovernmental transfer arrangements exist. There is a recurrent grant from the federal government to local governments for the provision of primary education; a state contribution to primary education is automatically withheld from each state's share from the Federation Account. In times of federal revenue shortfalls during the military era, states were sometimes forced to share some of their revenues with the federal government. In addition, states are constitutionally required to share a certain portion (currently 10 percent) of state own source revenues with their local governments. Likewise, local governments are supposed to share one percent of their local revenues with the state level. However, in practice these requirements are ignored in many states.

1.2 Equalization in Nigeria: Federal Allocations

The Federation Account and VAT sharing are the predominant methods of resource sharing in Nigeria's public sector. Essentially all federal revenue sources accrue to the Federation Account, which is then shared among all levels of government.

Distribution of the Federation Account among the different governments is based on a vertical allocation formula (which assigns a specific share to each level of government) and

horizontal allocation formulas (which distribute the state share of the Account among the states and the local government share among the local governments). Both the horizontal and vertical allocation formulas will be discussed in greater detail later on in this chapter. Although the formulas have periodically changed over the years, this approach to revenue sharing has changed little since its inception in 1960.

A substantial share of state resources is contributed by intergovernmental transfers. The predominant way in which the federal government provides resources to state and local government is by way of revenue sharing through the Federation Account and the VAT sharing pool. The historical and current distribution of the Federation Account and the VAT are reflected in Table 1.3. Currently, states receive 24 percent of the Federation Account and 50 percent of VAT revenues. However, many state governors and politicians claim that insufficient revenues from the Federation Account flow to the state level and have openly advocated increasing the states' share in the distribution of fiscal resources between the different levels of government.

The distribution of funds between state and local governments takes place based on a typical multi-factor allocation formula; the allocation factors used in this formula, and their relative weights, are presented in Table 1.4. After distributing part of mineral revenue collections on a derivation basis, the state's share of the Federation Account is distributed among state governments in accordance with five factors: "equality" (40 percent), population (30 percent), land mass and terrain (10 percent), social development (10 percent), and internal revenue effort (10 percent). For instance, a state that contains 3 percent of the country's population would receive 3 percent of the funds available for the factor "population" from the Federation Account. Local governments are allotted their shares from the Federation Account based on the same formula.

A value-added tax was introduced in Nigeria in 1994 which replaced a state-level sales tax. Similar to the Federation Account, the VAT is shared between the three levels of government on a formula basis. Some of the VAT collections are allocated on a derivation basis.

A general observations with regard to the federal allocations as a funding mechanism for subnational governments is that it does not necessarily provide a very stable source of funding over time. The federal allocations fluctuate greatly over time depending on the price of oil on international markets. It is widely argued that state and local governments

have a need for a stable revenue stream because they provide many of the most basic public services. While a Stabilization Account exists in order to stabilize revenue streams over time, this Stabilization Account does not appear to be achieving its objective. Payments into (and withdrawals from) the Stabilization Account appear ad hoc. For instance, whereas payments should be made into the Stabilization Account during times of high oil prices, the *National Revenue Mobilization Allocation and Fiscal Commission* was discussing making withdrawals from the Stabilization Account in October 2000 during record oil prices on the international markets.

State Internal Generated Revenues

As reflected in Table 1.2, state governments have a number of own revenue sources or "internal generated revenues" (IGR). These state level taxes include a variety of personal income taxes (pay-as-you-earn, self-assessment tax, withholding tax and capital gains tax on individuals), a number of minor business taxes and several miscellaneous fees and levies.

Whereas the constitution gives state governments the power to legislate local government taxes, the constitution gives the federal government the power to regulate state taxes. Under current federal legislation, state are not given discretion to determine either the tax base or the tax rate for any own revenue sources. This means that the state government essentially has no control over the size of its state budget. Thus, even if voters in a state would prefer a higher level of public service and are willing to pay for this through higher taxes, the state would be unable to generate additional revenues. This lack of revenue autonomy unnecessarily limits the fiscal policy options of state governments. It should be noted that while the constitution gives the federal government the power to regulate taxation, it does not prohibit the federal government from giving states a certain level of discretion over fiscal policies. For instance, within limits, the federal government could allow each state to determine their own personal income tax rates. Such a minor change in federal fiscal regulation could substantially increase revenue autonomy at the state level.

1.3 Vertical and Horizontal Fiscal Balance

Vertical Fiscal Balance

The distribution of public resources between different levels of government is referred to by economists as vertical fiscal balance. While the vertical fiscal balance is a currently a thorny political issue that is widely debated in Nigeria's news media based on much

anecdotal evidence, the guiding principle used by economists is whether "finance follows function." In other words, does the distribution of resources reflect the expenditure responsibilities of each level of government? This is a very difficult question to resolve. There are several ways to detect the presence of vertical fiscal imbalances.

Revenue trends. First, we can look at the distribution of fiscal resources between the different levels of government over time. This is done in Table 1.5: the table shows trends in revenues, expenditures, and budgetary deficits (surpluses) expressed as a percent of GDP for the federal government, consolidated state governments and the local government level for the period 1995-1999.

When we look at the revenue trend for state governments, we notice that since 1996, the resources available to state governments as a group are steadily increasing. While in 1996 states collected 3.3 percent of GDP in state revenue (federal allocations plus IGR), by 1999 this amount had increased to 5.7 percent. Similarly, local government resources have increased from 0.9 percent of GDP in 1996 to 1.9 percent in 1999.

Federal revenues reflect a much more unstable picture. Federally retained revenues fluctuate up and down between 13 and 15 percent of GDP, but spiked in 1999 at 22.3 percent. On account of the resource allocations revealed in Table 1.5, there is no direct evidence that there exist large vertical fiscal imbalance in Nigeria.

Budgetary position. A second indicator of vertical fiscal balance is to study the budget balance of each level of government. The relative budgetary position of each level of government would be a reflection of vertical fiscal imbalances if (a) each government is equally efficient in allocating its resources to achieve its responsibilities and (b) there are no institutional constraints on governments at each level to incur budget deficits. If these assumptions would hold, we would have to conclude that Nigeria's federal government has disproportionately few resources, because it systematically incurs budget deficits. However, the absence of fiscal deficits at the subnational level is not a reflection of the fiscal affluence of subnational governments. More simply, the absence of subnational budget deficits is a reflection of the requirement that subnational governments in Nigeria need to balance their budgets. Therefore, comparing the fiscal surplus or deficit of each level of government does not provide us with a valid measure of vertical fiscal balance.

Proportion of capital expenditures. Along the same vein, a third approach to assess

the presence of vertical fiscal imbalances would be to look at the relative spending on capital expenditures at each level of government. Due to the structure of the budget and the budget process in Nigeria, governments at all levels of government in Nigeria first allocate resources towards recurrent expenditures items, and then use any recurrent budget surplus for the purpose of funding capital expenditures. The share of the budget spent on capital expenditures could thus be a measure of fiscal pressure. (Of course, the proportion of the budget spent of capital items might also vary between levels of government due to differences in the expenditure responsibilities allotted to each level of government.) By this measure, the fiscal structure would indeed be biased in favor of the federal government: the federal government spends between half and two-thirds of its resources on capital expenditures, compared to only roughly one-third of expenditures for state and local governments.

In summary, while there is no consistent economic evidence to support the political argument that there exist major vertical fiscal imbalances in Nigeria, it would be appropriate to explore at a political level whether the expenditure of almost half of the federal budget on capital projects is an efficient allocation of public resources. An additional point that states may wish to raise in the context of vertical fiscal imbalances is their lack of revenue autonomy. However, instead of demanding an increased share of the Federation Account and VAT revenues, we believe that subnational governments might seek increased revenue autonomy by demanding increasing discretion over the tax rates of certain federally regulated taxes (for instance, states could be allowed to set income tax rates). Instead of just relying on "hand-outs" from the federal government, this would force state governments to make the difficult trade-offs between increasing public spending and increasing the tax burden.

Horizontal Fiscal Balance

While the vertical allocation of public sector resources has drawn much more political attention in Nigeria, there are many problems with the horizontal distribution of the funds (i.e., the distribution of federal allocation between the states).

We turn to regression analysis to better understand how resources are allocated using the Federation Account and the VAT sharing mechanism. Regression analysis is a statistical technique used to analyze how variations in certain variables (explanatory variables) relate to variations in another variable (the dependent variable).

The first regression equation in Table 1.6 attempts to answer the question: what causes variations in per capita federal allocations? The explanatory variables that are used in the regressions in Table 1.6 include fiscal capacity (as measured by per capita VAT collections in each state), and a number of measures of fiscal need, including the poverty rate, secondary school enrollment (per 1000 residents), population and population density. Based on the factors that are included in the distribution formula (contained in Table 1.4), the allocation mechanism in Nigeria seems to be designed to do four things: (1) allocate a portion of revenues on a derivation basis, particularly for oil revenues and VAT collections; (2) provide general purpose funding; (3) provide additional funding for "needier" regions, and (4) stimulate fiscal effort. Surprisingly missing is a common objective, namely, equalizing fiscal capacity. Initially, we sought to explain variation in federal allocations between states using the same explanatory variables as in the first set of equations, notably measures of fiscal capacity and fiscal need. However, these measures of fiscal capacity and fiscal need only explained 4 percent of variations in per capita federal allocations, and none of the variables had a statistically significant impact.

Consequently, we tried to modify the regression equation to do a better job at explaining variations in federal allocations. Since a large share of the Federation Account and VAT collections are shared based on "equality" (i.e, each state get an equal share, i.e. 1/36), it is likely that when we consider per capita allocations, smaller states higher per capita federal allocations. Therefore, in the second regression equation that we estimated, we added population as an explanatory variable in the regression and re-estimated the equation.

We should note three things about the second equation in Table 1.6. First, by adding population, the new regression is able to explain 63 percent in the variation of per capita federal allocations versus 4 percent in the absence of the population variable. Second, as expected population has a strong negative impact on per capita federal allocations: for every increase in population by one million, the per capita transfer decreases by almost N 300. Third, the new specification suggests with statistical significance that wealthier states actually receive greater federal allocations. Thus, not only are federal allocations non-equalizing, as a whole they favor the wealthier states. This should not be surprising given the fact that a portion of the Federation Account and VAT collections are allocated on a derivation basis.

Incidentally, we also tried to add fiscal effort as an explanatory variable to the equation

explaining federal allocations. (This equation is not reported in the table). The result indicated that fiscal effort, as we define it in Box 2.4, does not have a statistically significant impact on federal allocations. In fact, the parameter estimate on fiscal effort was negative (although not statistically significant), hinting that if anything, states that exert greater fiscal effort receive fewer federal allocations.

1.4 Problems with the Equalization Formula

There are a number of serious problems or policy concerns related to virtually each of the five components of the equalization formula for the Federation Account. While not explicitly discussed here, many of the same issues also impair the VAT distribution formula and the distribution formula for local governments.

In our arguments, we are only addressing the economic issues raised by the formula, and we are side-stepping possible political motives for the prominent inclusion of the equality principle in the distribution formula. For instance, fragmentation of state governments (i.e, the absence of large, political strong state governors) might be important to the stability of the Nigerian federal system, or in a more cynical view, beneficial to federal dominance over the states. Likewise, the appeasement of less populated, rural states might play an important political role in Nigeria's federal system. Federal allocations distributed based on equality may simply provide a fiscal incentive to achieve such political objectives.

Equality Component. The largest share (40 percent) of the Federation Account fund is distributed based on "equality," meaning that each of the states receives an equal share (1/36) of this portion of the Account regardless of the state's population size. The implicit rational for using equality as an allocation factor is that both large and small states alike need to support a Governor, a set of state ministries, and a state bureaucracy. The logical implication is that small states receive a larger amount of federal funding when considered on a per capita basis.

Using equality in the distribution formula raises great concerns about incentives, efficiency and basic fairness. This concern is magnified by the fact that nearly half (40 percent) of the Federation Account is allocated according to this factor, The dominance of the equality factor was confirmed in the regression in Table 1.6, which suggests that a state's

population explains a lion's share of the variation in per capita federal allocations, confirming the hypothesis that smaller states (i.e., less populated states) receive higher per capita federal allocations than larger states.

It is important to stress that we are not laying blame with (new) states for causing duplication of state government agencies and functions. Instead, we are critical of the dominant use of the equality principle in the distribution formula which encourages this fragmentation. States, in seeking fragmentation, simply respond to the fiscal incentives provided to them by the fiscal system. If the ongoing trend of fragmentation continues, the system would continue to allow a single state to substantially increase the fiscal allocations to its populace by splitting up, at the expense of all other states.

Problems with Population Estimates. Population is both an appropriate and a commonly used factor in general allocation funding formulas around the world. However, it is important to assure that accurate and timely data are available for the variables used in the allocation formula. We fear that there are significant problems with the statistical techniques used to produce population estimates which could result in considerable bias.

The most recent census in Nigeria was held in 1991, providing a count of the country's population by state and local government area. Population estimates for subsequent years are computed by multiplying each state and local government's 1991 population count by the national average population growth rate of 2.83 percent per annum. This estimation approach is mandated by federal statistical authorities, and state and local officials are constitutionally prohibited from modifying these estimates.

However, it is highly unlikely that all state and local governments grow at the national average growth rate. Migration from rural to urban areas causes urban growth rates to be higher than rural population growth. Similarly, there are likely to be differences in population growth rates due to differences in demographic composition (i.e., the age distribution of the population), ethnic, religious, social, and economic characteristics. Failure to account for differences in growth rates could introduce significant bias in the allocation of public resources. For instance, urban regions are likely underfunded as a result of the poor estimation approach. Also, estimates of any other variable that is specified in per capita terms is potentially biased by inadequate population estimates.

The biases introduced due to estimation approach possible take an significant proportions,

due to the fact that the estimate growth rate is compounded. For example, imagine two states that each had one million residents in 1991, but one state has a population growth rate of 6 percent (e.g., an urban state with a booming economy) while the other state's population grows at 2 percent per annum (e.g., a rural state). At the officially established growth rate, by the year 2000 both states would be officially estimated to have 1,285,000 residents. Yet, in reality, the faster growing state would have almost 1.7 residents by the year 2000, compared to less than 1.2 million for the other state: a difference of over 40 percent!

Land Mass and Terrain. Geographically larger states could successfully argue that they typically have higher expenditure needs than other states due to the higher cost of providing public services. However, it would be desirable if there would be an accounting in the formula for the fact that the cost of delivering public services could also be higher in highly densely populated areas. As opposed to using land area and terrain as proxies, differences in price levels across states could easily be directly included in the horizontal distribution formula, either as a separate factor in the formula, or by multiplying each states revenue share by a cost index. This is a common practice in other countries.

Social Development Factors. There are a number of concerns with the way in which funds are distributed based on social development factors. These concerns are abated somewhat by the fact that each sub-factor only contributes in a minor way to the overall distribution of resources.

First, there is a major concern about the use of physical infrastructure measures, such as hospital beds, in the allocation formula. The number of hospital beds in a state is arguably a very poor measure of the health needs of a state. Wealthier states, with more money to spend on health care, would likely have more hospital beds and thus receive more generous transfers, in spite of the fact that wealthier states typically have healthier populations. In addition, the use of hospital beds as a measure of health care needs provides a poor incentive to states. Instead of focusing on the quality of health care, the mechanism gives the State Minister of Finance a reason to press the State Ministry of Health to provide a larger number of hospital beds simply in order to increase transfers. In general, you want to avoid using measures of physical capacity (such as the number of hospital beds, the number of schools, etc.) in a formula and focus on measures of the number of "clients" or citizens with a certain need. Thus, a better measure of health care needs would be to use reported incidence of medical conditions as distribution factors.

The incidence across states of HIV/AIDS and infant mortality might be more suitable and more typical measures of state health care needs that are free from this incentive problem.

A second problem in the measurement of social development needs exists in the subfactor used to measure a state's need for educational services; for this, the relative number of elementary and secondary school children are used in the formula. This is clearly an attempt to measure the need for education for school-aged children. However, the distribution formula implicitly recognizes its own failure: while the presence of school children is a measure for the need of social development expenditures, the presence of school dropouts is also a social development concern. In an attempt to correct for this problem, the distribution formula also includes allocations based on the inverse of secondary and commercial school enrollments. Rather than including both enrollment and its own inverse, the allocation could be improved by using the potential "client" base for schooling, which is the school-aged population. Using the school-aged population to distribute state funding would avoid the complications brought about by the use of enrollment.

Definition of Fiscal Effort. An implicit objective of Nigeria's distribution formula is the stimulation of fiscal effort. Fiscal effort is defined as the degree to which a state utilizes the revenue bases available to it, and is generally measured as the state's collection expressed relative to some measure of fiscal capacity. The idea is that regions that try harder to raise revenues but are still unable to finance a certain level of public services may be more worthy of receiving grant money. On the other hand, simply rewarding regions that exert higher levels of fiscal effort could result in the use of federal resources on regional projects that lack any merit. Higher levels of fiscal effort in some regions may simply be the result of higher levels of demand for government goods and services in those regions. Even though a case can be made for encouragement of tax effort, the case is theoretically quite weak; there is no economic reason to give more federal moneys to regions that prefer to spend more of their gross incomes in the public sector rather than in the private sector. This being said, in countries where there is no tradition of revenue autonomy at the subnational level, as in the case of Nigeria, it may be justified to have <u>temporary</u> policies that encourage tax effort. However, in the long run, the best policy is to neither discourage nor encourage tax effort; federal policies should be neutral with respect to the tax effort of subnational governments.

Other than the theoretical reservation associated with stimulating fiscal effort through the

transfer mechanism, two problems exist with the manner in which internal revenue effort is stimulated in Nigeria.

First, three-quarters of the funds allocated under this heading is not at all designed to stimulate effort, but is simply allocated on an "equal shares" principle.

Second, the remaining funds are distributed based on the increase in internal revenue collections relative to the previous year. Thus, increases in fiscal effort are rewarded, rather than the overall level of fiscal effort. The disadvantage of this approach is that poor states need to consistently exert a higher level of fiscal effort to provide a standard set of government services, leaving them little to room to reap the benefit of this incentive by further increasing their fiscal effort. On the other hand, this mechanism stimulates and rewards wealthier states who had previously low levels of fiscal effort for achieving an average level of fiscal effort. Further, by rewarding increases in fiscal effort, there is little incentive for maintaining a consistently high level of effort in the collection of internally generated revenues.

Fiscal capacity equalization. One final concern about the workings of the distribution of federal allocation among states is that the mechanism does not include any avenue for the equalization of fiscal capacity between states. In fact, the federal allocations may be counter-equalizing by allocating oil-producing states 13 percent of oil revenues prior to applying the horizontal allocation formula to the remainder of the funds (although it could be argued that the monies allocated on a derivation basis are in proportion to the additional infrastructure demands and pollution concerns caused by oil extraction). Similarly, part of the VAT sharing takes place on a derivation basis. Consequently, the results in Table 1.6 suggest that wealthier states actually receive larger transfers through the federal allocations than poorer states. This finding should be of considerable concern to those who believe that it is the responsibility of the federal government to encourage poverty alleviation by redistributing fiscal resources across the national territory.

Ultimately, any funding scheme needs to be judged by the standard: does it achieve its objective of funding state governments in an effective and equitable manner ? One main reasons stand out why we believe that the answer to this question is currently "no." When considered on a per capita basis (as can be seen in Table 1.6), the distribution formula is clearly and overwhelmingly biased in favor of small states due to the heavy reliance on the "equal shares" principle. This problem is so overwhelming that not fiscal capacity, nor

social development, nor fiscal need, nor fiscal effort, but merely the size of a state has become the most important determinant of per capita federal allocations in Nigeria.

Table 1.1
Assignment of Expenditure Responsibilities in Nigeria, 1999

Assignment	Federal	State	Local
Defense	National defense		
Foreign Affairs	Diplomatic and consular missions; international treaties; foreign policy		
Public Order	National police, security services, prisons	State public order	
Trade and commerce	Commercial policy, banking, insurance, bankruptcy, international trade, interstate trade	Intra-state trade and commerce	Local markets; slaughter houses; local economic development
Natural Resources	Mines and mineral, including oil and gas surveying and mining		Natural resource development other than minerals
Agriculture and Fisheries	Promotion of agricultural research and production; fishing rights	Development of state agricultural	Local agriculture development
Health	Federal health policy	State health policy	Local health services
Education and Science	University and professional education; scientific and technological research; national statistics	Regulation of primary education; provision of post-primary education; University and professional education; scientific and technological research	Provision and maintenance of primary school and vocational training
Transportation networks and public transportation	Aviation policy and airports; railways; federal highways	State highways; public transit	Local roads and highways; local public transit

Source: 1999 Constitution of the Republic of Nigeria (Second and Fourth Schedules)

Table 1.2
Tax Administration and Collections: Federal, State and Local Responsibilities

Federal Government	State Government	Local Government
1. Companies income tax 2. Withholding tax on companies for non-residents and FCT Abuja 3. Petroleum profits tax 4. Value added tax 5. Education tax 6. Capital gains tax for non-residents, corporate bodies and FCT Abuja 7. Stamp duties for non-residents, corporate bodies and FCT Abuja 8. Personal income tax for military and police personnel, non-residents, and FCT Abuja	1. Personal income tax (Pay-As-You-Earn and Self-Assessment) 2. Withholding tax on individuals 3. Capital gains tax on individuals 4. Stamp duties on individuals 5. Gambling taxes 6. Road taxes 7. Business premises registration fee 8. Development levy on individuals 9. Street naming registration fee for State Capital 10. Right of occupancy fees 11. Market taxes and levies	1. Shops and kiosks rates 2. Tenement rates 3. Liquor License fees 4. Slaughter slab fees 5. Marriage, birth, death registration fees 6. Street naming fees (excl. State Capital) 7. Right of occupancy fees 8. Market taxes and levies 9. Motor park levies 10. Domestic animal license fees 11. Bicycle, truck, canoe, cart fees 12. Cattle tax 13. Merriment and road closure levy 14. Radio and television license fees 15. Vehicle radio license fees 16. Wrong parking charges 17. Public convenience, sewage and refuse disposal fees 18. Customary burial ground permit fees 19. Religious places establishment permit fees 20. Signboard / advertising fees

Source: Decree 21: Taxes and Levies (Approved List for Collection); September 30, 1998.

Table 1.3

	1960	1963/67	1980	1982	1987	1990	1993	1995-
Federal Government	70	65	55	55	55	50	48.5	48.5
Regional/State Government	30	35	34.5	34.5	32.5	30	24	24
Local Governments	0	0	8	10	10	15	20	20
Special Funds	0	0	2.5	0.5	2.5	5	7.5	7.5
Total	100	100	100	100	100	100	100	100

Note: Between 1960 and 1976 Local Governments were funded through the Regional/State

Source: Approved Budgets of the Government of the Federal Republic of Nigeria; Central Bank

Table 1.4	
Federation Account: Horizontal Allocation Formula, 2000	
Basis	Percentage of total fund
Derivation	
Oil Revenues	13
Equality	**40**
Equality	40
Population	**30**
Population	30
Land Mass and Terrain	**10**
Land mass	5.0
Terrain	5.0
Social Development Factors	**10**
Primary school enrollment	2.4
Secondary/commercial school enrollment	0.8
Inverse secondary/commercial school enrollment	0.8
Hospital beds	3.0
Water supply spread	1.5
Rainfall proportion	1.5
Internal Revenue Effort	**10**
Ratio	2.5
Equality	7.5
Source: Federation Account Allocation Committee	

Table 1.5

Vertical Fiscal Balance: Fiscal Balance at each level of government

	1995	1996	1997	1998	1999
Federal Government					
Current Revenue (*)	15.7	13.5	14.9	13.0	22.3
Recurrent Expenditures	6.8	4.5	5.6	6.6	15.1
Capital Expenditures	8.9	7.8	9.5	11.4	16.7
Recurrent Fiscal Balance	8.9	8.9	9.3	6.5	7.2
Overall Fiscal Balance	0.1	1.2	-0.2	-4.9	-9.6
Consolidated State Governments					
Current Revenue	3.5	3.3	3.4	5.3	5.7
Recurrent Expenditures	2.8	2.0	2.1	2.8	3.5
Capital Expenditures	1.3	1.1	1.2	2.3	2.0
Recurrent Fiscal Balance	0.7	1.3	1.3	2.5	2.2
Overall Fiscal Balance	-0.6	0.2	0.2	0.2	0.2
Consolidated Local Governments					
Current Revenue	1.2	0.9	1.1	1.7	1.9
Recurrent Expenditures	0.8	0.6	0.8	1.1	1.3
Capital Expenditures	0.3	0.3	0.3	0.5	0.6
Recurrent Fiscal Balance	0.4	0.2	0.3	0.6	0.6
Overall Fiscal Balance	0.1	0.0	0.0	0.0	0.0
Memo: GDP (billions of Naira) (**)	1,961	2,740	2,835	2,717	2,974

Note: (*) Federally retained revenue excl. state and local share of Fed Acc and VAT.
(**) 1999 estimate based on 6.6% inflation and 2.7 real growth rate.

Source: Central Bank of Nigeria; International Monetary Fund.

Table 1.6							
Incidence Analysis of State-Level Revenue Sources							
Federal Allocations	Intercept	Fiscal Capacity	Poverty Rate	SSE	Pop. Density	Pop.	R^2
Parameter Estimate	**1,176**	0.15	1.21	1.13	-0.32		0.04
T Statistics	3.58	0.36	0.23	0.33	-0.94		
Federal Allocations (incl. Pop)							
Parameter Estimate	**2,326**	**0.69**	-3.86	-2.80	0.00	**-295.01**	0.63
T Statistics	8.78	2.45	-1.14	-1.24	0.02	-6.94	
Note: Bold indicates statistical significance at the 5 percent level.							

CASE STUDY 2:
AN ANALYSIS OF CURRENT TRANSFER SCHEMES IN MALAWI

The Government of Malawi is pursuing an ambitious decentralization program, which would transform intergovernmental relations in Malawi from a highly centralized system of governance to a decentralized system where many government services (including primary education, primary health care, community development, and other typical local government functions) are to become the responsibility of the country's local government assemblies. Local government elections were held in November 2000 and new assemblies have been sworn in across the country. However, before the devolution of the first expenditure responsibilities can take place, a large number of financial and administrative issues will need to be resolved. Central among these unresolved issues is the development of a system of intergovernmental transfers (grants) from the central government to the local assemblies that will provide local governments with the resources needed to provide local public services. The importance of transfers, especially in the early years of the decentralization process, is magnified by the relatively minor relevance of own revenue sources at the local level. Since local governments until now have only played a very minor role in the delivery of public services, the system of intergovernmental transfers used during the past several years is not well suited to the new institutional arrangements.

According to Section 44(4) of the new *Local Government Act* (1998), "[t]he distribution of Government grants to the Assembly shall be done by the Government upon recommendation of the Local Government Finance Committee in accordance with a formula approved by the National Assembly." Typically, these formulas are included in the annual appropriation acts, but are sometimes also included in a Local Government Act. In order to enhance the stability and transparency of the system, it is recommended that these formulas initially be fixed for a period of three years.

While ultimately the selection of the formula is a political choice, the design of the formula should assure that the selected factors have the desired properties discussed in Part One of this module, and equally important, that the national and sectoral policy objectives of the government are met. A good starting point for designing an allocation formula is to analyze the current allocation of transfers and expenditures. This analysis will reveal how resources are currently distributed, and if this allocation is consistent with the policy objectives of the

government.

2.1 Fiscal Incidence Analysis

In a decentralized system of governance, where local leaders are elected by popular vote, it is expected that local politicians will attempt to levy local taxes and provide local public services in such a way to satisfy a majority of the electorate. As such, economists can learn something about the demand for non-central government services in a decentralized system by studying the variation in local expenditures and relate these (through regression analysis) to variations in socio-economic characteristics of subnational governments. This could reveal how the demand for local government services (such as primary education) varies with a community's ability to afford such services (fiscal capacity), and what other local characteristics cause variations in the demand for local public services (fiscal need measures). This knowledge could then be used to guide the design of the transfer system.

Unfortunately, such analysis of historical expenditure patterns in Malawi will not yield an improved understanding of the demand for local public services. Historically, local governments in Malawi had little or no budgetary discretion and local governments (particularly rural District Assemblies) had very limited own revenue sources. In the absence of some degree of local budgetary autonomy, variations in local public spending across districts would reveal more about the district's ability to garner transfers from the central government than about the variations in fiscal need among local governments.

2.2 The Incidence of Transfers, 1997/98

A slightly different question might provide some guidance in arriving at formulas for the new transfer system, namely: how have transfers historically been assigned? Specifically, do transfer levels systematically vary in response to certain characteristics of local governments? For instance, do district that have greater fiscal needs receive larger transfers? Do districts that are less able to raise revenues receive larger transfers? While we could simply look at the allocation formulas used in the past to assign transfers, we can arguably get a more complete answer by looking at the actual incidence of transfers.

The latest period for which essentially complete fiscal data is available, is fiscal year

1997/98. During this period, District Assemblies received Resource Supplement Grants, while Township Assemblies and City Assemblies received a transfer known as Contribution in Lieu of Rates. Additionally, local councils were provided with Special Grants as well as Health Grants to operate district clinics. How these resources were allocated across districts reveals how the Government has been distributing its resources across the national territory in order to achieve its policy objectives. Again, this should be helpful information in the design of the new transfer scheme.

The Final Report on *Accountability and Financial Controls in Local Government* (September, 1999) reports that while the timing and frequency of the Resource Supplementary Grant is erratic, it remains the main transfer scheme in Malawi. Two-thirds of the Resource Supplementary Grant is allocated to urban assemblies while one-third is made available to rural assemblies. The distribution of the grant to district governments is based on the following premise:

- 50% distributed in equal amounts,
- 30 % distributed on a per capita basis
- 13% distributed on a per capita basis to a number of drought-striken regions
- 7% distributed on a per capita basis to a number of "least developed" districts, as identified in government documents

The authors of the Accountability Report recommend to maintain the current allocation approach, with the modification that the distribution should not be *a priori* divided between urban and rural assemblies. The Report further recommends modifying the allocation of 50 % on an equal basis and instead allocate these funds based on population and the other aforementioned factors.

Table 2.1 presents the total grants received by each district in per capita terms. The descriptive statistics at the bottom of the table reveal that there is relatively little variations in the transfers that are allocated, ranging between MK 0.36 and MK 6.08 per person.

The observed variations in transfer levels are not large, especially when considering other resource variations. For instance, local governments were grossly unequal in the ability to raise own source revenues, both due to legislative constraints as well as differences in economic activity. During 1997/98, Districts Assemblies on average collected MK 5 per

person in own source revenues, while Township Assemblies collected MK 95 per person and City Assemblies collected over MK 1100 per person.

The variation in transfer levels in Table 2.1 appears rather random. Therefore, a regression equation was specified to reveal if transfer levels systematically vary in response to certain characteristics of local governments. For instance, do district that have greater fiscal needs receive larger transfers? Do districts that are less able to raise revenues receive larger transfers? The regressions contained in Table 2.2 attempt to answers such questions.

The first equation in Table 2.2 seeks to explain the variation in the per capita level of transfers received by districts. The second and third equations explain the level of per capita health transfers and per capita transfers net of health grants, respectively. We tried to explain variations in transfer levels based on a number of explanatory variables that reflect variations between districts in fiscal capacity and fiscal need. Descriptive statistics for these explanatory variables are contained in Table 2.3.

Median household income was used as a measure of a district's fiscal capacity; as household income rise, districts should be better able to raise own source revenues. If transfers are equalizing (more specifically, if transfers seek to equalize fiscal capacity), then we should find an inverse (negative) relationship between transfers and household income (i.e., when household income is higher, transfers will be lower).

A number of measures of fiscal need were included in the regression equation, including the share of the population that is 0-14 years of age; the share of the population that is ultra-poor; and the land area of a district. These variables are all traditional measures of fiscal need. Thus, if transfers are meant to equalize the fiscal needs of districts, then needier districts (for example, with a larger land area) should receive greater transfers. We also included the population size of the district, as the equality principle was used to allocate some of these resources. On account of this fact, we would expect that districts with larger populations receive lower per capita transfers. Finally, since there are substantial differences between urban and rural conditions, a variable was also included that takes the value one when a district contains a Township Assembly or when the district is in fact a City Assembly.

The regression results in Table 2.2 support several interesting conclusions. First, the results suggest that the selected explanatory variables explain about half of the variation in

transfers in Malawi ($R^2 = 0.47$). Second, the results suggest that transfers in Malawi to some extent equalize both fiscal capacity and fiscal need. Third, as suspected, districts with larger populations indeed receive smaller transfers when measured in per capita terms. However, when all else (including population) is held constant, City Assemblies and Township Assemblies receive slightly larger transfers than non-urban districts.

While the parameter estimates vary somewhat between the three regression equations, all three regressions clearly follow the same trends. Specific interpretation of the first regression equation follows below:

- An increase in per capita income of MK 1000.00 results in a reduction in per capita transfers of MK 0.21. However, while the regression parameter is most likely negative, we cannot conclude with statistical certainty (or with "statistical significance") that this estimate is negative.
- Districts that have a larger young population (the number of individuals aged 0-14, expressed as a percent of total population) generally receive somewhat larger transfers: MK 0.13 for each percentage point increase. This is consistent with our expectations, since children are expected exert higher demands on public sector services, including health and other social services. However, again, the result is not statistically significant.
- Districts with more ultra-poor persons (expressed as a percent of total) neither receive a greater amount or transfer, nor a smaller amount. While the parameter estimate is positive, the size of the parameter is negligible (it suggests less than a MK 0.01 increase in transfers for each percent increase in poverty) and the estimate is not statistically significant.
- When all else is held constant, districts with a larger population receive smaller transfers when expressed in per capita terms. For every increase in population of 100,000 people, a district on average receives MK 0.45 less in transfers per person. This parameter estimate is statistically significant.
- Land area has a negligible and insignificant effect on transfer levels.
- City Assemblies and Township Assemblies generally receive larger per capita transfers (in the amount of MK 1.21 per person). The fact that cities and townships receive larger transfers might be a reflection of the political influence of urban leaders. Alternatively, this result might be driven (in part) by the fact that townships are generally much smaller than other districts (typically only 15,000-30,000 residents).

Therefore, as result of "equal shares" allocations, townships are likely to receive a disproportionately larger amount of per capita transfers.

2.3 The Incidence of Deconcentrated Health Care Expenditures

Similar to the incidence of intergovernmental transfers, the Ministry of Health provides health care services in a deconcentrated manner in Malawi. As a result, each district is a cost center for the purpose of the national budget, so that the annual budget votes provide information on health care expenditures for each district in Malawi. It needs to be noted that the available data are for planned health care expenditures as opposed to actual, realized budget expenditures. Of course, budget data does not necessary provide an accurate reflection of actual outlays.

Similar to the incidence regressions performed above on transfer levels, the health care expenditure data allow us to analyze the allocation of health care expenditures across districts. While again this does not reveal anything about the local demand for health care services (because local governments had no discretion over these expenditures), knowledge about the historical incidence of deconcentrated health care expenditures could nonetheless give us some guidance in the design of the transfers for the Health Fund. This exercise will be particularly relevant since health care services will likely be among the first government functions to be decentralized.

Table 2.1 contains data on planned recurrent expenditures on health services by district in per capita terms for budget year 2000/01. Average planned expenditure on deconcentrated health services equals MK 135 per person. Planned expenditures vary substantially between districts, with Zomba District receiving only about one-third of the average allocation (MK 45 per person). Other districts, especially the main urban centers, receive above-average allocations. For instance, Mzuzu is budgeted to receive MK 504 per person in health care services, while Zomba municipality is projected to receive MK 817 per person in health care services.

The urban bias of these figures do not necessarily reflect inequities, but may very well be inherent to the more complex structure of health care delivery. Unlike other purely local government functions such as education, where all the benefits from a local government service flow to the residents of that local government, the benefits from health care do not

necessarily flow to the residents of only one district. For instance, main urban centers often contain referral hospitals that take care of the advanced health care needs of an entire region. Therefore, the per capita amounts in Table 2.1 overstate the health resources that flow to the residents of urban districts and understate the resources that flow to residents of rural districts. The intricacies of health care delivery are a complicating factor in the decentralization process that cannot be ignored and are considered in greater detail in the next section.

Despite these concerns, when we relate deconcentrated health care expenditures to measures of districts' fiscal capacity and fiscal need (the same measures as used above) in a regression, we are able to explain almost 60 percent of the variation in health care expenditures. The regression results are presented in Table 2.4 and reveal the following facts about the incidence of health care services in Malawi:

- Wealthier districts receive larger allocations: for each MK 1000 increase in median household income, a district receives MK 41 more in health care allocations. (This result is statistically significant.) One possible explanations is that wealthier, politically more powerful districts have the ability to politically influence allocations in their favor. However, several other explanations are possible as well. For example, wealthier districts are often urban centers. Therefore, the possibility arises that this variable is picking up not just the local demand for health care services, but that the Ministry of Health is providing additional resources to medical facilities in urban centers to accommodate the demand for health care services for the surrounding districts as well. Another possibility is that residents in wealthier districts use health care facilities more often and that additional resources are provided in response to this higher "demand." Yet another possibility is that private clinics and hospitals that receive funding from the Ministry of Health might have a tendency to locate in wealthier districts.
- The size of the young population (the number of individuals aged 0-14, expressed as a percent of total population) has a negligible and insignificant effect on the allocation of deconcentrated health resources.
- Poverty has a positive and statistically significant impact on health expenditures. For every 1 percent increase in the ultra-poverty rate, health care allocation on average increase MK 6.72 per person. While this amount may appear small, resulting differences in health care allocations may be substantial because ultra-poverty rates vary widely. The difference between the district with the lowest

poverty rate (Karonga: 6.3 percent) and the highest poverty rate (Zomba: 55.6 percent) is almost 50 percentage points.

- Districts with a larger population receive lower per capita allocations. This is again consistent with the equality principle: even small districts are "equally" provided with a district hospital, regardless of efficiency and equity arguments. Of course, this means that smaller districts receive more resources per person.
- Land area has a negligible and insignificant effect on health expenditure levels.
- A cursory analysis of the data earlier suggested that cities and town receive greater resources. However, the regression does not confirm this: while the parameter estimate is positive, the estimate is not statistically significant.

2.4 The Incidence of DDF Allocations

The District Development Fund (DDF) is a decentralized development financing facility established by the Government of Malawi and a number of donor organizations, including UNDP and UNCDF. Urban assemblies currently are not eligible to receive DDF funds.

DDF projects are controlled at the district level; grants are provided to community-driven projects and projects initiated at the district-level. DDF funds are apportioned among rural districts on a formula-based approach:

- 30 % of DDF funds is allocated based on the "equal shares" principle
- 70 % of DDF funds is allocated based on four factors, equally weighted: population, area of arable land, illiteracy and infant mortality

Regression analysis was performed on the 1999 allocation of DDF grants to uncover the incidence of DDF grants across districts. Data for per capita DDF expenditures by district are contained in Table 2.1. (The available data actually only reflects the UNCDF-portion of 1999 DDF expenditures.) The regression results are presented in Table 2.5. The selected independent variables are able to explain almost half (45 percent) of the variation in per capita DDF allocations. The regression results uncovered three trends in the allocation of DDF funds:

- Wealthier districts (districts with higher average household income) receive a considerable smaller DDF transfer, despite the fact that no measure of fiscal capacity is included in the formula. For every MK 1000 increase in income, the

DDF transfer is reduced by MK 3.27. The effect is probably due to the fact that illiteracy and infant mortality and inversely related to a district's wealth.

- Surprisingly, districts with higher levels of ultra-poverty rates receive fewer transfers, when all else is held constant. This might be due to the absence of poverty or ultra-poverty data in the formula
- Not surprisingly, less populated regions also receive a smaller per capita grant from the DDF. This can clearly be attributed to the presence of the equality principle in the DDF formula.

Our preliminary search for relevant district-level data did not yield recent data on illiteracy and infant mortality. We would be inclined to consider these variables in the design of the transfer formula if we could locate a data source for these variables, and found that these data sources comply with the desirable characteristics of allocation factors

TABLE 2.1:
The Fiscal Incidence of Current Transfer Mechanisms in Malawi

	Total Grants 97/98	Health Grants 97/98	Non-Health Grants 97/98	Health Expend. 00/01	DDF Grants 99
Balaka	--	--	--	--	11.54
Blantyre City	0.43	0.00	0.43	160.68	0.00
Blantyre Rural	1.41	0.67	0.74	101.32	11.00
Chikwawa	0.84	0.28	0.56	90.25	8.92
Chiradzulu	1.32	0.66	0.66	91.74	12.20
Chitipa	2.33	0.48	1.84	178.12	15.05
Dedza	1.52	0.63	0.89	61.60	15.37
Dowa	0.76	0.25	0.51	57.23	7.66
Karonga	2.95	0.40	2.56	101.48	10.15
Kasungu	1.74	0.46	1.27	56.18	6.70
Lilongwe City	0.36	0.00	0.36	179.04	0.00
Lilongwe Rural	0.67	0.33	0.33	57.99	5.12
Machinga	3.04	0.21	2.83	90.74	8.53
Mangochi	1.10	0.17	0.93	103.40	13.39
Mchinji	1.11	0.27	0.84	89.69	20.44
Mulanje	1.46	1.35	0.11	59.38	7.01
Mwanza	2.05	0.30	1.75	118.58	17.65
Mzimba	1.10	0.60	0.50	74.15	6.56
Mzuzu City	6.08	0.00	6.08	503.85	0.00
Nkhata Bay	2.38	0.33	2.05	127.19	32.36
Nkhotakota	1.81	0.09	1.71	79.12	11.92
Nsanje	3.83	0.00	3.83	118.51	33.82
Ntcheu	1.72	0.45	1.27	79.29	7.85
Ntchisi	2.34	0.93	1.41	121.00	16.38
Phalombe	1.46	0.00	1.46	59.38	11.89
Rumphi	5.25	1.59	3.65	157.03	19.20
Salima	3.57	0.00	3.57	80.42	10.61
Thyolo	3.00	0.66	2.33	66.35	13.83
Zomba	1.33	0.00	1.33	817.31	0.00
Zomba Rural	0.61	0.15	0.45	45.29	6.73
Average	1.99	0.39	1.60	135.39	11.40
Standard Dev.	1.37	0.39	1.35	155.74	8.05
Coef. Of Var.	0.69	1.01	0.85	1.15	0.71
Minimum	0.36	0.00	0.11	45.29	0.00
Maximum	6.08	1.59	6.08	817.31	33.82

Table 2.2:
Fiscal incidence of per capita transfers in Malawi, 1997-98

	Intercept	Median	Pop 0-14	Ultra-	District	Land Area	Town/	R^2
Total Grants	-0.568	-0.214	0.097	-0.006	-0.0045	0.040	1.219	0.47
	-0.11	*-1.05*	*0.92*	*-0.27*	*-3.48*	*0.32*	*2.21*	
Health/Clinic Grants	2.680	-0.118	-0.037	-0.009	0.000	0.024	-0.063	0.25
	1.47	*-1.67*	*-1.00*	*-1.13*	*-0.55*	*0.56*	*-0.33*	
Non Health Grants	-3.248	-0.096	0.133	0.003	-0.004	0.016	1.282	0.52
	-0.67	*-0.51*	*1.37*	*0.14*	*-3.55*	*0.14*	*2.52*	

Note: T-statistics are in italics. See Table 3 and text for a description of variables.

Table 2.3:
Descriptive Statistics for Selected District Socio-Economic Characteristics in Malawi

	Median Income (MK '000)	Percent Pop. Age 0-14	Ultra-Poverty Rate	Population 1998 ('000)	Land Area (Sq. Km 000)
Average	3.06	44.18	27.61	339.26	3.25
Standard	1.75	2.86	13.66	191.35	2.41
Coef. Of Var.	0.57	0.06	0.49	0.56	0.74
Minimum	1.37	39.00	6.26	64.12	0.04
Maximum	9.30	55.25	55.59	901.81	10.35

Table 2.4:
Fiscal Incidence of Deconcentrated Health Care Expenditures, 2000/01

	Intercept	Median	Pop 0-14	Ultra-	District	Land	Town/	R^2
Parameter	-148.082	41.465	1.200	6.719	-0.404	7.994	62.919	0.580
T-Statistic	-0.27	1.95	0.11	2.74	-2.98	0.62	1.09	

Table 2.5:
Fiscal Incidence of District Development Fund Allocations (UNCDF portion), 1999

	Intercept	Median	Pop 0-14	Ultra-	District	Land Area	R^2
Parameter	42.168	-3.267	-0.146	-0.284	-0.019	0.094	0.453
T-Statistic	2.47	-2.06	-0.44	-2.26	-2.42	0.13	

CASE STUDY 3:
A CRITIQUE OF THE PROPOSED SYSTEM OF EQUALIZATION TRANSFERS IN ECUADOR

Ecuador in embarking on an ambitious program of fiscal decentralization. The reform program, which is still at an early stage of policy formulation, is summarized in the government's *Proposal for the new administration model for Ecuador (2000)*. This case study analyses the design of the proposed new equalization transfer system and critiques the main shortcomings of the proposed design.

3.1 Overview of the proposed transfers system

The new transfer system in the *Proposal* contains three elements. The first element is the "base transfer." The base transfer maintains the status quo of the current transfer system, by consolidating the resources that are currently transferred to municipal districts and provincial councils by 15 specific transfers into one grant. The base transfer is used to fulfill a mandate in Ecuador's constitution that does not allow the center to transfer fewer resources to subnational governments than the amount transferred in the previous year.

The second element of the new transfer system in the proposal is the *"costeo de nuevas competencias"* or the *costing of new responsibilities*. This transfer compensates subnational goverments for the devolution of new expenditure responsibilities. During the first year of the new system, the costing of the new responsibilities will be based on the level of expenditures incurred by the central government for those functional responsibilities during the last budget year. In future years, the resources assigned to these transfers will be decided on an annual basis by the central government. This increases the financial uncertainty for subnational governments. However, the constitutional mandate that does not allow the center to transfer fewer resources than the previous year reduces the importance of the financial uncertainty for subnational governments.

The third element of the proposed new system is called "*factor de incentivos*" or *incentives factor*. This element consists of three sub-components or criteria for the assignment of transfers: (i) a fiscal effort criterion, which has the objective to reward the

fiscal effort of the subnational governments; (ii) a revenue sharing component, which prescribes the sharing of national tax revenues between the central government and subnational governments on a derivation basis (i.e., revenue is shared among subnational governments based on where revenues are collected); and (iii) a criterion of solidarity, which allocates funds to help subnational governments with greater fiscal need.

Ecuador's proposed equalization fund, the "*caja fiscal territorial nacional*" (*national territorial fiscal fund*) is defined quite generally as that portion of the national revenues required to finance the responsibilities that subnational governments will assume.

These revenues will be used in the first year to finance the first two elements of the new transfer system, that is, the *base transfer* and the *costing of new responsibilities*. Starting in the second year, the increase in the *distributive base* (i.e., the increase in the *national territorial fiscal fund*) would be used for three purposes:

- One-third of the increase of the distributive base would be allocated towards the "*fondo anticiclico*" (literally: *anti-cyclical fund*).
- Another one-third of the increase of the distributive base would be allocated towards paying the central government debt.
- The remaining one third of the increase in the distributive base to finance the *incentives fund*.

3.2 Discussion of the proposed transfer system

The new transfer system is imaginative but presents a variety of problems and is overly complex. At the surface, all the objectives pursued by the transfer system are appropriate and even laudable. However, the proposed methodology is not the right way to achieve those objectives.

Sound principles of fiscal management require all revenues, without exception, to accumulate into one fund. Prioritization of government policies takes place when proponents of the potential users of public sector resources compete in the annual budget formulation process for the available resources. The setting-aside of resources in dedicated funds should only be allowed if a direct relation truly exists between of the delivery of a service and the revenue source. For example, such as direct relationship exists in the case of contributions for social security, or in the case of user fees for certain

government services. Except in these limited cases, the practice of dedicating revenues demonstrates of lack of confidence in the budgeting process. It also represents an opportunity for pressure groups within the governmental apparatus to protect their self-interest over common interests. Given the problems that fragmentation of fiscal resources and the reliance on dedicated funds have caused in Ecuador in the past, the proposal should help to reduce this characteristic of Ecuador's budgetary system.

However, even though the proposal repudiates the fragmentation of the current public finance system of Ecuador and the practice of dedicated funds (the practice of setting aside revenues and dedicating them *a priori* for specific purposes), the proposal seems to contribute to this problem rather than resolving it. For instance, the proposal suggests that the revenues collected from petroleum activities should be dedicate to foreign debt payments. It also suggests that one-third of the increase of the distributive base should be used to the national debt payments. Another example of resource fragmentation is the *fondo anticiclico*, which is supported by another one-third of the increment in the distributive base.

Fundamentally, an important criticism of the proposed transfer system its main objective is to perpetuate the status quo. As a result, it lacks a clear conceptual basis for the role that transfers should play in a decentralized system of finance.

The design of an equalization transfer mechanism has to be considered as one part of a complete system of intergovernmental fiscal relations, and needs to take into account both the assignment of expenditure responsibilities between different levels of government as well as the assignment of revenue sources. In general, transfers are used to close vertical imbalances between the assignation of expenditure responsibilities and the revenues available to the central government and subnational governments. Transfers can further be used to close horizontal imbalances caused by differences in resources availability (fiscal capacity) and fiscal needs between subnational governments. However, in order to achieve these objectives, any transfer system has to be considered in the context of the expenditure and revenue components of fiscal decentralization policy.

However, Ecuador's proposed transfer scheme does not systematically relate transfers to the expenditure needs of subnational governments and fails to assign substantial budgetary discretion to subnational government units. In addition, the transfer scheme further fails to take into account subnational governments' ability to generate revenues by themselves, as

the scheme implicitly presumes that transfers will serve as the predominant resource base for subnational governments. As a result, the proposed reforms of intergovernmental fiscal relations contained in the proposal do not differ in any real way with the traditional approach to fiscal management and public sector budgeting in Ecuador.

The proposed transfer system also presents other problems. As mentioned above, the main purpose of the base transfer is to maintain the status quo, which is justified by the constitutional mandate that does not allow the center to transfer fewer resources than the ones transferred in the previous year. The important question, which is not explored in the reform proposal, is whether it would be possible to fulfill this mandate in a different way without relying on the *base transfer* in the new allocation mechanism. For instance, subnational own source revenues, shared revenues and other transfers provide resources that could all be considered to (partial) fulfill that mandate.

Another concern in the proposed transfer scheme is the second element of the new transfer formula, the *costing of new responsibilities*. The current proposal does not establish how these transfers will be distributed among subnational governments. In the implementation of these transfers, it is important to assure that no negative incentives are introduced in the transfer scheme. Policy makers should also be sure to design the transfer formula in such a way that subnational governments will be unable to manipulate the amount of transfers that they receive though local policy decisions.

Unfortunately, the current proposal fails to take advantage of an opportunity to rationalize Ecuador's transfer system. For example, the current reforms provide an excellent opportunity to reduce central government control over local government responsibilities by introducing sectoral block grants. Sectoral block grants would provide subnational governments with funding for certain sectors, but would give them the freedom to use the transfers as they wish within the specified sector (for instance, local governments would be free to use education grants to fix old school, build new schools, hire more teachers, or purchase text books). Such sectoral block grants could be allocated between different local governments on a "per client" basis. For instance, an education block grant could be allocated among districts on a per-student basis (in proportion to the number of students in each district). This client-based sectoral approach to transfers would not only achieve a greater level of regional fiscal equality but also encourages efficiency in the use of public resources. Besides, this strategy gives subnational governments an incentive to allocate its resources and maintain its infrastructure in a rational way.

The *incentives fund*, the third element of the proposed new transfer system, also presents a variety of problems in its three components.

The first component is intended to promote the fiscal effort of the subnational governments, which it defines as the ratio of own-revenues over the current expenditure of each subnational entity. This fiscal effort component has two problems. First, as it is discussed in Part One of this module, there is no theoretical justification to stimulate fiscal effort in the context of an equalization scheme. Second, even if we would accept the need to stimulate fiscal effort in this way, it is very improbable that this component would actual be capable of encouraging fiscal effort of subnational governments in Ecuador. The most significant defect is that fiscal effort is improperly defined: "current expenditure" (used in the denominator of the definition) is unrelated to the concept of fiscal effort. Economists typically define fiscal effort as the degree to which a subnational government takes advantages of the revenue sources available toit, and should be computed as the ratio of the revenue collections of a subnational government and some measure of the government's taxable base.

The second component of the *incentives fund* basically prescribes the sharing of revenues between the central government and subnational governments in order to stimulate fiscal effort. Revenue sharing should more properly be dealt with in the context of the assignment of revenues as opposed to in a transfer formula. The sharing of revenues is a legitimate instrument to finance subnational governments. However, this instrument has little or no ability to stimulate revenue collections at the subnational level when the tax administration is performed at the national level. Nonetheless, revenue sharing can provide subnational governments with an incentive to develop their regional or local economic activities in order to increase their own resource base. At the same time, there are certain negative aspects associated with the use of revenue sharing that should not be ignored. First, the use of revenue sharing tends to significantly aggravate the horizontal imbalances between local governments, which would increase the need to rely on equalizing transfers to mitigate the differences in the fiscal capacity of the subnational governments. Second, given that revenue sharing is just a form of transfers, revenue sharing helps to create a dependency on central government resources and could contribute to a lack of accountability of the subnational governments towards their own citizens.

The third component of the *incentives fund* is a compensation mechanism with the objective to distribute resources according to an existing fiscal needs index, the "*indice de*

necesidades insatisfechas" (*index of unsatisfied necessities*). Of the three components of the proposed *incentives fund*, this component has the most merit. As mentioned above, a fundamental goal in the design of any transfer mechanism is to compensate for the differences in the expenditure needs and fiscal capacity between the subnational governments.

However, the mechanism as currently envisioned would need to be reconsidered. On one hand, the use of the needs index is convenient because is defined and well known. On the other hand, reliance on this index could give improper incentives to the subnational governments, as the index relies on variables that can be affected by the behavior of the subnational governments. Instead, a needs index could be construed that relies on objective variables such as the demographic composition (percentage of the population that is school-aged, elderly or other demographic groups with above-average expenditures needs) and other variables that can serve as proxies for above-average subnational public expenditure needs such as the infant mortality rate, the unemployment rate, the poverty rate, and regional differences in cost-of-living.

CASE STUDY 4:
AN ANALYSIS OF THE EQUALIZATION MECHANISM IN THE RUSSIAN FEDERATION

The current case study considers the reform of the Russian equalization fund, known as the Fund for the Financial Support of the Regions (FFSR). The FFSR was introduced in 1994 and substantially reformed for the 1999 budget year. This case study draws upon a policy report which analyzed the proposed reforms of the FFSR in October 1998. As part of the analysis, the report simulates alternative transfer schemes under a variety of policy options.

The proposed reforms were adopted, and subsequently the mechanism was modified in line with recommendations made in the report. For a complete description of the system of intergovernmental fiscal transfers in the Russian Federation see chapters 4 and 7 of *Russia's Transition Towards a New Federalism* by Jorge Martinez-Vazquez and Jameson Boex (World Bank Learning Resource Series, 2001, *forthcoming*).

4.1 Background

Many of the problems with the system of intergovernmental relations in Russia during the transition can be traced back to the period of Soviet rule. Under the old Soviet system, local and regional governments were merely extensions of the central government, and the system of intergovernmental relations was characterized by tightly centralized finances. Revenue sharing and intergovernmental transfers were used as accounting tools to balance subnational budgets, while the size of these budgets was determined by planning expenditure norms set by the federal government. The overall level of subnational budget expenditures was politically negotiated, while transfers were used to provide subnational governments with the required funding for the minimum expenditure budget.

Since the start of the transition process in 1991, the Russian Federation has been pursuing the reform of the system of intergovernmental relations under principles more akin to those of Western-style fiscal federalism. In this structure, the federal government engages in equalization between subnational governments based on fiscal capacity and need, but the ultimate responsibility for balancing regional budgets lies with the regional governments --

not with the federal government. During the transition, issues of intergovernmental fiscal relations have become increasingly important in Russia as federal government responsibilities have been devolved to subnational governments. Whereas in 1992 the consolidated revenues of the subnational governments (before transfers) comprised of 38.6 percent of the total revenues collected, by 1996 this share had increased to 56.4 percent.

Major reforms in the system of intergovernmental fiscal relations of the Russian Federation took place in 1994. Before 1994 rates for shared revenues were commonly differentiated ("regulated") to fine-tune the amount of revenues collected by the regions. Since 1994 the revenue sharing rates of the value-added tax (VAT), the personal income tax (PIT), the enterprise profit tax (EPT) and various excise taxes were standardized across all regions and have remained virtually unchanged since. Also in 1994, the system of negotiated subventions to the regions was replaced with a formula-driven mechanism of equalization transfers. The reforms since 1994 have represented significant improvements over the previous Soviet-style mechanism of regulated revenue sharing and negotiated transfers. In particular, the adoption of a formula-based mechanism of transfers, the increased reliance by subnational governments on own source revenues and the increased stability of shared revenues represent notable achievements.

An important component of intergovernmental transfers in the Russian Federation is the Fund for Financial Support of the Regions (FFSR). This Fund, which is financed from the federal budget, allocates funds to the subjects of the federation based upon a set of formulas, replacing the system of negotiated subventions that was in place prior to 1994. Despite these reforms, the current system of intergovernmental transfers is still far from a desirable system of intergovernmental transfers that is stable, transparent, objective, and that achieves the objective of equalizing fiscal resources across the regions.

The equalizing capacity of the current system of transfers is limited by the fact that the funds available for equalization are a relatively small share of the subnational budget, and the share has been declining. In 1995 the size of the FFSR was 8.4 percent of subnational revenues, while for 1996 these funds only comprised of 6.9 percent of subnational revenues. The current system of transfers also continues the Soviet tradition of filling gaps as opposed to actually equalizing the needs and capacities of regions.

4.2 Analysis of the Proposed Equalization Mechanism

Since 1994, the FFSR has relied on revenues and expenditures data from a base year as measures of fiscal capacity and fiscal need. Over the years adjustments were made to the base year data in the original formulation of the FFSR to account for legislative changes, which virtually returned the formula-based transfer mechanism to a cluttered system of negotiated subventions. The resulting complexity and ultimately the lack of performance of the formula (it was felt that the formula did not produce the desired results) are reasons that have been cited for the introduction of a new equalization mechanism in 1999. The proposed new formula improves over the past formula but, as we will see, still presents a number of problems.

In the proposed new system, allocation of the equalization transfers takes place in five steps (see Box 4.1 for an overview). As a first step, the overall amount of funding for the FFSR is establish. Next, in the second step each region's level of *Per Capita Revenues* is computed. The third step defines an *Index of Budget Expenditures* or expenditure needs. This index is used in the fourth step to determine an indicator of *Normalized Per Capita Revenues*. The fifth step assigns equalizing transfers for regions for which the Normalized Per Capita Revenue falls below some threshold. Conceptually, the new approach attempts to break with the Soviet-era practice of filling the gap between a region's normative expenditure needs and the region's fiscal resources, but in practice fails to do so completely. Although the new formula gets closer to using "fiscal capacity" and "expenditure needs" as the bases of the formula and moves away from using actual revenues and expenditures, the new formula does not distance itself enough from the use of actual revenues and expenditures for the purpose of equalization.

Box 4.1: Overview of the Proposed Equalization Formula

Step 1:	Determine the amount of financing for the FFSR
Step 2:	Determine *Per Capita Revenue* for all regions (a measure of fiscal capacity)
Step 3:	Determine *Index of Budget Expenditures* for all regions (a measure of expenditure need)
Step 4:	Determine *Normalized Per Capita Revenue* for all region (a measure of a region's fiscal capacity relative to its expenditure needs);

Step 5:	Assign equalization transfers to regions with low *Normalized Per Capita Revenue*

The remainder of this section presents a description of each of the five steps, followed by an analysis of each step and suggested improvements of the proposed mechanism.

4.2.1 Funding for the FFSR (Step 1)

Proposed Mechanism. The amount of funding for the FFSR is determined annually based on federal budget availability and has to be approved on an annual basis. In relative terms, funding for the FFSR has been declining over the years and further reductions are expected in the future.

Since 1996, the funding for the FFSR has been determined as a percentage of total tax collections of the federal budget excluding import duties. While the funding rate for 1996 was set at 15 percent of total federal collection (excluding import duties), the rate was subsequently reduced in 1998 to 14 percent. For 1999, the FFSR is budgeted to receive only 13 percent of applicable federal revenues. Based on preliminary estimates for the draft Medium Term Fiscal Plan for the Russian Federation, the FFSR will be allocated Rb. 24.2 billion in 1999. According to the plan, due to an expected increase in own source revenues of the regions of the Russian Federation, the federal contribution to the FFSR is planned to shrink further from 13 percent in 1999 to only 11 percent in 2001.

Analysis. It is understandable that the federal government wants to ensure that it has a sufficient amount of budgeting flexibility to respond to unforeseen fiscal development in the future. However, there is a tradeoff between ensuring federal budgetary flexibility and providing funding certainty to subnational governments. The resulting uncertainty about future transfer levels may result in inefficient allocation decisions by subnational governments and could reduce the overall stability of the system of intergovernmental fiscal relations.

Suggested Improvements. A reasonable compromise may be possible that avoids both the uncertainty associated with annually determined funding rates while at the same time providing the federal government with a sufficient amount of flexibility to respond to

possible budgetary crises in the future. For example, the funding rate may be fixed for a period of three years, which can only be altered in the case of a stipulated emergency situation.

4.2.2 Per Capita Budget Revenues (Step 2)

Proposed Mechanism. The new formula provides financial assistance to the regions on the basis of the level of per capita own revenues which are adjusted ("normalized") for variations in the historical level of budget expenditures. The first step in the formula is the computation of Per Capita Budget Revenues, which is defined as

$$\textit{Step } 2: \qquad R^{PC}_i = \frac{R_i}{N_i},$$

where N_i is the population of region *i* and R_i is the amount of own revenues of the consolidated regional (i.e., regional and consolidated local) budget. In order to reduce the permanent reliance on the FFSR by recipient regions (i.e., to increase their tax effort), each region must put in place a program to increase own revenues in coordination with the Ministry of Finance. Such programs must be approved by regional legislative acts.

For 1999, estimation of Per Capita Budget Revenues for the regions is done on the basis of 1997 data. For the year 2000 and onward, the revenue estimates will be adjusted on the basis of "indicators of financial balances of the territories." Adjustments to estimated own revenues will included adjustments to control for the payment of arrears to the federal budget and to account for the implementation of measures stipulated in the revenue-increasing agreements between the Ministry of Finance and the regions.

Analysis. The choice of defining "own revenues of consolidated regional budgets" and how to adjust them based on "indicators of financial balance of the territories" is critical to achieving an equalization formula that provides the right fiscal incentives. Clearly, using current revenues for this purpose would give regions an incentive to raise less revenue. When an eligible region collects less revenues, it would be "rewarded" by a substantial

increase in equalization transfers. The disincentive that would result from the use of actual revenue collections is particularly disconcerting as many regional revenue sources are derived from shared (federal/regional) taxes, thus also threatening to lower federal revenues. This is so because at the present time it appears that regional authorities still have considerable influence in the conduct of business of regional State Tax Inspectorates.

In the past, revenue collections from a base year were used to define "own revenues" in an attempt to avoid the perverse incentives of using current revenues in the formula. However, use of base year data is not incentive compatible either. If a region knows that increased tax effort could reduce the size of transfers in subsequent years, the region has a clear incentive to lower its tax effort. An additional problem with the use of base year collections is the possible bias caused by the presence of extra-budgetary funds of the existence of significant tax arrears by some regions. Finally, the adjustment process necessary when using base year data opens the door for subjective bias in the annual adjustments, as regions will attempt to influence the allocation process. Therefore, the manner in which estimates of own revenue will be produced after 1999 based on "indicators of financial balance of the territories" is crucial to the success of the current revision of the equalization formula. The outline of the new equalization formula provides little guidance as to how projections of regional budget revenues will be made in future years. In order to avoid the re-introduction of subjective bias in the adjustment process, the current reforms should clearly specify how estimates of own revenues will be calculated in subsequent years.
The use of "indicators of financial balance of the territories" to determine the own revenue estimates for the regions for subsequent years is appropriate if these indicators represent a transparent measure of regional fiscal capacity. It is possible to formulate an estimate of own budget revenues using a measure of fiscal capacity without reference to a base year, thus avoiding the need for compounding annual adjustments. As an example, we compute an estimate of own revenue based on gross regional product (a simple measure of fiscal capacity) as part of the simulations in section 4.3. Unlike actual revenues or base year revenues, the use of a revenue estimate based on fiscal capacity does not subject the regions to any perverse fiscal incentives.

In the absence of any perverse incentives that reduce regional collections, the need to encourage regional revenue collections through mandatory programs is unclear. The effectiveness of the government proposal to require the regions to develop a program for increasing own revenues (in coordination with the Ministry of Finance) is questionable.

From an administrative viewpoint, it will be hard to define, monitor and enforce the proposed programs. Failure of these revenue collection programs and the impact of subsequent federal enforcement efforts would compromise the integrity of the equalization mechanism in future years and may be used by some as a pretext to return to system of politically negotiated subventions. In addition, a legal issue may arise as a result of the fact that while regional branches of the State Tax Service (STS) could be influenced by regional fiscal policies, the STS is legally a part of the federal government.

In the long run, there are more fundamental questions raised. Even if these regional revenue collection programs would be legal and enforceable, forced increases in revenue collections would not necessarily result in an improvement in the efficient allocation of public resources. In market-based fiscal federalism, the level of subnational government expenditures is determined by the demand for public services by the voters of the region or municipality. The proposal to mandate revenue collections could reward or punish regional governments for their collection efforts regardless of each region's intrinsic demand for regional public services.

Suggested Improvements. In order to prevent the introduction of perverse incentives into the equalization mechanism, the revenue component of the equalization methodology will require determining a region's ability to pay by a measure of regional fiscal capacity. The fiscal capacity of a region can be defined as the potential ability of the governments in that region to raise revenues from their own sources in order to pay for a standardized basket of public goods and services. Various measures of fiscal capacity are available that avoid the incentive concern associated with revenue collections or base year data.

One of the most straightforward measures of a region's fiscal capacity is a region's Gross Regional Product (GRP), which is the regional equivalent of a nation's Gross Domestic Product (GDP). An important advantage of GRP is that it provides a transparent and clear measure of a region's ability to raise revenues. However, a possible disadvantage is that GRP is that it may overstate a region's fiscal capacity because GRP includes sectors of the economy that are largely excluded from the tax base (for example, agriculture). To avoid this concern, a modified version of GRP (denoted here as *mGDP*) could be computed to serve as a transparent and consistent measure of fiscal capacity. This measure could be easily included in the equalization methodology by replacing R_i (budget revenues for region *i*) with FC_i, the level of fiscal capacity for each region, so that Step 2 should be redefined as:

$$\textit{Alternative Step 2}: \quad FC^{PC}_i = \beta \cdot (m.GRP_i / N_i), \quad \textit{where } \beta = \frac{\sum_{i=1}^{T} R_i}{\sum_{i=1}^{T} m.GRP_i},$$

where $ measures the average effective level of regional taxation, R_i indicates actual revenue collections and *T* reflects the number of regions in the Federation. A region's per capita fiscal capacity reflects the amount of revenues that a region would collect per person if it were to exert an average level of fiscal effort. As discussed below, this measure should subsequently be used to calculate each region's level of Normalized Per Capita Fiscal Capacity (instead of Normalized Per Capita Revenue).

It is important to note that the purpose of this suggested improvement to the equalization mechanism is not to encourage or reward greater tax effort. Instead, this improvement only ensures that the process of allocating equalization transfers does not deter effort. Since the State Tax Service (STS) is a federal organization, it would be inappropriate to reward regional governments for the collection efforts of regional branches of the federal STS. However, the use of fiscal capacity to calculate Normalized Per Capita Fiscal Capacity eliminates the perverse incentives contained in the proposed equalization mechanism. At some point after regions are granted some degree of tax autonomy (as proposed in the draft Tax Code) it would be possible to introduce changes to the formula that reward tax effort. However, in general the federal government should remain neutral on this issue.

4.2.3 Index of Budget Expenditures (Step 3)

Proposed Mechanism. The new equalization mechanism proposes a return to the use of expenditure norms for the purpose of calculating regional expenditure needs. The government does not expect to have a set of norms available for the 1999 budget year. Instead, for 1999 expenditure needs will be determined based on variations in the subsistence levels of groups of regions. For 2000, all expenditure needs will be estimated using a normative approach. Whether the government proposal is advocating the use of "physical norms" (as were used in the Soviet era) or whether the use of more broadly defined per capita norms is considered is not immediately clear from the proposal.

Based on specified norms, an Index of Budget Expenditures (an index of the expenditure needs of a region) is computed using the following formula, where

$$\textit{Step 3}: \qquad K_i = \frac{\sum_{j=1}^{k} H_{ij}}{\min_i \sum_{j=1}^{k} H_{ij}},$$

where H_{ij} is the per capita budget norm for region *i* and expenditure category *j*. When this formula is applied, the Index of Budget Expenditures (K_i) becomes the ratio of the total expenditure needs for region *i* and the region with the lowest overall expenditure needs.

The fundamental purpose of this in the equalization formula is to take into account disparities in expenditure needs across regions (in addition to the disparities in fiscal capacity which are taken into account in step 2). The proposed approach based on norms is not desirable because of the many problems associated with the explicit use of norms. Some of these problems are discussed immediately below.

Analysis. In the context of a decentralized fiscal system in a market based economy, a large number of serious concerns arise with regard to the use of expenditure norms to determine the budgetary needs of subnational governments. Three kinds of concerns with regard to expenditure norms should be mentioned:

Budgeting from Norms Results in Suboptimal Fiscal Management. A conspicuous feature of budget preparation in Russia is the philosophy or the overall belief that budgets should be viewed from a perspective of needs rather than from a perspective of feasible public services given the current revenue resources. This perspective has led to a history of unrealistic budgets and poor performance.

It should be understood that all budget practitioners *de facto* use some form of norms or expenditure benchmarks to compile a budget. There is inherently nothing wrong with this practice. What is problematic is when norms or benchmark expenditure levels for different functional expenditure categories are established by law or fixed in some other way without considering the attached funding implications. This carries the risk of raising the

expectation that a certain level of public services will be provided, while sufficient funds may simply not be available to deliver these services. This is the approach followed in the previous regime; it clearly did not work then and it will not work now. In contrast, *de facto* norms can be used to assist budget practitioners in successfully allocating funds within the relevant budget constraint without raising such expectations.

Also, in a decentralized federalist system the role of the federal government in providing for equalization between different regions is often less extensive than in the Soviet tradition. Indeed, a certain degree of variation in regional expenditures should be considered beneficial as it allows regional governments to adjust spending patterns to region-specific concerns and respond to regional demands for public services. In addition, the use of budgetary norms would convert the budgetary process into an input-oriented activity, making it more difficult to focus on budget performance and the level and quality of services. Norms tend to suppress the practice of budget evaluations, in general.

Physical Norms Provide Wrong Fiscal Management Incentives. Perhaps the most important drawback of budgetary norms based on physical measurements is the fact that these norms provide incentives that are not compatible with the goal of the efficient allocation of budgetary resources. For example, physical norms based on physical infrastructure capacity (number of schools, number of hospitals, etcetera) give subnational governments an incentive to preserve excess or obsolete capacity.
The use of physical expenditure norms in the assignment of transfers may actually cause greater inequality between the regions. Greater disparities could occur if, under the present regime, wealthier or politically favored regions have been able to enlarge their physical capacity (for example, more hospitals or universities) than poorer or less favored regions with similar public services needs. If physical expenditure norms are used to measure expenditure needs, the wealthier regions would be considered to have greater need and thus receive a greater share an the equalization fund.

It should be noted that such problems can be avoided by setting monetary norms in per capita terms. If expenditure need is measured by something other than physical measurements, public official will have an incentive to close up (rather than maintain) excess capacity in schools and clinics and to allocate the available funds to improve the quality of service at the remaining locations.

Norms Are Not Transparent and Are Administratively Costly. A further argument against the adoption of expenditure norms is that the use of a large number of norms causes the budgetary system to becomes complex and administratively costly while losing its transparency. Especially the practice of setting expenditure norms in isolation of revenue availability is likely to result in public disenchantment and frustration. If revenues fall short to fulfill the announced norms, the expenditure norms will have to be reduced through negotiations to achieve budgetary balance. This raises the concern that in the time of several years, the assignment of expenditure needs may once again become so convoluted that the equalization system will *de facto* return to a situation of politically negotiated transfers. In addition, the use of physical norms will result in public frustration and political friction as taxpayers feel cheated that the government cannot fulfill its promises and place blame with subnational elected officials who are unable to delivered the level of services established by the norms.

If despite the concerns outlined in this section a normative expenditure approach is chosen by the government, norms should be implemented for as few functional areas as possible. These norms should be defined as monetary norms in per capita terms and will need to be adjusted for variations in the cost of living across regions. Possibly, the cost of living adjustment could be integrated in the monetary norms themselves so that norms would take on different monetary values for different regions. Alternatively, standardized monetary norms could be assigned for each functional area, in which case a cost of living adjustment would be applied separately. The latter more explicit approach has the advantage of being more transparent.

Suggested Improvements**.** The proposed use of expenditure norms has the potential of resulting in a system that is too complex, too costly and results in a misallocation of resources. If expenditure norms are to be understood narrowly as physical norms as used in the Soviet system, such norms should be rejected as a appropriate measure of regional expenditure needs. The question then becomes what alternative measures can be used to quantify variations in "expenditure needs."

A fundamental alternative to the use of budgetary norms is to create an index of broad social, economic and demographic indicators of expenditure need which is adjusted for variations in the cost of living across the regions. The logic of this approach is that like norms, these measures reflect the expenditure needs of regions, but without the disadvantages associated with explicit monetary norms. As a result, a good measure of

expenditure need is created without raising any expectations on how much will be (or ought to be) spent on particular government functions. This approach is much more compatible with a general budget approach that includes both revenue availability and regional variations in expenditure needs. Examples of need indicators that could be used to define such an index include the share of the population that is school-aged, the share of the population that is retired or the share of the population that is unemployed, disabled or lives below the poverty level. Other possible need indicators are a region's population density, its land area, road mileage or indices of certain other natural conditions that might require regional expenditures. Similar to the original definition of the Index of Budget Expenditures, this alternative third step could be captured by the equation:

$$\textit{Alt. Step 3}: \quad K_i = \frac{P_i \cdot \sum_{j=1}^{s} \gamma_j H_{ij}}{\min_i \left(P_i \cdot \sum_{j=1}^{s} \gamma_j H_{ij} \right)}, or \quad K_i = \frac{P_i \cdot \sum_{j=1}^{s} \gamma_j H_{ij}}{\sum_{i=1}^{T} \left(P_i \cdot \sum_{j=1}^{s} \gamma_j H_{ij}, \right) / T}$$

where each region has *s* indicators of need (H_{ij}) such as the proportion of the population that is school-aged, elderly or unemployed; P_i accounts for regional price differences; T is the number of regions in the Federation and γ_j is a weighting parameter assigned to each indicator of need. As the alternative specification shows, there is no need to normalize the index by the minimum value; instead, normalization by the average value may be a more intuitive choice. Also notable is the importance that is given in this formulation to the cost of living index (P_i). Alternatively, the cost of living could be introduced in the formula as just another factor with a selected weighting.

The use of these per capita expenditure need indicators comes with a number of precautions too. First, only a handful of need indicators should be included for the determination of expenditure needs. Inclusion of a large number of need indicators would increase the administrative cost and reduce the transparency of the equalization system. Second, the chosen need indicators should well-defined and free from manipulation by regional governments. An example of how such a broad-based Index of Budget Expenditures could be defined is presented in Section 4.3.

4.2.4 Normalized Per Capita Revenue (Step 4)

Proposed Mechanism. The fourth step in the assignment of transfers in the proposed equalization mechanism is the determination of an *Indicator of Normalized Per Capita Revenue*. The Indicator of Normalized Per Capita Revenue (RP_i) "normalizes" or standardizes the amount of per capita revenues for each region for regional differences in expenditure needs as measured by the Index of Budget Expenditures. This is expressed in the formula:

$$\textit{Step } 4: \qquad RP_i = \frac{R^{PC}_i}{K_i}.$$

Analysis. The advantage of this formula is that it compresses measures of fiscal capacity and fiscal need into one equation. It is more common in other countries to have separate formulas or "windows" for the equation of capacity and need.

Suggested Improvements. If a measure of fiscal capacity is used in the equalization process (as is suggested in the second step) then the measure of Normalized Per Capita Revenues should be properly redefined as the Indicator of Normalized Per Capital Fiscal Capacity:

$$\textit{Alternative Step } 4: \qquad RP_i = \frac{FC^{PC}_i}{K_i}.$$

4.2.5 Allocation of Funds (Step 5)

Proposed Mechanism. The fifth step of the proposed equalization mechanism allocates equalization transfers to all regions for which the level of Normalized Per Capita Revenue fall below the national average ($\overline{RP}$). Therefore, the transfer to each region (t_i) is defined as

$$\textit{Step 5(a)}: \qquad t_i = \left(\overline{RP} - RP_i\right) \cdot K_i \cdot N_i \,.$$

However, if the sum of transfers ($\Sigma\, t_i$) exceeds the size of the FFSR fund, then an additional equation is needed to determine the actual amount of transfers to the regions. Essentially, the threshold level (up to which all regions are equalized) is lowered until the amount of transfers equals the amount of funds available. The threshold (RP_v) is determined in an iterative process which simultaneously determines the number of regions eligible for equalization funds (*m*). This process is expressed in the equation:

$$\textit{Step 5(b) if necessary}: \qquad RP_v = \frac{\sum_{i=1}^{m} RP_i \cdot N_i \cdot K_i}{\sum_{i=1}^{m} \cdot N_i \cdot K_i} \,,$$

<u>Suggested Improvements.</u> Two points of clarification are suggested for the final step of the proposed equalization mechanism. These suggestions do not actually change the allocation mechanism, but merely increase the clarity of the approach. Transparency and clarity are paramount to the success of the equalization methodology, by reducing the ability of political forces to tinker with the equalization mechanism after its implementation and by increasing the chance of its acceptance by the subjects of the Federation.

The first point of clarification pertains to the level of average Normalized Per Capita Revenue (or average Normalized Per Capita Fiscal Capacity). In order to achieve the highest level of accuracy and clarity, this average should be formally defined and included in the relevant legislation. The average level of Normalized Per Capita Revenue may be formally defined either as:

$$\overline{RP} = \frac{\sum_{i=1}^{I} \left(RP_i \cdot N_i \right)}{\sum_{i=1}^{I} N_i}, \text{ or as } \qquad \overline{RP} = \frac{\sum_{i=1}^{I} RP_i}{T}.$$

The second point of clarification pertains to the iterative process used in the determination of the equalization threshold. In order to clarify the determination of the threshold level (RP_v), a change is suggested in the wording of Step 5(a) of the equalization mechanism. This rewording results in an identical allocation of resources, but provides a more logical and clearer insight in the "iterative process" and would allow us to drop Step 5(b). The suggested wording is

$$\textit{Alternative Step 5}: \qquad t_i = \left(\alpha \cdot \overline{RP} - RP_i \right) \cdot K_i \cdot N_i ,$$

where " is an equalization coefficient. Initially, the value of " is set equal to one. However, if the amount of allocated transfers exceeds the amount of funds available, the value of " is incrementally lowered until the sum of equalization transfers equals the size of the FFSR.

It is important to emphasize that this alternative wording does not change the equalization mechanism in any way other than to clarify it. The alternative wording emphasizes that the threshold up to which regions are equalized is determined by the level of available funds. At the same time, the concept is maintained that after the allocation of transfers all regions below the threshold will have the same level of Normalized Per Capita Revenue (or Normalized Per Capita Fiscal Capacity).

4.3 Simulated Allocations of the FFSR

To allow us to visualize the impact of the proposed modified mechanism as well as the suggested improvements to the mechanism, we simulated the allocation of transfers based on the proposed equalization system. These simulations estimate how the FFSR is allocated among the regions for 1999. Due to data limitations, socio-economic characteristics and GRP data for 1995 were used. Since Chechnya for all intents and purposes is no longer a participating member of the Federation, it was excluded from the simulations. In addition, some data (most notably GRP) had to be imputed for the autonomous regions.

Funding of the FFSR. For the purpose of these simulations, the funding allocated to the FFSR for 1999 is estimated at Rb. 24.2 billion.

Determining Fiscal Capacity (FC_i). For the purpose of this simulation, we computed fiscal capacity as a region's GRP multiplied by the national average effective tax rate. While regional per capita revenue collections and per capita GRP are highly correlated (0.97), the measure of fiscal capacity based on GRP is preferable because it does not provide the regions with an incentive to decrease revenue collections.

The high degree of correlation between per capita GRP and per capita revenue collections does not signify that a region's revenue collections are solely determined by the size of its regional product. While the average effective tax rate (computed as the level of regional collection as a percentage of GRP) equals 17 percent, regional effective tax rates vary widely from 10 percent in Dagestan to 33 percent in Chokotskaya Autonomous Oblast. It is also notable that the coefficient of variation for regional revenue collections (CV = 1.16) is substantially higher than the coefficient of variation for fiscal capacity (CV = 0.87). A logical explanation is that the greater variation in revenue collections is due to differences in the level of fiscal effort among regions.

A cautionary note should be placed with the use of GRP data as the basis for calculating regional fiscal capacity. In many cases, GRP is calculated using data provided by tax authorities. For example, the estimated amount of regional personal income (a component of GRP) may be based on income tax data collected by the regional branch of the STS. As a result, this data may be subject to the same kind of manipulation (and hence, perverse incentives) as collections data. To counteract the possibility of such manipulation,

misreporting adjustments could be made to the data based on regional compliance measurement audits. At a later date, modified measures of GRP and other measures of fiscal capacity (such as the Representative Tax System) could be employed.

The steps involved in computing the simulated allocation of equalization transfers are presented in Table 4.2. The first column of Table 4.2 reports the computed level of per capita GRP.

Computing Regional Expenditure Needs (K_i). For the purpose of simulating the level of regional fiscal needs we follow the method outlined in Alternative Step 3. The quantification of expenditure needs is a complex and inherently ambiguous task. It not only involves the selection of one or several indicators of fiscal needs, but also requires the determination of the relative importance (weights) of these need indicators. For the purpose of the simulations contained in this section, we selected four basic indicators of regional needs (H_{ij}). These needs indicators are: (1) the percent of the regional population that is younger than working age, (2) the percent of the population that is of working age, (3) the percent of the population older than working age, and (4) the percent of the population that lives in poverty. Descriptive statistics for these indicators of fiscal need are presented in Table 4.1.

The assignment of relative weights (( )for each of the needs indicators is at least as complex as selecting relevant indicators of regional fiscal needs. Great care needs to be taken in assigning these needs parameters, since the transfer mechanism could actually enlarge existing inequalities between regions if these weights are improperly assigned. For the purpose of these simulations, we assume that the public cost of providing public services to a child is 2 times more costly than a person of working age; the public cost of providing public services to a pensioner is 1.5 times more costly than a person of working age; and that the public cost of providing public services to a person in poverty is 3 times more costly than a person above the poverty level. Subsequently, each region's expenditure need was adjusted for the cost of living and divided by the average level of expenditure need (10,281) to arrive at the Index of Budget Expenditures (K_i):

$$K_i = P_i \ (2 \times \%CHILD + 1 \times \%WORK + 1.5 \times \%PENSION + 3 \times \%POOR) / 10{,}281$$

Each region's amount of cost-adjusted expenditure needs as well as the Index for Budget Expenditures is reported in Table 4.2.

Computing Normalized Fiscal Capacity (RP_i). Step 4 computes the level of Normalized Per Capita Fiscal Capacity for all regions. Results from this step are presented in Table 4.2.

Results and Analysis. The allocation of equalization transfers was simulated based on the proposed equalization mechanism (incorporating the suggested improvements) and the computations contained in this section. The simulated allocation of equalization funds is presented in Table 4.2; transfers for this Simulation (Simulation 1) are expressed in per capita terms.

In addition, we simulated a second allocation formula where the cost of living index was selected as the sole indicator of expenditure need, while base year revenues for 1996 were used as a measure of own revenues. This allocation of transfers (Simulation 2) was designed to reflect the assignment of transfers in 1999 based on the proposed new equalization formula without the suggested improvements contained in this note. For comparative purposes, the table also includes the actual allocation of FFSR funds for 1996.

Based on the allocation formula contained in the proposed equalization methodology, the threshold level of Normalized Per Capita Fiscal Capacity was initially set at Rb. 2450 (the average level of Normalized Per Capita Fiscal Capacity, expressed in "normalized rubles"). However, the simulation revealed that the amount needed to equalize all below-average regions to this average level of Normalized Per Capita Fiscal Capacity exceeded the available FFSR funds for 1999. As a result, the threshold level was incrementally lowered until all below-threshold regions could be equalized up to the threshold level within the relevant budget constraint. Through the iterative process set forth in the proposed equalization mechanism, the simulated equalization threshold was eventually established at Rb 1561 (again expressed in "normalized rubles;" equivalent to an equalization coefficient of " = 0.64). At this threshold level, the 37 regions with a Normalized Per Capita Fiscal Capacity below the threshold level receive transfers to ensure that no region has a Normalized Per Capita Fiscal Capacity below 64 percent of the average level.

The simulated allocation of resources in Simulation 1 is similar to some extent to the system of equalization formulas that is currently being used (FFSR 1996). The correlation between the simulated per capita equalization transfers in Simulation 1 and the actual 1996 per capita transfers equals 0.32. The coefficient of variation for the simulated per capita

transfers (1.88) exceeds that of the coefficient of variation for the per capita 1996 allocation of FFSR transfers (1.59), suggesting that a greater level of equalization occurs in the simulated mechanism. Simulation 2 proves to be more like the current FFSR allocation mechanism. Its correlation with the 1996 assignment of transfers is 0.50. However, per capita transfers in Simulation 2 (with a coefficient of variation of 1.40) appear to be less equalizing than either Simulation 1 or the actual allocation of 1996. Simulation 2 assigns transfers to 53 regions compared to the 37 regions eligible under Simulation 1.

The effectiveness of the proposed equalization mechanism which includes the suggested improvements (Simulation 1) is appraised using regression analysis. A regression is specified to reveal the relationship between the level of simulated per capita transfers (PC FFSR) and the region's fiscal capacity (measured by per capita GRP), fiscal needs (measured by the Index of Budget Expenditures) and fiscal effort (measured by the ratio of regional revenue collections and fiscal capacity, expressed as a percentage). The following regression results were obtained:

$$\text{PC FFSR} = -108 - 21.5\ \text{CAPACITY} + 1027\ \text{NEED} - 3.9\ \text{EFFORT} \quad (R^2 = 0.65).$$

The results from this examination are very encouraging, assuming that per capita GRP and the Index of Budget Expenditures are appropriate measures of fiscal capacity and fiscal need, respectively. The regression explains two-third of the variation in the dependent variable. The results suggest that under the proposed mechanism, regions with greater fiscal capacity receive smaller transfers while regions with greater fiscal need receive larger transfers. At the same time, the parameter estimate for fiscal effort is negative but statistically insignificant, which implies that the simulated mechanism (which uses fiscal capacity instead of actual revenues) is neutral with regard to fiscal effort.

Similar to the incidence analysis in the text for Simulation 1, the regression results for Simulation 2 were:

$$\text{PC FFSR} = 667 - 21.5\ \text{CAPACITY} + 654\ \text{NEED} - 8.8\ \text{EFFORT} \quad (R^2 = 0.46)$$

The variable NEED for this regression is the new need index based just on variations in the cost of living. Comparison of this regression appears to Simulation 1 suggest that Simulation 2 is less needs-equalizing than Simulation 1. In addition, the regression results also confirm that in Simulation 2 those regions that exert higher fiscal effort receive fewer transfers.

Table 4.1
Descriptive Statistics: Indicators of Fiscal Need

	Mean	Minimum	Maximum	Coeff. of Variation	Correl. with K_i
%Children	0.24	0.13	0.36	0.16	0.61
%Work	0.57	0.50	0.67	0.06	0.32
%Pension	0.19	0.04	0.27	0.29	-0.65
%Poverty	30.3	16.1	73.2	0.38	0.64
Cost of Living (P_i)	113	68	357	0.44	0.69
P_i E (H_{ij})	10281	3415	28183	0.51	1.00
Index (K_i)	1.00	0.33	2.74	0.51	1.00

Table 4.2:
Simulated Allocation of the FFSR for 1999

	FC^{PC}	$P\hat{A}$ Sum (H_{ij})	Index of Need (K_i)	Normalized Per Capita FC	Simulation 1	Simulation 2	FFSR 1996
Karelia republic	1,952	8,222	0.80	2,441	0.00	134.24	335.29
Komi republic	3,109	7,010	0.68	4,560	0.00	0.00	63.19
Arkhangelskaya oblast	1,671	9,761	0.95	1,760	0.00	441.91	131.09
Vologodskaya oblast	2,720	6,040	0.59	4,629	0.00	0.00	48.79
Murmanskaya oblast	2,603	8,210	0.80	3,259	0.00	0.00	16.05
Nenetskiy AO	5,183	14,109	1.37	3,777	0.00	0.00	1230.31
Leningradskaya oblast	1,418	8,330	0.81	1,750	0.00	0.00	50.41
Novgorodskaya oblast	1,127	6,624	0.64	1,749	0.00	115.17	383.23
Pskovskaya oblast	1,055	11,390	1.11	952	675.28	461.83	479.33
St.Petersburg	1,860	5,884	0.57	3,250	0.00	0.00	35.18
Bryanskaya oblast	1,001	5,763	0.56	1,786	0.00	410.59	227.15
Vladimirskaya oblast	1,233	7,567	0.74	1,676	0.00	192.39	195.92
Ivanovskaya oblast	967	9,423	0.92	1,055	464.28	524.54	335.62
Kaluzhskaya oblast	1,407	7,869	0.77	1,838	0.00	353.26	186.88
Kostromskaya oblast	1,395	8,169	0.79	1,756	0.00	218.58	419.02
Moskovskaya oblast	1,371	9,585	0.93	1,471	84.80	0.00	49.60
Orlovskaya oblast	1,251	5,901	0.57	2,180	0.00	340.34	299.77
Ryazanskaya oblast	1,495	6,931	0.67	2,218	0.00	247.76	112.59
Smolenskaya oblast	1,272	4,979	0.48	2,627	0.00	185.06	154.49
Tverskaya oblast	1,337	7,580	0.74	1,813	0.00	65.35	147.33
Tulskaya oblast	1,302	4,243	0.41	3,154	0.00	146.32	124.38
Yaroslavskaya oblast	1,933	6,000	0.58	3,312	0.00	0.00	4.70
Moscow	3,166	6,680	0.65	4,872	0.00	0.00	0.00
Mar-El republic	974	10,345	1.01	968	597.14	358.37	376.44
Mordova republic	996	8,856	0.86	1,156	349.06	445.92	381.11
Chuvasia	1,049	6,909	0.67	1,562	0.00	146.14	250.52
Kirovskaya oblast	1,366	8,273	0.80	1,698	0.00	212.60	297.38
Nizhegorodskaya oblast	1,793	6,328	0.62	2,913	0.00	0.00	78.49

Table 4.2 (Continued):
Simulated Allocation of the FFSR for 1999

	FC^{PC}	P Sum (H_{ij})	Index of Need (K_i)	Normalized Per Capita FC	Simulation 1	Simulation 2	FFSR 1996
Belgorodskaya oblast	1,628	4,822	0.47	3,471	0.00	0.00	16.67
Voronezhskaya oblast	1,254	6,215	0.60	2,075	0.00	305.56	195.09
Kurskaya oblast	1,357	5,016	0.49	2,781	0.00	126.04	151.32
Lipetskaya oblast	2,096	4,970	0.48	4,337	0.00	0.00	0.00
Tambovskaya oblast	950	5,521	0.54	1,768	0.00	355.79	186.76
Kalmykia republic	530	16,587	1.61	329	1,989.04	696.30	903.70
Tatarstan republic	1,911	5,073	0.49	3,874	0.00	0.00	0.00
Astrakhanskaya oblast	1,061	8,743	0.85	1,248	266.89	447.77	477.81
Volgogradskaya oblast	1,379	9,487	0.92	1,495	61.74	0.00	128.26
Penzenskaya oblast	909	7,722	0.75	1,211	263.56	394.27	314.38
Samarskaya oblast	2,583	6,556	0.64	4,051	0.00	0.00	0.00
Saratovskaya oblast	1,417	10,079	0.98	1,445	114.03	187.77	196.82
Ulyanovskaya oblast	1,359	3,416	0.33	4,091	0.00	0.00	136.11
Adygeya republic	777	11,946	1.16	669	1,037.34	643.09	466.52
Dagestan republic	376	6,947	0.68	556	679.40	1,125.55	435.40
Kabardino-Balkaria republic	632	11,856	1.15	548	1,168.84	592.22	459.72
Karachaevo-Cherk. republic	741	13,154	1.28	580	1,256.28	806.65	337.50
Northern Osetia republic	667	11,418	1.11	601	1,066.76	717.97	570.04
Ingushia republic	356	10,427	1.01	351	1,227.23	1,508.82	494.68
Krasnodarskiy krai	1,165	8,769	0.85	1,366	166.42	228.73	177.23
Stavropolskiy krai	1,294	10,212	0.99	1,303	256.53	344.86	251.25
Rostovskaya oblast	1,131	8,426	0.82	1,380	149.01	343.16	129.85
Bashkortostan republic	1,829	8,673	0.84	2,168	0.00	0.00	0.00
Udmurtia republic	1,443	7,088	0.69	2,094	0.00	0.00	203.48
Kurganskaya oblast	1,084	13,119	1.28	849	908.83	307.34	303.67
Orenburgskaya oblast	1,546	12,835	1.25	1,238	403.61	0.00	140.14
Permskaya oblast	2,429	7,842	0.76	3,185	0.00	0.00	16.90
Chelybinskaya oblast	2,355	9,162	0.89	2,643	0.00	0.00	0.00
Sverdlovskaya oblast	1,706	8,248	0.80	2,127	0.00	0.00	28.89
Komi-Permyatskaya AO	743	6,984	0.68	1,093	318.08	699.42	476.49

Table 4.2 (Continued):
Simulated Allocation of the FFSR for 1999

	FC^{PC}	P Sum (H_{ij})	Index of Need (K_i)	Normalized Per Capita FC	Simulation 1	Simulation 2	FFSR 1996
Altay republic	852	7,678	0.75	1,141	313.92	852.52	763.85
Altayskiy krai	1,051	9,833	0.96	1,099	442.05	480.39	462.63
Kemerovskaya oblast	2,256	5,310	0.52	4,368	0.00	0.00	205.44
Novosibirskaya oblast	1,591	13,038	1.27	1,255	388.99	61.12	127.94
Omskaya oblast	1,813	8,049	0.78	2,315	0.00	0.00	110.66
Tomskaya oblast	2,261	9,684	0.94	2,400	0.00	0.00	205.65
Tyumenskaya oblast	2,212	5,658	0.55	4,020	0.00	0.00	166.91
Khanty-Mansiyskiy AO	8,830	7,836	0.76	11,586	0.00	0.00	0.00
Yamalo-Nenetskaya republic	12,178	10,897	1.06	11,490	0.00	0.00	0.00
Buryatia republic	1,396	18,866	1.83	761	1,469.37	604.95	381.69
Tuva republic	669	26,741	2.60	257	3,392.47	1,254.27	887.63
Khakassiya Republic	1,651	8,342	0.81	2,035	0.00	0.00	170.82
Krasnoyarskiy krai	2,674	7,762	0.75	3,542	0.00	0.00	0.00
Taymyrskiy AO	4,092	15,152	1.47	2,777	0.00	0.00	1179.55
Evenkiyskiy AO	2,887	18,934	1.84	1,568	0.00	1,134.85	3446.75
Irkutskaya oblast	2,430	11,886	1.16	2,102	0.00	0.00	1.46
Ust-Ordynskiy Buryat. AO	494	11,897	1.16	427	1,312.84	1,338.15	930.17
Chitinskaya oblast	1,542	25,708	2.50	617	2,362.70	625.00	256.33
Aginskiy Buryatskiy AO	406	23,909	2.33	175	3,225.31	1,393.45	711.06
Sakha (Yakutia) republic	3,776	20,814	2.02	1,865	0.00	19.93	712.32
Primorskiy krai	1,625	15,280	1.49	1,094	695.49	627.72	22.32
Khabarovskiy krai	1,823	12,531	1.22	1,496	80.32	0.00	254.55
Amurskaya oblast	1,524	14,378	1.40	1,090	659.77	388.13	614.65
Kamchatskaya oblast	2,722	14,639	1.42	1,911	0.00	434.49	303.40
Magadanskaya oblast	2,484	15,393	1.50	1,659	0.00	0.00	1970.90
Sakhalinskaya oblast	2,031	14,494	1.41	1,441	169.87	374.39	626.18
Yevreyskaya AO	1,076	11,918	1.16	928	734.50	1,174.42	752.66
Koryakskiy auton. okrug	2,422	24,786	2.41	1,004	1,342.76	2,695.60	3155.55
Chukotskaya AO	2,807	28,183	2.74	1,024	1,473.28	0.00	3428.00
Kaliningradskaya oblast	1,276	6,894	0.67	1,902	0.00	127.37	77.05

Table 4.2 (Continued):
Simulated Allocation of the FFSR for 1999

	FC^{PC}	$\sum_j (H_{ij})$	Index of Need (K_i)	Normalized Per Capita FC	Simulation 1	Simulation 2	FFSR 1996
Average	1,836	10,282	1.00	2,164	359	322.94	404
Minimum	356	3,416	0.33	175	0	0.00	0
Maximum	12,178	28,183	2.74	11,586	3,392	2,695.60	3,447
Coefficient of Variation	0.87	0.51	0.51	0.85	1.88	1.40	1.59

CASE STUDY 5:
A REVIEW OF LATVIA'S EQUALIZATION FUND

This case study reviews the changes in Latvia's equalization fund from 1995 to 1999, analyzes how the mechanism works, highlights the main problems and issues, and presents several options for reform. Some of these options for reform are simulated at the end of the section using 1999 budgeted data.

5.1 Introduction

Overall, the current formula-driven Equalization Fund performs well in many respects. It has provided a good measure of objectivity in the determination of the equalization grants, it has provided the intergovernmental finance system with a high degree of equalization, and it has also contributed to increasing the revenue certainty and budgetary stability for local governments.

Despite these accomplishments, there is some degree of dissatisfaction among local governments with the overall structure and performance of the Equalization Fund. In some respects, the current mechanism is complex and non-transparent. Because many local officials do not understand how it works, there is less than complete trust in its outcomes. The mechanism may give the false impression of providing local governments with funding for standardized expenditure needs. It does not encourage, and may actually discourage, tax effort at the local level, and it will not fit adequately the ongoing reforms in territorial divisions of local and regional governments.

The equalization fund has to be understood in the context of the entire system of local finances. The equalization fund helps bring a balance between expenditure and revenue assignment among different levels of government and to pursue a more equitable distribution of resources among local governments with different fiscal capacities and expenditure needs. In this context, it is important to realize that despite all the changes in revenue assignments, government contributions to the fund and so on, the Government has kept the local government sector share of the public sector general budget at the same level since the start of the transition, around 24 percent.

Given the important reform initiatives involving the amalgamation of smaller municipalities and the possible reform of regional governments, this may be the opportune time to

evaluate potential improvements to the Equalization Fund. These reforms should be thought through carefully and introduced all at once. At the very least, the number and frequency of changes should be minimized in order to preserve, as much as possible, the hard-earned stability and budgetary certainty provided by the current system.

5.2 Main features of the equalization fund

The current equalization fund implements both revenue capacity equalization and expenditure need equalization. This is quite proper for Latvia because there are not only significant disparities in revenue availability across local governments, but also different demands on local budgets arising from the demographic profiles and other cost factors. In addition, the equalization fund performs simultaneous equalization for all three different types of local governments: republican cities (major cities which provide both local and regional services), rayons (county-like districts), and pagasts (municipalities).

The overall funding for the equalization mechanism comes for two sources. Contributions from wealthier local governments following a fraternal or "Robin Hood" approach and also contributions from the central government, following a conventional vertical funding. The central government contribution to the fund is not determined directly but rather as the difference between local government contributions to the fund and overall distributions from the fund.

The current mechanism yields distributions or positive transfers from the fund for the majority of pagasts and all rayons, and contributions or negative transfers for a smaller number of local governments, including most republican cities. The distribution of funds are lump- sum, as unconditional grants.

The flows to and from the fund for 1997, 1998 and 1999 are summarized in Table 5.1. Republican cities' contributions have declined both as nominal amounts and as percent of total over the last three years. Nevertheless, republican cities pay the lion's share of the equalization fund, 80.1 percent in 1997 and 67.9 percent in 1999. For 1999, all but one republican city (Rezekne) paid into the equalization fund. A similar pattern held for 1997 when all republican cities paid into the fund. In contrast, during 1998 only three cities (Daugavpils, Riga and Ventspils) paid into the fund. A number of wealthier pagasts do pay into the fund. Wealthier pagast governments contributed 15.3 percent of the equalization pool in 1997 and 11.9 percent in 1999. Because rayon governments do not have any revenues other than transfers, they never are contributors to the pool of funds. During the

last three years the contributions of the central government to the fund have been small: Ls. 1.3 million in 1997, Ls. 2.7 million in 1998, and Ls. 6.1 million in 1999.

In terms of distribution, the bottom part of Table 5.1 shows that the totality of payments from the equalization fund during the 1997-1999 period has gone to rayons and pagasts. The only exception is for 1998 when the republican city of Rezekne got the equivalent of 0.7 percent of the equalization fund. A significant feature of the current system is its high degree of statutory equalization. As explained below, needy pagasts get equalized up to 90 percent of "financial necessity," which is calculated top-down.

The current system in Latvia is more than an equalization system. First, it is used to determine the overall subnational expenditure envelope. It also explicitly determines the allocation of resources among urban areas (republican cities) and rural areas (rayons and pagasts.). The system also determines the resources that will be allocated to rayon budgets.

5.3 How the equalization mechanism works

The formula-driven equalization mechanism, enacted by the Law on Equalization, was introduced in 1995 has been improved in subsequent reforms. The Division of Local Government Finance Supervision in the Budget Department of the Ministry of Finance carries the budgetary computations for the equalization fund. The actual implementation of transfers into and payments from the fund are administered by the State Treasury. The overall responsibility for the administration and supervision of the system lies with the Equalization Board. The membership of the Board includes a representative from the Saima (parliament), nominated by the Budget and Finance Committees, a central government representative, and five local government representatives which are nominated by the Union of Local Governments. Representatives from other institutions can be invited as experts or consultants to the Board.

(i) The Equalization Mechanism. The system equalizes both some measure of revenue capacity and some measure of expenditure needs at the same time. The formula equalizes simultaneously, but at different levels, all three different types of governments (republican cities, rayons or regions, and pagasts or municipalities).

- Whether or not a local government has to pay into the equalization fund or receives distributions from the fund depends on whether the difference between

the revenue measure and the notional measure of expenditure needs is greater than or less than some threshold.

- The measure of revenue capacity is based on the forecasts for three types of taxes: the personal income tax share of local governments, the real estate tax, and the property tax. Of the three types of local governments, only republican cities and pagasts have forecasted revenues. Rayons do not because they do not have any tax revenue source of their own.
- The measure of expenditure need for each local government is a "notional" expenditure need based on the apportionment of a "total local government necessity" negotiated by the central and local government authorities each year. The apportionment is carried out by first dividing the "total government expenditure necessity" into parts, 45 percent for republican cities and 55 percent for rayons and pagasts combined. These percentages come from the actual distribution of expenditure shares among different types of local governments in 1993-94.
- Each of these subtotals is apportioned among individual governments by multiplying the subtotal amounts by an index of relative need. This index is computed as a weighted average of six criteria which serve as proxies for expenditure need. Note that the determination of the "total local government necessity" plays a critical role in the system of equalization.
- Once this figure is determined, the formula determines how much local governments will have to contribute into the fund given their forecasted taxes, and also how much the central government will have to contribute to cover the financing gap. Thus the smaller the estimate of the "total local government necessity" the higher the contribution of local governments and the smaller the necessary contribution of the central government to the fund.
- Actual contributions into the equalization fund come from those local governments for which forecasted revenues exceed the notional expenditures by more that 10 percent. The contribution to the fund is 45 percent of the "surplus" or positive difference between forecasted revenue and notional expenditures in excess of 10 percent. The maximum contribution of any one local government to the fund is capped at 35 percent of the local government's revenues. Note that local governments for which the difference between forecasted revenue and notional expenditure is less than 10 percent of their revenue or for which the difference is negative do not have to contribute to the fund. For 1999, five out of seven republican cities are contributors. The vast majority of pagasts are not contributors; neither, of course, is any of the rayons. Recall that the latter do not have revenues of their own to be equalized.

- Actual distributions from the fund go to the local governments with forecasted revenues less than notional expenditures, but the level of equalization varies by type of local government. Rayon governments with forecasted revenues less that 100 percent of notional expenditures receive a transfer which equalizes them back to 100 percent of the difference. Actually, since rayons do not have any own revenues, each gets a transfer that is equal to 100 percent of their notional expenditures. In the case of republican cities, only those with forecasted revenues less that 95 percent of notional expenditures get a transfer which equalizes them to a maximum of 95 percent of notional expenditures. In the case of municipalities or pagasts only those with forecasted revenues less than 90 percent of their notional expenditures receive a grant and they get equalized at 90 percent of their notional expenditures.
- In summary, rayons never contribute to the system and always get a grant. Republican cities with a difference of forecasted revenues and notional expenditures lying between 110 and 95 percent of their notional expenditures do not contribute to the fund or get a transfer. For pagasts, these margins are 110 and 90 percent. The rationale for different margins on the expenditure side is based on what proportion of the budgets in 1993-94 on average were financed from non-revenue sources for different types of local governments.

(ii) How it works on the revenue side. As stated above, the equalization mechanism forecasts local tax revenues for three types of taxes: personal income tax, real estate tax, and property tax. These forecasts are the definite figures for the computation of contributions into and distributions from the fund. That is, the mechanism is not re-computed once the actual revenues are known.

The forecast for each local government of revenues from the personal income tax is based on a forecast of personal income tax revenues for the entire nation conducted by the Ministry of Finance and State Revenue Service. This forecast is based on individual taxpayer returns and withholding returns from enterprises. The national forecast is transformed into individual local government forecasts by using revenue data for each local government two years back. So for the 2000 forecast, for example, the actual personal income tax revenues for each local government in 1998 are used. The main reason for doing this is that more recent data are not available for collections of the tax on a residence basis (as opposed to place of work). One important peculiarity of the personal income tax forecast is that the central government guarantees each local government the level of revenues actually forecast. (If overall revenues at the national level from PIT exceed those forecast, the surplus is divided among all local governments in the same way, according to their share in total revenues two years earlier.) The personal income tax is administered

by the State Revenue Service, with the important exception of the cities of Riga and Ventspils, which administer and collect this tax on their own. (Riga and Ventspils have to transfer weekly to the account of the State Treasury their apportioned contributions to the equalization fund out of their forecasted personal income tax revenues. For the rest of the local governments these operations are performed by the State Treasury.)

In the case of the real estate tax, the revenue forecast is based on the tax base as assessed by the State Land Service. These assessments are based on "cadastral values." The real estate tax will continue to fall exclusively on land until the State Land Service is able to produce cadastral values for structures, now not anticipated until 2001.The forecast values for each local government is simply the statutory rate of 1.5 percent times 95 percent of the cadastral assessed value in the jurisdiction. Collections of the real estate tax are conducted by the local governments themselves. Forecasted collections for the land tax have been guaranteed also by the central government for 1998 and it appears also for 1999.

The forecast of the property tax is based on book values reported on the individual returns of enterprises. This tax now falls exclusively on structures of enterprises. Until recently, its tax base included also other enterprise assets such as equipment and machinery. Collections of the property tax are the responsibility of the State Revenue Service. The collections forecast for the property tax are not guaranteed by the central government. The rate schedule of the property tax is a progressive rate starting at 0.5 percent and with a maximum rate of 4 percent. Businesses pay the tax at their place of registration but if they have several properties in more that one jurisdiction then they pay to the local government where the property is located or in proportion to their assets. One problem with the formulation of the forecast for the property tax is that businesses only give information on their total assets and do not divide them across local governments.

(iii) How it works on the expenditure side. The first step in the computation for the expenditure "necessity" for each local government starts with the estimation of the "total necessity" of local governments. For example in 1998 the total necessity was Ls. 179.8 million and for 1999, Ls. 189.2 million. As stated in Article 8 of the Law on Equalization the "local government total financial necessity" is determined in negotiations between the central government and the Union of Local Governments by

- Taking the basis of the anticipated local government financial necessity in total for the budget preparation year.
- The forecast for the state macroeconomic figures for the year.
- The re-assignment of functions between local governments and between local and central governments.

- Priorities defined for the economic year

The second step every year is to divide this total amount into a 45 percent share for republican cities and a 55 percent share for the rest of local governments (pagasts and rayons). The third step is the apportionment of the subtotals for financial necessity to each group of local governments through the derivation of an index of relative financial necessity for each local government. The notional budget need or financial necessity for each local government is the product of the index of relative financial necessity times the subtotals for financial necessity derived in step two.

The computation of the relative index of financial necessity is the weighted average of six criteria: (1) Population of local government; (2) Number of children ages 0-6;
(3) Number of children ages 7-18; (4) Population above retirement age; (5) Number of children in orphanages; (6) Number of elderly in retirement home. The last two criteria were added to the other four in the reform of 1998. The reason for this reform was to allow for the uneven distribution of these expenditures across local governments. Unlike the rest of the criteria, the last two criteria can be influenced by the behavior of local governments.

The weights attached to each criterion add to one for each of the two groups: republican cities and the pagast/rayons. Some of the criteria do not apply for certain types of local governments because they relate to activities for which they are not responsible. For example, the pagasts' weight for children in orphanages and elderly in retirement homes is zero. These activities are only the responsibility of rayon governments. Similarly, the weights for rayons for children under 6 years is zero because rayons have no obligations in this respect. The largest weight, close to 40 percent, goes to population for both groups of local governments. Article 9 of the Law on Equalization states that the weights should be calculated taking into account: (a) local government budget figures for a two-year period prior to the preparation year, and (b) the state budget priorities for the economic year. Originally, the weights were derived based on actual expenditures using 1994 data, namely: for population, the ratio of general services (all but education and welfare) to total expenditure; for children under 6 years, the ratio of expenditure on kindergarten to total expenditures; for youth 7 to 18, the ratio of school expenditures to total expenditures; and for the elderly, the ratio of expenditures on social welfare to total expenditures.

Negotiations between the central governments and the Union of Local Governments are held both at a technical level, concerning the estimation of the total financial necessity, the forecasts for different taxes and so on, and at a political level between the Ministry of Finance, other ministries, and representatives of the Union of Local Governments. The

outcome of these negotiations is a protocol of agreements and disagreements between the Cabinet of Ministers and the Union of Local Governments. The protocol for 1999 had agreements in the forecasts for tax and non-tax revenues and the anticipated level of grants from the state budgets. The disagreements included the estimates of the total financial necessity of local governments and several issues having to do with unfunded mandates.

5.4 Issues and options for reform of the equalization fund

This section examines the performance of the system and reviews those areas that are susceptible to improvement. One way to examine how well the equalization system has worked is to stack the experience of the last three years against the general objectives that a well designed equalization fund should pursue. The equalization fund should reduce horizontal disparities arising from differences in fiscal or revenue generating capacity and expenditure needs. It should also help reduce vertical imbalances arising from the mismatch between expenditure responsibilities at the subnational level and the revenue generating capacity determined by revenue assignments. The equalization fund should be simple in design and transparent to all the parties. Finally, the equalization fund should not be subject to manipulation, discourage tax effort, or induce inefficient expenditure patterns among local governments. Some of the constraints for further improvement of the system have to do with the timely gathering of data, although there have been significant improvements over the past three years in data gathering and dissemination of information regarding the equalization fund.

Concretely, this section seeks to answer the following questions:

- Has the system been equalizing ?
- Is central government funding for equalization adequate?
- How should equalization be funded?
- Can the current mechanism be simplified to make it more transparent to local stakeholders?
- Should tax effort enter into the equalization formula?
- How should the equalization mechanism be adapted to the territorial reforms for local and regional governments?

(i) Has the system been equalizing ? Despite its small size, Latvia has significant disparities in fiscal capacity and expenditure needs across local governments (Table 5.2). Disparities are more pronounced on the fiscal capacity side. In terms of per capita regional GDP the range between the highest region (Ventspils) and the lowest region(Kraslava) was over 11 fold in 1996. These disparities are as wide as or wider than those found in

many larger countries. Another feature of the distribution of fiscal capacity is its concentration in a few areas. Riga city alone accounted for 46.5 percent of GDP in 1996 (Table 5.3).

These fiscal disparities across local governments are significantly reduced through the current equalization system. The starting disparities in revenue availability can be seen in the first four columns of Table 5.4 with projected data for 1999. The first column presents the distribution in lats per capita collections for the three main local taxes, which enter the computations for the equalization fund: the share in the personal income tax, real estate tax, and property tax. The figures are for the republican cities and the pagasts, the latter aggregated at the rayon level. Local governments on average collect Ls. 69 from these three main taxes, but while the average for pagasts at the rayon level is Ls. 59.6 for republican cities it is Ls. 104.6. When other minor taxes and especially non-tax revenues are taken into account, the average per capita revenues for pagasts at the rayon level increases to Ls. 81.2 and for republican cities to Ls. 117. On average disparities are reduced because pagast governments in per capita terms make a higher effort, almost double, at collecting non-tax revenues. Nevertheless, overall per capita revenues for republican cities are 44 percent higher than for pagasts .

After payments into the equalization fund (column 5, Table 5.4) and distributions from the fund (column 7) are taken into account, disparities in resources available to local governments have been substantially reduced (column 8). Actually, average per capita revenues for pagasts at the rayon level are slightly higher than for republican cities. The equalization formula is set to equalize resources and it does that well. Note that the distribution of per capita local available resources has a coefficient of variation of only 0.17 and the difference between the minimum and maximum local resources per capita is reduced to a factor of 2 from an original factor of 11 from the distribution of per capita main local taxes. It is interesting to note that for 1999 payments into the fund are positively related to per capita gross regional product, a measure of fiscal capacity, as shown in the regressions in Table 5.5. This is what is intended by the equalization formula. It is also interesting that payments from the fund do not go to those local governments with lower fiscal capacity but rather to those with higher expenditure needs, as proxied by the percent of population under and over working age. This result is also largely intended by the current equalization formula. The same results hold for the years 1997 and 1998 (Table 5.6). In summary, payments into the fund are mainly fiscal capacity equalizing, while payments from the fund are more needs equalizing. For all three years 1997-99, wealth has been the dominant determinant of payments into the fund, while fiscal needs have been the dominant determinant of payments from the fund.

The current mechanism provides a high degree of equalization and it address what otherwise could be a significant problem given the large fiscal disparities that exist among local governments in Latvia. Whether or not such a high degree of equalization is needed or whether the degree of equalization is excessive are difficult questions to answer. What degree of equalization is desirable depends to a large degree on the level of national solidarity and societal norms. The current degree of equalization may be considered excessive if wealthier communities are equalized down under poorer communities. Excessive equalization may have the effect of reducing revenue mobilization efforts by those communities that are brought up to a national average. It may also discourage revenue mobilization by those local governments that have to contribute to the fund. These possible incentive effects are discussed below. An even harder question to answer is whether the high degree of equalization may slow down overall economic growth for the nation by diverting resources from areas with higher economic growth potential to areas where there are fewer growth opportunities. Little is known about the effectiveness of these tradeoffs in Latvia and elsewhere in the world.

(ii) Is central government funding for equalization adequate? All transfers, including equalization transfers, from the central government to local governments help address the common problem of vertical imbalance. Vertical imbalance arises from the insufficiency of own revenue sources to finance the expenditure responsibilities of local governments. Vertical imbalances have been reduced in Latvia over the past four years but still remain high. Independently of the availability of own revenue sources, local governments claim that overall financing, including revenue sharing and transfers, remains inadequate. While the tax revenue forecast for 2000 is the same as for 1999, Ls. 212 million, the Union of Local Governments has estimated the expenditure needs for 2000 to be Ls. 250 million, without taking into account any new expenditure obligations. This is the strongest case for increasing central government financing of the equalization fund. However, there still has been no formal attempt to quantify local governments' expenditure responsibilities. In addition to the inherently difficult nature of this exercise (level and quality of service need to be defined before quantifying budget needs), the lack of detail in the current budget classification and the lack of clarity in many expenditure assignments have contributed to the lack of quantification of expenditure responsibilities.

Even if local expenditure responsibilities were properly costed, the fact will remain that it is not only the local government sector that is underfunded. Central government expenditure obligations are also underfunded in many areas. The share of the public sector in the national economy has shrunk over the transition at the same time the size of the national economy also has shrunk very significantly. The issue here is whether or not the

equalization fund is the right tool to address some of these concerns or whether they should be addressed in a different way by reforming revenue assignments.

From 1992 to 1999, the central government has kept the share of local governments in the general budget stable around 24 percent. From this perspective, the determination of the central governments contribution to the equalization fund has been a means to achieving that objective. In short, the issue of the central government contribution can not be answered in isolation from the rest of the financing system of local governments. Increasing financing from transfers can reduce the share of local government expenditures financed from other sources and thus possibly worsen vertical fiscal imbalances. To some extent, whether or not the contribution of the central government to the equalization fund has been too small or adequate depends on the choice of the method of funding for the equalization fund.

(iii) How should equalization be funded? The current method of funding is a mix of horizontal and vertical funding, but much more of the former. Approximately four-fifths of the fund are contributed by the local governments themselves in 1999.

The current arrangement of mixed funding sources offers more flexibility in the intergovernmental finance system given the large fiscal disparities and the concentration of revenues in a few local areas. In particular, the horizontal or "Robin Hood" approach to funding equalization allows collection of funds from richer local governments without having to use varying sharing rates for the personal income tax. Horizontal funding may also be more transparent. It is clearer to all sides of the system who are contributors and who are recipients. The elimination of horizontal funding, by switching to full funding from the central government, will require a significant reduction of the local government share in the personal income tax. Most local governments would likely oppose this option.

On the minus side, horizontal funding forces solidarity among local governments which can create resentment and political dissension. The popularity of horizontally financed equalization has been in retreat for those reasons in some of the Northern and Central European countries where it has had its strongest hold. In Latvia, so far it does not appear to be the case that the “Robin Hood” system has created political dissension.

If the current mixed system of financing the equalization fund is kept, there are two issues on how the system works that merit analysis. The first has to do with the pool of local revenues that get actually equalized. The second issue involves the determination of the central government contribution.

The current approach to equalizing local government is to estimate a notional budget surplus (or deficit) for each local government. However, not all potential sources of revenues for local governments are taken into account in arriving at the notional budget surplus or deficit. In particular, fees, special budget revenues, and transfers from enterprises are excluded from these calculations. The personal income tax, the real estate, and the property tax do not constitute the totality of local tax revenues. On average, for 1999, 22 percent of total revenues for local governments came from sources other than those three taxes entered in the computations of the equalization fund (Table 5.4). The exclusion seems to benefit rural local governments (pagasts and rayons) vis-a-vis urban local governments (republican cities) since for the former group these other revenues represent on average 26 percent of their budgets as opposed to 11 percent for the latter group in 1999 (Table 5.4).

Thus, the question is whether or not it is right to exclude these other revenues from the computations of the equalization fund. One reason to exclude charges and fees from the equalization fund is not to discourage local governments from raising more of these revenues. The inclusion of fees in the equalization pool would require the development of methodology to predict potential collections from fees. A regression based approach that uses fee data for all local governments and several proxies for collection potential could be used to arrive at a measure of fee potential. However, this methodology will not be simple, nor will it be transparent to stakeholders. In the case of special budget revenues, most importantly revenue sharing in the natural resource tax, these funds are earmarked to specific activities in the local government budgets. As long as this budgetary arrangement is maintained, it would not be proper to include these revenues in the equalization fund. Local governments have no discretion in their use. If the government were to follow the most desirable policy of eliminating the earmarking of revenues and the concept of special budgets at the local level, then it would be right to include shared revenues from the natural resource tax in the equalization fund. The exclusion of the last item from the equalization fund, transfers from enterprises to local governments, may be justified on the basis of the volatility of enterprise profits. However, this exclusion sends the wrong message to local governments because of the perception that these are revenues that they can collect without any threats of losing them and thus encouraging wider ownership of enterprises by local governments. These revenues are not insignificant, on average 10 percent of local budgets. Local governments instead should be encouraged to divest entirely from private sector economic activities.

The second issue involves the determination of the central government's contribution to the fund. At present, the central government has the discretion to vary its contribution. This discretion arises from the ability of the central government to determine the overall

expenditure envelope for local governments, the "total local government expenditure necessity." These rules enhance the ability of the central government to implement macroeconomic stabilization policy. But despite the fact that the Union of Local Governments negotiates with the Ministry of Finance and ultimately with the Cabinet of Ministers to determine the level of the "total local government expenditure necessity," this remains perhaps the most contentious issue with the mechanism. As pointed out above, in the view of local governments, the total financial necessity is manipulated by the central government to fit its plans regarding the transfer to the equalization fund.

This conflict between the central and local governments could be eliminated if the central government were to adopt a fixed funding rule for its contribution. This could take the form of a fixed share of central government revenues, or some particular central government tax revenues such as the value added tax and the corporate income tax, for a period of three to five years. This approach would have the added benefit of inducing more stability and certainty to local budget planning. The tradeoff will be a lessened ability by central authorities to conduct fiscal stabilization policies. However, this may not be of much significance given the small amounts involved in the transfers from the central government to the equalization fund. The move to a fixed rule contribution by the central government may also make it more feasible to reform the budget process to allow local governments to formulate their contingent budgets before the central government approves its own budget.

(iv) Can the current mechanism be simplified to make it more transparent to local stakeholders? The main drawback of the current equalization system is that it may be too complex, therefore making it less transparent than is desirable. Some degree of complexity is needed to keep the system objective. Its results should not be subject to manipulation or negotiation by the central government and local government behavior should not affect either contributions to or distributions from the fund. These objectives are for the most part achieved. However, there is room for simplification. On the one hand, the current system tries to accomplish functions other than equalization, such as funding of rayon activities or setting the expenditure envelope for local governments. On the other hand, the system is not clear about what it has set out to accomplish. In particular, it is said to equalize "expenditure necessities" but these are not calculated from individual government budgets but rather from an *ad hoc* determined "necessity" for the entire local sector.

As noted in the description of the current system, the equalization mechanism serves the dual purpose of funding rayon governments and equalizing resources among municipal governments. This treatment of rayons is not really appropriate. The "calculated financial necessity" is not a good representation of expenditure needs for funding of rayons.

Currently, the mechanism does not explicitly determine the resources to be provided to rayon level governments versus pagast level governments. Implicitly, the relative needs weights on rayon governments (.1398) determine the resources available to rayons.

One way to simplify the mechanism will be to have separate funding (separate from the equalization process) for rayon or regional type expenditure functions. At the present time this would entail not only funding rayon governments separately but also detaching from the republican city budgets those expenditure responsibilities of a regional nature. A more direct approach of (formula-based) targeted transfers could be used to more adequately fund orphans and other rayon-level expenditures. The adoption of these changes would eliminate the current problematic inclusion of the number of orphans in orphanages and elderly people in retirement homes as criteria on the expenditure side of the equalization fund. (This is a concern because these measures can be affected by local government behavior.) Thinking these changes through should also help the Government prepare for the necessary changes in the system when and if the territorial regional reform is adopted.

The current division between urban and rural governments also adds to making the system unnecessarily complex and creates the potential for unbalanced treatment of local governments. Expenditure needs of Republican cities are currently assumed (based on historical data) to amount to 45 percent of the subnational budget envelope and they are distributed among republican cities by a separate expenditure needs weighting scheme. After the detachment of funding for regional obligations (of rayons and republican cities) from the equalization fund, one further step toward simplification would be to equalize all municipal governments (cities and pagasts) in the same step. If one of the reasons for separating republican cities from pagasts is that there are cost differences between urban and non-urban regions, these may be incorporated in the equalization fund by multiplying the expenditure needs indices by regional cost-of-living differences. Equalizing cities and pagasts in the same step would allow the common use of expenditure need criteria and weights, and identical thresholds and levels of equalization. The current mechanism gets complicated by the use of different weights for expenditure need criteria depending on the type of local government and by the use of different levels of equalization (100, 95 and 90) also depending on the type of local government. None of these is truly needed. Both rayons and cities can introduce the same types of fees and charges. Thus it is not fair and an unnecessary complication to have a lower threshold for equalization of pagasts vis-a-vis cities.

The aspect of the equalization mechanism which has added the most complexity and the one with which local governments have shown most dissatisfaction is <u>the computation of the "financial necessity."</u> There are two dimensions to this issue. First, at the macro level,

as we have discussed, the current approach to arriving at the contribution by the central government allows for a form of moral hazard. The central government can manipulate its contribution to claw back revenues from local governments by reducing the estimate of the "total local government financial necessity." This is why it is worthwhile to consider reforming the equalization mechanism to make the central government contribution a fixed share of its tax revenues for a number of years. The overall subnational government expenditure envelope would be determined independently of the central government contribution to the equalization fund.

There is also confusion on this issue at the micro level because local governments like to look at the "financial necessity" as a true measure of their expenditure needs. This view is aided by the wording used in the Law on Equalization which refers to need or necessity rather than fund availability or affordable level of expenditures or the expenditure envelope for local governments. In reality, we have seen that contrary to the usual interpretation of the mechanism, the computations do not actually equalize expenditure needs as derived from a bottom-up computation based on objective criteria. Instead, the objective criteria are just used to compute an index or relative need which is then used to allocate a "total local government financial need" arbitrarily determined by the central government.

There are two basic ways to "fix" this aspect of the equalization fund. First is to conceptually de-link the expenditure need equalization component of the mechanism from actual local government expenditure budgets. This can be accomplished, in turn, in two different ways. In one approach, the coefficient of relative need computed now as a weighted average of need criteria would be used to divide the funds available for expenditure need equalization. This approach would perform equalization in two separate windows or subfunds: one for fiscal capacity equalization and the other for expenditure need equalization. A second approach to de-link need equalization from estimating an expenditure budget is to use the coefficient of relative need to normalize or adjust fiscal capacity and then proceed with equalization in a single fund or window.

An alternative way to address the current confusion of the "financial necessity" as a true measure of budgetary expenditure need is to reform the computation process so that these two concepts are more closely related. This can, again, be done in several different ways. The simplest and least drastic reform would be to formalize the methodology used for arriving at the "total local government financial necessity." The implementation of the methodology will be overseen by the Equalization Board. This methodology could follow a conventional approach in other countries of departing from last year's expenditures and adjusting them for changes in expenditure responsibilities and central mandates including minimum wages (if mandates are not funded separately), and changes in the price level or

inflation. The equalization mechanism would then proceed, as is now the case, to allocate the "total financial necessity" among local governments via an index of relative need. The computation of the latter could be left as it is now or it could be reformed to introduce new criteria, such as differences in costs or price level, and changes in weights for the criteria.

A more complex approach to bringing the estimated "financial necessity" closer to budgetary expenditure need is to compute "financial necessity" from the bottom up, costing the current expenditure obligations of local governments. This would require a significantly different methodology from the one used now. In particular it would require much more information and many more decisions on how to cost all expenditure responsibilities of local governments. Of course, there would be no guarantee that the "financial necessity" so calculated would add to any number that is budget-wise affordable. The bottom estimate would have to be paired down by an adjustment parameter that would convert the needed expenditure budget into an affordable expenditure budget. This is in some ways similar to what is done by the current system, but the order of computations would be reversed.

In any event, this is the time to re-evaluate the criteria for the calculation of relative expenditure needs. The criticism from local governments is that these criteria are not precise enough. This criticism, again, is based on the belief that the criteria should approximate as closely as possible budgetary expenditure needs. But an index of relative need is typically not built to accomplish this result. Instead it should capture in the simplest possible way the factors that determine cost differences in delivering a standard package of local government services. Besides the demographic criteria now included in the computations, the government may consider other factors such as the level of poverty and unemployment and differences in the price level or cost of living. The final list of criteria and their weight need to be carefully evaluated and thoroughly discussed with local governments.

(v) Should tax effort enter into the equalization formula? Tax effort is measured by how much a local government uses its capacity to tax itself by comparison to other local governments. Per capita revenue collections are positively correlated for all three taxes entering the equalization fund with per capita gross regional product (Table 5.7). However, tax effort is negatively correlated with per capita gross regional product for 1996 through 1998 (Table 5.8).

There are actually two dimensions to the role of tax effort in the equalization formula. First, the formula should not penalize or provide negative incentives to those local governments that exercise higher tax effort. Second, if there is a serious problem with the lack of

revenue mobilization, the question is whether or not the equalization formula should promote or give incentives for tax effort.

One of the fundamental objectives of an equalization system is to take into account the *ability* of local governments to raise adequate revenues. It is important for equalization mechanisms to use measures of fiscal capacity rather than actual revenues in the formulas to avoid the inducement of negative behavior by local governments. The current equalization system in Latvia for the most part uses revenues rather than capacity. However, it does so in a way that minimizes perverse incentive effects. To begin with, the problem is contained by the fact that local governments in Latvia still have little discretion over taxes.

In the case of the personal income tax and the property tax, negative incentives to collect should not be serious because these two taxes are enforced by the State Revenue Service, which is a central government agency. However, there could be negative incentive problems with actual collections of Riga and Ventspils, which administered their own personal income tax and (as contributors to the fund) might have to pay up to 35 percent of collections into the Fund. There is no hard evidence, however, that Riga and Ventspils have been soft on personal income tax collections.

In the case of the real estate tax, which is administered by local governments, the negative incentive to collect is controlled by the fact that revenue forecasts are done on the basis of cadastral values which are assessed by a national agency of the State Land Service and not the local governments. Thus in the case of the land tax, equalization is based on fiscal capacity (cadastral values) rather than on revenues collected.

We can not be certain about the impact of the high levels of equalization on local governments' interest to mobilize local revenues, where poorer local governments are brought to 95 or 90 percent of equalization budget gap. These high levels of equalization in combination with the revenue forecast guarantee may negatively affect the desire of many local governments to collect the real estate tax. The available data do not allow for research into this question at the present time.

When and if local governments are given more tax discretion, the Government could consider whether to reform the equalization mechanism to promote tax effort or revenue mobilization at the local level. In general, it is not desirable to use the equalization formula to give these types of incentives. They open the formula to potential manipulation by local governments. These types of incentives can also redistribute funds away from more needy local governments to high spenders and wealthier local governments. In short, unless there

is an acute problem with the lack of revenue mobilization no incentives should be considered.

The Government should also refrain from using the equalization system for purposes other than equalization. In particular, it is a good idea to promote the voluntary amalgamation of local government to increase their efficiency but these incentives should not be effected through the equalization mechanism. In more general terms, the Government should not condition the use of the equalization grant funds. These transfer should continue to be of a lump-sum nature so that they can be used by local governments for general funding purposes. This is the fundamental objective of an equalization system, to close the existing disparities among local governments in their ability to cover general expenditure responsibilities.

(vi) How should the equalization mechanism be adapted to the territorial reforms for local and regional governments?

The territorial regional reform proposes the creation of a truly functional regional level of government in Latvia. The new regions will have their own revenue and expenditure assignments and elected governments. The current system of equalization confuses the roles of regional and local governments and it is completely inadequate to be adapted to these reforms. There is little question, therefore, that the equalization system would have to be reformed. What should be the main lines for reform?

Countries with three levels of government adopt different approaches to the equalization of local governments. In some cases a two-stage approach is adopted whereby regions are first equalized and then, at a second stage, regional governments equalize all local governments within their region. This is an approach more commonly used in federal states. A second approach is to implement separate equalization mechanisms for regions and local governments, without any interventions or with minimal interventions of the regions in the equalization of local governments. This approach is more common among unitary states.

The system best suited to Latvia by history and current politics is that of separate equalization systems for regional and local governments. There is a lasting perception that in the past funds channeled through the rayon governments were not distributed fairly among their pagasts and rural towns. The Concept of Territorial Regional Reform proposes the model of separate equalization funds for regions and local governments in which regional governments play no role, or at the most only a supervisory role, vis-a-vis local governments.

This approach to the future reform of the equalization system will require a clear detachment of the regional government finances from the local government finances. This should not present much of a problem with rural local governments because currently rayon government responsibilities and pagast responsibilities are already separated. In the case of republican cities, the new regional governments would take over some of their current responsibilities and leave for the cities only those considered to be local responsibilities. Of course, there will also be a need to implement changes in revenue assignments.

The new equalization fund for regional governments should address both disparities in fiscal capacity and expenditure needs. Because the regional governments will draw on larger geographical areas than current local governments, fiscal disparities will lessen but clearly they will not disappear. Per capita household income data from the Household Budget Survey conducted in the last quarter of 1997 and the first two quarters of 1998 show that for the five traditional regions (Riga, Kurzeme, Vitzeme, Zemgale and Latgale) the differences were of Ls. 71.21 per month in Riga, the highest, and Ls. 51 .81 in Latgale, the lowest.

5.5 A simulation example of the equalization fund with a reformed methodology

This section provides an example of an alternative approach to the equalization mechanism for Latvia. The alternative approach implements some of the options outlined in the previous section. The features of the alternative equalization fund should not be interpreted as concrete recommendations for reform, but rather as illustrations of how to address some of the problems identified in the current system. The alternative equalization mechanism is summarized in Table 5.9.

This alternative mechanism is simulated with 1999 data. It preserves the mixed funding approach, part "fraternal" system financed by local governments, and part financed by the central government. For computational convenience, the central government contribution is left at Ls. 6.1 million, but, of course, it could be made as a fixed percentage of central government revenues to be kept unchanged for three or more years.

Payments into the Fund. The fiscal capacity or revenue side of the equalization fund is the same as in the current system of equalization. The revenue forecasts for 1999 are taken as the measure of fiscal capacity (FC) for each municipal government (pagast and republican cities).

A significant deviation of the alternative mechanism from the current one is how the simultaneous equalization of fiscal capacity and expenditure needs is performed. Rather than comparing fiscal capacity (revenue forecasts) to a notional budget expenditure need as is done in the current system, the alternative mechanism uses the index of relative expenditure needs to normalize fiscal capacity (FC) to arrive at the Normalized Fiscal Capacity (NFC). Normalized Fiscal Capacity is defined as:

$$NFC_i = FC_i / K_i,$$

where K is an index of relative expenditure needs. The index of relative expenditure needs (K) uses the same criteria now used for pagast governments with weights that have been proportionally inflated to the current weights so that they add to one. Of course, a reformed set of criteria and different weights can be used to compute the index of relative expenditure needs.

Pagasts and republican cities for which the NFC exceeds 120 percent of the average NFC pay 30 percent of the excess amount into the Fund. Note that currently, they pay 45 percent of revenues in excess of 110 percent of the "calculated financial necessity." The lower rate of payment into the fund is assumed to illustrate the impact of lower levels of equalization. The particular rate of 30 percent was determined in a process of trial and error in order to generate adequate funds to finance regional or rayon-type activities and still have enough funds to engage in meaningful municipal or pagast-activity equalization. At the alternative rate of payment, none of the local government's payments exceeds 35 percent of own source revenues, so this current rule is respected.

Based on the simulated methodology, total payments into the fund equal Ls. 25.8 million. This compares to the actual current amount of Ls. 24.1 million for 1999. Republican cities pay a total of Ls. 20.8 million into the fund (compared to current actual payments of Ls. 20.5 million) and pagasts pay Ls. 4.9 million (compared to current actual Ls. 3.6 million). Many more pagasts now pay into the fund, but the contribution rate is lower. Thus, the total size of the alternative fund, including the central government contribution (which is presumed nuchanged) equals Ls. 31.9 million. In comparison, the current actual fund is approximately Ls. 30.1 million.

Recall, that the total level of funding for regional or rayon-type activities for 1999 is estimated at Ls. 26.3 million. Therefore only the remainder or Ls. 5.6 million are left for equalization of municipal or pagast-type activities. This amount is quite a bit lower than the current actual amount of Ls. 15.6 million. The simulation of the alternative system imposes the constraint of fully funding first the regional or rayon-type activities. If less funding were

dedicated to this end, naturally, there would be more funding for the equalization of municipal or pagast-type activities. In any case, the illustrative value of the alternative equalization system should not be limited to the particular distribution of available funds between regional and municipal activities chosen here. In the future, regional-type activities should be funded by direct transfers or by a change in revenue assignments.

Funding of Regional Government Activities. The alternative approach detaches the funding of regional government responsibilities from the equalization fund system for local governments. To do this, we use two sets of needs indices. One index computes needs for regional or rayon-level government services and it is applied to both republican cities and rayons. The second need index computes need for municipal or pagast-level services and it is applied to both pagasts and republican cities. The first index is not truly part of the equalization fund. It is used because it is the easiest way to identify and detach those expenditure responsibilities and associated funding for the regions or rayons. Remember that at the present time, republican cities also cover these regional responsibilities simultaneously with their municipal or pagast responsibilities. The weights for each index add up to one and are proportional to the weights currently used for rayons and pagasts. By construction, the needs index for each region indicates that region's share of total regional expenditure needs.

Before engaging in any "real" equalization for municipal responsibilities for pagasts and republican cities, it needs to be determined how much of the available funds will go to fund regional or rayon-level activities. These funds go not only to rayons but also to republican cities all of which perform rayon-level functions. The total level of funding for regional or rayon-type activities for 1999 is estimated at Ls. 26.3 million. Regional or rayon-level activities (for both rayons and republican cities) are funded in proportion to the needs index for rayon activities. This approach provides Ls. 11.7 million for regional or rayon-activities for republican cities and Ls. 14.6 million for the actual rayons.

Funding local government activities. After fully funding the regional activities, the remainder of the equalization fund is used to equalize municipal or pagast-level activities. Pagasts and possibly republican cities, for their pagast-level activities get equalized as follows. Those pagasts and republican cities that have a Normalized Fiscal Capacity (NFC) below average are equalized up to 90 percent of the difference between their NFC and average NFC. In actuality, no republican cities have below average NFC.

The summary of the computations of the alternative system is presented in Table 5.10. Note that pagasts are aggregated at the rayon level. Table 5.11 presents a comparison of actual revenue collections, equalized revenues under the current equalization system, and

equalized revenues under the alternative system. Table 5.12 presents a comparison of net payments under the current system and the alternative system. Republican cities are the big winners under the alternative system, especially Riga and Ventspils. Although republican cities pay as much into the system as before, they become winners because now they get directly reimbursed for regional or rayon-type activities. By definition, rayon governments come out the same, because the alternative system is constructed to keep the amount of funds allocated to rayons the same. Recall that the alternative system uses the same relative need index for rayons as the one used in the current system. Pagasts are losers under the alternative system, but for many pagasts, the loss is relatively small. Note that more pagasts now pay into the system and that total payments into the fund by pagasts increase by about 25 percent to Ls. 4.9 million.

Equalization transfers from the alternative fund dropped by Ls. 10 million. This is due to several factors. First, under the current system, republican cities do not get a fair treatment (see Box 1). If a non-urban region contains very wealthy pagasts, the rayon gets a transfer from the equalization fund for its projected rayon-level needs regardless of how much its pagasts collect in revenues. While republican cities also carry regional-type obligations, currently they get funding for regional-type activities only if the republican city total notional expenditure needs (for rayon plus pagast activities) exceed revenues. In effect, republican cities have to pay for their own rayon-type activities whereas non-urban regions get subsidized for these activities. Second, despite the same size fund, less money is available for pagast equalization, because republican cities now under the alternative system get funded for regional-type activities. Third, under the alternative system pagasts get equalized at 90 percent of the gap up to average NFC. Under the current system, below average pagasts receive transfers to fund 90 percent of "notional" pagast expenditures. Thus under the current system everyone is funded up to some ideal level of expenditure, instead of just equalizing the poor.

It is highly unlikely that the simulation results under the alternative system will be politically acceptable. This could be accommodated in several ways. First, republican cities could simply be excluded from receiving transfers for regional-type activities, as is currently done. This would free up additional funds, Ls. 11.7 million, to be allocated for pagast-level equalization. Second, if it is believed that the current criteria and weights overstate rayon-level needs, the rayon needs index could take this into account. Third, the government could reintroduce the practice of allocating a certain level of funds separately for republican cities. This is currently done indirectly by assigning a separate level of notional expenditure needs for republican cities.

BOX 1

Current system favors regions that are not Republican cities

This example presumes two identical regions; one is a republican city, the other is a rural rayon. For convenience, the rural rayon is presumed only to contain one pagast (although this has no impact on the outcome). The amounts contained in the example reflect the resources of (and payments by) the consolidated subnational governments within each region.

	(1) Revenue	(2) Pagast Exp Need	(3) Rayon Exp Need	(4) Excess Revenue *	(5) Payment Into Fund	(6) Balance	(7) Payment From Fund **	(8) Balance
Formula	Assumed values			(1)-(2)-(3)	45%*(4)	(1)-(5)	(3)	(6)+(7)
Rep City	200	50	50	100	45	155	0	155
Rural	200	50	50	150	67.5	133.5	50	183.5

Note: * The Rep City gets to "deduct" rayon-type expenditures; the other region does not. ** The Rep City gets no payment for rayon-type expenditures; the rural region does.

5.6 Agenda for reform of the equalization fund

There is consensus among central and local government authorities that the next round of reform of the equalization fund should be preceded by careful preparation and discussions and it should accommodate the necessary changes arising form the amalgamation of pagasts and the regional administrative reform. As emphasized in this chapter, there is nothing fundamentally wrong with the current system. However, the system could be improved in many different ways. The Government can afford the time to prepare well and gain consensus from local governments for the changes in the system. Here are the main areas that merit analysis for the future reform of the equalization fund:

- Examine ways to fund regional (rayon) budgets directly and not through the equalization fund.
- Examine whether the level of equalization is too high and what impact it may have on the desire of local governments to mobilize revenues and the development and growth strategies for the country.

- Examine the feasibility of developing a methodology to include potential fees for local governments and the transfers from enterprises in the pool of local funds to be equalized.
- Eliminate earmarking for special budgets at the local level and inclusion of this form of revenue sharing in the equalization fund.
- Consider switching the central government contribution to the equalization fund to a fixed share of central government revenues for a period of several years (three to five).
- Consider the introduction of separate funding (from the equalization process) for rayon or regional type expenditure functions for both rayons and republican cities. This separation will be needed when and if the territorial regional reform is adopted.
- After the detachment of funding for regional obligations (of rayons and republican cities) form the equalization fund, consider the equalization of all municipal governments (cities and pagasts) in the same step, with identical expenditure need criteria and weights, and identical equalization thresholds.
- Consider several alternatives for reforming the computation of "financial necessity." One possibility is to de-link the expenditure need equalization side of the mechanism from any concept local government expenditure budget by using the coefficient of relative need to either distribute a separate subfund for expenditure need equalization or to normalize fiscal capacity and then proceed with equalization in a single fund or window. A second possibility is to bring the estimated "financial necessity" closer to a true measure of budgetary expenditure need by either adopting a formalized methodology to estimate "total local government financial necessity" or to compute "financial necessity" from the bottom up costing the current expenditure obligations of local governments.
- Consider the re-evaluation of the criteria used in the calculation of relative expenditure needs and gain acceptance of these reforms form local governments.
- Consider the introduction of measures of tax capacity in the computations of the equalization fund, especially if more tax discretion is given to local governments.
- Prepare for the introduction of a separate equalization fund for the new regions with both fiscal capacity and expenditure need equalization if the concept of territorial regional reform goes forward.

Table 5.1
Latvia: Payments Into and Out of Equalization Fund, 1997-1999

	1997		1998 (Budget)		1999 (Forecast)	
	Millions of Lats	Percent of Total	Millions of Lats	Percent of Total	Millions of Lats	Percent of Total
Payments Into Fund	27.5	95.4	24.4	90.0	24.1	79.8
by Republican Cities	*23.1*	*80.1*	*21.4*	*79.1*	*20.5*	*67.9*
by Pagasts	*4.4*	*15.3*	*2.9*	*10.9*	*3.6*	*11.9*
Central Government Contribution	1.3	4.6	2.7	10.0	6.1	20.2
Total Equalization Fund	28.8	100.0	27.1	100.0	30.2	100.0
Payments to Republican Cities	0.0	0.0	0.2	0.7	0.0	0.0
Payments to Rayons and Pagasts	28.8	100.0	26.9	97.3	30.2	100.0

Note: Amounts may fail to add up due to rounding.
Source: Ministry of Finance.

Table 5.2
Latvia: Descriptive Statistics of Proxies for Fiscal Capacity and Fiscal Need, 1998

	Per Capita Gross Region Product (1996)	Pct. of Pop. Below Working Age	Pct. of Pop. Above Working Age
Average (all regions)	786.1	26.1	22.7
Republican Cities	*1,328.8*	*23.0*	*21.8*
Rural Rayons	*640.0*	*26.9*	*22.9*
Standard Deviation	578.7	2.3	2.6
Coef. Of Variation	0.736	0.087	0.114
Minimum	335.2	21.7	18.6
Maximum	3,733.4	30.1	29.9

Source: Ministry of Finance.

Table 5.3
Latvia: Concentration of Tax Capacity Among the Regions
Gross Regional Product, 1996

	GRP 1996 (millions of Lats)	Per Capita GRP (Lats)	GRP as Percent of Total
Daugavpils city	112.66	966.80	4.57
Jelgava city	52.95	745.69	2.15
Jurmala city	40.23	682.11	1.63
Liepaja city	74.59	774.79	3.02
Rezekne city	40.00	974.05	1.62
Riga city	1148.23	1424.61	46.53
Ventspils city	173.98	3733.40	7.05
Aizkraukles rayon	29.09	682.18	1.18
Aluksnes rayon	14.97	550.14	0.61
Balvu rayon	11.27	357.51	0.46
Bauskas rayon	51.16	988.55	2.07
Cesu rayon	37.36	607.44	1.51
Daugavpils rayon	27.49	618.91	1.11
Dobeles rayon	46.84	1141.79	1.90
Gulbenes rayon	17.56	601.53	0.71
Jelgavas rayon	19.96	564.52	0.81
Jekabpils rayon	33.87	590.53	1.37
Kraslavas rayon	12.72	335.20	0.52
Kuldigas rayon	23.03	599.34	0.93
Liepajas rayon	23.40	466.27	0.95
Limbazu rayon	29.01	712.46	1.18
Ludzas rayon	15.75	407.38	0.64
Madonas rayon	25.13	527.98	1.02
Ogres rayon	42.98	675.84	1.74
Preilu rayon	16.40	391.23	0.66
Rezeknes rayon	16.23	386.81	0.66
Rigas rayon	140.00	964.29	5.67
Saldus rayon	31.31	802.38	1.27
Talsu rayon	34.49	697.48	1.40
Tukuma rayon	43.04	777.64	1.74
Valkas rayon	28.37	805.43	1.15
Valmieras rayon	44.19	728.65	1.79
Ventspils rayon	9.27	659.41	0.38
Average (All Regions)	74.77	786.13	3.03
Average Rep. Cities	*234.66*	*1328.78*	*9.51*
Average Rayons	*31.73*	*640.03*	*1.29*
Standard Deviation	196.08	578.71	7.95
Coefficient of Variation	2.622	0.736	2.622
Minimum	9.27	335.20	0.38
Maximum	1148.23	3733.40	46.53

Table 5.4
Latvia: Projected Regional Revenue Collections and Payments Into and From the Equalization Fund, 1999
(amounts in Lats per capita)

	Main Local Taxes *	Other Local Taxes **	Non-Tax Revenue **	Total Collections	Payment Into Fund	Remaining Revenues	Payment From Fund	Local Resources
Daugavpils city	75.05	0.18	10.89	86.12	0.00	86.12	0.00	86.12
Jelgava city	78.63	0.04	8.40	87.08	2.10	84.98	0.00	84.98
Jurmala city	86.86	0.10	16.48	103.44	2.08	101.36	0.00	101.36
Liepaja city	81.82	0.18	13.84	95.84	2.85	92.99	0.00	92.99
Rezekne city	80.52	0.07	8.69	89.28	0.00	89.28	0.00	89.28
Riga city	121.84	0.20	15.42	137.47	21.40	116.06	0.00	116.06
Ventspils city	207.63	0.10	12.67	220.40	57.19	163.21	0.00	163.21
Aizkraukles rayon	74.23	0.19	12.02	86.44	5.33	81.11	20.94	102.05
Aluksnes rayon	49.89	0.01	20.71	70.61	0.00	70.61	32.17	102.78
Balvu rayon	43.19	0.44	15.78	59.41	0.00	59.41	39.98	99.39
Bauskas rayon	61.34	0.02	13.93	75.29	0.00	75.29	20.87	96.16
Cesu rayon	61.38	0.57	30.01	91.97	0.37	91.60	24.52	116.12
Daugavpils rayon	46.72	0.32	25.52	72.56	1.42	71.14	33.02	104.16
Dobeles rayon	66.18	0.49	22.38	89.05	2.18	86.87	22.34	109.21
Gulbenes rayon	55.11	0.70	24.74	80.55	0.00	80.55	20.32	100.86
Jelgavas rayon	55.52	1.11	25.04	81.67	0.00	81.67	28.75	110.42
Jekabpils rayon	49.74	0.24	11.70	61.68	0.00	61.68	27.96	89.64
Kraslavas rayon	41.35	0.01	13.91	55.27	0.00	55.27	34.13	89.40
Kuldigas rayon	58.67	0.03	32.03	90.73	0.00	90.73	24.44	115.17
Liepajas rayon	52.49	0.00	14.15	66.64	0.21	66.43	24.26	90.70
Limbazu rayon	71.22	0.38	14.07	85.67	4.13	81.54	26.57	108.11
Ludzas rayon	40.81	0.37	14.74	55.92	0.00	55.92	36.45	92.37
Madonas rayon	57.92	0.02	17.96	75.90	0.68	75.22	27.72	102.94
Ogres rayon	73.27	0.29	10.36	83.92	2.64	81.28	16.33	97.61
Preilu rayon	31.74	0.26	10.36	42.36	0.00	42.36	45.31	87.67
Rezeknes rayon	36.03	0.25	10.23	46.50	0.00	46.50	42.90	89.40
Rigas rayon	111.37	0.59	24.40	136.35	16.46	119.89	9.99	129.88
Saldus rayon	60.34	0.44	28.93	89.70	0.04	89.67	22.99	112.65
Talsu rayon	67.52	0.03	22.18	89.72	1.78	87.94	21.52	109.46
Tukuma rayon	62.82	0.72	27.07	90.61	0.26	90.35	24.73	115.08
Valkas rayon	67.22	0.44	17.06	84.71	1.24	83.47	19.91	103.38
Valmieras rayon	67.91	0.51	72.96	141.38	3.37	138.01	21.60	159.62
Ventspils rayon	84.88	0.14	21.35	106.37	4.74	101.63	10.51	112.14
Average	69.13	0.29	19.39	88.81	3.95	84.85	20.61	105.47
Avg. Rep Cities	*104.62*	*0.13*	*12.34*	*117.09*	*12.23*	*104.86*	*0.00*	*104.86*
Avg. Rayons	*59.57*	*0.33*	*21.29*	*81.19*	*1.72*	*79.47*	*26.16*	*105.63*
Standard Deviation	31.58	0.26	11.68	32.92	10.61	24.44	13.33	18.00
Coef. of Variation	0.46	0.90	0.60	0.37	2.68	0.29	0.65	0.17
Minimum	31.74	0.00	8.40	42.36	0.00	42.36	0.00	84.98
Maximum	207.63	1.11	72.96	220.40	57.19	163.21	45.31	163.21

Note: (*) Main local taxes include the personal income tax, real estate tax and property tax. (**) Staff estimates.
Source: Ministry of Finance.

Table 5.5
Latvia: Regressions for the Incidence of Payments
Into (+) and From (-) the Equalization Fund, 1999
(Dependent variable: Per capita payment)

	Intercept	Per Capita GRP	Pop. below working age	Pop. above working age	R^2
Payment Into Fund	-23.3	**0.018**	-0.09	**0.68**	0.89
Payment From Fund	**122.9**	0.005	**-3.00**	**-3.04**	0.63
Net Payment	**99.6**	**0.023**	**-3.09**	**-2.36**	0.82

Note: Bold represent statistical significance of five percent or greater. Unit of observation is republican cities and pagasts aggregated at the rayon level. Per capita GRP is for 1996.
Source: Ministry of Finance.

Table 5.6
Latvia: Regressions for the Incidence of Net Payments
Into (+) and From (-) the Equalization Fund, 1997-1999
(Dependent variable: Per capita net payment)

	Intercept	Per Capita GRP	Pop. below working age	Pop. above working age	R^2
1997	**121.6**	**0.021**	**-3.81**	**-2.34**	0.85
1998	**64.0**	**0.027**	**-2.54**	**-1.47**	0.88
1999	**99.6**	**0.023**	**-3.09**	**-2.36**	0.82

Note: Bold represent statistical significance of five percent or greater. Unit of observation is republican cities and pagasts aggregated at the rayon level. Per capital GRP is for 1996.
Source: Ministry of Finance.

Table 5.7
Latvia: Correlation Between Per Capita Local Revenue Collections and Per Capita Gross Regional Product (1996)

Year	Income Tax	Land Tax	Property Tax	Other Taxes	Non-Tax Revenues	Total Revenues
1996	0.926	0.474	0.817	- 0.194	- 0.111	0.919
1997	0.902	0.902	0.096	- 0.210	- 0.022	0.782
1998	0.896	0.881	0.747	- 0.106	- 0.078	0.894

Note: The unit of observation is republican city and pagasts aggregated at the rayon level.

Table 5.8
Latvia: Correlation Between Fiscal Effort and Gross Regional Product (GRP), 1996-1998

Year	Tax Effort	Non-Tax Revenue Effort	Overall Fiscal Effort
1996	- 0.471	- 0.258	- 0.500
1997	- 0.529	- 0.287	- 0.539
1998	- 0.521	- 0.397	- 0.582

Note: Effort is defined as local revenue collections as a share of 1996 GRP.
The Unit of observation is republican city and pagasts aggregated at the rayon level.

Table 5.9
Latvia: Alternative Fraternal Equalization Mechanism

Step 1:	Determine *Index of Relative Expenditure Needs* for Republican Cities and pagasts: $$K_i = \sum_{j=1}^{k} \omega_j \cdot \frac{H_{ij}}{\sum_i H_{ij}}$$
Step 2:	Produce forecasts of revenue collections for all Republican Cities and pagasts (FC). For all Republican Cities and pagasts, determine *Normalized Fiscal Capacity*: $NFC_i = FC_i / K_i$
Step 3:	Payments into the fund (F_i) are determined as: $$F_i = \left(NFC_i - \alpha \overline{NFC} \right) \cdot K_i \cdot \rho \qquad \text{if } NFC_i > \alpha \overline{NFC} ,$$ otherwise $F_i = 0$, and where $\overline{NFC}$ is average normalized fiscal capacity. Note that $F_L = \Sigma F_i$.
Step 4:	Determine the central government contribution (F_C) to the Equalization Fund. The payments into the fund by local governments (F_L) are determined in Step 3. Total size of the Equalization Fund: $F = F_C + F_L$.
Step 5:	Determine funds assigned to regional-type activities for rayons and republican cities (F_R) . Remaining funds are assigned to pagast-level activities (F_P).
Step 6:	Payments for rayon-level activities (R_i) are allocated to Republican Cities and rayons: $$R_i = N_i \cdot F_R ,$$ where N_i is a rayon-level needs index defined similar to K_i.
Step 7:	Payments for pagast-level activities (P_i) are allocated to Republican Cities and pagast: $$P_i = \left(\overline{NFC} - NFC_i \right) \cdot K_i \cdot \tau \qquad \text{if } \overline{NFC} > NFC_i ,$$ otherwise $P_i = 0$. Note that $F_P = \Sigma P_i$.

Notes for Table 5.9

Step 1:
The needs index uses s measures of fiscal need (H).
Each measure is weighted by T_j.

Step 3:
Note that the $G K_i$ should equal 1. Alpha is a threshold parameter, where " > 1. The simulation used " = 1.2, meaning that localities only pay on the revenue in excess of 120% average. Rho (D) is the payment rate, set at 30 percent (0.30) in the simulation.

Step 5:
Rayon-type funding (F_R) is set at Ls. 26.3 million as explained in the text. Note that a separate needs index is created for rayon-level expenditures.

Step 7:
Tau is the equalization rate (0< J <1), determining how much of the difference between average NFC and actual NFC gets equalized. In the simulation, J = 0.9.

Note that the equalization fund is not automatically balanced. Adjustments of revenue payment parameters, the central govt contribution, the funding made available to rayons-type activities and the equalization of pagast-level needs, one needs to assure that $F_C + F_L = F_P + F_R$.

Table 5.10
Latvia: Simulated Alternative Fraternal Equalization Mechanism, 1999

	Revenue Collection (mn)	Pagast Need Index	Norm. Fiscal Capacity (mn)	Sim. Payment Into Fund	Rayon Need Index	Payment From Fund For Rayon	Payment From Fund For Pagast	Equalized Revenue (mn)
Daugavpils city	8.75	0.0458	190.80	0.66	0.0498	1.31	0.00	9.39
Jelgava city	5.58	0.0268	207.98	0.53	0.0242	0.64	0.00	5.69
Jurmala city	5.12	0.0232	221.04	0.54	0.0335	0.88	0.00	5.46
Liepaja city	7.88	0.0377	209.03	0.75	0.0304	0.80	0.00	7.93
Rezekne city	3.31	0.0169	195.64	0.27	0.0226	0.60	0.00	3.63
Riga city	98.20	0.3141	312.68	16.02	0.2615	6.88	0.00	89.06
Ventspils city	9.68	0.0184	525.79	2.12	0.0223	0.59	0.00	8.15
Aizkraukles rayon	3.17	0.0184	2853.92	0.24	0.0197	0.52	0.10	3.54
Aluksnes rayon	1.36	0.0116	1924.69	0.02	0.0164	0.43	0.17	1.94
Balvu rayon	1.36	0.0134	1815.11	0.01	0.0208	0.55	0.34	2.23
Bauskas rayon	3.17	0.0219	2033.49	0.12	0.0226	0.60	0.15	3.80
Cesu rayon	3.78	0.0267	2926.74	0.15	0.0304	0.80	0.22	4.64
Daugavpils rayon	2.08	0.0178	2726.51	0.07	0.0216	0.57	0.39	2.96
Dobeles rayon	2.71	0.0170	2616.17	0.15	0.0231	0.61	0.06	3.23
Gulbenes rayon	1.61	0.0123	1551.26	0.04	0.0074	0.19	0.11	1.87
Jelgavas rayon	1.96	0.0152	2046.34	0.02	0.0235	0.62	0.08	2.64
Jekabpils rayon	2.85	0.0234	2160.41	0.03	0.0313	0.82	0.28	3.92
Kraslavas rayon	1.57	0.0157	2059.99	0.00	0.0153	0.40	0.40	2.36
Kuldigas rayon	2.25	0.0165	2114.24	0.07	0.0178	0.47	0.14	2.79
Liepajas rayon	2.63	0.0212	3461.12	0.04	0.0172	0.45	0.20	3.24
Limbazu rayon	2.90	0.0176	2086.01	0.22	0.0236	0.62	0.14	3.44
Ludzas rayon	1.58	0.0165	1997.47	0.00	0.0151	0.40	0.41	2.38
Madonas rayon	2.76	0.0209	2917.42	0.09	0.0234	0.62	0.22	3.51
Ogres rayon	4.66	0.0264	2319.96	0.35	0.0241	0.63	0.11	5.06
Preilu rayon	1.33	0.0182	1332.93	0.00	0.0146	0.38	0.75	2.46
Rezeknes rayon	1.51	0.0184	2251.54	0.00	0.0165	0.43	0.62	2.56
Rigas rayon	16.17	0.0594	5716.63	2.31	0.0507	1.33	0.00	15.19
Saldus rayon	2.35	0.0171	2434.01	0.08	0.0176	0.46	0.16	2.90
Talsu rayon	3.34	0.0217	3115.95	0.15	0.0252	0.66	0.09	3.94
Tukuma rayon	3.48	0.0235	2414.30	0.16	0.0324	0.85	0.15	4.32
Valkas rayon	2.37	0.0149	2954.99	0.14	0.0154	0.40	0.08	2.72
Valmieras rayon	4.12	0.0251	2505.41	0.31	0.0248	0.65	0.22	4.68
Ventspils rayon	1.19	0.0061	2379.81	0.10	0.0049	0.13	0.00	1.23
Average All Regions	6.57	0.0303	2,017.6	0.78	0.0303	0.80	0.17	6.75
Average Rep. Cities	*19.79*	*0.0690*	*266.1*	*2.98*	*0.0635*	*1.67*	*0.00*	*18.47*
Average Rayons	*3.01*	*0.0199*	*2,489.1*	*0.19*	*0.0214*	*0.56*	*0.21*	*3.60*
Standard Deviation	16.73	0.0519	1,175.7	2.79	0.0426	1.12	0.18	15.02
Coef. Of Variation	2.55	1.71	0.58	3.57	1.41	1.41	1.07	2.22
Minimum	1.19	0.0061	190.8	0.00	0.0049	0.13	0.00	1.23
Maximum	98.20	0.3141	5,716.6	16.02	0.2615	6.88	0.75	89.06
Sum	216.77	1.0000	66,579.4	25.78	1.0000	26.30	5.58	222.87

Note: Pagasts are aggregated at the rayon level.

Table 5.11
Latvia: Comparison of Actual and Simulated Alternative Fraternal Equalization Mechanism, 1999
(amounts in Lats per capita)

	Actual Revenue Collections	Equalized Revenue Current System	Equalized Revenue Alternative System	Difference (Current-Alternative)
Daugavpils city	75.05	75.05	80.61	-5.56
Jelgava city	78.63	76.53	80.19	-3.66
Jurmala city	86.86	84.78	92.57	-7.79
Liepaja city	81.82	78.97	82.32	-3.36
Rezekne city	80.52	80.52	88.48	-7.96
Riga city	121.84	100.43	110.50	-10.06
Ventspils city	207.63	150.44	174.84	-24.40
Aizkraukles rayon	74.23	89.84	83.04	6.80
Aluksnes rayon	49.89	82.06	71.16	10.90
Balvu rayon	43.19	83.16	70.87	12.29
Bauskas rayon	61.34	82.21	73.47	8.74
Cesu rayon	61.38	85.54	75.45	10.08
Daugavpils rayon	46.72	78.33	66.56	11.77
Dobeles rayon	66.18	86.34	78.77	7.57
Gulbenes rayon	55.11	75.42	64.06	11.36
Jelgavas rayon	55.52	84.26	74.66	9.60
Jekabpils rayon	49.74	77.70	68.42	9.28
Kraslavas rayon	41.35	75.48	62.30	13.18
Kuldigas rayon	58.67	83.12	72.71	10.40
Liepajas rayon	52.49	76.54	64.59	11.95
Limbazu rayon	71.22	93.66	84.54	9.11
Ludzas rayon	40.81	77.26	61.60	15.66
Madonas rayon	57.92	84.96	73.65	11.32
Ogres rayon	73.27	86.96	79.50	7.46
Preilu rayon	31.74	77.05	58.77	18.28
Rezeknes rayon	36.03	78.93	61.02	17.91
Rigas rayon	111.37	104.90	104.61	0.29
Saldus rayon	60.34	83.29	74.34	8.95
Talsu rayon	67.52	87.26	79.60	7.66
Tukuma rayon	62.82	87.30	78.00	9.30
Valkas rayon	67.22	85.88	77.11	8.77
Valmieras rayon	67.91	86.14	77.24	8.90
Ventspils rayon	84.88	90.65	87.29	3.35
Average All Regions	69.13	85.79	79.78	6.00
Average Republican Cities	*104.62*	*92.39*	*101.36*	*-8.97*
Average Rayons	*59.57*	*84.01*	*73.97*	*10.03*
Std Dev	31.58	13.47	20.55	9.13
CV	0.46	0.16	0.26	1.52
Min	31.74	75.05	58.77	-24.40
Max	207.63	150.44	174.84	18.28

Note: Pagasts are aggregated at the rayon level.

Table 5.12
Latvia: Comparison of Simulated and Actual Net Payments Into/From Equalization Fund, 1999
(amounts in Lats per capita)

	Current Net Payments	Alternate Net Payments	Difference (Current - Alternative)
Daugavpils city	0.00	-5.56	5.56
Jelgava city	2.10	-1.56	3.66
Jurmala city	2.08	-5.71	7.79
Liepaja city	2.85	-0.51	3.36
Rezekne city	0.00	-7.96	7.96
Riga city	21.40	11.34	10.06
Ventspils city	57.19	32.79	24.40
Aizkraukles rayon	-15.61	-8.81	-6.80
Aluksnes rayon	-32.17	-21.27	-10.90
Balvu rayon	-39.98	-27.69	-12.29
Bauskas rayon	-20.87	-12.13	-8.74
Cesu rayon	-24.16	-14.07	-10.08
Daugavpils rayon	-31.60	-19.83	-11.77
Dobeles rayon	-20.16	-12.59	-7.57
Gulbenes rayon	-20.32	-8.96	-11.36
Jelgavas rayon	-28.75	-19.15	-9.60
Jekabpils rayon	-27.96	-18.68	-9.28
Kraslavas rayon	-34.13	-20.95	-13.18
Kuldigas rayon	-24.44	-14.04	-10.40
Liepajas rayon	-24.06	-12.10	-11.95
Limbazu rayon	-22.44	-13.33	-9.11
Ludzas rayon	-36.45	-20.79	-15.66
Madonas rayon	-27.04	-15.72	-11.32
Ogres rayon	-13.69	-6.23	-7.46
Preilu rayon	-45.31	-27.03	-18.28
Rezeknes rayon	-42.90	-24.99	-17.91
Rigas rayon	6.47	6.76	-0.29
Saldus rayon	-22.95	-14.00	-8.95
Talsu rayon	-19.74	-12.08	-7.66
Tukuma rayon	-24.47	-15.18	-9.30
Valkas rayon	-18.66	-9.89	-8.77
Valmieras rayon	-18.24	-9.34	-8.90
Ventspils rayon	-5.77	-2.42	-3.35
Average (All Regions)	-16.66	-10.66	-6.00
Average Rep. Cities	*12.23*	*3.26*	*8.97*
Average Rural Rayons	*-24.44*	*-14.40*	*-10.03*
Standard Deviation	20.28	11.75	9.13
Coefficient of Variation	-1.218	-1.102	-1.521
Minimum	-45.31	-27.69	-18.28
Maximum	57.19	32.79	24.40

Source: Calculated based on data provided by the Ministry of Finance.
Note: Pagasts are aggregated at the rayon level.