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INTRODUCTION

In September 2004 the Secretaries of Finance of the 11 Brazilian states listed in the back cover of this publication, who had come together for the National Council of Fiscal Policy (Confaz) meeting in the city of Aracaju, signed an agreement instituting the "Fiscal Forum of the Brazilian States" with a view to promoting dialogue on fundamental topics of fiscal federalism. Through theoretical study and analysis of international experiences the Forum, formed by experienced professionals of the different secretariats, would discuss the challenges faced by the Brazilian Federation in reconciling the need to maintain the fiscal balance while at the same time modernizing the tax system, preserving federative autonomy and ensuring quality in public management. With the subsequent inclusion of the states of Goiás and Mato Grosso the forum achieved the participation of half of the member states of the Federation, including representatives of all the regions of Brazil.

The conduction of the works of the Forum was handed to the Getulio Vargas Foundation, an entity that congregates professionals with renowned competence and experience in the study and practice of the subjects that constitute its goal. Each of the signatory states of the agreement signed a contract with FGV charging it with the preparation of a work plan to be executed in the Forum's first year of activities, covering the period of June 2005 to May 2006.

The plan, which was unanimously approved by the Brazilian states involved, essentially contemplated studies, research and debate by professionals indicated by the secretariats on the four broad areas addressed by fiscal federalism: revenue equalization, tax competition, tax harmonization and intergovernmental cooperation. The plan was executed through lectures offered by professionals indicated by FGV, the distribution of bibliography to the participants, and regular meetings held in Brasilia for presentations, debates and clarifications.

During this period, the state professionals who participated in the Forum's first year of activities dedicated themselves to the four above-mentioned topics with a view to harmonizing the level of knowledge of those involved in the project. At the end of this stage their accumulated knowledge was turned into reports on each of the topics of the work program.

The work developed by the Fiscal Forum in its second year aimed to deepen and systematize information and analyses on some of the most important aspects of Brazilian fiscal federalism. Two large research fronts were set up. The first front examined indirect taxation in Brazil – with special emphasis on topics related to the reform of the ICMS –(Tax on Circulation of Goods and Services – Brazilian VAT) and produced Caderno nº 5 (notebook), Tax Reform Scenario with Double Taxation on Consumption. The second research front broadly analyzed the Brazilian intergovernmental transfer system. This Caderno nº 6, which is divided into three parts, presents the results of this work.

The papers presented in these notebooks were prepared by state finance officials who on the whole have been participating in the Forum since the beginning. The topics were extensively debated in regular meetings held at the FGV headquarters in Brasilia with the participation of all the members of the Forum, offering important contributions to the notebooks. Those who deserve the greatest merit, however, are the individual professionals who accepted the often long and

difficult challenge of researching and reflecting upon the information, more often than not after having worked their regular shifts.

This notebook is organized into six chapters, distributed in three parts. Chapter 1 is an introduction and its reading is recommended before any of the specific studies. This chapter lays down the conceptual bases that guide the approach adopted in this study. It also contains a general description of the Brazilian transfer system, its historical evolution and the most important characteristics of the main transfers.

Chapter 2 describes those which are doubtless the most important vertical transfers of the Brazilian system: the participation funds of states and municipalities. A careful historical review is made of these capital flows from the time they were created in 1965, including their current situation and possible reform alternatives. The study details equalization systems, an innovative alternative – often used in developed federations – showing that these can be an adequate solution for the problems found in the current model of participation funds.[1]

Chapter 3 offers an in-depth analysis of the so-called municipal share of the ICMS using a novel approach when compared to other studies of the Brazilian tax system. A careful reconstitution is made of its evolution since it was instituted in 1965, taking care to discuss while the deficiencies and distortions generated by the current distribution criteria are discussed. Another unprecedented accomplishment of this study is a comprehensive survey of state laws that govern the 25% of the ICMS share that is distributed to the states according to their autonomous choice. The study goes on to identify possible alternatives to reformulate and modernize the ICMS share, including a discussion as to the possible repercussions that adopting the destination criteria might have on its functioning.

Chapter 4 analyzes vertical balance in the Brazilian Federation. This discussion does not refer to specific transfers, but rather to the aggregated result of revenue distribution across the three levels of government.

Chapter 5 discusses –from a historical and analytical perspective– the problems and possible solutions of so-called compensatory transfers, those derived from reducing the export tax burden: Kandir Law, IPI-Export and similar norms.

Finally, Chapter 6 addresses the transfer systems dedicated to financing social programs in Brazil in the areas of education and health. In this stage of the study the focus of the Forum remained limited to a description of the respective systems. As such, the chapter does not discuss the problems identified or possible solutions, a task programmed for the period of 2007-2008.

Those who read all the notebooks will realize that the depth of the studies varies from one to the other. This reflects not only the importance attributed to each one by the Forum, but also to a large extent the more or less favorable conditions faced by the professionals in developing the studies. Unfortunately the general rule is that these professionals are unable to dedicate themselves to the task full-time, having to do so outside of their normal working hours.

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[1] Federalism: An Introduction, by George Anderson (Oxford University Press, Toronto, 2008) offers a quick overview of the Brazilian federal structure that may be useful for the understanding of this work by those not familiarized with Brazil.

The studies contained in these notebooks were prepared under the guidance and coordination of Professor Sergio Prado, professor of the Institute of Economics of Unicamp and consultant of FGV for the Forum, who was also responsible for preparing Chapter 1 of the study.

Fernando Rezende – professor of Ebape-FGV and technical coordinator of the "Fiscal Forum of the Brazilian States".

Sérgio Prado – professor of the Institute of Economics of Unicamp and conductor of the debate cycles on fiscal federalism.

Preface

The idea of creating an enabling environment to deepen understanding of federative issues was discussed and took shape in December 2002, when the state secretaries of finance celebrated a protocol of intentions during the Confaz meeting in Fortaleza with a view to singing an agreement with the Getulio Vargas Foundation (FGV) for the implementation of a program to study federalism. Almost two years went by between this protocol and the signature of the agreement that created the Fiscal Forum of the Brazilian States (FFEB) during the Confaz meeting of Aracaju in September 2004. During this interval the state secretariats of finance signed a cooperation agreement with the “Forum of Federations" which has since fostered interaction, debate and exchange of experiences between foreign and national experts, professionals and scholars on topics of interest mostly to federal countries. The linkages with the “Forum of Federations” functioned as a laboratory that led to the creation of the FFEB. The FFEB in turn promptly embraced the idea of developing a program with FGV, in accordance with the Fortaleza Protocol.

Initially conceived by Professor Fernando Rezende, the FFEB/FGV program signaled the need to somehow try to systematize the knowledge available on federative issues. My experience, as well as that of other professionals and colleagues of the state finance secretariats, confirmed this need. It became particularly clear that the states lacked the necessary in-depth and neutral information on the tax reform and related topics, such as intergovernmental revenue sharing, that have the power of directly affecting the federative equilibrium. Regrettably it is often the case that determining factors of various natures cause that important subjects, among them tax matters are analyzed in an untimely, overhasty manner without sufficient deliberation.

The Fiscal Forum - which was conceived and is considered to be the forum of the Brazilian Federation but actually represents the states, – works towards improving tax relations in the federation. As with everything new, implementing the Forum required overcoming many obstacles which range from the skepticism of a few who do not believe in the project to the immediacy of those who do not appreciate the importance of support activities and being impatient by nature fail to understand that positive results can only be achieved through a gradual construction.– Even so, a driving force has led us to advance. It is a true link that joins those who have interacted within Forum on a sporadic or permanent basis: secretaries, professors, experts, contributors and we, the finance officials that are encouraged to add the activities of the Forum to our duties in the finance secretariats by a genuine quest for knowledge and by the federative justice ideal. Let us then celebrate the launching of a new *Caderno Forum Fiscal!*

Fátima Guerreiro – tax auditor of the Secretariat of Finance of the State of Bahia.

CHAPTER 1 – CONCEPTUAL INTRODUCTION AND OVERVIEW OF THE SYSTEM

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This chapter has two objectives. First, in section 1.1, offer an introduction to a number of concepts and to the theoretical background that is essential to understand the analysis method used in these studies. Second, in section 1.2, provide an overview of the Brazilian transfer system, using the concepts initially presented. This overview intends to identify the main transfers based on a brief initial description of each one so as to offer the reader an integrated view of the system. The remainder of the notebook contains a more in-depth discussion of the most relevant transfers.

1.1 Intergovernmental transfers: conceptual framework

Although each federation is to a certain extent unique and peculiar, there is no doubt that the intergovernmental transfers that take place in them can be understood and analyzed according to a common theoretical scheme. In all Federations there are certain types of transfers with specific characteristics that meet a number of basic functions which are essential for the good functioning of the Federation. This section will present the basic types of functions and formats that these transfers adopt.

1.1.1 The basic determinants of vertical transfers

Our starting point proposes a question: why intergovernmental transfers exist? A logical and intuitive question to ask would be: why doesn't each level of government collect the exact amount it needs to fulfill its responsibilities? A consideration of all the Federations in the world shows the exact opposite: each and every one of them, without exceptions, is characterized by the fact that the federal and state/provincial governments collect most of the revenues. Considering that this is an absolutely dominant trait, there are evidently good reasons to justify this.

The basic and central concept to analyze the problem is what can be referred to as *vertical gap:* the fact that national governments collect more resources than they spend directly, while subnational governments collect fewer resources than they spend directly. As a result all federations, without exceptions, make use of vertical transfers as an essential component of their fiscal systems.

In other words, the vertical gap (VG) refers *to the difference between the amount of resources necessary to finance the accomplishment of responsibilities effectively assumed by the subnational governments (SNG) and the volume of resources that these governments can obtain autonomously from their tax bases without depending on federal transfers.* The most usual ways to measure it are: *the difference between own-source resources and total spending* or, alternatively, the

difference between own-source resources of the SNG and the resources transferred to it by the Central Government (CG). Simply stated, the VG exists because the CG, in general, controls a larger portion of the resources, which leads to the need for vertical transfers. Everything what was said before regarding the relation between the central government and the subnational governments is equally valid for relations between intermediate governments and local governments.

The causes of the vertical gap

Several factors explain why control over fiscal revenues is concentrated in national governments with a view to their direct spending. Some of them are technically founded in fiscal theory; others are the result of political and historical circumstances.

On the whole, modern federative systems explain the VG by:

a) Assignment of the main taxes[2] to the federal government (FG), which is considered necessary from the point of view of the efficiency of the tax system. This technical-fiscal requirement comes into evident conflict with the world trend to increasingly decentralize administrative responsibilities, particularly during the last two decades;
b) Assignment of two very important obligations or prerogatives to the central governments:

1st. *Reducing horizontal disparities in spending capacity by implementing equalization systems based on transfers*. In the horizontal sphere, that is, concerning equity between different jurisdictions for the same level of government, differences in economic capacity are reflected in differences in spending capacity: poorer states would have to impose a much heavier tax load on their citizens to be able to offer the same level of services offered in richer states. This concept is referred to as the horizontal gap. In this situation it becomes desirable and even essential for central governments to use vertical transfers to reduce disparities, granting more resources to the poorest. This is done through more or less complex and encompassing equalization systems, that is, through redistributive transfers guided by some form of equity criterion.

2nd. *Command a certain amount of resources to be transferred to the SNG in a selective and discretionary manner with a view to developing projects and achieving objectives of national interest in areas and sectors for which society considers the SNG should be responsible*. This raises a relevant concern, in the sense that when *higher-level governments transfer these resources to lower levels they impose conditions for their use.* However, this may be indispensable for the higher-level government to achieve national objectives in areas defined by the constitution as being typically subnational responsibilities. On the other hand, these

[2] In this text we use the term “principal” for lack of a better term to refer to those taxes that form the tax base of modern taxation systems, that is: income, consumption (in general, VAT) and, in some instances, specific taxes (*excise*).

conditionalities are often seen, especially by state governments, as interference and even abuse of power; improper restrictions on their political and budgetary autonomy.

Factor “a” results in the concentration of revenue, while the other two require the concentration of the revenue. In order for the CG to be able to reduce disparities and implement national projects it has to take control over a greater part of the tax revenue[3] so as to return it to the subnational jurisdictions according to relevant criteria. We will examine each of these factors.

Fiscal centralization and the vertical gap

One of the first determinant factors of the VG is the combination of fiscal centralization with decentralized spending responsibilities. We will not detain ourselves in discussing decentralization, that is, the tendency to attribute to the lower levels of government, the SNG, the greatest part of the effective spending - assignment of expenditure responsibilities - especially regarding the provision of goods and services. It is well known that this process became more pervasive and consolidated in the last two decades due to a great extent to the relative weakening of central governments, which led to an increased participation of SNG in actual final public sector spending.

Given the increasing decentralization of responsibilities, persistent centralized taxation constitutes a basic determinant of the VG. In the classic literature on taxation and federalism there is a reasonable normative consensus as to the convenience of assigning certain taxes to the central government, particularly income taxes and VAT. In simplified terms, the argument basically refers to the costs imposed on economic agents when they have to comply with the different legislations and to the fact that allowing relevant taxes to be controlled by subnational governments may cause significant damage to economic efficiency. As the governments exercise their autonomous power in defining tax rates and particularly tax bases, they may induce changes in the location of productive activities and trade flows that reduce the efficiency of the country's productive activity. One of the most serious examples of this problem occurs when the fiscal policy of the governments tends towards fiscal competition, that is, when interference in the location of productive activities and trade flows is intentionally sought by manipulating tax bases and rates through tax incentives and benefits.

For the purposes of this paper, the important point is that among those taxes considered by the fiscal theory to be typically central in nature are the core taxes of modern tax systems: income, sales (mostly value-added taxes) and, in certain cases, *excise taxes,* specific taxes on production. Disregarding extensive payroll taxes, which in most countries finance pension and social security schemes, the above-mentioned taxes represent together between 70 and 90% of the total tax revenue of the majority of the countries.[4] As such, what defines the intergovernmental distribution of revenues is control over these three taxes. That is what conditions the dimension of the VG, the degree to which the central government takes possession of or controls a portion of the tax burden that is structurally greater than its own

[3] As we will see later on, this is not only the case in Federations that impose horizontal transfers on their SNGs, a system of which Germany is the only relevant example.
[4] On the whole most states assign lesser taxes in similar manner.

expenditures (except for transfers), while the tax revenues obtained by SNGs from their own sources remain systematically below their expenditures needs.

There is an essential aspect to be considered here. In order to avoid the negative effects usually associated with the control of these taxes by the states, it is not mandatory that the Federation levies and collects these taxes, but it is enough if the Federation ensures uniform taxation across the national territory by defining the tax bases, tax rates and administrative taxation rules. In Germany and Australia, for instance, the VAT is a uniform national tax and the states are not endowed with the individual autonomy to change its legislation. In Germany the tax is levied by the states, however, and in both countries the tax revenues are shared between the states and municipalities. In Australia, almost all of the VAT collected is distributed to the states, which is the best example of the distance between tax legislation (federal and uniform) and tax revenue appropriation.

To different extents, the fiscal centralization that occurred in most federations starting in the middle of the 20th century is not just the result of technical norms, but reflects historical and political elements: during the post-war period, the predominance of central governments greatly increased their tendency to control stronger and more dynamic tax bases. Income tax was federalized in all relevant federations,[5] and the same occurred with the main indirect taxes, albeit with some important exceptions. This resulted in a trend to centralize not only legislation but the actual initial appropriation of the tax revenues, which gave the central governments increased room to control total public sector expenditures.

Throughout the second half of the century in most of the federations the central government underwent a great pressure by the subnational governments to give up a greater part of the revenue. On the whole this was done by keeping the legislation uniform and by sharing a greater amount of revenues derived from the main taxes with the SNGs.

Vertical gap, equalization and conditionalities

The existence and, particularly, the dimension of the VG in modern federations cannot be explained by the above-described normative principle of fiscal centralization alone. The volume of fiscal resources that continues to be controlled by the CG in most federations requires other determinants to be taken into account. The second fundamental reason for the existence of the VG has to do with two typical prerogatives of central governments in federations:

a) responsibility for reducing horizontal disparities; and
b) the power to impose national criteria and priorities on the actions of the subnational governments and to establish national standards for provision of the main public services.

The *first prerogative* refers to the role of the CG in reducing horizontal disparities between jurisdictions in what fiscal capacity is concerned. A certain

[5] In general, in those federations that were established through the aggregation of pre-existent entities income tax began to be levied by state governments, albeit timidly, and its expansion starting in the 1930s coincided with the beginning and later predominance of the central government in levying this tax.

degree of disparity in the economic capacity of intermediate and local jurisdictions exists in all federations. The ability of these jurisdictions to finance their own expenditures, regardless of the distribution of taxes between the levels of government, consequently reflects this disparity. As a final consequence, the autonomous capacity of each of these governments to provide the services demanded by their citizens or required by the country's national legislation may also differ in a quite direct proportion to their development level and economic capacity. In order to provide the same level of public services the poorest states would have to impose a heavier tax burden on their citizens than the richer states.

These universal facts pose a basic problem of equity, in the sense of each citizen's entitlement to the same minimum standard of services without having to pay more taxes than the average paid by rest of the citizens. There is a profound difference in the importance attributed to this problem in the various federations. Some consider equity to be a core value that has precedence over most other issues. Other federations – specifically the USA – do not include this concept among their fundamental values.[6]

All of this makes it necessary for at least a part of the vertical transfers to be governed by a redistributive and equalizing criterion instead of simply "returning" the revenues to the jurisdiction that economically produced them. If vertical transfers destined to close the VG were to be merely "returned" to the SNG by derivation (that is, by transferring to each government exactly that which was collected in its jurisdiction), the final spending capacity of these governments would have the same profile as their economic capacity: the richest states would be better able to provide public services (or, alternatively, would be able to provide an average level of services imposing a much lower tax burden on their citizens).

In this case, it is not enough for CGs to control tax legislation, as we saw previously when examining the issue of fiscal efficiency. CGs must also control resource allocation according to legally or constitutionally defined criteria. In this type of action, the federal government transfers resources to the poorest governments that they would have no way of collecting from their own tax bases.

The *second prerogative* of central governments is the most polemic and to a certain extent represents a legacy from the strongly interventionist central State of the mid 20th century. This refers to the existence of a certain *discretionary power* of the CG, which varies greatly from one federation to another, manifested in its capacity to transfer part of the tax revenues to the SNG subject to specific conditions, such as developing programs of interest to the CG or subordinating SNG activities to national programs. This type of program is often found in the areas of health and education. The elements that typically underpin these arrangements are a uniform legislation in which quality and access to services, financing and, to a certain point, administration are controlled by the federal government, while the total or partial execution of the programs befalls predominantly to the subnational governments. A typical example of this in Brazil is the Brazilian public health system/Unified Health System (SUS).

These cases constitute what we will call *National Programs:* transfer systems normally originating from the central government to finance services that are almost

[6] Please note that we are not discussing equal citizen rights in a broader sense of the concept, but equity in terms of the services provided by their governments.

invariably provided exclusively by the SNGs in which the CG has a significant amount of power to establish service parameters and *standards,* as well as to manage and plan these services.

The underlying assumption of this type of arrangement is that the service is offered in a decentralized manner in order to ensure greater efficiency, but the legislation that governs state intervention and its overall management remains under central control. As such, although the federal government does not execute the services, it ensures uniform standards and provision of services across the national territory by controlling above all the resources involved.

The degree to which public services are made to adapt to the format of *national programs* as described above is one of the main factors that determine the autonomy of SNGs. In this case there is a very clear dilemma. The more autonomy the less uniform the public service standards and the greater the possibility of inequality. Obtaining a more equitable treatment for citizens by requiring uniform minimum standards for service provision and access across the whole country evidently reduces each government's autonomy to determine its own budgetary priorities.

A summary: basic determinants of vertical transfers

There are basically three causes for the various forms of transfers that exist in modern federations - fiscal efficiency, the need for horizontal equalization and preference for national public service provision programs. Part of the reason for the existence of a vertical gap is that it is more efficient for resources to be collected by the federal government. In this case, they can be simply “returned” to the SNGs. In Brazil, this is the case of the ICMS (Goods and Services Circulation Tax, a VAT) share and Automotive Vehicle Tax (IPVA) revenues, among others. But the vertical gap also exists because the federal government needs to control resources to comply with the two basic functions in a federation that no other level of government can perform: reducing horizontal disparities and guaranteeing that the public sector offers certain services in a uniform manner.

The dimension of the first factor is on the whole determined by technical aspects related to the weight of the most relevant taxes (income and VAT) of the tax system, and by the option of the Federation to turn the administration of certain taxes over to the higher-level governments. The second and third factors, on the other hand, are conditioned by political aspects. Reducing disparities requires that part of the tax burden be set aside and distributed according to redistributive criteria. Federations present great differences as to the volume of resources set aside. In Brazil, this role is exercised by the States Participation Fund (FPE) and Municipalities Participation fund (FPM), and the resources cover approximately 8% of the tax burden. Finally, national programs are the result of a political choice between autonomy and uniformity made by the Federation. The more uniformity is valued, the greater the power of the federal government and the lesser the autonomy of the subnational governments.

1.1.2 *The problem of the vertical balance*

It is therefore a basic fact that all federations have this type of structural "maladjustment" between revenues and expenditures in the different levels of government. The basic way to solve this is to set-up an extensive system of vertical transfers, which has become a structural element of all federations. From here on, we will discuss the characteristics and functions of these transfers. Before this, however, a more general and quite complex issue will have to be addressed: how can the dimension of the vertical gap be defined, that is, how does a federation establish the total amount of vertical transfers needed to adapt availability of resources to expenditure responsibilities? There is no simple and easy answer to this question. The question itself evidently already suggests a possible answer: the amount to be transferred should be determined by reviewing the responsibilities assigned to every tier of government, and the final revenue assignment should be made to ensure the most efficient provision of services possible.

This apparently more objective evaluation should ideally start by estimating the cost of service delivery for each level of government, which should then be compared to the tax revenue collected by each level as a result of the allocation of tax revenues in force. There are huge difficulties on both sides of this equation. Assessing the costs is only feasible in countries that adopt rigorous *standards* of uniformity in public service delivery. The more heterogeneous the quality and nature of services rendered in each jurisdiction, the harder it will be to estimate and set an average cost that can be considered fair and necessary. If there are no *standards*, that is, if the federation assigns priority to autonomy and freedom of choice in public service standards across the federation, then there is no objective base to define the VG based on the costs of service delivery. Even when uniform standards are in place there are likely to be relevant regional cost differences, even in developed federations. A reasonable alternative – that preserves the autonomy and individuality of governments and makes it possible to establish a distribution standard –is to assess the amount needed to provide a minimum level for each basic service, including the investment needs of each sector.

This assessment evidently calls attention to the lack of equity between governments. In order to provide a same level of service governments with different economic capacities will have to undertake very dissimilar fiscal efforts. Providing good quality public services will be easier for the richest state of the nation. As such, the redistributive function of the central government is an essential part of the process. Once the minimum standard of services is determined it is possible to ascertain the amount of resources needed to provide them. This can be defined in per capita terms for the whole country or established on a regional basis taking into account the different costs. In a second moment this amount should be distributed in a redistributive manner considering the fiscal capacity of each of the governments that form the federation.

Another way of addressing the problem is to compare federations with unitary states. In the latter the unified budgetary process establishes spending priorities for each fiscal period, defining how much will be spent on education, health, infrastructure, defense, etc. A decision to increase expenditures with education will imply channeling more revenues to the government agencies or departments that are responsible for the sector across the country.

Although federations do not work with unified budgets, in a way it is still necessary to assess the overall priorities among the functions exercised by the different governments. Assigning a greater priority to a certain function, or, on the other hand, a cost increase for the delivery of a certain service must necessarily be accompanied by transfer of revenues from the central government to the governments that are responsible for this function. Considering that all federations currently have very limited options to increase the tax burden, the problem necessarily needs to be addressed by redistributing resources among the various governments. In addition, since expenditure responsibilities in federations other than unitary states are distributed across three level of government endowed with a certain degree of autonomy, whenever these responsibilities are shifted or transferred from one government to another - as in decentralization processes - it becomes necessary to review the distribution of resources to adapt them to the new profile of expenditure responsibilities.

Some federations have developed specific institutional mechanisms to conduct this type of analysis. In Germany an intergovernmental council meets every five years to assess changes in costs and responsibilities, which may eventually lead to an adjustment in the distribution of federal VAT revenues to the three levels of government. In India an expert commission - the Finance Commission - is appointed every five years to evaluate the financial situation of the federal government and the states with a view to recommending the transfer of certain percentage (currently at 32.5%) of the total federal revenues to the states.

In other federations, this process is carried out through direct intergovernmental negotiations between the bureaucracies in those countries characterized by executive federalism (such as Canada), or by involving the parliaments in preparing the budgets. The relevant point is that, whether the process is done through specialized agencies or through intergovernmental and interregional political negotiation, it is necessary to confront expenditure responsibilities with the costs of the various functions and, in the end, the same results are somehow obtained as in unitary countries: priorities are established for the different functions and revenues are assigned to the levels of government responsible for them.

In the real world of federations the dimension of vertical transfers has, in most cases, been defined by interactive adjustment processes. In general, the assignment of taxes tends to be more inflexible with few cases of significant decentralization. The increasing decentralization of responsibilities has led to constant redefinitions in the amounts transferred through regular crisis in intergovernmental fiscal relations often preceded by a significant budgetary imbalance in one level of government or another. The basic standard has been: given the distribution of fiscal power that defines the initial distribution of resources, changes in the size of vertical transfers from the central government are determined by changes in actual expenditure responsibilities.

One particularly relevant situation concerns those federations characterized by great disparity between jurisdictions, not only in terms of economic development (and therefore in fiscal capacity), but also with regard to public service quality and accessibility standards and to the costs (especially salaries) involved in rendering these services. In this situation, which we come very close to in Brazil, it is especially difficult to objectively assess the amount of resources needed for the vertical adjustment. Among many other problems, there is usually not even the minimum statistical information available to permit this type of assessment. In view of the

above, vertical distribution ends up being defined based on strictly political factors, generating the well-known "systole/diastole" processes. One moment the SNGs are stronger and alter the distribution in their favor and the next moment it is the federal government that is strengthened and inverts this situation. During the last two decades Brazil went through two typical examples of these two situations. The first took place in 1988, when the military regime's federal government agonized while legitimately elected governors and mayors detained extensive political power. The other moment occurred starting in 1994, when the federal government was strengthened by successful macroeconomic stabilization and was able to impose a heavy fiscal adjustment on the states within the context of renegotiating the debt.

These two examples indicate that every federation must seek to develop mechanisms, institutions and instruments that make it possible to efficiently operate the intergovernmental negotiations needed to assess the vertical gap and define the size of the transfers needed to close it.

We will briefly analyze the issue of vertical balance in Brazil, in Chapter 5 of this notebook.

1.1.3 *The basic types of transfers*

In order to address the three aforementioned reasons that determine the vertical gap and make transfers a necessity, federations make use of various types of transfers. Two basic distinctions are important:

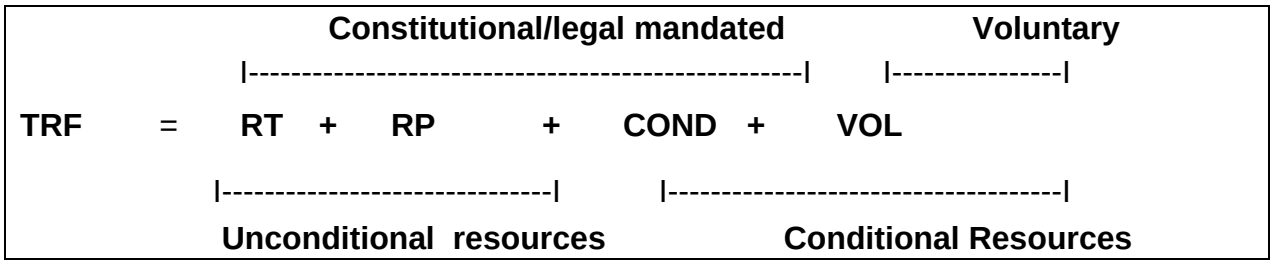
- unconditional transfers *versus* conditional transfers; and
- compulsory transfers versus voluntary transfers.

Unconditional transfers (UT) are delivered to the subnational governments as resources to be freely disposed of in their budgetary processes. Spending decisions are made exclusively by the local societies through their parliaments. *Conditional transfers* (CT), on the other hand, cannot be freely disposed of in the local budget. These funds must necessarily be used in specific sectors, functions or even projects. The underlying dilemma here naturally lies in the degree of autonomy. Conditional grants are the only instrument available to the federation through which the federal government can influence and control the actions of its subnational governments in the areas it deems necessary.

Compulsory transfers are legally mandated transfers where the amount of resources that the higher level of government must transfer to the lower level governments is governed by ordinary or constitutional law. From the recipient government’s point of view they represent the greatest guarantee of funds, since they are not affected by possible changes in the budgetary processes of higher order governments. These transfers very often take the form of revenue-sharing with regard to the main taxes. In contrast, *voluntary transfers* result from the yearly budget formulated by the higher-level government and are not the result of legal obligations. Transferring a portion of its budget to the subnational governments is a voluntary action of the higher-level government. In some federations, such as Australia, this type of transfer plays a very important role, which points to the importance of the federal budget in financing subnational government spending. It is evident that the

greater the weight of compulsory transfers the less flexible will be the higher-level government's budgetary process. In contrast, the more they weigh, the greater the guarantee of resources for the subnational governments.

We can now combine all of these ideas into a simple equation that expresses the *total vertical transfers designed to bridge the vertical gap (vertical harmonization).* We propose four primary transfer categories that differ according to the functions they perform and associate them to their legal characteristics (compulsory and voluntary) and to their degree of conditionality. On the whole each of the multiple transfers that exist in modern federations fits into one of these categories.



TRF = Total Redistributive Transfers COND = legally demanded conditional transfers (National Programs)

RT = Return Transfer VOL = Voluntary Transfers

RP = Redistributive Share (equalization systems)

a) Unconditional transfers: return flows and redistributive flows

The first part of vertical flows is what we will call *return transfers* (RT), that is, the higher-level government collects and returns to the lower-level government revenues that the latter would have been able to collect if it had the fiscal power to do so. The typical example of this practice in Brazil is the ICMS, which is collected by the state governments and shared with the municipalities. In this situation the only objective is to ensure uniform taxation. The CG transfers to each state the resources that are collected in its jurisdiction,[7] or part of them. Almost all of these cases are not voluntary transfers but legal rights ensured to the SNG. Likewise, these resources are more often than not unconditional grants, with no strings attached. The presence of this component in fiscal arrangements basically reflects a certain compromise between maintaining uniform taxation at the national or state level managed by the FG or by the state governments (SG) and increasing the own-source revenues of SNGs.

The greater the portion of total transfers with these characteristics, the more the horizontal distribution will reflect differences in economic capacity. In contrast, even though SNG will have greater revenue available thanks to these resources, they will have no control over defining the tax base, tax rates, abatements, etc. What

[7] One example of this is corporate income tax in Germany. In Brazil, current examples are the municipal ICMS share and participation in the IPVA. Some years ago rural property tax (ITR) was also collected by the federal government and returned to the municipalities.

is essential to understand is that this situation of returning tax revenue implies it will be given to the state where it was generated (this is referred to as a "derivation" criteria). As a result the richest governments will receive the most revenues and vice-versa.

Redistributive transfers

Redistributive transfers are the second basic type of transfer: resources are transferred to the lower-level governments without any correspondence with what they would be able to collect from their tax bases and aim to reduce horizontal disparities in spending capacity. The most common procedure is for part of the federal tax revenues to be specifically set aside for this purpose by law or by constitutional precept. We call this part of the resources the Redistributive Share (RS). These are the transfers that correspond to the first basic prerogative of central governments referred to in the preceding section, responsibility for horizontal equity. We will resume this subject in section 1.1.4, when we will discuss the characteristics of the systems that operate these transfers.

In general terms these two types of transfers deliver revenues to the SNG that are not subject to any conditions. Together with return transfers they form what we call *unconditional transfers* (UT). The basic rationale, in both cases, is to strengthen the budgets of these governments, that is, to provide resources that the local communities can allocate freely to meet to their needs. The RP invariably exists in all federations, since the CT always conducts some form of equalization. On the other hand the "returned" FR may not exist in those cases in which all the revenues transferred as UT obey a redistributive criterion. In this case FR may be null or almost inexistent in the main equation.

b) Conditional transfers and SNG autonomy

We have already addressed transfers that are by their nature and objectives free resources for the SNG budget; all of them are almost always defined by legal provisions that set the bases and percentages. In addition to these transfers, all federations also have *transfers that are subject to conditions*. These correspond to the second prerogative of central governments referred to in the section above.

This type of transfer is characterized by the fact that the SNG cannot freely determine how the resources will be applied. Their presence is guaranteed in all federations, even though there are great variations both in their relative dimension and in the degree of discretionality exercised by the CG in their assignment.

They are distinguished by the fact that revenues are transferred obeying to conditions related to:

- application in specific sectors, functions or even projects;
- public service standards and/or access conditions and eligibility to the services;[8] and
- the eventual obligation of the SNG to present a counterpart; that is, to participate by covering a part of the costs of service provision.

[8] For example, subnational governments receiving resources may be obliged to provide a service to any citizen of the federation, regardless of where they reside, in equal conditions. In these cases discrimination against citizens that do not live in the jurisdiction is forbidden.

Although there are various alternatives and combinations for the characteristics above, the most common and relevant cases come down to four:

a) Broad programs, with sectoral or functional linkages/earmarks destined to finance national programs executed predominantly or exclusively by the SNG. These are often social and infrastructure programs. The traditional and most common form involves a pre-determined grant defined in an ad hoc manner due to the difficulties in setting up a formula to calculate the actual amount needed. Mechanisms to correct historical amounts by price or product indexes are very common. The number of services generated depends on the size of the predefined resources and on the unit price of each service, and are mostly of a permanent nature. This corresponds to what is usually referred to in the literature as a block grant.

b) Broad programs, earmarked per sector, destined to achieve some measure of reduction in the unit price of providing a certain service in a jurisdiction. These use the technique of so-called matching grants through which financing is defined as a fraction of the unit price of the service.

$$Unit_{Transf} = m.P_s \quad \text{where } m <= 1$$

The value of m, between 0 and 1, determines the degree to which the CG intends to induce an increase in service provision (or avoid a decrease due to a deviation of resources to other purposes) reducing their price P_s for the SNG. A first alternative would be to give priority to meeting the complete demand generated at the "subsidized" price, with which the total volume of resources would become a subordinated variable, an "open equation". The more services the SNG provides, the greater the transfer. If the resources are limited, the offer of services above that which is made possible by the total grant will have to be fully financed with local revenues at market price.

This second model, a typical practice in the USA, obviously provides the greatest focus and the least autonomy. The revenue is not actually made available to the SNG, rather, the unit price of the service is reduced. If the SNG does not provide the service it does not receive the resources. The first model leaves a much greater margin of autonomy for SNG. On the whole earmarks tend to be sectorally generic. As long as these limits are respected, they allow the local administrations to adapt their expenditures according to their budget and to their own needs.

c) Resources for specific projects, even large-scale projects, with the SNG being obliged to provide a counterpart as a percentage of the total cost. This is referred to as cost sharing. It is similar to case "b" for situations in which there is no unitary provision of services, and almost always refers to investments.

d) Resources for specific projects, negotiated on a case-by-case basis between SNG and CG, usually in the context of the annual budget.

It is convenient to make a distinction here between the two types of conditional transfers based on the degree of legal determinations to which they are subject. As is graphically represented by the equation, conditional transfers in general can be divided between those that are legally and constitutionally mandated (COND) - and

those that are essentially the result of a budgetary decision of the federal government made from year to year which we call *voluntary transfers* (VOL).

In most federations a greater or smaller part of the vertical flows that bridge the vertical gap are not regulated by law, which means that these transfers are not legally mandated. In fact, these transfers are actually central government budget revenues that are assigned to the SNGs as a result of the pressures and demands placed on the budget in each cycle. Their volume and distribution between the SNGs are determined at the time the budget is formulated. There is no rule for their allocation and they are usually highly discretionary and selective. These transfers are, by nature, earmarked to specific projects and sectors; as such, they are typically conditional transfers. In Brazil they are not very representative (no more than 8% of the total transfers, on average).

It is evident that because these revenue flows represent unconditional grants of the federal budget they are strongly influenced by the short-term political context and often function as political exchange currency channeled to those SNGs that have political affinity with the political party in power, etc. Despite the above, voluntary transfers constitute a relatively stable part of vertical flows (in aggregate) and are therefore one of the components that contribute to bridging the VG.

The above-described type *a* and *b* conditional transfers - broad national programs, *block grants* or *matching grants*– - have a greater tendency to be legally mandated and regulated. Type *c* and *d* transfers, on the other hand, typically tend to be *voluntary*; subnational governments have to negotiate these grants with the ministries and agencies of the federal government. Another way to make such transfers happen, which is much used in Brazil, is through the involvement of the parliament, which introduces items, programs and projects in the federal budget (agreements and parliamentary amendments).

In the end, the dimension of this conditional portion (COMP + VOL) reflects the degree to which each federation assigns to the central government the responsibility or power to impose national/federal interest norms and priorities to the subnational budgets. This is often the case in the financing of social expenditures, where the CG sets-up large-scale programs to feed the SNGs with resources to be applied according to federal criteria. The Fundamental Education Fund (FUNDEF)[9] and the SUS are the best examples of this in Brazil. In Australia almost half of the federal transfers to the provinces fit under this category.

Naturally, the greater the participation of voluntary transfers in conditional grants the less the autonomy and revenue guarantee of the subnational governments. When conditional transfers are legally defined, these governments are less subject to contingencies and short-term political decisions.

The participation of conditional transfers in general in the total vertical transfers varies greatly from one federation to another. In the most important western federations they tend to represent well below half of all vertical transfers, on average. There are cases, however, in federations of so-called transition economies, in which they represent the quasi totality of vertical flows. It is evident that whenever this situation is accompanied by a large VG it denotes an extremely centralized federation in which the CG strongly controls the budgetary processes of the SNGs.

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[9] The word “Fundamental” refers to the eight first education years. It comprises what is usually referred as primary and secondary school.

Our preceding equation summarizes the fundamental attributes of intergovernmental transfers. In this sense, the degree of autonomy of the SNGs depends first on the total redistributive resources (TRF), which represents the size of the vertical gap. A small TRF shows that the SNG finances a large part of its expenditures with own-source revenues. Second, it depends on the amount of unconditional resources transferred, which indicates that the SNG can assign them as it sees fit through its budget. Third, it depends on how much of the conditional transfers are compulsory, since this guarantees that they will be available on a permanent basis and reduces the arbitrary power of the CG. The presence of the CG is evident in the size of the conditional transfers and particularly in the relative size of the voluntary transfer flows that are determined every year in the budgetary negotiations.

Everything stated so far about relations between the CG and the SNGs basically applies to relations between intermediate governments and local governments. In a number of countries, they have a relevant role in transferring revenues, be it as proxy tax collectors, as mere transferors of CG revenues, or even as voluntary donors. In Brazil the state governments exercise these three functions.

1.1.4 *Redistributive transfer systems – two models*

As was already mentioned, redistributive transfers exist in virtually all federations, and in all of them they are regulated by legal or even constitutional provisions. Normative systems are often instituted to regulate this important function, some of which are characterized by a high level of complexity.

These systems invariably contain the following elements to one degree or another:

1) definition of the source of funding;
2) definition of the basic parameters that support the revenue distribution;
3) definition of the equity criteria to be applied; and
4) definition of the public agency that will be responsible for its operation.

The source of funding is often part of or the entire revenue collected from a specific federal tax. In Brazil, for example, the participation funds are financed by fixed percentages of the Income Tax and IPI. In this case, the revenue appropriation is pre-determined. It is also possible for the system to assign priority to an equity criteria, which, when applied, will result in a certain revenue assignment by the federal government. In this second case the criterion prevails and the size of the grant varies according to the size of the interregional disparities.

There are basically two models for redistributive transfers, each with its own set of parameters. The first, which can be said to be traditional, uses macroeconomic parameters such as per capita income, poverty indicators, degree of human or economic development, and infrastructure deficiencies. Revenue is basically distributed between governments on a per capita basis but weighted by some of these indicators so that governments with the highest poverty indicators or lowest per capita income, for example, receive the most funds. When our State Participation Fund (FPE) was designed, for instance, it followed this model. It used per capita

criteria to distribute revenues between the states but weighted them by the inverse of the per capita income so as to grant more resources to the poorest.

The second and most modern model we will call here equalization *systems*. In this case the basic parameter adopted is the governments' potential per capita revenue. Because this revenue offers a direct measure of government spending capacity, it is used to identify which governments need to receive equalization payments. It is important to note that traditional systems ultimately have the same goal: to harmonize per capita spending capacity. The difference is that traditional models adopt an indirect method that uses macroeconomic indicators to weight the distribution. In equalization systems the revenue that each government is capable of obtaining from its own sources is measured directly and this data is used to guide the equalizing distribution of resources.

Third, equalization systems require the definition of a basic equity criterion. There are also two alternatives. First there is the most common system that seeks to equalize per capita spending capacity among governments. This option ignores differences in costs and needs. The ideal goal of the system would be for all governments to have the same amount of money to spend per citizen of their jurisdictions. Another alternative is to equalize revenue assignments based on the governments' fiscal needs. That is, considering cost differences for the provision of public services (population dispersion across the territory), as well as needs (size of the senior or school-age population). In this option, revenue assignments are weighted not only by measurements of own-source revenues, but also by costs and needs. Currently only Australia applies the second criterion, which is much more complex and demanding in terms of information and statistics. The other advanced federations that adopt equalization systems - mainly Canada and Germany - work by equalizing per capita spending capacity.

Finally, equalization systems admit two management formats. In the most common format the system is applied by the federal government fiscal agency - in Brazil the Ministry of Finance - which calculates the revenue assignments and distributes the resources (Germany and Canada). However, a number of countries such as India and Australia created special public bodies endowed with a great level of autonomy in the form of commissions. These are in charge of analyzing, developing and applying distribution criteria and methods, consulting the subnational governments where necessary.

This brief description of the systems that operate redistributive transfers is only an introduction to the subject. Further on we will go into great detail regarding the Brazilian participation funds and equalization systems, including theoretical and methodological aspects.

1.2 **Assessment of the Brazilian revenue sharing system**

In this section we will analyze some aspects of the Brazilian transfer system, in light of the concepts described in section 1.1. We will present a brief description of the existing transfers, including a historical overview that aims to describe the main facts that gave rise to these transfers. We will comment each of the main transfers according the classification presented above.

This introductory chapter will avoid detailing the history of the different transfers and the technical criteria that govern them. Other chapters of this report will

give the particulars of each of the main transfers, identifying their problems and deficiencies and discussing alternative solutions.

This introduction is divided into two topics. Section 1.2.1 addresses the nature and function of existing transfers by applying the conceptual typology presented in the section above. Section 1.2.2 discusses another fundamental problem of all federations that was already introduced above: the need for mechanisms and instruments that make it possible to achieve vertical balance.

1.2.1 *Transfers in Brazilian fiscal federalism*

The following table presents the main transfers in the Brazilian system with the monetary amounts they represented in 2000. It is important to note that since 2000 there have been no changes in the pertinent legislation, there have been no significant changes in the relative size of these amounts.

The table shows the main transfers from the federal government to the states and municipalities, as well as from the state governments to the municipalities. In 2000 the federal government transferred a total of R$ 66.7 billion to the subnational governments, 53% to the municipalities and the rest to the states. It should be observed that this is a peculiarity of the Brazilian Federation: direct FG transfers to the municipalities are rare in other federations since municipalities are subordinated to the states and this relation is preserved in financial movements. The states or provinces are responsible for transferring the revenue to the municipalities.

Table 1.1

BRAZIL - MAIN VERTICAL INTERGOVERNMENTAL TRANSFERS 2000 R$ millions							
FROM / TO →			FG to SG	FG to LG	SG to LG	EXCHANGE AMONG SG AND LG (FUNDEF)	
TOTAL TRANSFERS →			21.874	27.811	22.963		
UNCONDITIONAL TRANSFERS	RETURN	IPVA			11,0%		
		COTA PARTE ICMS			79,4%		
	COMPENSATORY	IPI EXP.	6,9%		1,5%		
		L KANDIR	11,1%		3,5%		
	REDISTRIBUTIVE	FPE	55,7%				
		FPM		45,9%			
CONDITIONAL TRANSFERS	NATIONAL PROGRAMS	FUNDEF	1,4%	0,9%		9.447	7.632
		SAL. EDUCAÇÃO	7,9%	0,3%			
		SUS	4,6%	40,7%			
	VOLUNTÁRIAS		12,4%	7,0%	3,7%		
OUTRAS TRANSFERÊNCIAS			0,0%	5,1%	1,0%		

FG Federal Government SG State Government LG Local Government

Source: PRADO, S. (2003)

Source: prepared by the author

In 2000 the states transferred R$ 22.7 billion to the municipalities of which R$ 1 billion concerned the transfer of resources received from the FG: 25% of the Kandir Law and of the IPI-Export. The municipalities received a total of R$ 56.7 billion, R$ 34 billion from the FG and R$ 22.7 billion from the states.

It is interesting to analyze these flows in terms of the degree of conditionality. The following table presents the same date, grouped into conditional and unconditional transfers.

Table 1.2

BRAZIL - CONDITIONAL AND UNCONDITIONAL VERTICAL TRANSFERS BY GOVERNMENT LEVEL - R$ BILLIONS 2000

	TO			
FROM	STATE GOVERN.	%	LOCAL GOVERN.	%
FEDERAL GOVERN.	31.318,98		34.016,74	
unconditional	16.117,76	51,46	12.779,00	37,57
conditional	15.201,22	48,54	21.237,74	62,43
STATE GOVERN.			22.741,50	
unconditional			21.891,35	96,26
conditional			850,14	3,74
TOTAL TRANSFERS	31.318,98		56.758,23	
unconditional	16.117,76	51,46	34.670,35	61,08
conditional	15.201,22	48,54	22.087,88	38,92

Source: PRADO, S. (2003)

Note that federal transfers to the states are almost equally divided into conditional and unconditional transfers. Transfers to the municipalities, on the other hand, are predominantly conditional. In both cases conditional transfers demonstrate the FG role in financing national programs in education and health. The degree of conditionality in transfers from states to municipalities is quite low, and almost always concern unconditional grants (except for the 3.7% referring to the so called "convênios", small conditional grants for specific purposes, mainly in local economic and social infrastructure). Once again, it indicates the insufficient or inexistent power of state governments to guide and manage their municipalities, this being a unique characteristic of the Brazilian Federation. The state governments in essence act as tax collection agents for the municipalities.

Given the weight of the state transfers, 61% of the total revenues obtained by the municipalities are free of conditions, which shows a very high level of municipal autonomy.

We will now analyze each of the existing transfer modalities. The figure presented above offers an overview of the Brazilian transfer system, indicating the origin of each of the inflows and the amounts involved in 2000.

Unconditional transfers

In Brazil there are three types of revenue transfers that can be freely disposed of[10] in the SNG budgets. Two of them already were analyzed in Section 1: return transfers and redistributive transfers. These are joined by another very peculiar kind of transfer that exists only in Brazil and was therefore not included in the theoretical analyses of section 1.1: compensatory transfers. We will offer a brief description of them.

Return transfers

In Brazil all the relevant cases of return transfers concern transfers from state to municipal governments. There are no relevant cases in which the FG fulfills this role.[11] The state governments collect the ICMS and the IPVA on behalf of the municipalities, sharing 25% of the former between the municipalities of the state and returning 50% of the latter to the municipality that registered the vehicle. Note that return transfers account for 90% of grants from states to municipalities. Since it is a net and constitutionally guaranteed right of the municipalities, these grants must be unconditional.

The “ICMS share” (Cota Parte do ICMS) represents a very important source of funds for the municipalities. It accounts for approximately one third of municipal revenues in the country aggregate. It is particularly important for the largest municipalities with the most developed productive activity. The assignment of these revenues to the municipalities while not allowing them to collect them directly was taken as part of the 1967 tax reform. In addition to the ICMS share, 25% of the *compensatory transfers received from FG* are distributed pursuant to the same criteria. This type of transfer will be discussed in Chapter 3, where we will analyze its criteria and the various problems that it presents.

Compensatory transfers

These transfers are a consequence of the tax exemption process for Brazilian exports that began in 1988. The growing pressure for the country to stop exporting taxes in order to increase competitiveness led to two "rounds" of exemptions, one in 1988 and another in 1996. On these two occasions the subnational governments pressured the federal government to receive some form of compensation for the revenues lost due to the elimination of the ICMS on exports. The first round in 1988

[10] Note that these transfers may be unconditional in terms of their origin, and not be subject to any conditions when transferred. However, the existence in Brazil of earmarks that apply to almost the entire subnational budget, end up imposing conditions on revenues that were transferred as unconditional grants. The most important earmark requires that 25% of the sub national budgetary resources must be allocated to Education. Similar arrangements stand for Health expenditures.

[11] This occurs only with the Education Wage, the ITR and the tax on financial transactions - gold (IOF-gold), these last two at very low amounts.

led to the creation of the transfer known as IPI-Export, in which 10% of the IPI[12] revenue is transferred to the states according to their participation in total country exports.

A second compensation tool was created in 1996, when tax exemption was extended to primary goods and semi-manufactured products through the so called “Kandir Law”. It is applied independently of the first one and has since been a permanent source of conflict between the FG and the state governments. Unlike in the first one, in this second tool the tax base is not well defined. The amounts to be transferred have their origin in the federal budget and need to be negotiated from year to year in painful and costly intergovernmental negotiations.

In the year 2000 these two sources of revenue accounted for close to 10% of the transfers received by the state governments. One fourth of this percentage was passed on to the municipalities together with the ICMS share pursuant to the criteria applied to the latter. It is important to note that only in the first step (FG to SG) the transfers are proportional to export revenue losses. When revenues are distributed within the state there is no longer any relation between the amount granted to each municipality and its contribution to the export effort.

Although the revenues involved are not as extensive as in participation funds or in the SUS, compensatory transfers constitute one of the most problematic aspects of the Brazilian transfer system. As such, we will analyze them in greater detail in Chapter 5.

Redistributive transfers

Finally, the most important component of unconditional grants in Brazil lies in the state and municipal Participation Funds. In the Brazilian federation these inflows are responsible for reducing interregional spending capacity disparities. Table 1.1 above shows that participation funds are by far the most encompassing vertical transfers in Brazil, representing 38% of the total FG transfers in 2000.

These transfers were created in the 1967 tax reform with the basic aim of compensating subnational governments for the strong centralization of tax collection caused by the reform, particularly as a result of expanding the Income Tax controlled by the federal government. The independent State Participation Fund (SPF) and Municipal Participation Fund (MPF) were financed by fixed percentages of the Income Tax and IPI which at the time were set at 10%. Since then they have been the object of many changes. They were therefore typical examples of federal tax *revenue sharing* and had two simultaneous objectives: first, considering the centralized tax collection in place at the time, to contribute to vertical balance; second, to contribute to reducing interregional fiscal capacity inequalities. This was achieved by applying revenue redistribution criteria. The revenues were not "returned" to the governments that collected them, but distributed so as to benefit the poorest governments and those less able to generate revenue from their own tax bases. We will analyze these criteria in greater detail later on.

The history of the participation funds is very clearly divided in two stages. In the first stage, from 1967 to 1989, the system created by the tax reform was expanded, its criteria were improved and it fulfilled its objectives reasonably well. Although the criteria of the MPF presented many deficiencies, at least the system as

[12] IPI- Industrialized Goods Tax.

a whole had a certain dynamic ability to adapt to the changes in the relative positions of states and municipalities, in what economic and demographic aspects were concerned.

In 1989, faced with the impossibility of reaching an agreement to comply with the criteria revision demanded by the 1988 Constitution, this reasonable redistribution system was replaced by a rudimentary list of fixed percentages which has since remained in force. This event, which is usually referred to as the “freezing” of the distribution criteria, basically changed these devices into arbitrary transfers that have since grown more and more distant from their initial objectives and become nothing more than a typical tax sharing arrangement with fixed coefficients.

As we have seen, the function of reducing interregional imbalances is essential for the good functioning of federations. In view of the above there is no doubt that the participation funds represent the greatest problem and deficiency of our transfer system. In Chapter 2 we will go to great lengths to analyze this matter, providing detailed descriptions of their functioning criteria, historical evolution and current problems.

Conditional transfers

In federations conditional transfers usually fall into two basic categories. First there are those destined to finance national programs, a matter that we have already discussed. These transfers are very often the object of some form of legal or constitutional specification, that is, the federal government has certain obligations regarding the size of the grant and the guarantee of revenues. The second category concerns typically *voluntary* or *discretionary* conditional transfers. They are the result of federal government budgetary decisions made on a yearly basis and not of legal requirements. In some federations, in particular Australia, these transfers can exercise a fundamental role in increasing the federal government's power to control subnational spending.

In Brazil, the first category is very important and basically involves transfers for health and education. The second type of conditional transfers, on the other hand, is not very expressive and always remains at 8 to 10% of the total federal transfers. They are formed by what we usually call “Convênios” (fiscal agreements) through which the federal government finances works and programs executed by the subnational governments. Their small expression merely reflects an important characteristic of the Brazilian tax system, i.e. the high degree to which revenue sharing is legally or constitutionally anchored. In the Brazilian tax system 90% of the transfers are mandatory, which makes the system highly inelastic.

Our most relevant conditional transfers therefore fall into the category that we call “national programs”, where the FG finances SNG spending in specific sectors through transfers.

The greatest system of conditional transfers in the Brazilian Federation is the SUS (Unified Health system), which acts by transferring revenues from the federal budget to finance the provision of health services by the state and especially the

municipal governments[13]. As shown in Table 1.1, this is the third largest transfer after the summed participation funds and the ICMS share.

An important characteristic of the SUS is that the amount of resources to be transferred by the Union is not very clearly defined in the legislation. These transfers are basically very similar to what we have referred to as voluntary transfers. When the system was first instituted in the 1980s grants were basically transferred on a payment per service rendered basis, thus coming close to the concept of *matching grants* described in section 1. As it evolved, the system progressively established a greater stability for part of its transfers, such as expenditures with basic healthcare where resources are transferred on a per capita basis. However, today one of its greatest weaknesses is the lack of definition regarding the size of the FG grant, which brings consequences that we will analyze further on.

In order to analyze and discuss the two large national expenditure programs (which together accounted for close to R$ 30 billion in 2000, which is more than that assigned to participation funds, as can be seen in Table 1.1) it is necessary to address another issue that does not strictly pertain to the domain of transfers: the budgetary earmarks for health and education that apply to subnational budgets.

In fact, subnational spending with these two sectors takes place in a hybrid manner through a combination of three financing modalities:

1) federal revenues transfers – SUS and federal complementary funding of the Basic Education Fund (FUNDEB[14]);

2) horizontal redistribution of state and municipal revenues – state Fundeb;

3) mandatory contribution of a percentage of the subnational budgets through earmarks.

The historical development of the two sectors led to a mix of mechanisms and revenue flows which accumulated parallel devices through time without any account being taken of the problems caused by their simultaneous functioning. The main shortcomings of this mix, however, are the distortions imposed by the process of budgetary earmarking. As such, it will be necessary for us to address their functioning in greater detail. An introduction to the topic, albeit insufficient, is presented in Chapter 6.

[13] Not necessary are LG or SG the sole provider of health services. A great share of services is due to private or philanthropic agents. Is that case, de SNG acts as finance intermediary between FG and non-government agents.

[14] In 2007 the previously existent FUNDEF was replaced by FUNDEB. The basic underlying equalization method is the same, but the financial sources and the FG contribution are augmented.

Chapter 2 – Participation funds and equalization systems

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Introduction and synthesis

This chapter addresses the "reduction of horizontal disparities" in the Brazilian Federation. Tax systems in all federations have important transfers with a distributive aim: to increase the spending capacity of subnational governments that have a lower per capita tax revenue than the national average due to their lower economic capacity.

In the Brazilian system, as conceived by the 1965 tax reform, this function was to be accomplished by the so-called *participation funds*. Unlike in most federations two similar transfer systems were created in Brazil, one for the states and another for the municipalities. Their purpose was to channel additional revenues to jurisdictions with a lower revenue raising capacity.

All transfers that exist today for this purpose present a number of common characteristics. The main one is their dynamic ability to adapt. These systems are designed to accompany both the evolution of governmental economic capacity and demographic patterns. For example, they allow to reduce redistributive transfers to regions that grow faster and become relatively wealthier (than the other), to allow for larger transfers to be channeled to the poorest regions. Likewise, if a region becomes stagnated and stops growing it can receive more revenues in order to come closer to the national average. The same applies to demographic conditions. Whenever a jurisdiction becomes responsible for a greater number of inhabitants - as a result of migrations, for example - this is reflected in the revenue assignment, under the assumption that the per capita demand for public services will rise.

In this paper we will initially demonstrate the following basic points:

1) The 1965 tax reform created a redistribute transfer system in Brazil to reduce horizontal disparities that had quite reasonable technical qualities for the time and a good dynamic adaptation capacity.
2) Until 1988 this system was progressively adapted and modernized without losing its qualities.
3) In 1989, through Constitutional Law n 62, the original system was mutilated and lost its dynamic qualities. It was reduced to a simple

revenue sharing mechanism between the FG and the subnational governments according to fixed percentages that have not been modified to date.

This evolution led to a situation in which *the fiscal system of the Brazilian Federation no longer has an efficient and dynamic system to reduce disparities*. One can say, as our evidence will show, that participation funds, to the contrary, contribute to increase horizontal disparities in spending capacity in the states and even more so in the municipalities.

Do we need a truly efficient and dynamic redistribute system?

Today, participation funds are a simple tax revenue sharing system at fixed percentages. The Brazilian tax system does not have any transfers to compensate for changes in the fiscal capacity of the governments. If a region has a period of economic success and is able to expand its fiscal capacity it will continue to receive the same amount of revenue. At the same time another region which may be facing economic difficulties and reduced economic (and consequently fiscal) capacity and should therefore be entitled to compensatory revenues will also continue to be assigned the same. The problem is also evident in the context of reforms. Any reforms needed to modernize a tax system will generate impacts or even clashes in revenue and change the relative positions of governments in terms of their autonomous revenue raising capacity. As such, a well-formulated system should reflect these changes by adjusting each government's revenue assignment to preserve balance in the federation. This is evidently not what happens today with the participation funds. They are in fact part of the general problem, not a solution for imbalances.

This analysis justifies our main proposition: *that a reform in the revenue sharing system needs to be considered together with the tax reform currently in debate, with special emphasis in recovering the redistributive function of the Brazilian Federation.*

Our basic proposition is that any federation would benefit greatly from being able to count with a permanent efficient system to reduce disparities. The existence of such a system would be an essential condition of success in a broad reform process that alters the horizontal distribution of tax revenues.

What options exist to enable this reform?

It is our understanding that there are two possible paths to take. The first – which can be considered conservative – would be to do away with the "freezing" of coefficients imposed by CL 62/89 and recover the dynamic attributes of the original system created in 1965, or at least its basic philosophy. In this chapter we will present evidence and simulations that we believe demonstrate this to be a problematic, inefficient and politically conflictive alternative.

The second alternative, a clearly innovative one, would be to build on successful experiences implemented in more developed federations: the use of *equalization systems.* We will present the basic concepts of this type of approach in

detail, including its advantages and difficulties. Careful simulations were prepared of the results that would be obtained through their use in the Brazilian Federation.

Before we start analyzing these issues it is important to clarify an underlying assumption that guides our approach in this and other studies of the Forum. As stated in the introduction, it is important to make a distinction between the two basic types of vertical transfers applied in federations: national programs and unconditional redistributive transfers. If a federation makes a choice (eminently political) to assign a greater power to the federal government in the coordination and administration of public services it will invest more heavily in what we call *national programs*: conditional transfers that finance the execution of public services by the subnational governments, but with a strong federal government participation in the coordination, planning and definition of service standards. If, on the contrary, it opts for a greater subnational autonomy, the federation will rely more heavily on unconditional grants. This way they feed the subnational government budgets so as to increase their service provision capacity, but allow each government to define how it will do so.

In Brazil there are two important public service sectors that are typically representative of national programs: basic healthcare (SUS) and basic education (Fundeb). Both are examples of what can be considered redistributive transfers. In the case of the Fundeb, the system is strictly equalizing, as the revenues are distributed on a per capita-student basis weighted by parameters that seek to reflect the different costs of the services. In the case of the health sector, although the criteria are less transparent there is naturally a planning process to define the size of the grants to be assigned to the various governments based on specific sectoral parameters. These can be derived from identified needs or be the result of the geographical distribution of the assets that enable service provision (hospitals and medical equipment).

Our basic assumption is that because the revenues channeled through national programs follow a specific sectoral rationale defined by its needs, these should not be taken into account when analyzing horizontal disparities in spending capacity. Because of their spec*ific nature, any problems in their functioning should be addressed by adjusting their specific criteria.* The following basic proposition can be derived from the above: *transfers aimed at reducing horizontal disparities, which are the object of our study, should focus only on unconditional grants to states and municipalities.* As such, all estimates of government spending capacity presented herein refer to the sum of own-source revenues and unconditional grants, that is, the total amount of revenues that finance the local governments; those that states and municipalities can freely dispose of.

The paper is divided into four sections. Section 1 describes the original system since it was conceived in 1965 until 1988. Section 2 discusses the “freezing” of the system instituted in 1989. Section 3 analyzes the two reform alternatives that exist. We will begin by discussing the "unfreezing" alternative and then present the conceptual bases for an equalization system. Section 4 presents our simulations of the equalization system applied in Brazilian states and municipalities, comparing its results to those of the current participation funds. Finally, Section 5 presents a number of conclusions.

2.1 **The participation funds – origin and evolution until 1988**

This section aims to trace the historical evolution of the participation funds since they were first conceived in 1965 until 1988. During this period the original system preserved the qualities of a flexible and dynamic revenue redistribution system. Almost 20 years have gone by and the memory of this original system is beginning to fade. For many, participation funds are no more than a simple (albeit significant) way to share federal tax revenues with the states and municipalities.

Box 1: HISTORICAL PERSPECTIVES OF THE TAX RATES TO THE PARTICIPATION FUNDS

Year	Legislation	MPF	SPF
1967-68	Constitutional Amendment 8/65	10,00%	10,00%
1969-75	Complementary Law 40/68	5,00%	5,00%
1976	Constitutional Amendment 5/75	6,00%	6,00%
1977	Idem	7,00%	7,00%
1978	Idem	8,00%	8,00%
1979-80	Idem	9,00%	9,00%
1981	Constitutional Amendment17/80	10,00%	10,00%
1982-83	Idem	10,50%	10,50%
1984	Constitutional Amendment 23/83	13,50%	12,50%
1985	Idem	16,00%	14,00%
1985-88 [a]	Constitutional Amendment 27/85	17,00%	14,00%
1988	Federal Constitution of 1988	20,00%	18,00%
1989	Idem	20,50%	19,00%
1990	Idem	21,00%	19,50%
1991	Idem	21,50%	20,00%
1992	Idem	22,00%	20,50%
1993	Idem	22,50%	21,50%

Source: Cartilha

The figure of redistributive transfers was first instituted by the 1967 Constitution with a view to reducing horizontal disparities in spending capacity between states and municipalities. To do so the government created the participation funds of states and municipalities. An interesting difference of this system vis-à-vis usual practice in other federations is that here two separate funds were created, one for the states and another for the municipalities, each with its own set of rules.

These funds were conceived to combine vertical harmonization in the federation, –by sharing the income tax and IPI tax revenues– with the subnational governments, with horizontal redistribution, through criteria adopted to define the size of the grant delivered to each state and municipality.

As it was initially formulated in 1965, the Constitution destined 10% of these tax revenues to each of the two funds. During the next three decades, until 1993, after having been reduced to no more than 5% in 1968, during the military regime's fiscal centralization stage, these coefficients were progressively increased to former levels and beyond. The expansion of the funds reached its highest point with the 1988 Constitution, which established that by 1993 44% of the revenues obtained from the two taxes should be assigned to the funds. Table 1 shows this evolution.

Even though the increasing coefficients were not accompanied by a proportional increase in the size of the grants due to the restrictions placed on the IPI by the FG during the period, the participation funds became the most important federal transfer for subnational governments.

In this section, we will describe the functioning rules of participation funds from 1965 to 1988. This corresponds to the period in which the funds maintained their original quality of dynamic systems geared towards reducing disparities. These rules were abandoned in 1989 with the entry into force of the above referred CL 62,

which "froze" the coefficients of both funds. The funds lost all of their relevant attributes and became a mere table with percentages to be applied in order to determine the amount to be received by each state. This rudimentary table has remained unchanged since then.

2.1.1 *The State Participation Fund*

The initial rules of the SPF (Law nº 5.172/66) determined the following revenue distribution criteria:

- 5% in proportion to the surface area of the states; and
- 95% using a factor that represents population, weighted by the inverse of the per capita income in each state.

The *surface* and *population* criteria were justified by the need to satisfy the demand for public services. The *inverse of the per capita income* criterion had the redistributive goal of assigning more revenue to the states with the lowest per capita income levels.

As of 1976, this basic distribution was altered through the creation of the Special Reserve for the States of the North and Northeast (REENE), which starting in 1978 set aside 20% of the revenue (10% in 1976 and 1977) to be distributed exclusively to states of these two regions. The remaining 80% continued to be distributed to all the states. The distribution criteria of this portion were the same as laid down in the previous law, but applied to the joint area and population of these regions. For the states of these two regions the revenues transferred represented the sum of both amounts.

The calculation procedure

We will now present the calculation procedure adopted to distribute the remaining 80% to all the states of the country; a procedure likewise adopted for the 20% reserved for the North and the Northeast. Bear in mind that the revenue assignments of the states of these regions were a result of the sum of both calculations:

- the territorial factor (**TF**), a – percentage that represented the surface area of the state in relation to that of the country (or of the state of the N-NE in relation to the area of the two regions); and
- the *redistributive population factor* (**RPF)** of each state – that was determined according to the relative participation of the state's population in the total country population (Box 2).

Box 2: calculation coefficients for the redistributive population factor of the SPF sharing criteria	
State Population/Total Population	RPF
I. Up to 2%	2.0
II. Above 2% up to 5%	
a) for the first 2%	2.0
b) for each 0.3% or surplus fraction, an additional	0.3
III. Above 5% up to 10%	
a) for the first 5%	5.0
b) for each 0.5% or surplus fraction, an additional	0.5
IV. Above 10%	10.0

There was a ceiling of 10% of the total country population to calculate the *redistributive population factor*, which generated a participation loss to the states of Minas Gerais and São Paulo. The most important thing, however, is that these criteria determined that all states that represented less than 2% of the national population would nevertheless receive according to coefficient 2 (which would be equal to receiving 2% of the revenues if this were the only criterion applied). As such, their final per capita revenue ended up being greater than that of the other states.

The *inverse of the per capita income factor* (**IPIF)** was determined based on the inverse of each state's relative participation in the country's *per capita* income (this index was calculated related to the *per capita* income index of each state. The per capita income of the whole state was taken to be *100* and used to calculate the inverse of each index

Box 3: coefficients to calculate the inverse of the *per capita* income factor of the SPF sharing criteria

Inverse of the relative state *per capita* income index	IPIF
up to 0.0045	0.4
above 0.0045% up to 0.0055	0.5
above 0.0055% up to 0.0065	0.6
above 0.0065% up to 0.0075	0.7
above 0.0075% up to 0.0085	0.8
above 0.0085% up to 0.0095	0.9
above 0.0095% up to 0.0110	1.0
above 0.0110% up to 0.0130	1.2
above 0.0130% up to 0.0150	1.4
above 0.0150% up to 0.0170	1.6
above 0.0170% up to 0.0190	1.8
above 0.0190% up to 0.0220	2.0
above 0.0220%	2.5

$$GDPc = \frac{1}{\left(\frac{sGDP}{bGDP} * 100\right)}$$, where:

GDP $_C$➔ coefficient related to the inverse of the per capita GDP;

$_S$ GDP➔ per capita GDP of the state;

$_B$ GDP➔ per capita GDP of Brazil.

The table below was then applied to the index and generated a factor.

The *inverse of the per capita income factor* also had a *ceiling*. This means that starting at a certain point decreases in the per capita income of the states in relation to that of the country did not imply in a corresponding increase of the *factor* and therefore did not result in a greater grant for the federated unit at hand. It seems that only the Northeast had achieved this *ceiling* by 1988.

The three factors detailed above allow the following calculation:

- individual participation coefficient (IPC): (**IPC**) = **RPF * IPIF**
- % IPC = IPC of the state/sum of the IPCs of the states involved (all for distribution of the 80%; only states of the N-NE for distribution of the 20%).

The percentage of the SPF to which each state will be entitled will be obtained according to the formula below, which defines the percentage to the applied to both the 80% and the 20%, in the case of the N-NE states.

$\%SPF = [(TF_1 * 0.05) + (\%IPC * 0.95)]$

where:

% SPF ➔ percentage of the state's SPF;

TF_1 ➔ state territorial factor;

% IPC➔ percentage of the individual participation coefficient.

This procedure therefore produced the percentages that were applied to determine the portion of revenues to be distributed to all the states (80% of the revenues) as well as the portion set aside for the N-NE. The sum of these two portions defined the total transfer to each state.

During the formulation of the 1988 Constitution the report presented by the fiscal subcommission established a percentile increase in the Income Tax (IR) and IPI tax revenues destined to the SPF, which went from 14% to 19.5%. In addition, it determined for SPF revenues to be assigned exclusively to states with a lower *per capita income* than the national average. In the negotiations that ensued an effort was made to ensure access to the SPF by all the states, while at the same time reconciling the interests of the constituents of the less developed states (a definitive majority) which were not willing to give up the revenues guaranteed by the *exclusive SPF.* To do so the subcommission chose to increase the percentage of the two taxes assigned to the SPF to a level in which, maintaining the distribution criteria in force at the time, the participation of the North and Northeast resulted in the same volume of revenues that would have been transferred through the *exclusive SPF*. To this extent, the percentage of the IR and IPI destined to the SPF, which had been increased from 14% to 19.5% by the subcommission, finally reached 21.5% in the project of the thematic commission (AFONSO; REZENDE, 1987; VARSANO, 1987). Finally, the Federal Constitution of 1988 determined the transfer, from the Federal Government to the states and Federal District, through the SPF, of 21.5% of the IPI and IR *net revenues* (gross revenue collected *minus* tax incentives and rebates).

2.1.2 *The Municipal Participation Fund*

In its initial formulation (Constitutional Amendment nº 18/1965) the MPF transferred revenues to the municipalities exclusively according to the size of their population. In 1967, Complementary Act nº 35 made a distinction between urban and rural municipalities for revenue sharing purposes, assigning 10% of the revenues to the former and 90% to the latter.

In 1981, Decree-law nº 1.881 redesigned the distribution criteria, establishing rules that remained practically unchanged until 1989. This Decree redivided the revenues of the fund, setting aside: 86.4% for rural municipalities, 10% for state capitals and 3.6% for what was called the “MPF Reserve”, which were additionally distributed to rural municipalities with populations above a certain number.

The threshold that defines what municipalities will have access to the reserve is not fixed. The law grants access to the reserve to municipalities with a population coefficient equal to 4. This coefficient is produced by applying the population coefficient table described below. This table would in principle be reviewed every five years, allowing the population threshold of the reserve to increase as the population grew.

The Brazilian Court of Audit (TCU) was given the responsibility of determining each municipality's participation coefficient according the size of its population.

A very important aspect is that the criteria used to distribute the 13.6% destined to the large municipalities were very different from those adopted for the 86.4% destined to rural areas. Let us examine the criteria.

Distribution to rural municipalities

Coefficients per population range	Factor
Up to 10.188	0,6
Above 10.189 up to 13.584	0,8
Above 13.585 up to 16.980	1,0
Above 16.981 up to 23.772	1,2
Above 23.773 up to 30.564	1,4
Above 30.565 up to 37.356	1,6
Above 37.357 up to 44.148	1,8
Above 44.149 up to 50.940	2,0
Above 50.941 up to 61.128	2,2
Above 61.129 up to 71.316	2,4
Above 71.317 up to 81.504	2,6
Above 81.505 up to 91.692	2,8
Above 91.693 up to 101.880	3,0
Above 101.881 up to 115.464	3,2
Above 115.465 up to 129.048	3,4
Above 129.049 up to 142.632	3,6
Above 142.633 up to 156.216	3,8
Above 156.216	4,0

The basic population criterion used to distribute the 86.4% to rural municipalities was conceived so as to benefit municipalities with a small population. The system establishes a population "threshold" below which all municipalities would receive the same amount; a regressive scale through which the largest municipalities would receive proportionally less; and a ceiling above which all municipalities would receive the same amount. Decree-law nº 1.881/81 accentuated this characteristic even further by attributing a greater weight to municipalities of up to 16,980 inhabitants. In the version of the National Tax Code (NTC), there were three ranges above this population range.

This calculation worked as follows:

- the population of every municipality was used to define the redistributive population factor according to the preceding table; and
- this procedure was applied to all municipalities and the final participation of each one (coefficient) was the ratio between its factor and the sum of the factors of all the municipalities of the country.

Two aspects are particularly important to highlight at this point. First, the basic assumption that guided the MPF since it was created: small municipalities would, in principle, have a smaller tax collection capacity. The greater the municipality, the higher the economic density and therefore the base for the two taxes that the 1967 tax reform set aside for local governments, the IPTU (urban property tax) and the ISS (tax on services). Second, the MPF adopted a national distribution criterion; that is, it treated all the municipalities of the country equally, as an exclusive result of their population.

Distribution to large municipalities and state capitals

A different distribution criterion was applied to the 13.6% of the revenues reserved for the large municipalities and state capitals than was used for rural municipalities. While the latter were distributed exclusively according to a regressive population criterion, the criterion adopted for the 13.6% destined for large municipalities and state capitals additionally included the inverse of the per capita income as a weighting factor.

This option was not the result of per capita income estimates for these large municipalities. Until very recently there were no estimates available; not even for the state capitals. In fact, the solution adopted in this case was to use the average per capita income of the state in each municipality. In this second alternative the population criterion is calculated based on the participation of each municipality in the total population of the set of municipalities benefiting. As in the case of rural municipalities, a threshold and a ceiling are applied to the attribution of coefficients so as to give a greater advantage to the smallest ones and limit the amount transferred to the largest. The per capita income criterion, in turn, is supported by the percentile relation between the per capita income of the state to which the municipality belongs and the average per capita income of the set of states. The inverse of this relation is used as a reference to assign coefficients to each municipality, which are also subject to a threshold and ceiling. The final distribution coefficient is obtained (per product) by multiplying the two coefficients described. Except for the fact that a different table is used to assign the redistributive population factor to municipalities, the calculation for large cities is the same as that of the SPF, excluding the territorial factor.

The following distribution procedure was used for state capitals and large municipalities (*reserve*):

Percentage of population of participating entity which represents total population of the category to which it belongs	**Factor**
Up to 2%	2,0
Above 2% up to 2,5%	2,5
Above 2,5% up to 3%	3,0
Above 3% up to 3,5%	3,5
Above 3,5% up to 4%	4,0
Above 4% up to 4,5%	4,5
Above 4,5%	5,0
Inverse of per capita income	Factor
Up to 0,0045	0,4
Above 0,0045 Up to 0,0055	0,5
Above 0,0055 Up to 0,0065	0,6
Above 0,0065 Up to 0,0075	0,7
Above 0,0075 Up to 0,0085	0,8
Above 0,0085 Up to 0,0095	0,9
Above 0,0095 Up to 0,0110	1,0
Above 0,0110 Up to 0,0130	1,2
Above 0,0130 Up to 0,0150	1,4
Above 0,0150 Up to 0,0170	1,6
Above 0,0170 Up to 0,0190	1,8
Above 0,0190 Up to 0,0220	2,0
Above 0,0220	2,5

- a redistributive population factor was assigned to each municipality, as described in the table above;
- the per capita income factor was calculated as follows:

1) The ratio between the state per capita income of each of the state capitals or large municipalities and the national per capita income was calculated in percentile terms. This ratio was inverted and a factor was assigned to it according to the table below.

2) The general factor was found by multiplying the redistributive population factors and the inverse of the per capita income.

In essence, this criterion causes the population coefficient (between 2 and 5) to be increased/decreased whenever the per capita income of the locality is smaller/greater than the average for the group.

The distribution of the *reserve* to large municipalities follows the same criteria as applied to capitals. The municipal share of the reserve will be the sum of the

amount thus obtained, derived of the 3.6%, with the amount derived from the distribution of the 80% to the rural municipalities, to which they are also entitled.

In this format, which remained in force until 1989, the MPF functioned as a redistributive system in which the portion of each municipality was derived by applying the criteria to all the municipalities of the country. In the case of rural municipalities, this meant assigning the same amount of revenues to the municipalities of Piauí and Rio de Janeiro, regardless of their per capita income level, so long as they had the same population. Given the great differences in income levels across the different regions and even in equal-sized municipalities of the same region, the system evidently had little chance of optimizing the function of reducing inequalities from the very beginning. The problem was attenuated for large municipalities, since their share was also dependent on relative per capita income. In other words: Despite the lack of precision that came from using state instead of municipal per capita income, because the 13.6% distributed to the large municipalities and state capitals adopted the same criterion as the SPF these revenues were much better able to reduce spending capacity disparities.

2.2 **The participation funds as of 1989**

It is common knowledge that the centralizing heritage of the military regime became crystallized in the 1988 Constitution. The Federal Constitution determined an increase in the percentage of federal revenue to be transferred to the states and municipalities and a revision of the distribution criteria to be applied in these transfers. In its transitional provisions it also called for a revision of the SPF and MPF prorating criteria to be implemented through a complementary law.

Table 4: Revenue distribution of the SPF per state and Federal District – LC 62/89

Region/Unit	(%)	Region/Unit	(%)
Acre	3,4210	Espírito Santo	1,5000
Amapá	3,4120	Minas Gerais	4,4545
Amazonas	2,7904	Rio de Janeiro	1,5277
Pará	6,1120	São Paulo	1,0000
Rondônia	2,8156	**Southeast**	8,4822
Roraima	2,4807	Paraná	2,8832
Tocantins	4,3400	R G do Sul	2,3548
North	25,3717	Santa Catarina	1,2798
Alagoas	4,1601	**South**	6,5178
Bahia	9,3962	Distrito Federal	0,6902
Ceará	7,3369	Goiás	2,8431
Maranhão	7,2182	Mato Grosso	2,3079
Paraíba	4,7889	M G do Sul	1,3320
Pernambuco	6,9002	**Midwest**	7,1732
Piauí	4,3214	**TOTAL**	**100,00**
R G do Norte	4,1779		
Sergipe	4,1553		
Northeast	52,4551		

This task, which was conducted the following year, proved to be extremely complex for the political conditions of the time. The states, through their secretaries of finance, were unable to reach an agreement to institute general and dynamic rules for the participation funds. Given the political difficulty in complying with a constitutional demand, a pragmatic and palliative solution was adopted: *instead of a dynamic system that responded to changes in the relative demographic and economic conditions of the*

regions and localities, a rudimentary system of fixed distribution coefficients was set-up for both the SPF and the MPF.

In the case of the SPF, a system of fixed percentages for each state was established. As such, in each state, the pre-prorating of revenue thus far in force only between underdeveloped and developed regions was extended and "frozen", totally eliminating the dynamic nature of the fund. The revenue sharing percentages established in 1989 were not actually based on technical criteria. Although they built upon the system in force in 1988, they were basically the result of political negotiations in which underdeveloped regions weighed more heavily. Various coefficients were artificially fixed, such as those of the states of São Paulo and Espírito Santo. These coefficients were defined in the well-known Annex 4 of Complementary Law nº 62 of 28 December 1989, presented in the Table 4.

As to the MPF, everything indicates that the 1988 constituents had the clear intention of preserving and even expanding their dynamic nature. Complementary Law nº 59 of 1988 had established that the general review of the individual participation coefficients in the MPF would not be conducted every five years, as had been the case since their creation in 1965, but every year, based on demographic data of the Brazilian Institute for Geography and Statistics (IBGE).

Nonetheless, after the Constitution was promulgated events took a different direction. Complementary Law nº 62/69 also "froze" the percentages applied to the SPF, thus eliminating the dynamic nature of the previous system, which distributed revenues across three groups – state capitals, large municipalities and rural municipalities - according to a flexible national criterion. The participation of each state therefore ultimately depended on the relative demographic development of the states, on the population distribution per municipality size in each state, and on the relative evolution of per capita income.

The main motivation for this change was probably the well-known problem of the so-called “miracle of the multiplication of the loaves” (VILLELA, 1995)). In the previous system, dividing a municipality in two or more smaller ones that fell under a lower population range increased the total amount of resources received by the same population. This worked as an incentive for the multiplication of micro-municipalities across the country. Because the total amount of resources was given, the gains obtained by dividing municipalities had to be "financed" by all the other municipalities of the country. The CL required revenue assignments for newly created municipalities to come exclusively from the other municipalities of the state, without impacting on the rest of the country. To enable this measure, the TCU enacted Resolution nº 242/90, which “froze” the state distribution coefficients so that only the population distribution within the state itself applied. This rule therefore defined a pre-prorating of resources: Northeast – 34.07%, North – 7.07%, Southeast – 32.94%, South – 18.79% and Midwest – 7.13%.

The portion set aside for each state became fixed; that is, the participation of each federated unit in the total resources of the fund was frozen. Everything indicates that the percentages were “frozen” at the level of 1989 (VILLELA, 1995, p. 24).

The 1989 law established (Article 3) that the percentages were to be reviewed in 1992 based on the 1990 census. The delay in conducting the census

caused the criteria to remain in force for an additional period of time. In 1994, through Normative Decision nº6 of 13 December 1994, the TCU defined new distribution criteria only slightly different from the previous ones: Northeast – 34.07%, North – 7.07%, Southeast – 32.94%, South – 8.79% and Midwest –7.13%. The coefficients applied to distribute resources to state capitals and to establish the reserve set forth in Law nº 1.881 were also reviewed. Finally, the TCU conducted a new revision in 1997.

As such, the "pre-prorating" of the MPF did not impose substantial changes to the resource distribution criteria, except for an important detail: the new version did away with the dynamic nature of the criterion, which as time went by would cease to reflect the relative differences in population size between municipalities.

Internal distribution to the states also ended up "frozen" until 1997, when a decision was made to progressively update the coefficients according to demographic changes. In order to avoid a large-scale impact this update was phased in over several years, to be completed by 2007.

Establishing fixed percentages for the states evidently reduced the dynamic nature of the system considerably. In the resulting system, until the percentages are altered (starting in 2007 with the end of the criteria review), the portion received by a municipality depends on the rate of expansion of its population compared to that of the state to which it belongs. The portion received by the state, on the other hand, is not affected by relative variations in the growth of its population compared to that of the rest of the country. With this law, the "redistributive" effect of the process remained restricted to the states, since the revenue shared per population concerned only a pre-established amount for each state.

The system on the whole became more rudimentary and unrefined. While until 1988 the criteria applied had reflected demographic movements and income differences, from that point on these factors became insignificant in what relations between the states were concerned. The worst component of the 1965 system, i.e. the bias of its demographic distribution towards small municipalities, remained in place only within the states.

This long trajectory that is currently completing four decades of existence can be summarized in the following points:

- In 1965 a simple and dual system of redistributive flows was created with different criteria for states and municipalities. The system was to a certain extent flexible and dynamic.
- In 1989 the "good" part of the system, the SPF, was completely destroyed, while its technically limited component, the MPF, was partially destroyed.
- The system implemented in 1989 lost its ability to adapt dynamically to demographic and income changes, this being an essential characteristic of redistributive systems. These systems have a particularly redistributive impact because the frozen percentages benefit the poorest regions of the country, especially in the case of SPF. However, they are not endowed with the necessary flexibility to adapt resource

allocations to changes in development levels and population.

The mortal remains of the system still precariously in operation (MPF distribution system within each state) doubtless became an even more distorted device inasmuch as urbanization continued to increase in the country and the population criterion, biased towards small municipalities, became more and more anachronic and inadequate.

Further on we will present data that demonstrates the elevated distortions that characterize the current situation of this “frozen" revenue sharing system. Current per capita revenue is as much as 20 to 30 times higher in small municipalities of low demographic density than in more populous ones. Disparities between the states are smaller, but not irrelevant.

Inequalities are particularly severe in metropolitan areas, where the results achieved depend on the distribution of economic activities and population. In the Metropolitan Region of Rio de Janeiro, for example, the dormitory municipalities - those that concentrate the population that works in the central nucleus - present average budgets as much as five times smaller than the regional average. Nevertheless, they face strong pressures to improve the basic services provided to their – residents.

2.3 Reform alternatives

There are basically two approaches to reformulate the participation funds, both of which allow for different variations. The first, which can be considered conservative, is to return to traditional models based on macroeconomic parameters like per capita income, such as the one created by the 1965 reform. The original system applied to the SPF and MPF and later distorted in 1989 belongs to this category. The second approach, more modern, involves the adoption of equalization procedures in which transfers are defined after assessing all the other revenues received by each government. This second alternative is not well known in Brazil and is used only in the most developed federations. We will discuss this alternative in greater detail later on.

2.3.1 *Return to the National Tax Code (NTC): “unfreezing” the indexes*

As we saw, starting in 1989 the participation funds ceased to be a minimally coherent redistribution system and became no more than a rudimentary mechanism to share two federal tax revenues with the states and municipalities at fixed percentages. It is therefore desirable to reconstruct an efficient redistribution system. The first possibility to be analyzed will naturally be a return to the system in place in 1989; a well-known mechanism that served its purpose for two decades. In its simplest version this alternative defended by many economic officials of the state governments would require no more than the extinction of CL 62 and a return to the criteria established in the National Tax Code, Law nº 5.172/1966 (Articles 88, 89

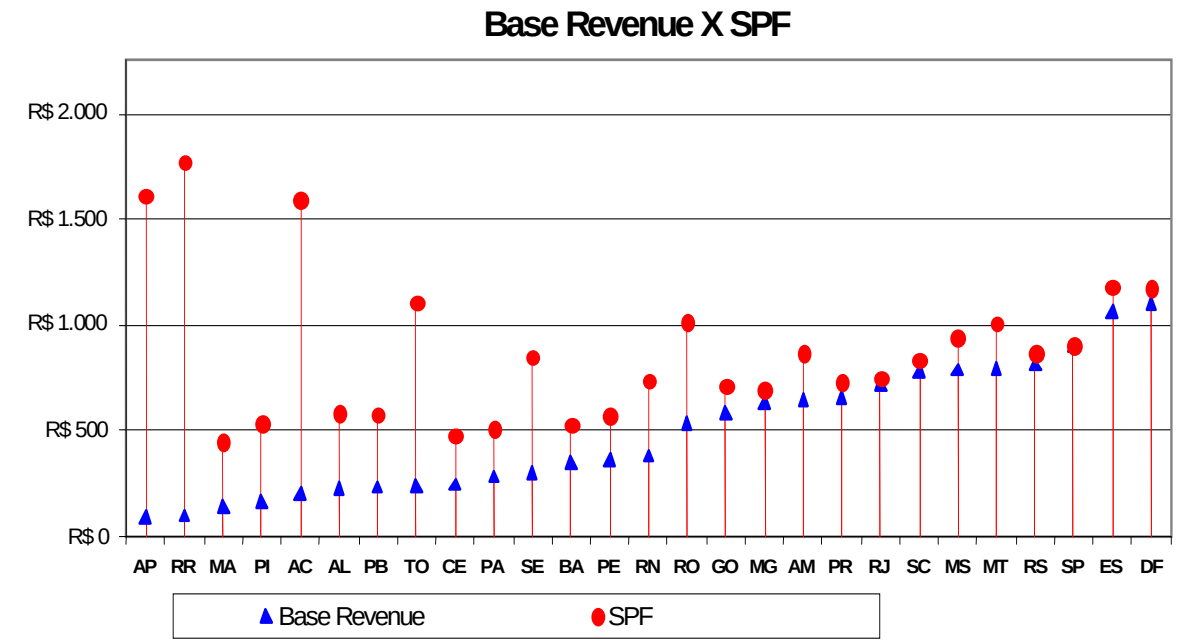
and 90). The only realistic alternative would probably be to return to the situation in force in 1988, which in addition to the NTC regulations included subsequent modifications to the system that created several "*reserves*". In this case the only thing required would be to apply the rules to current macroeconomic and demographic data. A slightly more flexible option would be to maintain the basic methodology, but adapt a number of rules and parameters to the current political situation. The per capita income criterion used to distribute resources between states and large municipalities could be replaced or combined with other criteria, such as human development level or another social indicator.

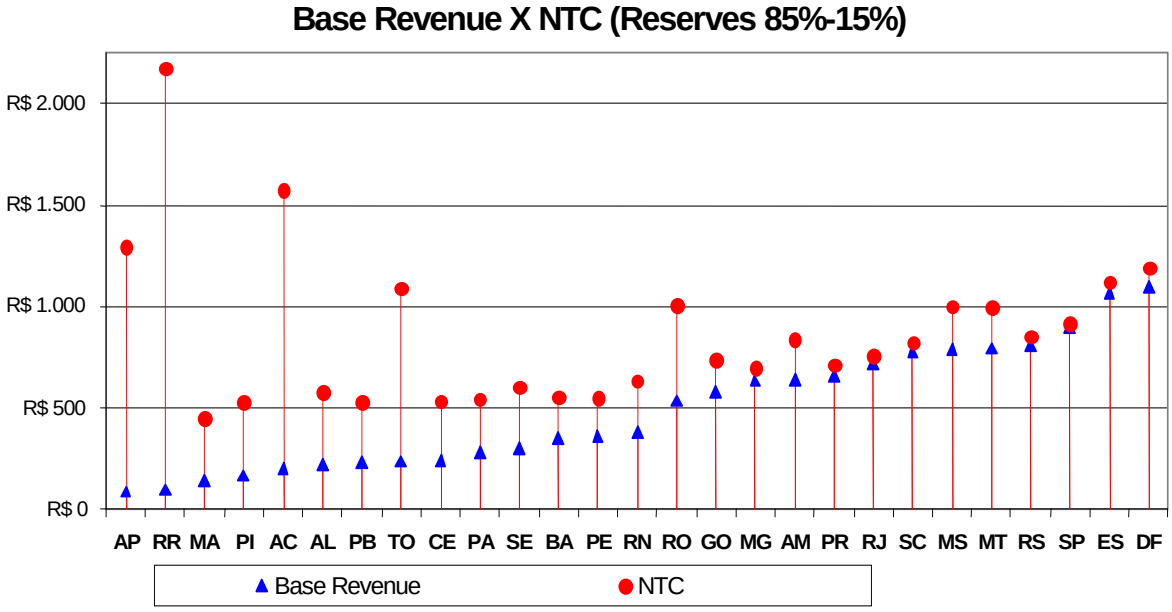
Once these indexes were "unfrozen", we would surely have a more dynamic system. Nevertheless, will a redistributive flow based on a territorial factor, a redistributive population factor and an inverse of the per capita GDP factor really be more efficient in diminishing horizontal imbalances in spending capacity between Brazilian subnational governments?

The professional team of the “Fiscal Forum of the Brazilian States” conducted extensive and detailed simulations as to the effects of this "unfreezing". In the case of municipalities, this procedure would not really have a significant impact for two basic reasons. First, the demographic concentration in the larger municipalities seems to have been a constant throughout the country and given the criteria adopted, the "unfreezing" would do little to affect the revenue sharing obtained today through the state pre-distribution. Since internal distribution is already being gradually unfrozen, it is possible to say that "unfreezing" the indexes would not generate significant revenue changes for the MPF. The problem lies elsewhere: it would "bring back to life" a limited and precarious system that uses population as the only parameter for most municipalities and ignores the fiscal capacity of their respective governments. Due to space constraints we will not present data on municipal unfreezing. Instead we will concentrate on analyzing the more polemic issue of "unfreezing" the criteria applied to the SPF.

To do so we took real financial data of the states for 2005 and calculated their total own-source revenues per capita (tax revenues plus transfers except the SPF–, which is referred to as the base revenue). We then added the SPF revenues so as to highlight the impacts of the revenues of the fund. The first data points to interstate disparities in spending capacity, which should in principle, be reduced by the SPF. The second data expresses the final unconditional spending capacity of the states, which reflects the possible redistributive effects generated by the SPF. Our readers should bear in mind that this concerns unconditional grants only. Because conditional grants were not included, the spending capacity presented is much lower than the total spending capacity of the federated entities.

This information is presented in the graphs below, where the states appear in ascending order according to own-source revenues without the SPF (in blue) compared to the per capita revenue that results from the SPF distribution (in red). In the series in red, the first graph presents the results achieved by the SPF according to the current "frozen" distribution criteria. The second graph shows the results that would be achieved by "unfreezing" the NTC criteria. Be reminded that all calculations are supported by actual data on revenue, GDP and population.



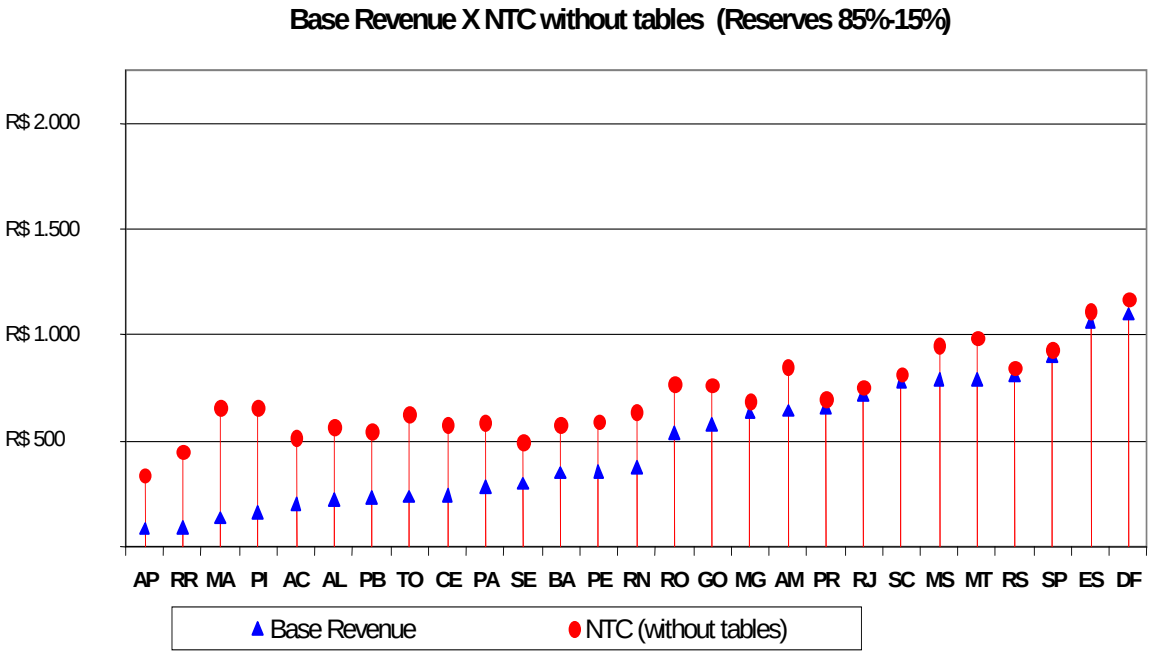


In principle, we would expect the SPF to reduce spending capacity disparities. Note, however, that incorporating the SPF to the state revenues does nothing to reduce per capita spending capacity disparities. On the contrary, it creates a highly irregular distribution. In addition to the fact that certain states have a much higher spending capacity than the national average; states with a very similar economic situation have very different final revenues.

The simulation shows that the distortions found in the "frozen" system currently in force would continue to exist in the dynamic or "unfrozen" system. The main reason for these distortions to remain is that the tables used in the NTC distribution methodology use ranges of data that, for example, level the populations of the states of Roraima and Paraíba, despite the fact that the population of the latter is almost 10 times as large as that of the former (see description of NTC

criteria, above). This methodology clearly places states with large territories and small populations in a privileged position. This is the case of most of the northern states, as shown in the next two graphs.

Could we then say that better results could be achieved by eliminating these population coefficient tables from the methodology? To answer this question we performed a new simulation of a redistributive system following the NTC, but without using the tables. In this case, resources are distributed exclusively on a per capita population basis weighted by the inverse of the per capita income, disregarding differences in surface area or population size. The results are much better, but still present disparities that are hard to justify.



A number of other aspects deserve attention when discussing the possibility of returning to the pre-1989 system. It will certainly be extremely difficult to specify exactly what set of rules should be unfrozen. This is because the original 1965 NTC formulation differs greatly from the legislation in force in 1988. An 80%-20% pre-prorating was incorporated to the SPF through the N-NE reserve. In the case of the MPF, reserves were created for the large municipalities and smaller changes were made to the tables. Perhaps an even more polemic aspect concerns the pre-prorating modality that was introduced by CL 62/89: 85% for the Northwest (NW), Northeast (NE) and Midwest (MW) and 15% for the Southwest (SW) and Southeast (SE). This rule did not rigorously apply to the previous system, but was created by CL 62. It should therefore not be considered in the unfreezing. However, the possibility of eliminating this rule that ensures resources for the less developed regions seem unreasonable.

Last, but by no means least, we cannot forget that "freezing" the criteria for 18 years did not go without consequences. There is no doubt that during this period the country underwent what economists call a "convergence" of income levels in which the distance in per capita income levels between the less developed regions

and the S/SE decreased. A number of states presented particularly remarkable progress during this time. The rationale of the original system created in 1965 allowed these changes to be reflected in the revenue sharing. Later on, the Special Reserve for the North and Northeast created though Decree Law nº 11.434/75 established a “lock” that prevented income level convergence to be reflected in the distribution. It allocated 80% of the resources to the states and 20% exclusively and cumulatively to the N and NE. Finally, CL 62 of 1989 modified these parameters and created the 85%-15% rule through which the S and SE remained restricted to receiving 15% of the resources.

Region	SPF	NTC Without Reserves		NTC with Reserves			
				NTC		NTC without tables	
		Result	Loss / Gain	Result	Loss / Gain	Result	Loss / Gain
Midwest	900	898	-2	921	21	919	19
Northwest	822	760	-62	825	4	652	-170
Northeast	550	504	-46	544	-6	594	43
Southwest	811	832	21	794	-17	786	-25
Southeast	836	870	35	841	6	844	9

As such, if the "unfreezing" were to take place according to the original rule, resource distribution would definitively reflect the income convergence and generate significant net revenue gains for the S and SE. In the alternative that most reflects the *status quo*, the regional pre-prorating rule of CL 62/89 (85%-15%) would be maintained. As demonstrated above, this option would preserve the distortions that resulted from the population coefficient tables. This might point to a third unfreezing alternative, the "NTC with an 85%-15% reserve and no tables". The preceding table shows the net result of these simulations aggregated by region.

2.3.2 Equalization systems

In this section we will discuss an important alternative to implement the main redistributive function of the Brazilian Federation: equalization systems. Today these systems are used in the most developed federations of the world to reduce horizontal imbalances in the provision of public services.

We will begin by presenting a synthesis of the essential concepts and mechanisms needed to understand the rest of the paper. This will be followed by a discussion on how to apply this method in revenue redistribution to the Brazilian states and municipalities, including sample simulations of a number of basic alternatives.

2.3.2.1 A brief description of equalization systems

Equalization systems (ES) are procedures that allow central governments in Federations to transfer resources to subnational governments in order to reduce horizontal disparities in spending capacity.

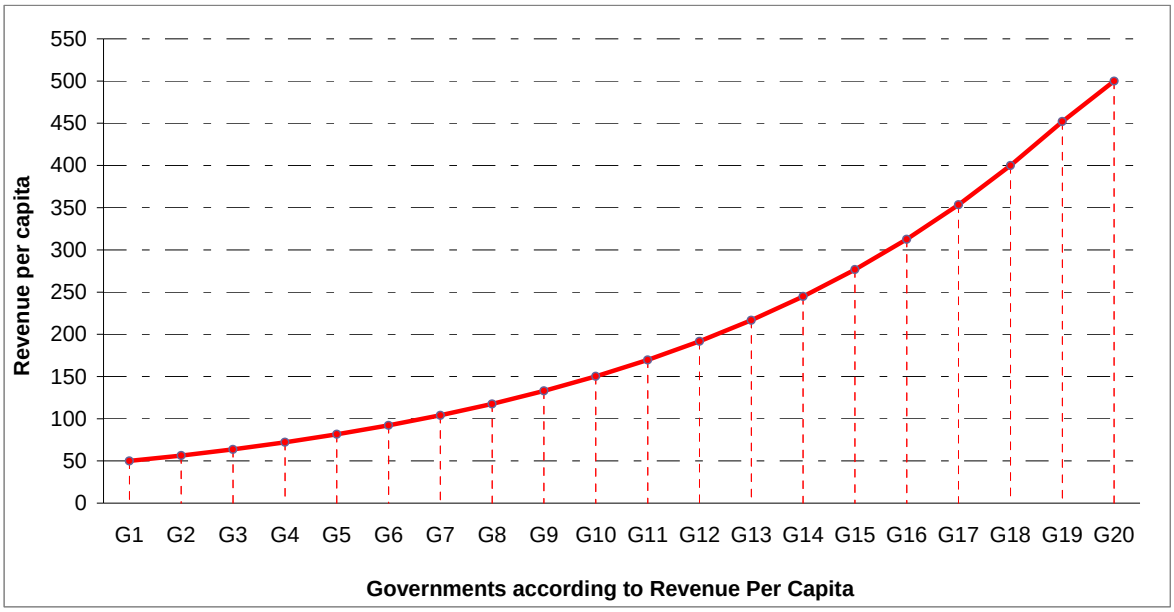
What distinguishes ES from more traditional revenue redistribution systems such as those used in India and Brazil (participation funds) is that instead of using macroeconomic parameters like income, poverty and development levels ES use a direct estimate of recipient government own-source revenues.

The basic procedure used in ES can be summarized as follows:

- The own-source revenues of each government are estimated according to their tax bases and to the tax system in force. This revenue, measured in per capita terms, is a precise indicator of the self-financed spending capacity/expenditure needs of each government and consequently of its pubic service provision capacity.
- The per capita own-source revenues thus obtained are used as a reference to apply a certain calculation criterion that defines the size of the grant to be channeled to each government in order to reduce horizontal imbalances.

A practical way to visualize how this system works is presented in the graph below. Once the own-source revenues have been calculated, the governments are represented in a graph according to the size of their revenue, with the governments to the left being the poorest and those to the right the richest. We can think of these governments as states in a federation. In our example the G1 to G6 governments fall below the R$ 100.00 per capita own-source revenues and the G20 reaches the R$ 500.00. This assessment can be conducted in any federation.

Graph 3.2.1-1 – **Per capita revenue distribution**



In order to build an ES it is necessary to define rules to regulate:

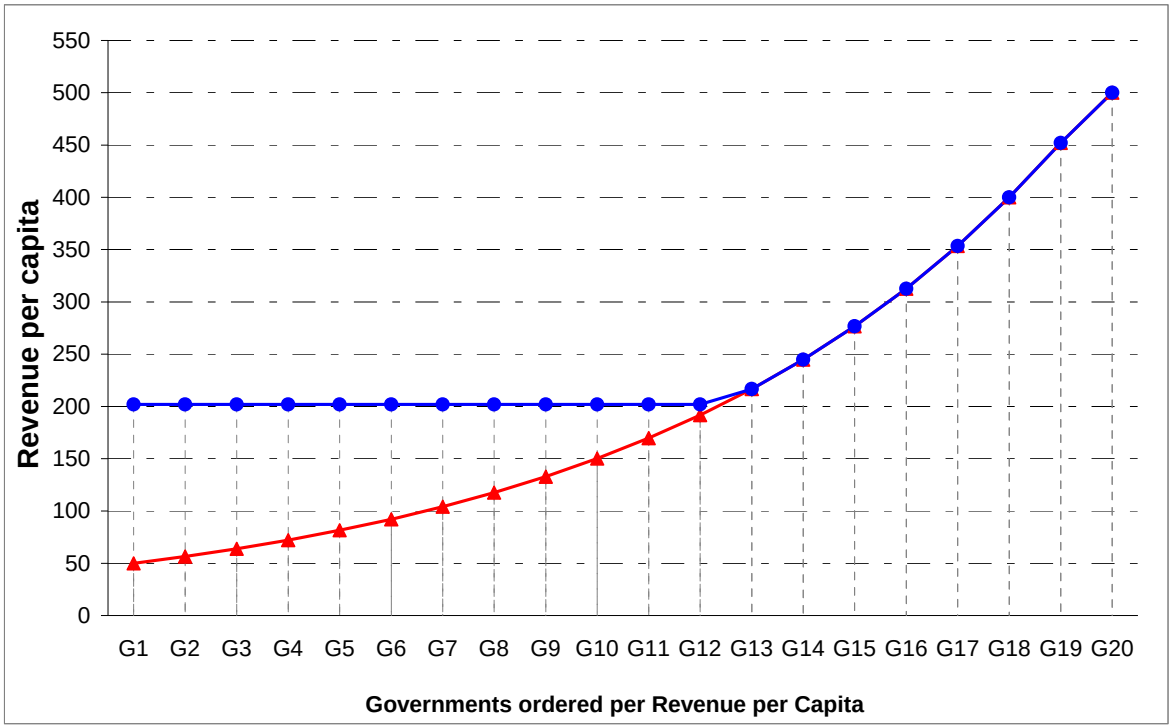
- how the system will be financed;
- the basic equalization criteria; and
- the degree of redistribution applied by the system.

Financing:

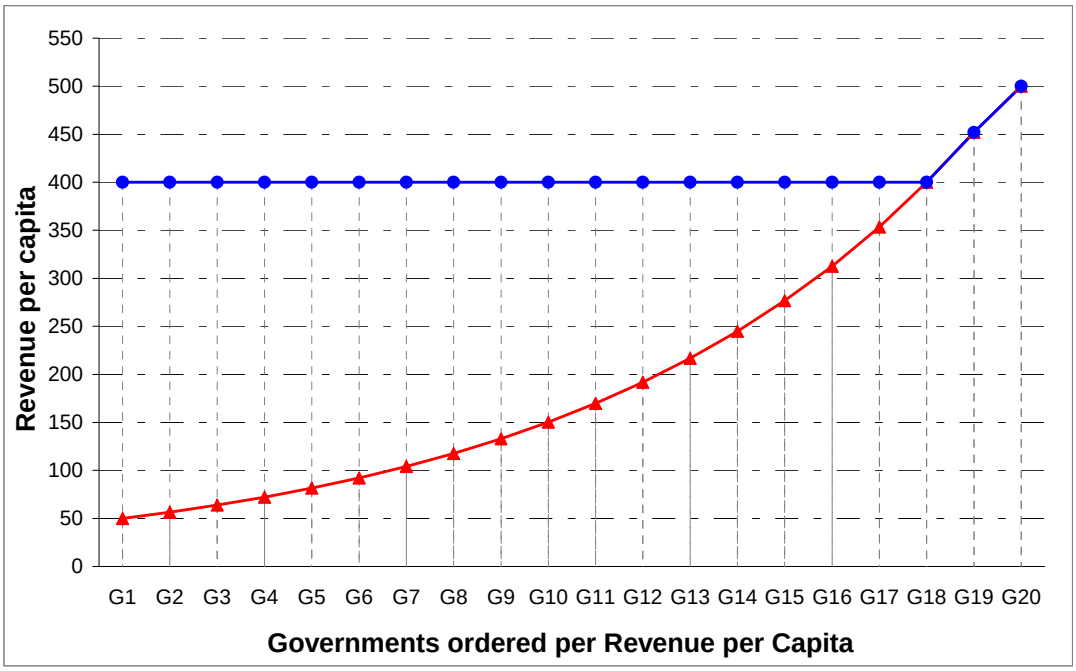
Equalization systems are divided into two categories in terms of how they are financed: *open account systems* and *closed account systems*. In open account systems a certain criterion is applied to own revenues - for example, to raise to the national average spending capacity all governments that fall below that level. The application of this criterion results in a certain amount of resources to be provided from the federal budget. It is considered an open account because the criterion governs, with resource allocation being a subordinated variable. The amount transferred by the FG is not predetermined.

Graph 3.2.1-2 offers an example of the open account system. In this example, we have a hypothetical federation with 20 provinces whose own-source revenues vary from R$ 50.00 to R$ 500.00 per capita. In order to simplify the analysis we set the population of each federated entity at 6,000,000 inhabitants. If the equalization criterion is to raise all entities with a revenue below the national average (R$ 202.00 per capita) to this level, a certain amount of resources will have to be provided by the central government to this extent, in this case approximately R$ 6.85 billion. The blue line indicates the situation following equalization.

Graph 3.2.1-2 – **Open account equalization**



Graph 3.2.1-3 Open account – **equalization**



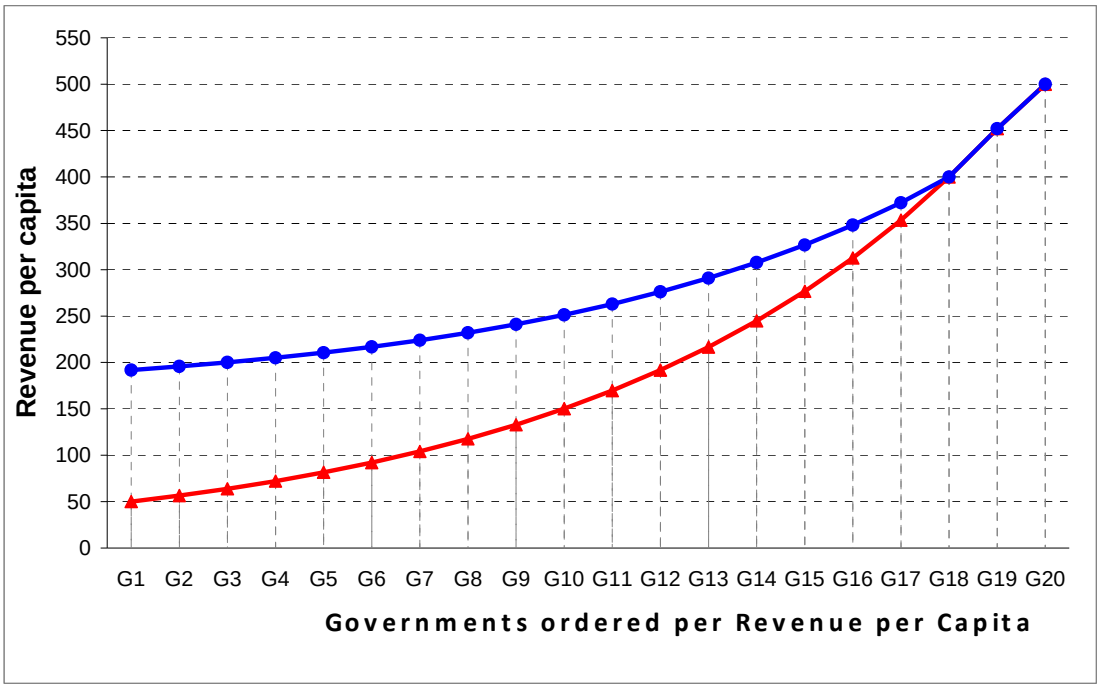
Likewise, if the equalization criterion were the revenue of G18 (R$ 400.00 per capita) we would have the situation shown in Graph 3.2.1-3. In this case, the volume of resources contributed by the central government would be R$ 24.68 billion.

It is important to note that in open account systems the volume of resources to be distributed grows more than proportionally in function of the level of revenue to be achieved. In the previous example, we practically doubled the desired level (from R$ 202.00 to R$ 400.00), while the amount distributed increased more than three and a half times (going from R$ 6.85 billion to R$ 24.68 billion). This characteristic makes the system quite costly, depending on the desired level of revenue and on the horizontal disparities between the grantees.

On the other hand, in this specific aspect *closed account systems* function very similarly to our participation funds: a certain amount of resources is defined in advance - part of federal tax revenue, for example - and then the criterion is applied to the total amount of resources. In this case it is the amount that governs, with the degree of redistribution being the subordinated variable. If there are few resources available the redistributive effect from applying the criterion will be reduced. In the previous example, given the equalization criterion (raise all the states to the revenue of G18) if the amount of resources available is of R$ 10 billion we will have the situation described in Graph 3.2.1-4.

Since the amount of resources available is not enough to raise all states to the level of G18 revenue distribution needs to be proportional to the amount of resources needed to achieve the goal. One can see that although the poorest governments received more resources, the amount distributed was not enough: G1, for example, achieved only R$ 192.00 per capita, while the goal was R$ 400.00. This is due to the fact that the equalization endowment is smaller than necessary. On the other hand, all governments under the G18 level receive some resources in a manner inversely proportional to their initial spending capacity.

Graph 3.2.1-4 Closed account – **equalization**



We can therefore say that in an open account system the level of equalization defines the amount of resources distributed, while in a closed account system the amount of resources defines the level of equalization.

Redistribution criterion

The most extensively used criterion adopted is the one that aims to equalize the per capita spending capacity of the different governments (Canada, Germany). In this case, the system ignores the differences in costs of public service provision and in the distribution of demand for services. Given the enormous difficulty involved in estimating these costs and demands these systems build on the assumption that it is not enough to equalize the amount of resources per capita distributed to each government.

A more sophisticated alternative requires a careful assessment of the differences in costs and demands for public services across the regions, thus allowing equalization entitlements to be weighted accordingly. In the world of contemporary federations only Australia has a system of this type in place.

Because of the quasi insurmountable difficulties in applying the first criterion in the current Brazilian situation, only the first criterion was considered in this study. For a detailed study of the application of alternative criteria, see PRADO (2006).

Degree of redistribution

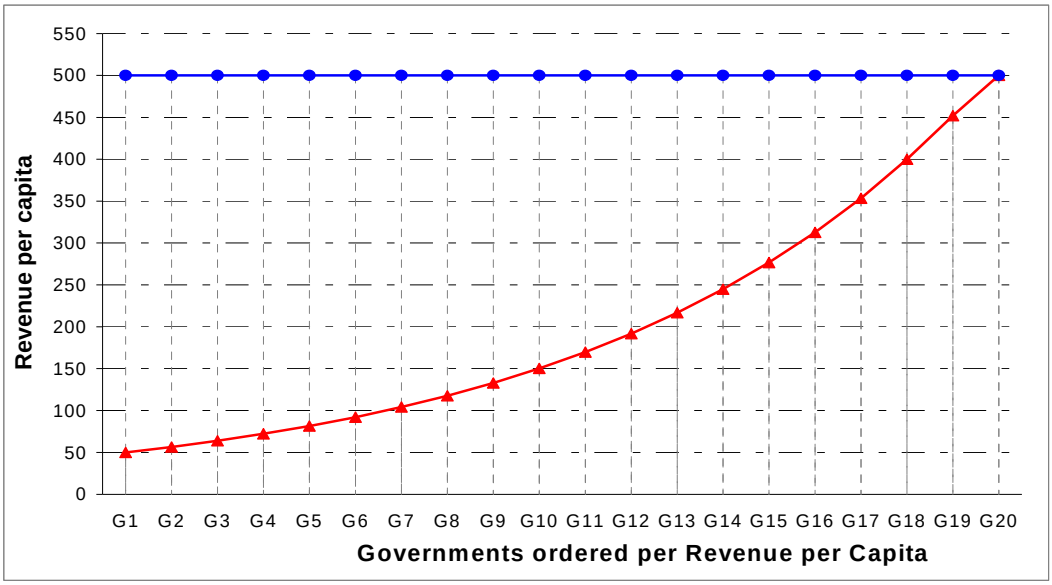
Selection of the degree of redistribution to be adopted in the ES is exemplified in the graphs below, which build upon the previous graphs. One can say that the degree of redistribution is the level of equalization achieved by the system. As such, the more a system is able to equalize the per capita revenue of the federated entities, the more redistributive it will be. This choice involves deciding whether only the poorest will be entitled to a grant, in an effort to raise their level as

much as possible, or whether distribution will be as equal as possible between the governments so that even the richest receive something. Note, for example, that in the Brazilian system even the richest state of the federation is entitled to grants of the SPF, albeit small ones. Likewise, in the MPF even the richest municipalities are contemplated).

In an open account system, selection of the degree of redistribution consists in defining the per capita revenue level to which the governments with a lower revenue level have to be raised. The previous examples show that the system in Graph 3.2.1-3 has a greater redistribution capacity than that in Graph 3.2.1-2, since in the former the distance between the entities and the richest entity is smaller. In this case the greatest redistribution would be achieved by adopting the revenue of the richest entity as the desired standard.

Graph 3.2.1-5 shows the maximum redistributivity achieved in an open account system; that is, all the federated entities would be upgraded to the revenue level of the richest one(R$ 500.00). As can be seen, the amount of resources increases significantly in function of the desired level of revenue: in this case, the demand for resources would be to the order of R$ 35.77 billion.

Graph 3.2.1-5 –**Equalization with maximum redistribution, open account**

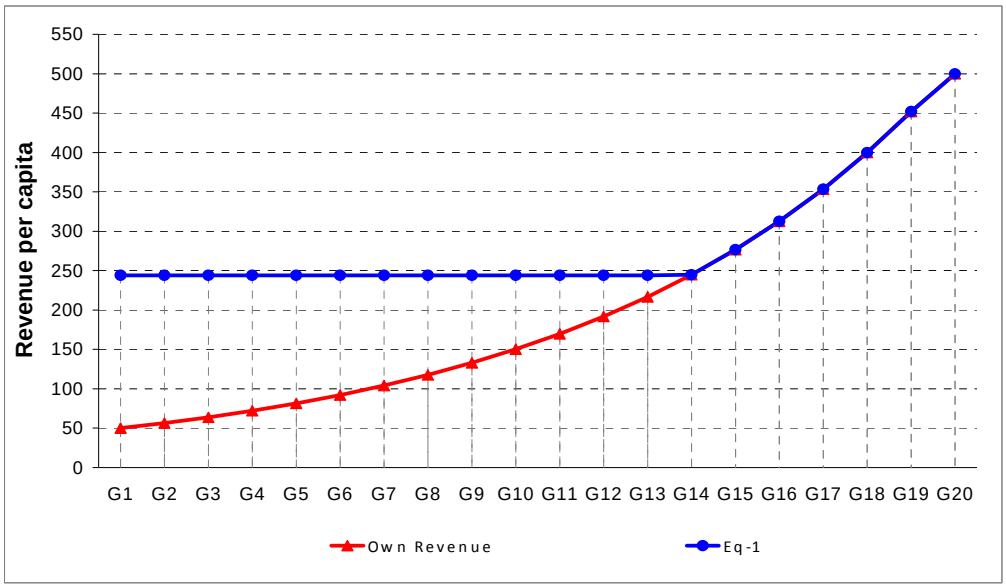


On the other hand, in closed account systems resource allocation is the predominant factor and the level of equalization that can be achieved is the subordinated variable. Given a certain volume of resources a possible choice would be between maximum redistribution, which brings great benefits, but to a few governments only, and less redistributive options, where a greater number of governments benefit from the distribution. This alternative presents the greatest redistribution because only the poorest governments are entitled to grants, with a view to their full equalization. Starting at a certain level of revenue, the richest governments receive no equalization payments. In Graph 3.2.1-6, the blue line (Eq-1) exemplifies the most redistributive equalization for an R$ 10 billion grant.

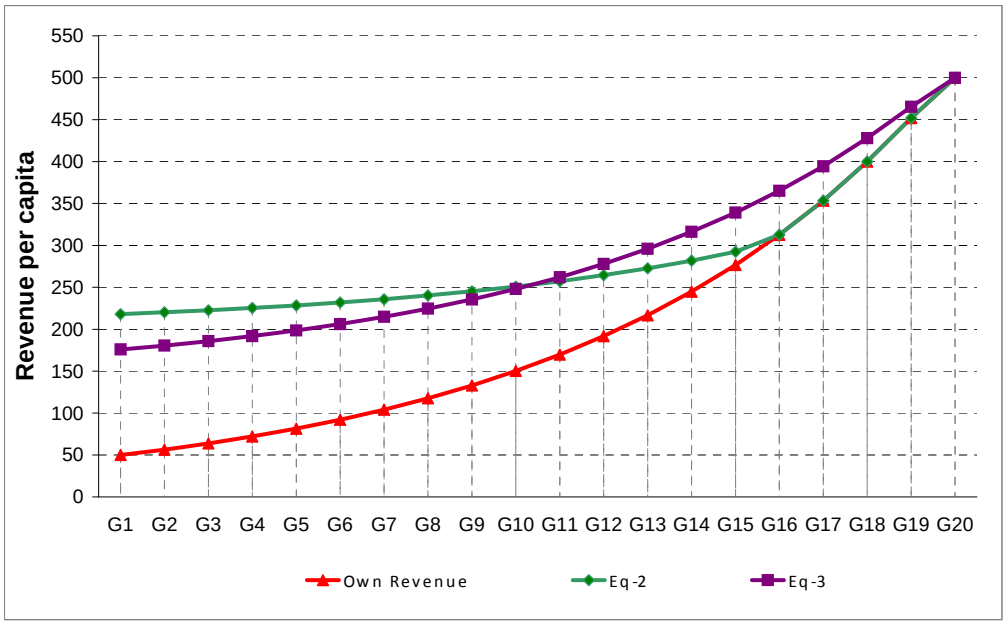
It is nonetheless possible for the resources to be shared between more governments, thus reducing the degree of redistribution. This situation is of particular interest in the case of the closed account systems. This is exemplified in graph 3.2.1-7 by the green (Eq-2) and purple (Eq-3) lines, which describe two additional alternatives.

Given a pre-determined amount of resources (in this case of R$ 10 billion), alternative 2 includes governments G14 and G15 which were previously not entitled to grants, while alternative 3 includes all governments except the richest (G20). To the extent that the richest governments gain access to the resources, the resources allocated to the poorest evidently decrease, since the total amount is defined in advance. This is essentially a political choice.

Graph 3.2.1-6 –**Equalization with maximum redistribution, closed account**



Graph 3.2.1-7 –**Different levels of redistribution, closed account**



2.3.2.2 A few operational issues of equalization systems

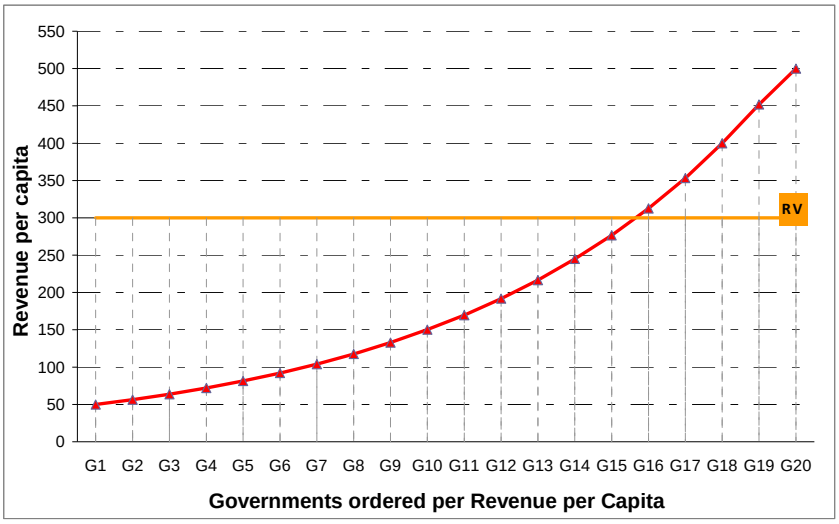
The basic functioning of the system was presented in the previous section. A number of specific technical aspects related to the definitions of values and parameters for the system also need to be considered.

1) The *reference value* concept

A certain level of per capita revenue adopted as a reference for revenue distribution is referred to as *reference value* (RV). In the most redistributive example presented above (Graph 3.2.1-6), the RV is R$ 244. In the less redistributive examples, the RVs are R$ 300 and R$ 500, respectively, for the alternatives Eq-2 and Eq-3 (Graph 3.2.1-7). As such, the RV is the per capita revenue that separates two groups of governments: all governments below this level are entitled to equalization payments; above it, none of them is. If the RV selected is the per capita revenue of the richest government, all governments except for this one will receive resources (Graph 3.2.1-7 Eq-3), and the degree of redistribution will be smaller. Clearly, it is the choice of RV that determines the degree of redistribution of the system. Graphically, the RV is presented as a line that indicates the level of per capita revenue desired for the system (Graph 3.2.2-1).

The division between the governments that will receive equalization grants and those that will not is evident: in Graph 3.2.2-1 governments G1 to G15 will benefit proportionally to the distance between their own-source revenues and the RV. If there are enough resources available, all the governments with revenue below the RV will be elevated to this level; if not, various distributions are obtained as exemplified in Graph 3.2.1-7.

Graph 3.2.2-1 – **Reference value**



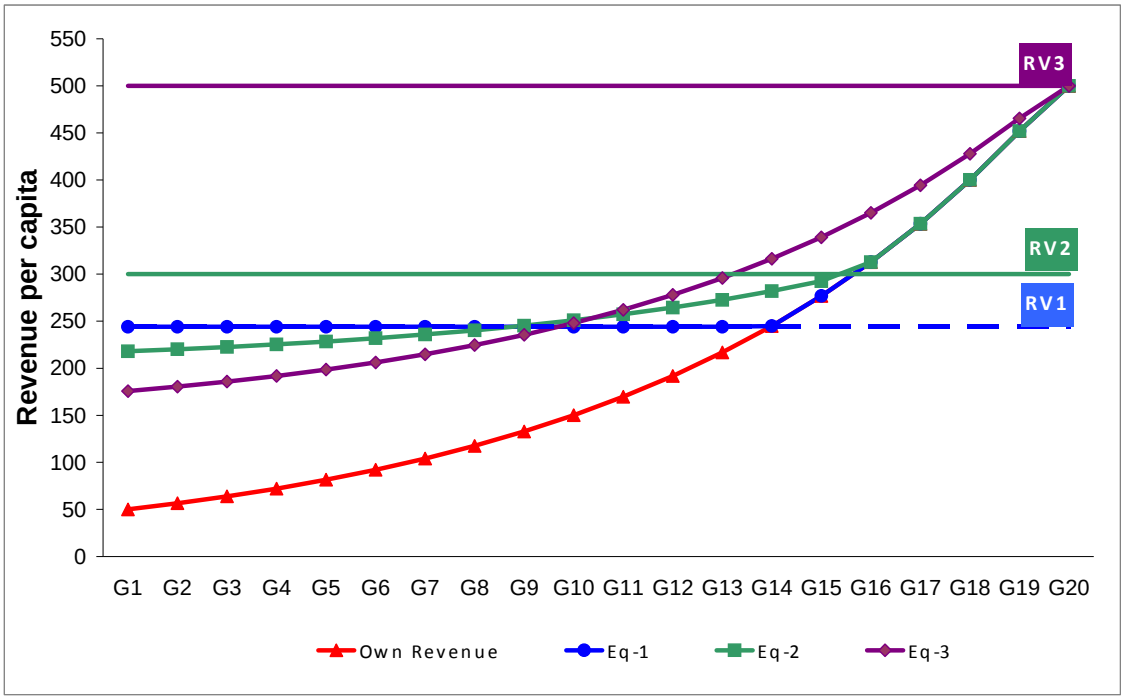
By applying the RV concept to Graphs 3.2.1-6 and 3.2.1-7 we would obtain the situation represented in Graph 3.2.2-2. It should be noted that as the RV increases, the richest governments benefit to the detriment of the poorest, since in this case the total pool of resources is set in advance (closed account). As shown above, the maximum redistribution is achieved when an optimum level of revenue is

established in which the total pool of resources available is high enough to elevate all governments to this level. In the example above, the maximum redistribution is achieved with RV1 (R$ 244). This value is defined as the *maximum efficiency RV*. However, this is the RV that excludes the most governments from the equalization system; the political decision is therefore a *trade off* between the desired redistribution and the number of beneficiaries of the system.

The maximum efficiency RV can also be defined as the *minimum RV* of a closed account system. In the previous example, it makes no sense to speak of an RV below RV1 (maximum efficiency). This would mean having resources left over, which is inconceivable in the rationale of the system.

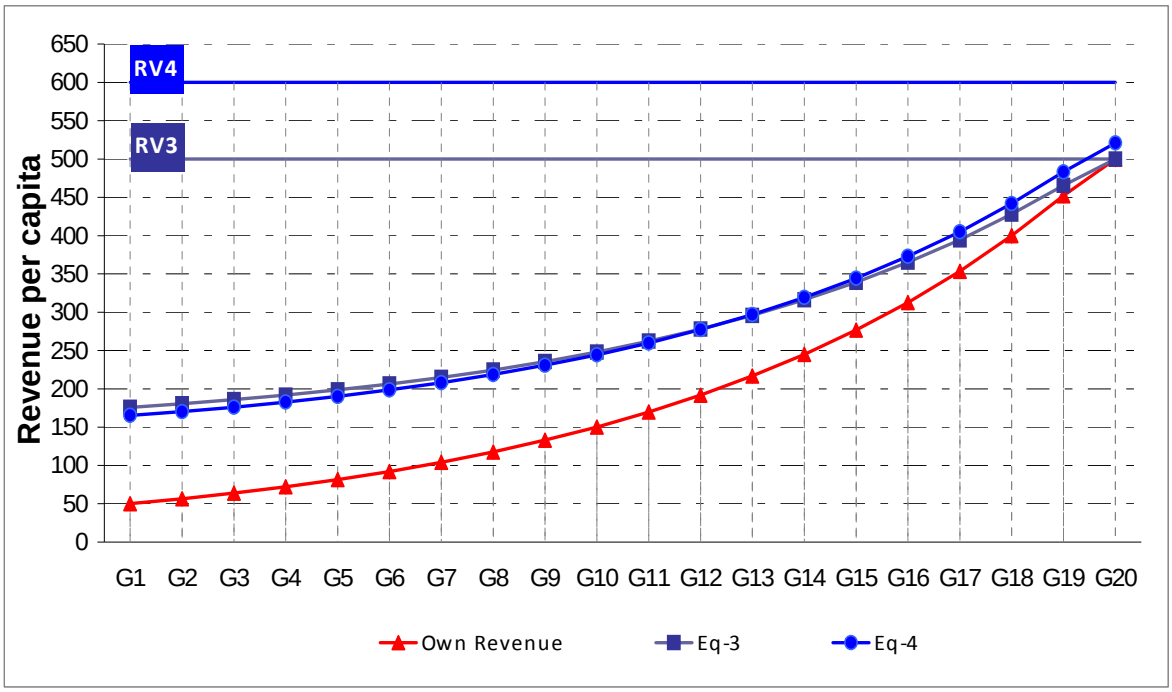
On the other hand, there is no upper limit for the RV. Until now, the greatest RV presented was the equivalent of the amount of revenue of the richest government (RV3 in Graph 3.2.2-2). However, there is no reason for the RV not to be higher, allowing all the federated entities to receive resources through the system. Graph 3.2.2-3 exemplifies this situation.

Graph 3.2.2-2 – **Hypothetical case with 3 RVs**



Graph 3.2.2-3 shows that by applying RV3 the system excludes the richest government, while with RV4 (R$ 600.00), all governments are included. The price of this inclusion is an even greater reduction in redistribution, and consequently a less efficient system.

Graph 3.2.2-3 – **RV above of the revenue of the richest government**



2) Actual versus potential revenue

The efficient use of equalization systems involves significant technical difficulty. To work neutrally and efficiently the system cannot use the own revenue of governments, produced by their own tax efforts, as a calculation basis. It is necessary to use some form of potential revenue assessment, that is, the revenue that the government could obtain through an average level of tax effort and average tax rates, given its tax base and the rules in force in the tax system. The potential revenue of a government will be greater than its effective revenue if its fiscal administration is inefficient or if it reduces its tax rates in relation to the average tax rates practiced in the country and vice-versa. The basic reason for using the potential rather than the actual revenue is that in the latter case the system would benefit those governments or states that reduce their fiscal pressure (through lower tax rates, abatements or lax enforcement), since they would receive the greatest transfers.

The fundamental merit of potential revenue, from the point of view of equalization systems is that it does not depend on the fiscal policy practiced by the government at hand. If it decides to reduce its actual tax rates, this will not affect its position in the equalization system, which is based on average rates. The same applies to tax abatements. Likewise, if a society of a jurisdiction chooses to pay more taxes than the national average, this will not reduce its equalization payments.

The great difficulty lies in determining average fiscal capacity in such a complex and dynamic economic world. It is not a simple task, but a few alternatives exist: the first is to work with a set of statistical data to measure the tax base of the jurisdiction and then apply an average tax rate to obtain its fiscal capacity. A second option is to obtain the potential revenue from the actual revenue or revenue actually

collected in each federated entity, through complex econometric methods. Both alternatives are feasible if there is a certain degree of harmonization in the fiscal system of the federation at hand. However, both will certainly involve complex and sophisticated procedures that are not always viable in countries with less developed government systems.

In the case of Brazil, the low level of harmonization within the tax system is evident, particularly concerning taxes on consumption: the federal and subnational governments compete for the same tax base and several different and complex tax laws exist. Today finding the potential revenue of the federated entities in Brazil poses tremendous difficulties, not just because of the reasons presented above, but also because of national fiscal competition. This is the result of fiscal benefits granted on a unilateral basis that generate perverse effects on interstate operations in a mixed tax system (part in the origin part in the destination).

In this context, the discussion of an equalization system for Brazil needs to be guided by the search for alternatives to avoid these difficulties while preserving some of the benefits provided by equalization. The answer lies in using actual revenue in the Brazilian equalization system. There is no a perfect solution, but the negative incentives may be significantly reduced by introducing a variable based on tax effort for each federated entity. Since in Brazil calculating potential revenue is tremendously difficult and using actual revenue alone may represent an even greater problem, why not use actual revenue and set aside part of the equalization fund to encourage better tax efforts? The idea is simple: if using actual revenue discourages tax collection, then why not encourage it by distributing part of the resources according to tax effort performance. The use of actual revenue (tax effort) also has the advantage of being easy to measure and inspect. It is furthermore consistent data that is known by all the federated entities and is already used in fiscal adjustment programs between the Union and almost all the states of the Federation.

The discussion on how to distribute resources to improve the tax effort will be addressed in greater depth by the Fiscal Forum of the Brazilian States. However, a few proposals have already been presented, among them the following two. The first consists in obtaining fiscal effort data for every federated entity and comparing the results obtained in a given fiscal period with the average collection for a period of at least five years. Another choice is to work on the same criterion presented above, but to include a GDP variation factor. The important thing is to find a leer and concerted way to encourage fiscal effort that does not involve great calculation and measurement problems.

3) Extension of the base revenue upon which calculations are made

Another important issue is the need to define precisely the estimated revenue (actual or potential) that will be used as a reference for equalization. The apparently obvious answer would be to consider the total own revenues of the governments plus the total other transfers received by them, since this is what determines their spending capacity. Nonetheless, one should consider that subnational governments in federations like Brazil receive conditional transfers that cannot be freely disposed of in their budgets, but that can be distributed in what can be said to be an equalizing manner. In Brazil, this is surely the case of the Fundeb and, in principle,

of the SUS transfers.[15] In this sense, it may be reasonable to exclude these revenues from the general equalization pool, since they are already distributed according to a criterion that is in itself equalizing in the sense that it was designed to meet the specific needs of a jurisdiction in that sector.

An essential point here is that certain revenues do not represent an overall increase in a government's spending capacity in the sense that they are earmarked for specific expenditures and are not freely disposable within their budgets. For example, if a government receives a greater grant for the SUS because it houses a regional hospital and offers healthcare to citizens of other areas, including this revenue in the base revenue will reduce the unconditional grants it receives to deliver other services, which is not a good idea.

As such, the methodology used to obtain the base revenue for equalization consists in the sum of all revenues collected directly plus unconditional transfers minus the mandatory deductions of both. We have therefore excluded conditional transfers from the base revenue used to calculate equalization entitlements.

Table 4.3-A

METHODOLOGY USED TO CALCULATE THE BASE REVENUE	
(+)	Own-source revenue
(-)	Mandatory deductions of the revenue collected
(=)	Net own-source revenue
(+)	Unconditional grants
(-)	Mandatory deductions of the transfers
(=)	Base revenue for equalization

2.3.2.3 Use of equalization in modern federations

Three of the most important and advanced federations in the world use equalization systems in their vertical transfers: Germany, Australia and Canada. In these three countries transfers for equalization purposes represent the majority of vertical transfers. The equalization models of the three countries have distinct characteristics that result from the historical development of the systems and of the objectives associated to them.

The model with the lowest level of complexity is the Canadian one. Because it does not account for differences in costs and demand for services, it is a typical per capita spending capacity equalization model. The system measures the

[15] If the Fundeb can certainly be considered a sectoral equalizing system, the same cannot as easily be said of the SUS. The lack of transparency in the criteria used to distribute resources for the SUS makes it difficult to adequately characterize the program. In what this paper is concerned, however, the fact remains that it is a sectoral transfer conditioned by specific sectoral criteria. If this is the case, it should be reviewed and reformulated as such, according to sectoral criteria, and its resources should not be included or "mixed" with the resources that feed the unconditional budgets of SNG.

potential revenue of each of the provinces using a *Reference Tax System (RTS)* that includes all the taxes levied by the provinces and considers a tax rate that corresponds to the national average for each tax. This RTS is used to estimate the *potential revenue* of each province based on the tax documents provided by the tax payers themselves. Once this is done, the data of a certain number of provinces considered representative are used to obtain average per capita revenue that is taken to be the average national revenue for equalization purposes. The procedure applied next is simple: all provinces with per capita potential revenue below this average are entitled to grants from the federal governments to achieve the average. Provinces with above average revenue receive nothing. Note that this system corresponds to what we previously referred to as an "open account" system: the amount transferred by the federal government is a function of the criterion and therefore variable. In general this amount remains at around 1% of the country's GDP. The resources thus transferred are totally unconditional and can be allocated by the provinces in their budgets without restrictions.

In Canada the redistributive function is complemented by another system called the Canadian Health and Social Transfer (CHST) which targets transfers to expenditures in basic social areas. Transfers are made on a simple per capita basis. For certain provinces the FG discounts the amount corresponding to the Income Tax revenue that was "given over" (tax transfers) to these provinces.[16] These grants are mostly much larger than equalization transfers. The redistributive function in Canada therefore combines an equalization system that delivers unconditional resources with a broad social program that delivers resources per capita.

The German equalization system is quite unique and peculiar. Many of its characteristics result from the fact that the main taxes of the country, such as income and value-added, are uniform national taxes, since the states (*landers*) do not have autonomy to define tax bases or rates. Curiously enough, the states are responsible for levying the Value Added Tax despite having no power whatsoever to change its legislation. The own taxes of the states generate relatively few revenue, so that federated finances basically depend on the Income Tax and VAT revenues shared by the federal government, states and municipalities.

Income Tax (personal and corporate) is distributed among the three levels of government according to constitutionally determined fixed percentages. This distribution obeys the principle of derivation; revenues are distributed in proportion to the tax base. This forms the vertical distribution base and these percentages are very rarely altered. As to the VAT revenue, it is distributed according to criteria defined in ordinary law and is used to "fine-tune" vertical distribution.

The German system can be broadly summarized as follows:

[16] In Canada income tax is levied both by the FG and by the provinces. In the 1970s, an agreement made it possible for certain provinces to increase their tax rates while the FG decreased its tax rate proportionally, in a neutral manner for the taxpayer. This procedure is called a *tax transfer*. The FG has always considered the resources given over to the provinces a concession and therefore addresses them as transfers. As such, the updated amount of resources is deducted from social transfers.

1. The resources of the state portion of the Income Tax (revenue sharing) are added to the own-source revenues obtained by the states (including their municipalities), thus providing the initial own revenue of each government. This revenue presents strong disparities in spending capacity;

2. The state portion of the VAT revenue is distributed between the states, with ¾ on a per capita basis and ¼ to benefit a number of particularly poor states. These resources are added to those indicated in step 1, always on a per capita basis, generating a new configuration for the revenue. The system relies on the hypothesis that distribution of the Income Tax and VAT revenues will basically achieve vertical adjustment, that is, the distribution of resources between the FG and the states.

3. Even if step 2 achieves vertical balance, strong horizontal disparities remain in which some states are much richer than others. Here enters a procedure that exists only in the German federation: horizontal transfers between states. Through a complex mechanism states with per capita revenues above the national average give up their resources to those below them so that all of them reach at least 95.5% of the national average. Note that this procedure is different from the one applied in Canada in that in the latter the situation of the poorest improves without affecting that of the richest. In Germany the wealthy pass on resources to the poor and this drastically reduces disparities. This stage results in a new configuration of revenues that are already highly equalized.

4. The last step involves the transfer of the federal parcel of the VAT revenues. This distribution takes as a reference the configuration generated by step 3 and aims to bring all the states that are below the average to up to 99.5% of this average. It is an "open account" type procedure; the federal government uses as much of its part of the VAT as necessary to obtain the desired result.

A number of points of this model deserve special attention. First, unlike the Canadian model it is not based on potential revenue, but on actual revenue. This is basically possible because all the main revenues involved come from national taxes and are not significantly affected by the tax effort. Second, the system is highly peculiar because it forces horizontal transfers from the richest states to the poorest, which results in a much higher degree of equalization. Finally, the national VAT plays a very important role in this system. The revenue obtained through this tax accounts for the entire redistributive function of the transfers. First through the initial distribution of the state parcel and then through the complementary distribution of the federal parcel.

A doubtless notable feat of the system is that it remained practically unaltered after the unification of Germany, which drastically accentuated disparities between the states and led to an extremely high fiscal pressure on the richest states.

Australia, on the other hand, operates an equalization system which is in a certain way the most sophisticated in the world. In that country equalization does not only take into account the per capita revenue, but also public service provision and differences in demand for basic services. Because it includes a complete assessment of the provincial budgets - both from the point of view of expenditure

requirements and fiscal capacity - the Australian system is the most complex and sophisticated in the world.

Another unique characteristic of Australia is that unlike in Canada and Germany, the system in place is a "closed account" system. There is a pre-determined pool of resources available for equalization which is the total federal VAT revenue. All and only the VAT revenues are delivered to the states according to percentile distribution coefficients that are the result of complex calculations to obtain the potential revenue of each province and to estimate differences in demand for services and cost of services. In sum, the calculation system produces a per capita revenue distribution, but weighted by differences in own spending capacity (potential revenue) and by the different levels of demand for services and cost of services.

A number of final observations on these models will be useful to consider in the Brazilian case. First, it is important to note that the technical, administrative and political requirements to operate these systems efficiently are very high. It is no coincidence that these systems are applied in three advanced capitalist economies. In all of them the equalization systems in place are the result of a long evolution that took place in the second half of the 20th century. In addition, equalization according to per capita spending capacity - Germany and Canada - supposes reasonably homogeneous demand for services and cost of services between states and municipalities. Equalization according to fiscal needs, taking into account differences in costs and demands, may be more appropriate in very heterogeneous situations. This is why the Australian model evolved towards the needs criterion. On the other hand, applying the fiscal needs criterion is highly complex and requires sophisticated statistical information systems as well as a high degree of political ability to negotiate the criteria.

2.4 **Applying equalization in Brazil – simulations**

In this section we will present the results of different simulations of possible equalization alternatives to allocate resources to the Brazilian states and municipalities. In principle they all build on the hypothesis that the current participation funds would be replaced by legally or constitutionally mandated equalization systems. These would distribute totally unconditional grants to the subnational governments so as to equalize the autonomous spending capacity of these governments. As a consequence, inflows previously referred to as national programs formed by conditional transfers will not be analyzed here.

2.4.1 *Equalization fund for the Brazilian states*

We will now analyze the results obtained by simulating an equalization fund to substitute the current SPF. This simulation refers to the year 2005. The financial data can be found in the consolidated balances of the Brazilian Federal Treasury and in the IBGE population estimates.

The following parameters were defined for the simulation:

- a closed account system in which the amount distributed is exactly equal to the SPF revenue pool for that year;
- actual revenue used to calculate the base revenue;
- part of the fund is distributed to encourage the tax effort;
- three reference values. In scenario 1 the minimum RV that maximizes the results of the system is calculated through an iterative process. In scenario 2 the RV was assigned an intermediate value of R$ 800 which was randomly selected between the maximum efficiency RV and the RV equal to the greatest base revenue of the system. In scenario 3 the RV is equal to the greatest base revenue of the system.

Once the parameters for the simulation were set, the base revenue for the equalization of each state and of the Federal District was calculated. The information for this simulation was obtained from the consolidated state balances of the National Treasury Secretariat. The values were obtained according to Table 4.1.1.

Table 4.1.1

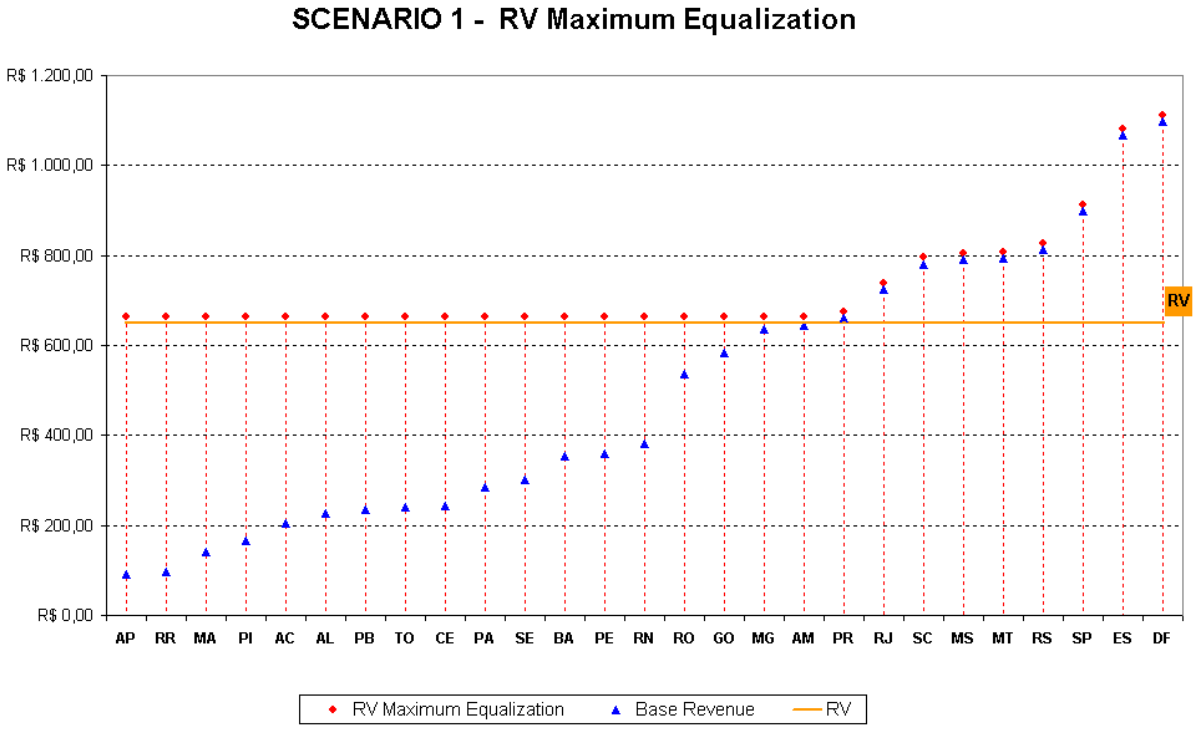
SPECIFICATION OF BASE REVENUE FOR EQUALIZATION PURPOSES		
	Description	
OWN-SOURCE REVENUE		
1.1.12.04.31	Income Tax withheld at source from wages– IRRF	(+)
1.1.12.05.00	Tax on Automotive Vehicles – IPVA	(+)
1.1.12.07.00	Tax on Property Transmission Causa Mortis and donations ……– ITCD	(+)
1.1.13.02.00	Tax on the Circulation of Merchandise and Interstate and Intermunicipal Transportation Services and Communications – ICMS	(+)
1.1.21.00.00	Fees charged for law enforcement	(+)
1.1.22.00.00	User fees	(+)
1.1.30.00.00	Contributions for improvements	(+)
1.7.21.01.12	Share of Tax on Industrialized Products - industrialized products exporting states	(+)
1.7.21.09.01	Financial transfer of the ICMS - exemption - CL nº 87/96	(+)
DEDUCTIONS		
9.1.13.02.00	ICMS revenue deduction to establish the Fundef	(-)
9.7.21.01.01	Revenue deduction to establish the Fundef– SPF	(-)
9.7.21.01.12	Revenue deduction to establish the Fundef– IPI-Export	(-)
9.7.21.09.01	Deduction of revenue to set-up the Fundef– ICMS-exemption CL nº87/86	(-)
BASE REVENUE FOR EQUALIZATION (Own-source– deductions)		

Once the base values are obtained, the reference values for each scenario are calculated. This analysis aims to compare the current spending capacity with spending capacity after possible unfreezing and under an equalization system. As

such, the reference value for scenario 1 will be defined based on an iterative process where the reference value is gradually increased until the amount of resources available to feed the system is exactly equal to the revenue needs. The purpose is to raise all federated entities to the national equalization target (RV). This scenario will provide the maximum equalization. In other words: the RV is successively increased until the total revenue pool is depleted.

In this simulation, 10% of the equalization fund revenues will be distributed so as to encourage the tax effort. Since we do not yet have a consistent and sufficiently analyzed and debated criterion to measure fiscal effort, in our simulation we have chosen to distribute these revenues neutrally so as not to influence equalization results: these 10% were distributed on a simple per capita basis. This is justified because no matter what criterion is defined, it will be weighted by the population so that if two states have the same fiscal yield they will receive the same per capita grant. As such, regardless of the criterion adopted, in order for the distribution to be neutral it will be necessary to consider a same level of tax effort for all the states. This will produce a revenue distribution in which all states receive the same amount per capita.

It is important to note that in order for the proposed system to work using actual revenue it is essential to even out the measure's perverse incentive by offering positive incentives for tax effort, so that reducing the actual revenue does not lead to financial gains from the equalization system. To this extent we must determine how to measure tax effort before establishing a rule to distribute tax revenues.



Continuing the simulation, resources are distributed to all federated entities whose base revenue fall below the national equalization target (RV). In the first

scenario eight states and the Federal District were left out of the equalization system for having base revenues above the RV: Paraná, Rio de Janeiro, Santa Catarina, Mato Grosso do Sul, Mato Grosso, Rio Grande do Sul, São Paulo and Espírito Santo. The other participant states will receive equalization payments in proportion to the amount needed to achieve the RV. That is, the federated entity with the lowest base revenue will receive the greatest amount of resources. From the point of view of per capita spending capacity, the results of the simulation are expressive. Let us then analyze its results.

In the graph above we can see the effect of the equalization fund, which benefits all federated entities below the RV. In this scenario the amount of resources needed to achieve this result is exactly equal to the amount of resources available. In this sense, the fund has a strong equalizing power.

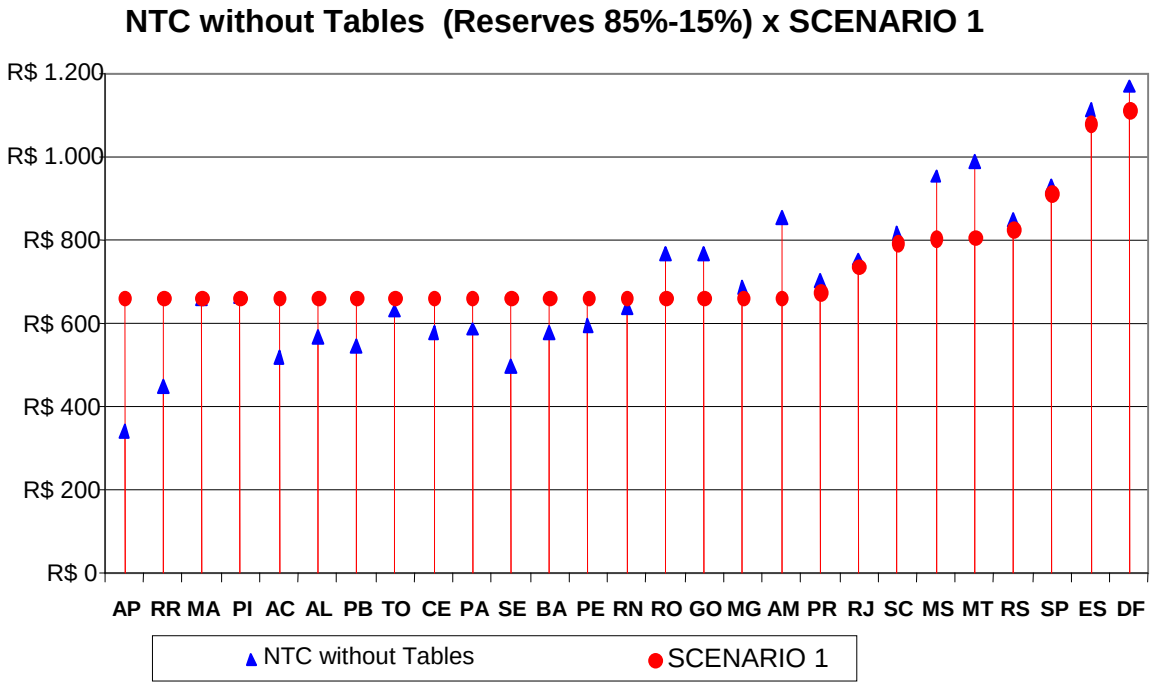
Note that the current SPF distorts the per capita revenue distribution by not respecting the real spending capacity of each federated entity. Equalization funds, on the other hand, distribute resources according to exactly that criterion. As such, the coefficient of variation is calculated through relative mean deviation, demonstrating that the extensive differences in spending capacity between the Brazilian federated entities decrease radically when we simulate the existence of an equalization fund.

	Base Revenue	SPF	NTC	NTC (without tables)	Scenario 1
Avarage	**495**	**875**	**864**	**711**	**729**
Standard Deviation	**297**	**346**	**374**	**195**	**124**
Coefficient of Variation	**60,12%**	**39,58%**	**43,28%**	**27,41%**	**16,95%**

As shown in the table, the coefficient of variation of the base revenue to be equalized, which represents spending capacity before the current SPF or of the equalization fund, is of 60.12%. In other words, we are faced with an absurd imbalance comparable only to the country's unequal distribution of wealth, where a very small part of the population accumulates most of the wealth generated.

With the SPF currently in place the coefficient falls to 39.58%, but still continues very high when compared to the 16.95% of the equalization fund. Nor are the results of the unfreezing satisfactory when compared to the equalization system. Even the unfrozen version without the tables presents higher results than the equalization system.

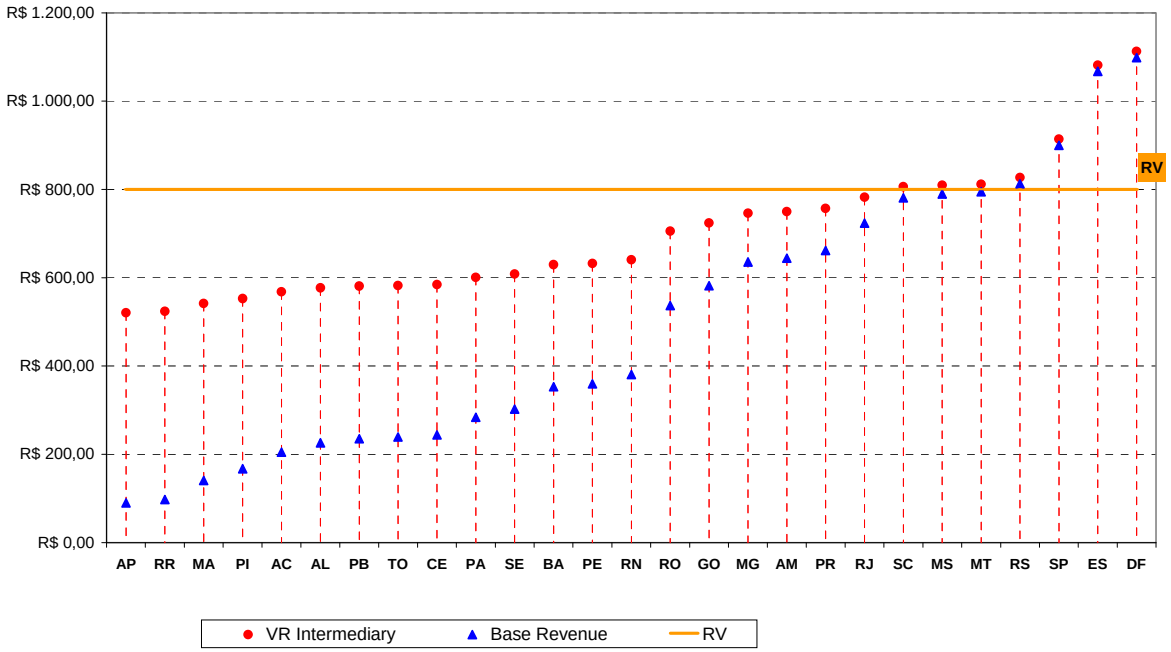
In order to visualize the results, the next graph shows the differences in horizontal distribution of spending capacity in the two best results achieved: unfreezing pursuant to the NTC without the tables (see section 1.1) and the equalization system (scenario 1).



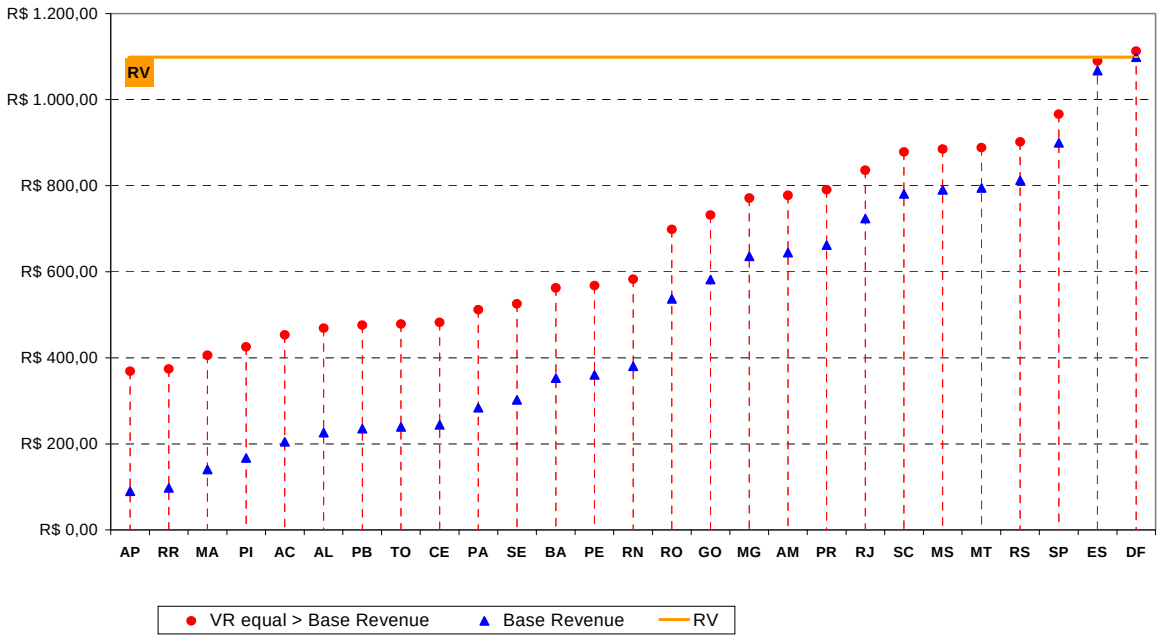
Scenario 1 shows the results of an equalization system in which the RV produced the best results in terms of horizontal balance. However, this efficiency comes at a cost: since the resource pool available for the system is limited, the maximum efficiency RV may be very low in certain cases. This would exclude many states from receiving equalization payments (in scenario 1 eight states and the Federal District were excluded). Therefore, it may be better to raise the RV a little to include more states in the distribution, even if this means obtaining less expressive results for the poorest states. We thus prepared two more simulations: scenario 2, with a RV slightly above the maximum efficiency RV, and scenario 3, where the RV is equal to the greatest base revenue of the system, that of the Federal District.

Scenario 2 shows that the resources distributed were unable to elevate all the states to the RV, which is why the results are no better than those of scenario 1 in what horizontal balance is concerned. However, in this case only three states (Espírito Santo, Rio Grande do Sul and São Paulo) and the Federal District were left out of the distribution.

SCENARIO 2 - RV Intermediary



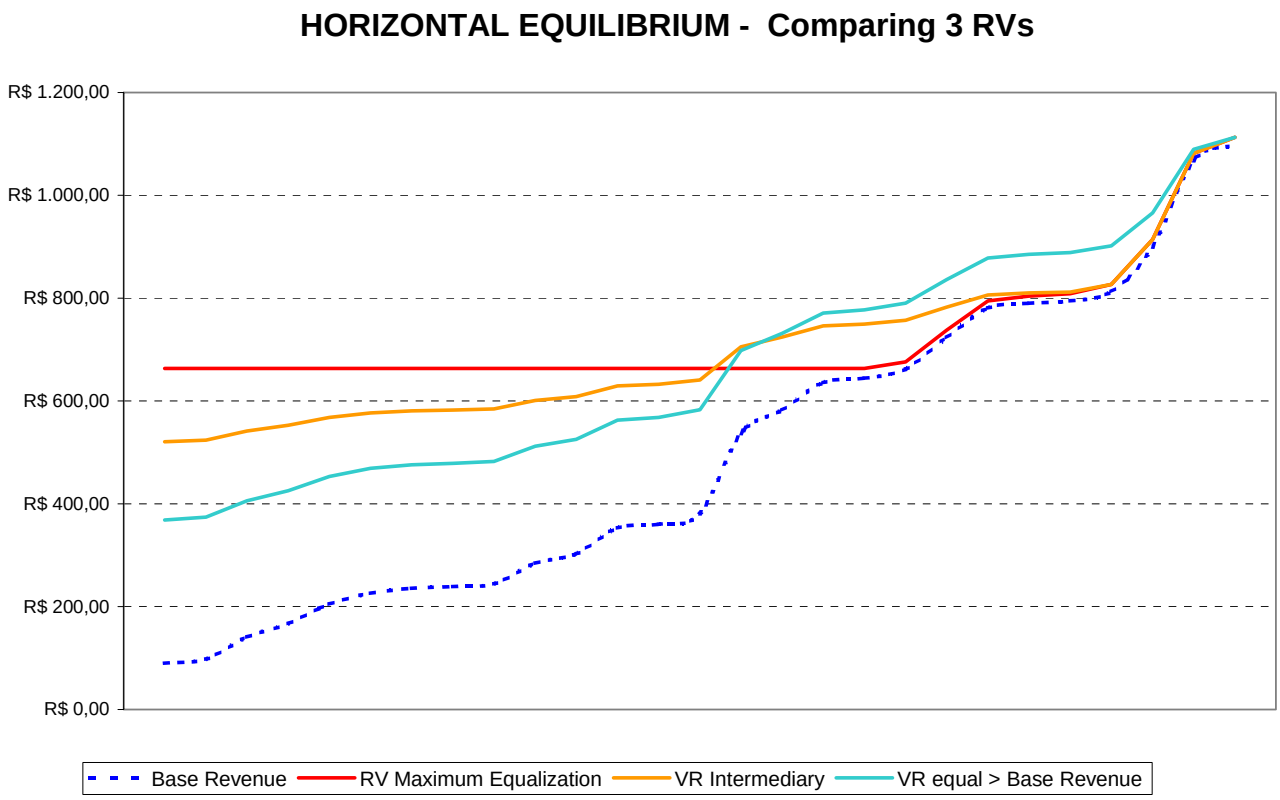
SCENARIO 3 - RV Equal to the Greatest Base Revenue



As can be seen in the previous graph, in scenario 3, on the other hand, all the states except the Federal District participate in the distribution. One can see that this scenario also provides a more equal horizontal balance. However, the distance between the RV and the results of the distribution is much greater than in scenario 2. This is because the resources were shared between almost all the states, thus decreasing their ability to reduce disparities in spending capacity.

What becomes clear in these simulations is the duality that exists between equalizing efficiency and the number of states among which the resources are shared. That is, the greater the RV, the more states participate and the smaller the equalizing efficiency of the system. We will confirm this statement by analyzing the statistics produced by the simulation in the table and graph below:

	Base Revenue	Current SPF	NTC	NTC (Without Tables)	Scenario 1	Scenario 2	Scenario 3
Mean (M)	495	875	864	711	729	703	667
Standard Deviation (SD)	297	346	374	195	124	154	219
Coefficient of Variation (SD / M)	60,12%	39,58%	43,28%	27,41%	16,95%	21,98%	32,89%



Scenario 1 presents the best coefficient of variation, followed by scenario 2. The results obtained through unfreezing via NTC without the tables are better than the coefficient of variation in scenario 3. It is important to point out that an increase in the amount of resources available in the system completely alters the results, since it implies a direct increase in the maximum efficiency RV and therefore includes a greater number of states in the distribution.

To complete the analysis we must present the financial results of the simulations, including those of the unfreezing discussed above, with a view to understanding and assessing the practical impacts of the simulations.

The financial results in the next table show that the North Region loses out in all the simulations, except in unfreezing through the NTC, which is basically due to the region's low demographic density. As such, from the point of view of per capita spending capacity the region occupies a highly privileged position in the distribution. The exception being the state of Pará, which contains half of the total population of the North Region and would be one of the most to benefit from an equalization system.

SIMULATION RESULTS

REGION	MW	NW	NE	SW	SE	BRAZIL
SPF	900,1	821,7	550,4	811,0	835,6	874,9
NTC	920,8	825,2	544,1	793,7	841,5	864,1
Loss / Gain	20,7	3,5	-6,2	-17,3	5,9	-10,8
CTN - Sem Tabelas	919,1	652,1	593,8	785,8	844,2	711,4
Loss / Gain	19,0	-169,6	43,5	-25,2	8,7	-163,5
Scenario 1	799,4	663,0	663,0	762,5	824,9	729,3
Loss / Gain	-100,7	-158,6	112,7	-48,5	-10,7	-145,7
Scenario 2	827,4	636,4	601,1	795,8	854,1	702,6
Loss / Gain	-72,7	-185,3	50,7	-15,2	18,6	-172,3
Scenario 3	860,2	575,2	512,1	854,3	897,9	667,0
Loss / Gain	-39,9	-246,5	-38,3	43,4	62,4	-207,9

The Midwest Region also loses resources with the equalization systems simulated for two reasons: first, because its population is smaller than that of the North Region; and second, because the states of this region have a very high fiscal capacity, led especially by the Federal District.

The South Region only benefits in scenario 3, in which the degree of redistribution is smaller. Results for the Southeast are quite interesting, on the other hand, since the region only loses out in scenario 1 where redistribution is at its highest. In all the other simulations the region wins because it concentrates almost half of the country's population.

It is important to note that the 85% reserve set aside for the N, NE and MW regions that is part of the unfreezing provides the greatest benefits to the Northeast

Region. Equalization systems with a high degree of redistribution (scenarios 1 and 2) also strongly favor the region.

Due to the above, what we need is a national equalization system capable of mitigating imbalances in spending capacity between the federated entities so as to guarantee a minimum spending capacity to all. At the same time, we need to discuss the functioning of a well-planned regional fund that encourages the economic development of the country's least developed regions.

One last and important observation: this discussion has shown that equalization systems can be built according to different degrees of redistribution. The choice is not based on technical criteria. It depends on the political preferences of the federation, and particularly on the other components of the financing mixes of the states. The important thing to remember is that equalization systems are flexible and can generate different levels of fiscal balance, in addition to being adjustable to the other financial elements of state and municipal governments.

RESULTS OF THE SIMULATIONS

STATES	FU	REGION	SPF	NTC	Loss / Gain	NTC - Without Tables	Loss / Gain	Scenario 1	Loss / Gain	Scenario 2	Loss / Gain	Scenario 3	Loss / Gain
Distrito Federal	DF	CO	1.176	1.191	15	1.170	(6)	1.113	(63)	1.113	(63)	1.113	(63)
Goiás	GO	CO	714	738	23	767	53	663	(51)	724	10	732	17
Mato Grosso	MT	CO	1.009	998	(12)	987	(23)	809	(201)	812	(198)	888	(121)
Mato Grosso do Sul	MS	CO	943	1.002	60	953	10	804	(139)	810	(133)	885	(58)
Acre	AC	N	1.596	1.573	(23)	517	(1.079)	663	(933)	568	(1.028)	453	(1.143)
Amapá	AP	N	1.615	1.299	(316)	342	(1.273)	663	(952)	521	(1.094)	369	(1.246)
Amazonas	AM	N	869	840	(29)	850	(19)	663	(206)	750	(119)	777	(92)
Pará	PA	N	513	545	32	586	73	663	150	601	88	512	(1)
Rondônia	RO	N	1.015	1.006	(9)	769	(246)	663	(352)	705	(310)	698	(317)
Roraima	RR	N	1.773	2.178	405	449	(1.324)	663	(1.110)	524	(1.249)	374	(1.399)
Tocantins	TO	N	1.107	1.091	(16)	629	(478)	663	(444)	582	(525)	479	(629)
Alagoas	AL	NE	583	578	(5)	569	(14)	663	80	577	(6)	469	(114)
Bahia	BA	NE	528	555	26	581	52	663	135	629	101	563	34
Ceará	CE	NE	479	536	56	578	98	663	184	584	105	482	3
Maranhão	MA	NE	447	453	6	657	210	663	216	542	95	406	(41)
Paraíba	PB	NE	578	531	(48)	547	(31)	663	85	581	2	476	(102)
Pernambuco	PE	NE	572	551	(21)	595	23	663	91	632	60	568	(4)
Piauí	PI	NE	538	531	(7)	662	123	663	125	553	14	426	(113)
Rio Grande do Norte	RN	NE	741	638	(104)	639	(103)	663	(78)	641	(100)	583	(158)
Sergipe	SE	NE	852	607	(245)	499	(353)	663	(189)	609	(243)	525	(326)
Paraná	PR	S	735	714	(21)	703	(32)	676	(59)	757	22	791	56
Rio Grande do Sul	RS	S	869	853	(16)	848	(21)	827	(42)	827	(42)	902	33
Santa Catarina	SC	S	838	824	(13)	818	(20)	795	(43)	806	(31)	878	41
Espírito Santo	ES	SE	1.182	1.125	(57)	1.112	(69)	1.082	(100)	1.082	(100)	1.090	(92)
Minas Gerais	MG	SE	696	698	3	689	(6)	663	(33)	746	51	771	76
Rio de Janeiro	RJ	SE	749	760	11	754	5	738	(12)	782	33	836	87
São Paulo	SP	SE	906	917	11	931	24	914	8	914	8	966	60

2.4.2 *Equalization fund for the Brazilian municipalities*

Unlike in most federations, in Brazil the municipalities function as autonomous federated entities and participate strongly in the revenue sharing system. As we saw, the main mechanism in place that should equalize spending capacity between the municipalities does not apply an adequate criterion to do so. It is therefore imperative to discuss a solution to the problem of the MPF. Note that unlike the SPF, the MPF was not unfrozen, except in terms of the interstate pre-prorating percentages. Nonetheless, the questions related to the use of the redistributive population factors remain.

As we saw, the problem of the MPF basically lies in its reliance on population size distributed with a strong bias towards small municipalities as a result of the population coefficient tables used. As such, one of the most promising alternatives for the municipalities would be to change the MPF into an equalization system in the molds of that described for the states.

However, a number of issues as to its design remain to be addressed. Will the system respect the cluster of municipalities in their respective states or deal with the municipalities directly and completely ignore the clusters? In the first hypothesis, the solution would be pre-prorating between the states as occurs today with the MPF. However, instead of the frozen percentages system which is unnecessarily inflexible a dynamic criterion would be applied. In the second hypothesis, equalization would occur directly, as described in the section above, with all the municipalities being treated as equal governments within the national territory. Note that in the original design of the system, in consonance with the National Tax Code, revenue was shared according to this second hypothesis, that is, in the context of a nation-wide system. It was CL 62/89 that determined pre-prorating between the states.

Despite the fact that the federated entities are autonomous, in all federated affairs the municipalities are addressed within the context of their states. This includes revenue sharing systems such as support to exports, the Fundeb, the ICMS share, etc. As such, in addition to the three RV simulations in the previous section we will present two equalization system alternatives for the municipalities: national equalization and equalization with pre-prorating between the states. As in the state simulations, we consider only unconditional revenues, excluding the national programs.

1) National equalization

The direct equalization system for the municipalities would follow the exact same model as presented for the states: rank all Brazilian municipalities in ascending order per base revenue, define the RV (greater than or equal to the maximum efficiency RV) and apply the distribution in proportion to the amount of resources needed to reach the RV.

Table 4.2-1–**Base revenue for equalization purposes**

Description	
OWN-SOURCE REVENUE	
Income tax withheld from labour income– IRRF	(+)
Urban property tax – IPTU	(+)
Real estate conveyance tax – ITBI	(+)
Tax on services – ISS	(+)
Fees charged for law enforcement	(+)
User fees	(+)
Contributions for improvements	(+)
Share of rural property tax –ITR	(+)
Share of tax on financial transactions -gold - IOF Ouro	(+)
Financial transfer of the ICMS - exemption - –CL n º 87/96	(+)
Share of the IPI-Export	(+)
75% share of the ICMS	(+)
Share of the IPVA	(+)
Fines and default interests	(+)
Revenue of the active debt	(+)
DEDUCTIONS	
ICMS revenue deduction to establish the Fundef	(-)
Revenue deduction to establish the Fundef– IPI-Export	(-)
Revenue deduction to establish the Fundef– ICMS-exemption– CL nº87/86	(-)
BASE REVENUE FOR EQUALIZATION (Own-source– deductions)	

The system simulation will be designed as follows:

- closed account system, with R$ 26.97 billion (amount transferred in 2005);[17]
- base revenue – unconditional and non-compensatory revenues of the municipalities, with the composition indicated in Table 4.2-1;
- database – balance sheet of the municipalities downloaded from the National Treasury Secretariat website, report Finbra2005. The data on the municipalities that were not part of the Finbra2005 report are taken from reports of previous years, corrected by the National Extended Consumer Price Index (IPCA);
- reference value (RV) – three scenarios will be simulated:

[17] This amount is approximate because the reports available in the National Treasury Secretariat do not include data on all the municipalities. In the methodology adopted the revenues of municipalities not included in the report were estimated.

Scenario 1 – adopting the maximum efficiency RV;

Scenario 2 – adopting an intermediate RV;

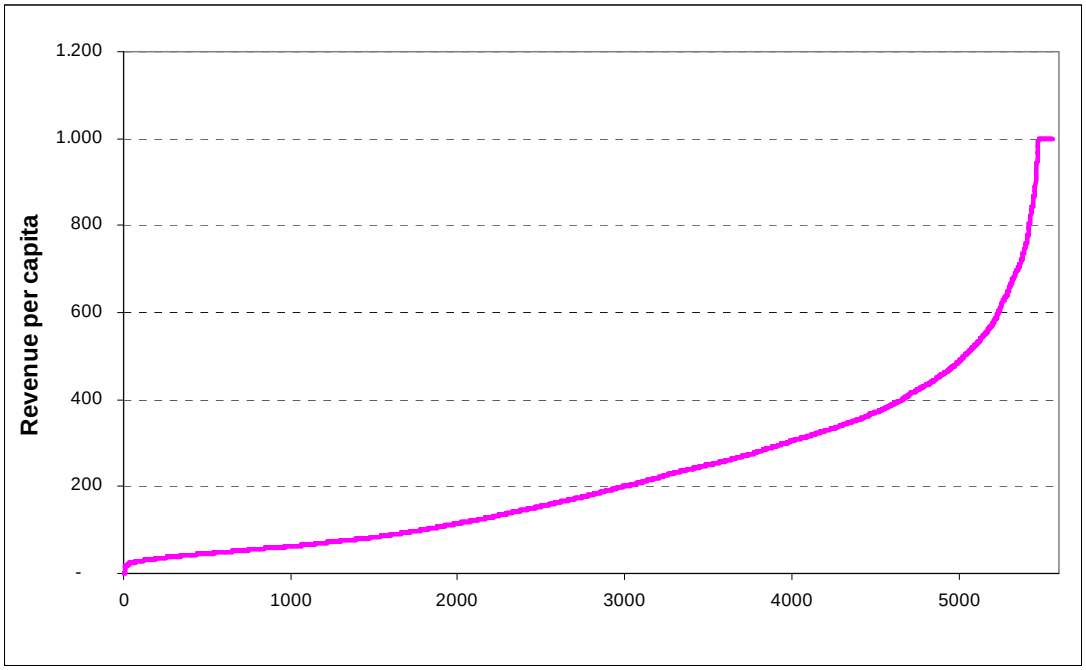
Scenario 3 – adopting a RV equivalent to the revenue of the richest municipality.

Scenario 1 - maximum efficiency RV

In this scenario, the RV will be calculated through the iterative method presented above, since this method is easier to use than a mathematical equation and gives the same result: a RV that endows the system with a maximum redistribution with the resources available.

As discussed in section 4.1, 10% of the resources will be utilized to encourage the fiscal effort according to a criterion defined for this purpose. In order not to distort the equalization results, in this simulation this portion will be distributed between the municipalities and considering an equal fiscal effort in all municipalities, which implies a distribution on a per capita-basis.

Graph 4.2.-1 – **Distribution of the municipalities according to the base revenue**[18]



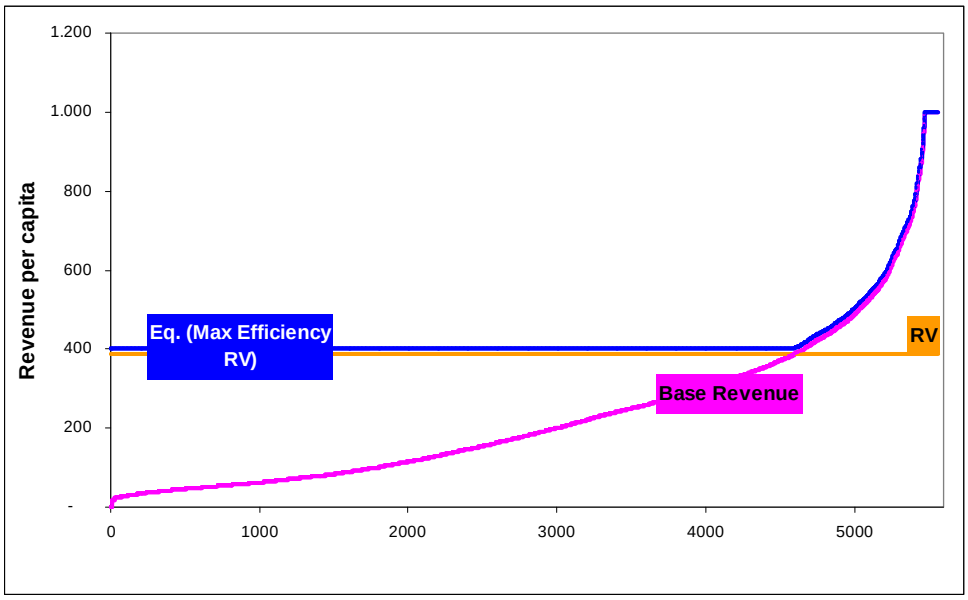
Having defined the model, the first step is to calculate the base revenue of each municipality according to the procedure described in Table 4.2-1. The next step is to rank them by ascending order according to their base

[18] Considering that some municipalities have BR higher than R$ 10,000.00, in this graph the base revenue was limited to R$ 1,000.00 to make it easier to visualize the results. This applies only to the graph, the simulations use real values.

revenues[19], thus obtaining the distribution presented in Graph 4.2-1. This is followed by the iterative process described in page 38 that is used to find the maximum efficiency RV. In this case it is R$ 387.96. As such, all the municipalities whose base revenues fall below the RV will be raised to this level. The equalization entitlement received by each municipality will be equal to the amount of resources needed to achieve this RV.

The application of this model results in the following distribution:

Graph 4.2-2 – **National equalization with maximum efficiency RV**

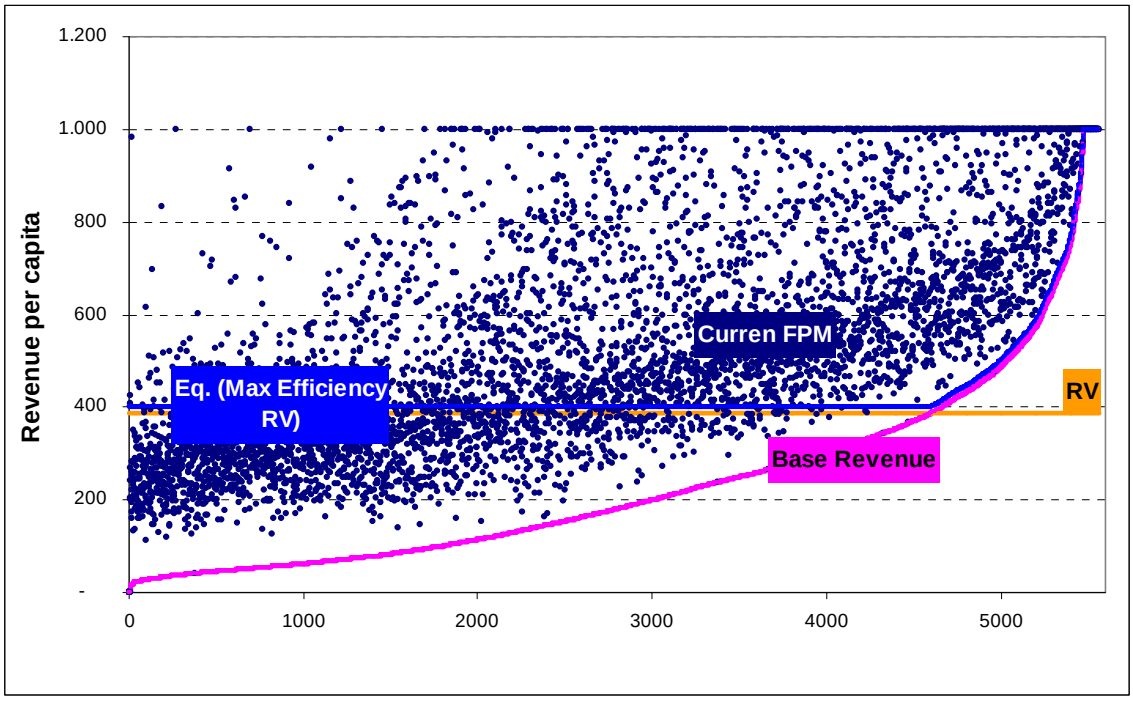


In this distribution the smallest per capita revenue becomes R$ 403. Of the 5,563 municipalities, 4,601 receive equalization payments. The rest receive only a fraction of the fiscal effort.

A comparison between the distribution that results with the equalization system and that of the current MPF presents interesting results. The haphazard distribution of available per capita revenue with the MPF becomes evident. In Graph 4.2-3 the dark blue points represent the disposable revenue per capita with the current MPF. One can clearly see (distance between the pink line and the blue points) that certain originally poor municipalities receive few resources through the MPF while other rich ones receive large amounts. The light blue line, on the other hand, shows the results of the equalization system, in which the poor municipalities receive large amounts of resources while the rich ones receive only a fraction of the tax effort. The greater the total pool of resources distributed, the better the results of the equalization system.

[19] Ranking by ascending order is not conceptually mandatory. The procedure will work equally well if the municipalities are organized differently, but this order is useful to visualize the results.

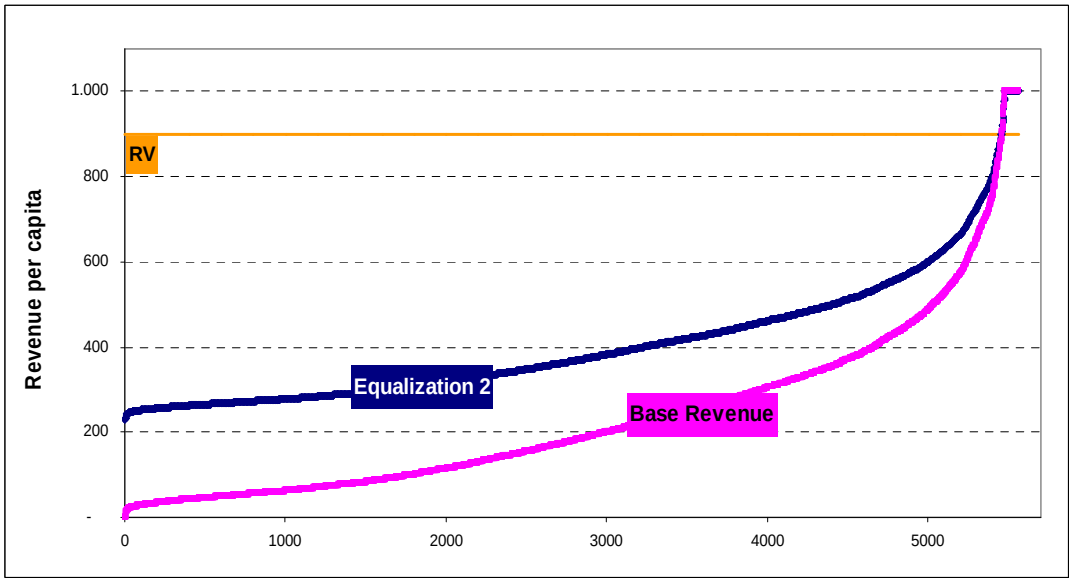
Graph 4.2-3 – **Equalization *x* Current MPF**



Scenario 2 Intermediate RV

Let us examine the same simulation with an intermediate RV. For instance, R$ 900.00.

Graph 4.2-4 – **National equalization with an intermediate RV**



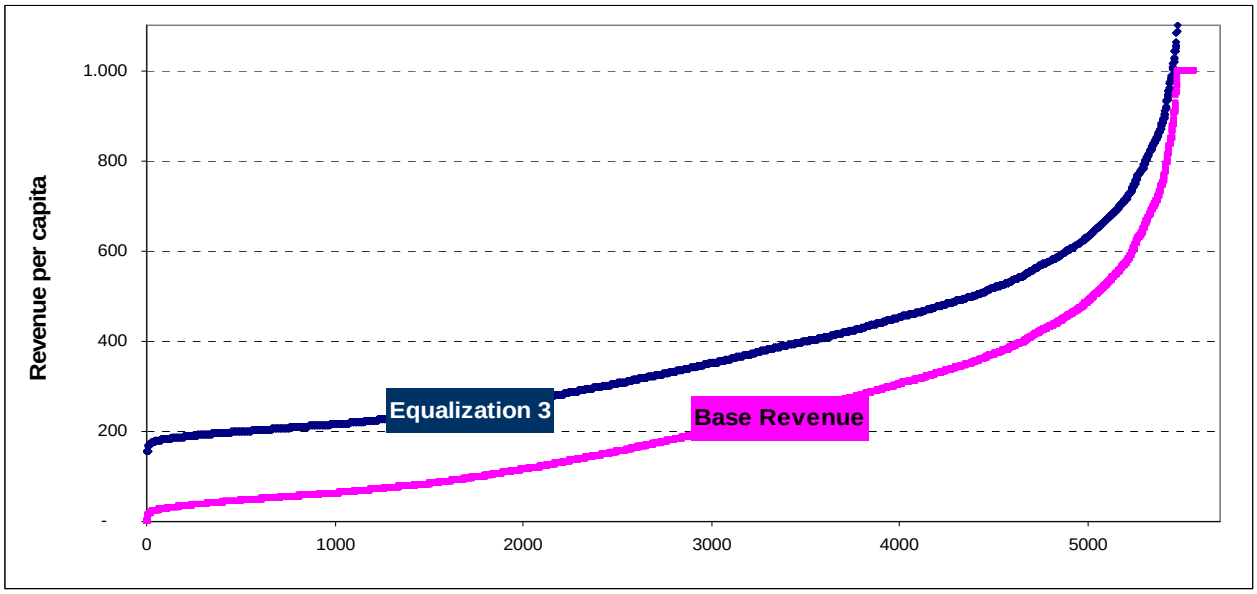
In this case 5,459 municipalities receive equalization payments and 104 are left out; that is, approximately 98.13% of the municipalities were contemplated. However, from the point of view of redistribution there is a great

loss, since the lowest per capita revenue, which in the previous simulation was R$ 403, becomes R$ 231.

Scenario 3 - RV equal to the greatest base revenue

We will now examine a simulation in which the RV is equal to the base revenue of the richest municipality (R$ 7,439). In this case, only the richest municipality is left out of the equalization (Paulínia, inner state of São Paulo), but the loss of redistribution is even more significant. The poorest municipality is left with a per capita revenue of only R$ 155.

Graph 4.2-5 – –**National equalization with a RV equal to the greatest base revenue**



Let us now examine the simulations in terms of amounts transferred per state and per region. Table 4.2-2 highlights the weight of the RV in the equalization system. In the maximum efficiency alternative only the North and Northeast regions are better off than in the current model, while in the least redistributive alternative (scenario 3) only the Southeast wins, with a great concentration in São Paulo. In the simulation with an intermediate RV, the resources are distributed between the North, Northeast and Southeast regions, and in the latter they basically concentrate in Rio de Janeiro.

Table 4.2-2 – **National equalization system: amounts transferred per state**

Sigla	Estado/Região	VALOR TRANSFERIDO				DIFERENÇA		
		FPM Atual	Eq. Máx. Eficiência	Eq-2	Eq-3	Eq. Máx. Eficiência	Eq-2	Eq-3
N	**NORTE**	**2.306**	**3.388**	**2.753**	**2.229**	**1.082**	**447**	**-77**
RO	Rondônia	237	301	278	232	65	41	-5
AC	Acre	148	179	133	102	32	-15	-45
AM	Amazonas	360	431	530	484	71	169	124
RR	Roraima	130	91	74	59	-39	-55	-70
PA	Pará	929	1.905	1.370	1.062	977	441	133
AP	Amapá	93	165	119	91	71	26	-3
TO	Tocantins	409	315	250	198	-94	-160	-211
NE	**NORDESTE**	**9.370**	**13.411**	**9.926**	**7.763**	**4.040**	**555**	**-1.607**
MA	Maranhão	1.103	1.893	1.272	936	790	169	-167
PI	Piauí	655	917	623	461	262	-32	-194
CE	Ceará	1.393	2.181	1.609	1.235	788	216	-157
RN	Rio Grande do Norte	642	643	555	455	1	-87	-187
PB	Paraíba	840	1.000	721	549	161	-119	-291
PE	Pernambuco	1.339	2.083	1.553	1.274	744	214	-65
AL	Alagoas	630	821	601	460	192	-28	-169
SE	Sergipe	378	457	367	298	79	-11	-80
BA	Bahia	2.391	3.415	2.625	2.096	1.024	234	-295
SE	**SUDESTE**	**8.780**	**6.483**	**8.956**	**11.405**	**-2.297**	**176**	**2.625**
MG	Minas Gerais	3.468	3.010	3.047	2.873	-459	-421	-595
ES	Espírito Santo	468	384	494	503	-84	25	34
RJ	Rio de Janeiro	1.331	1.565	2.088	2.268	233	757	936
SP	São Paulo	3.512	1.524	3.327	5.761	-1.988	-185	2.249
S	**SUL**	**4.658**	**2.326**	**3.686**	**3.981**	**-2.332**	**-972**	**-677**
PR	Paraná	1.798	1.029	1.479	1.521	-769	-319	-277
SC	Santa Catarina	1.036	395	766	863	-641	-270	-173
RS	Rio Grande do Sul	1.824	902	1.441	1.597	-922	-383	-227
CO	**CENTRO-OESTE**	**1.857**	**1.364**	**1.651**	**1.593**	**-494**	**-207**	**-264**
MS	Mato Grosso do Sul	390	151	317	335	-239	-73	-55
MT	Mato Grosso	503	287	417	416	-216	-86	-87
GO	Goiás	964	926	917	842	-39	-48	-123
BRA	**BRASIL**	**26.971**	**26.971**	**26.971**	**26.971**			

Valores em R$ milhões

As to per capita revenue, Table 4.2-3 clearly shows the extent to which the maximum efficiency RV promotes a greater balance in disposable per capita revenue between the municipalities than in the other alternatives. As discussed above, this balance occurs to the detriment of the number of beneficiaries, while the models with a higher RV increase the number of beneficiaries to the detriment of redistribution.

Table 4.2-3 –**National equalization: disposable per capita revenue per state**

Sigla	Estado/Região	Receita Base	Modelo Atual	Eq. Máx. Eficiência	Eq. VR Intermediário	Eq. VR = mais rico
N	**NORTE**	**182**	**339**	**412**	**369**	**333**
RO	Rondônia	208	362	404	389	359
AC	Acre	135	355	403	333	288
AM	Amazonas	280	391	413	444	429
RR	Roraima	170	502	403	360	322
PA	Pará	144	277	417	340	296
AP	Amapá	127	285	404	328	280
TO	Tocantins	165	478	406	356	317
NE	**NORDESTE**	**154**	**338**	**417**	**349**	**306**
MA	Maranhão	93	273	403	301	246
PI	Piauí	98	316	403	305	252
CE	Ceará	133	305	403	332	286
RN	Rio Grande do Norte	195	409	409	380	347
PB	Paraíba	126	360	404	327	279
PE	Pernambuco	194	353	442	379	346
AL	Alagoas	130	339	403	330	283
SE	Sergipe	188	380	420	374	339
BA	Bahia	180	353	427	370	331
SE	**SUDESTE**	**517**	**628**	**599**	**631**	**662**
MG	Minas Gerais	304	485	461	463	454
ES	Espírito Santo	402	540	515	547	550
RJ	Rio de Janeiro	406	492	508	542	553
SP	São Paulo	669	756	707	752	812
S	**SUL**	**397**	**569**	**483**	**533**	**544**
PR	Paraná	366	541	466	510	514
SC	Santa Catarina	419	596	486	550	566
RS	Rio Grande do Sul	413	581	496	546	560
CO	**CENTRO-OESTE**	**321**	**495**	**448**	**475**	**470**
MS	Mato Grosso do Sul	381	553	448	521	529
MT	Mato Grosso	348	527	450	496	496
GO	Goiás	283	455	448	446	433
BRA	**BRASIL**	**358**	**507**	**507**	**507**	**507**

Valores em R$ per capita

Another important point regards distribution per population range in the municipalities. As already mentioned, the revenue sharing criterion of the MPS is strictly based on size of population, with a strong bias towards municipalities with small population. As one can see in the next table, this is corrected by the equalization system in which the criterion applied is disposable per capita revenue.

Table 4.2.-4 shows that the municipalities that benefit the most with the maximum efficiency RV are those that benefit the least with the current MPF, that is, those with populations below the 16,981 inhabitants. On the other hand, the capital cities do not lose much. This was to be expected, since the MPF does not account for much in their total revenue. As the RV increases the smaller municipalities lose while the capital cities benefit.

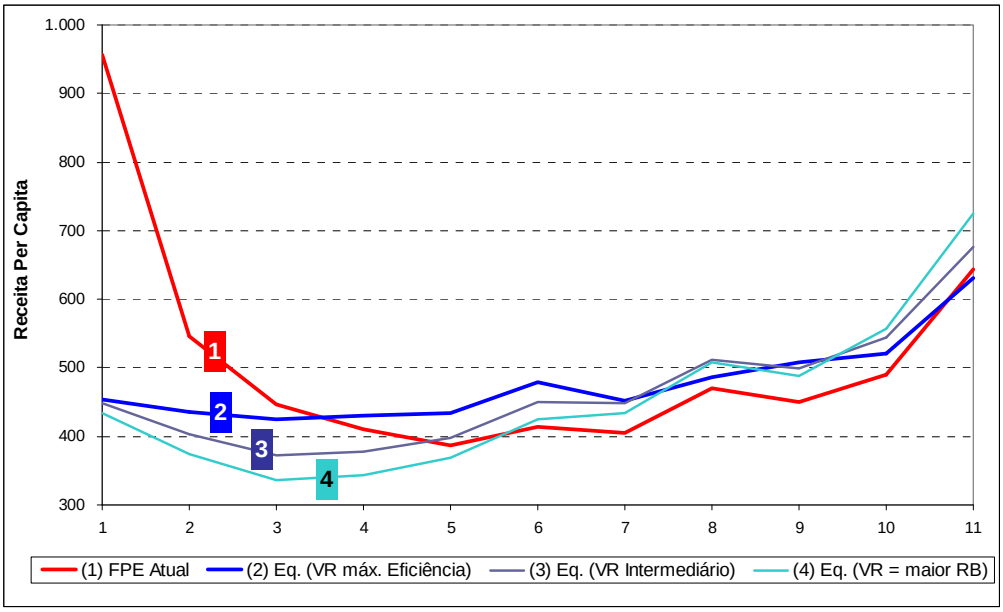
Table 4.2-4 –**National equalization: aggregated per population range**

Faixa	Receita disponível per capita				Diferença		
	FPM Atual	Eq. VR máx. eficiência	Eq. VR Intermediário	Eq. VR = maior RB	Eq. VR máx. eficiência	Eq. VR Intermediário	Eq. VR = maior RB
Até 5000	957	453	448	434	(504)	(508)	(523)
5000 - 10189	547	436	403	374	(110)	(144)	(172)
10190 - 16980	446	424	372	336	(21)	(73)	(110)
16981- 30000	410	431	377	343	21	(32)	(67)
30001 - 50940	387	434	398	368	47	11	(19)
50941 - 75000	414	479	450	426	65	36	11
75001 - 101216	405	452	449	435	47	44	29
101217 - 125000	469	487	512	508	17	43	39
125001 - 156216	450	507	498	488	57	49	38
> 156216	490	521	545	557	31	55	67
Capitais	644	630	677	724	(13)	33	81
Brasil	507	507	507	507	0	0	0

Valores em R$ per capita

The next graph gives an idea of these effects:

Graphic 4.2-5 – **National equalization: aggregated per population range**



Finally, we must analyze the results of the coefficient of variation of the current MPF compared to the alternatives of the equalization system. Table 4.2.-5 summarizes various aspects of the coefficients of variation. One can observe that in all of them the equalization system proves more efficient than in the current MPF, except for some items in the equalization of RV greater than the per capita revenue.

Table 4.2-6 –**National equalization: coefficient of variation**

ITEM	AGRUPAMENTO	COEFICIENTE DE VARIAÇÃO - ALTERNATIVAS			
		FPM Atual	Eq. VR máx. Eficiência	Eq. VR Intermediário	Eq. VR = maior RB
1	Norte	21,24%	1,27%	10,30%	14,77%
2	Nordeste	11,16%	3,20%	8,69%	12,62%
3	Sudeste	13,07%	11,93%	12,71%	14,65%
4	Sul	4,02%	2,59%	3,32%	4,26%
5	Centro-Oeste	8,16%	0,21%	6,39%	8,22%
6	Agregado por Estado	27,07%	14,22%	24,97%	33,26%
7	Total dos municípios	66,93%	42,10%	52,51%	64,70%
8	Intra-Estadual*	51,59%	23,84%	32,17%	41,96%
9	Agregado por Tamanho	30,89%	11,97%	18,28%	23,90%

* Foi utilizada a média dos coeficientes de variação de todos os estados.

A number of observations must be made regarding the items described in Table 4.2-5: In section 6 the coefficient of variation is calculated according to the cluster per state of Table 4.2-3. In section 7 the coefficient of variation was calculated disregarding the existence of the states. Section 8 presents the average coefficient of variation for each state. The simulations with the maximum efficiency RV and intermediate RV presented more satisfactory results than the current MPF for all the clusters. As to the model with the RV equal to the greatest base revenue, in some cases the situation is worse than with the current model. This demonstrates the *trade off* of the closed account equalization system; the need to adopt an RV that provides the greatest redistribution possible, while including the largest number of municipalities, in other words, a *trade off* between redistribution and inclusion.

Equalization: pre–prorating between the states

This model basically consists in a distribution between the states according to a pre-determined criterion (similar to the current pre-prorating of the MPF) which is followed by separate equalization transfers between the municipalities of each state. This model, however, presents a problem not found in the national equalization system: What distribution criterion would be applied to the pre-prorating? A first alternative would be to use a simple redistributive criterion such as the inverse of the per capita GDP associated to the size of the population in order to assign more resources per capita to the poorest and most populous states. It so happens that from the perspective of disposable per

capita revenue this criterion presents the same deficiencies as those of traditional redistributive systems: it neither assesses the revenue appropriation system as a whole nor focuses on equalization. In this sense, we would be implementing an equalization system based on a non-equalizing previous distribution (pre-prorating) that completely contradicts the rationale of the system.

Moreover, this system could generate a number of distortions:

- poor municipalities of wealthy states would be severely damaged, since their states, being rich, would receive only few resources;
- rich municipalities of poor states would benefit, since their states would receive a large volume of resources. This would cause a significant increase in the RV (see definition of the RV above) for intra-state equalization.

On the other hand, the pre-prorating of revenues between the states presents a series of conjunctural and technical advantages. The current system already incorporates a pre-prorating. As such, a gradual implementation of equalization could begin with the current pre-prorating and define a future criterion to be progressively implemented during a transition phase. Furthermore, the pre-prorating isolates the internal distribution of the states, allowing the states to exercise their autonomy in selecting their own equalization formulas, with a specific RV for each state defined by state law. Given the great disparities between Brazilian states in terms of the size and population of their municipalities, this alternative would offer the greatest adaptability to the state governments.

There is another alternative that preserves the state pre-prorating, but does not use macroeconomic parameters: an equalization system in two stages. The first stage would consist of nation-wide equalization of the municipalities, exactly as described above. The values would be grouped by state and applied in the pre-prorating. The second stage would consist of interstate equalization. The design of the system is the same as in the national equalization, although it requires defining 27 RVs, one national RV and 26 state RVs.

Table 4.2-6 – **Equalization with pre-prorating *x* MPF (R$ million)**

Sigla	UF/Região	VALOR TRANSFERIDO		Diferença
		FPM	Equalização	
N	**NORTE**	**2.306**	**3.483**	**1.178**
RO	Rondônia	237	314	77
AC	Acre	148	185	37
AM	Amazonas	360	443	83
RR	Roraima	130	94	-36
PA	Pará	929	1.953	1.025
AP	Amapá	93	169	76
TO	Tocantins	409	325	-84
NE	**NORDESTE**	**9.370**	**13.768**	**4.398**
MA	Maranhão	1.103	1.942	839
PI	Piauí	655	941	286
CE	Ceará	1.393	2.246	853
RN	Rio Grande do Norte	642	666	24
PB	Paraíba	840	1.028	188
PE	Pernambuco	1.339	2.115	776
AL	Alagoas	630	846	216
SE	Sergipe	378	471	93
BA	Bahia	2.391	3.514	1.123
SE	**SUDESTE**	**8.780**	**6.065**	**-2.715**
MG	Minas Gerais	3.468	3.038	-430
ES	Espírito Santo	468	391	-77
RJ	Rio de Janeiro	1.331	1.489	157
SP	São Paulo	3.512	1.147	-2.365
S	**SUL**	**4.658**	**2.295**	**-2.363**
PR	Paraná	1.798	1.022	-776
SC	Santa Catarina	1.036	380	-656
RS	Rio Grande do Sul	1.824	893	-931
CO	**CENTRO-OESTE**	**1.857**	**1.360**	**-497**
MS	Mato Grosso do Sul	390	144	-246
MT	Mato Grosso	503	285	-218
GO	Goiás	964	931	-33
BRA	**BRASIL**	**26.971**	**26.971**	

Valores em R$ milhões

Due to the similarities between the pre-prorating stage and national equalization, we will only present one simulation for pre-prorating with the maximum efficiency national RV. Three alternatives will be presented for intra-state equalization: maximum efficiency RV, intermediate RV and RV equal to the greatest base revenue. In this simulation, the intermediate RV will be the mean between the maximum efficiency RV and the greatest base revenue of the respective state, limited to R$ 900.00. It is important to note that it would be equally possible to select another criterion. The R$ 900.00 limit was chosen to ensure coherence with the national equalization simulation.

The share of the fiscal effort (10%) will only be distributed in intra-state equalization. That is, pre-prorating will apply to the total resource pool so that municipalities will have to compete only with other municipalities of their state

for the fiscal effort share. This observation is very important since unlike in pre-prorating, in national equalization all the municipalities compete with each other for the fiscal effort share.

The first step will therefore consist of pre-prorating by applying a maximum efficiency RV. In this case, R$ 410.85[20], the amount that each municipality needs to reach the RV is obtained by comparing the base revenues of all the municipalities that fall below the national RV. After this process, the municipalities are clustered in their respective states. The total resources needed by each one are added and the total pool of resources is distributed in proportion to the needs of each state. The results are summarized in Table 4.2-6. Notice how similar these values are to those presented in Table 4.2-2. The only reason for them not to be identical is the fiscal effort share, which in the pre-prorating is distributed according to the equalization criterion, something that does not occur in the national equalization model.

The second step is to set aside 90% of the resources for equalization and 10% for fiscal effort and calculate the state RVs according to the alternatives presented: maximum efficiency RV, intermediate RV and RV equal to the greatest base revenue. Table 4.2.-7 presents the RV for each of the scenarios described.

Table 4.2-7 - **Equalization with pre-prorating: reference values**

Unidade Federada	Eq1- Máx. Eficiência	Eq2 - Intermediário	Eq3 - Maior RB	Unidade Federada	Eq1- Máx. Eficiência	Eq2 - Intermediário	Eq3 - Maior RB
Acre	383,28	383,28	383,28	Paraíba	381,69	434,70	487,71
Alagoas	382,81	385,49	388,17	Paraná	394,78	879,87	1.364,96
Amapá	382,12	458,30	534,47	Pernambuco	379,83	769,36	1.158,89
Amazonas	396,67	724,21	1.051,76	Piauí	379,43	427,68	475,92
Bahia	384,36	900,00	3.852,20	Rio de Janeiro	388,44	900,00	2.377,55
Ceará	383,06	388,76	394,46	Rio Grande do Norte	388,30	900,00	1.938,91
Espírito Santo	395,27	843,28	1.291,29	Rio Grande do Sul	397,47	900,00	2.739,82
Goiás	386,85	900,00	1.719,17	Rondônia	390,30	539,99	689,67
Maranhão	379,03	379,03	379,03	Roraima	386,78	386,78	386,78
Mato Grosso	395,14	900,00	1.776,25	Santa Catarina	399,17	900,00	1.838,58
Mato Grosso do Sul	398,51	900,00	2.277,93	São Paulo	399,38	900,00	7.439,16
Minas Gerais	388,69	900,00	3.235,75	Sergipe	385,77	900,00	1.704,37
Pará	381,30	690,80	1.000,30	Tocantins	385,61	613,59	841,57

The states Acre, Maranhão and Roraima present a peculiar situation. In these states the minimum RV (maximum efficiency) is greater than the base revenue of the richest municipality. To give an idea, the largest base revenues of these states are R$ 214.30, R$ 327.74 and R$ 234.69, respectively. This means that, given the national RV, the volume of resources set aside for these states is enough to equalize all the municipalities at a level above the base

[20] Note that this RV is larger than the maximum efficiency RV for national equalization. This is because the fiscal effort share will be set aside after the pre-prorating, while in the national equalization it was reserved before. As a result, in a first moment a greater volume of equalization resources is available in pre-prorating. Consequently, the RV will be larger.

revenue of the richest one, thus obtaining the maximum redistribution possible. It is important to note that in these cases even if the state criterion established a certain RV, –for example the average per capita revenue, since the amount to be distributed is more than enough to elevate all municipalities to this level– it will be necessary to gradually increase the RV until all the resources are depleted. Therefore the minimum RV (maximum efficiency) will not necessarily be the mean of the base revenues of the poorest and the richest municipalities. Depending on the total pool of resources available, it may be greater than the largest base revenue of the respective state, as was the case for those three states. The most important point of this discussion is that equalization may never be based on an RV that is lower than the minimum RV.

Once the state RVs are defined, equalization is promoted in each of the states as described in the sections above.

Table 4.2-8 - **Equalization with pre-prorating**

Sigla	Estado/Região	Receita Própria	Receita Base	FPM Atual	Equalização
N	**NORTE**	**74**	**182**	**339**	**419**
RO	Rondônia	65	208	362	412
AC	Acre	49	135	355	411
AM	Amazonas	112	280	391	417
RR	Roraima	85	170	502	411
PA	Pará	63	144	277	424
AP	Amapá	45	127	285	412
TO	Tocantins	70	165	478	414
NE	**NORDESTE**	**74**	**154**	**338**	**424**
MA	Maranhão	45	93	273	411
PI	Piauí	42	98	316	411
CE	Ceará	62	133	305	411
RN	Rio Grande do Norte	96	195	409	417
PB	Paraíba	57	126	360	412
PE	Pernambuco	95	194	353	446
AL	Alagoas	66	130	339	411
SE	Sergipe	93	188	380	427
BA	Bahia	85	180	353	434
SE	**SUDESTE**	**311**	**517**	**628**	**594**
MG	Minas Gerais	138	304	485	462
ES	Espírito Santo	164	402	540	517
RJ	Rio de Janeiro	323	406	492	503
SP	São Paulo	401	669	756	698
S	**SUL**	**194**	**397**	**569**	**482**
PR	Paraná	184	366	541	466
SC	Santa Catarina	209	419	596	484
RS	Rio Grande do Sul	195	413	581	496
CO	**CENTRO-OESTE**	**144**	**321**	**495**	**448**
MS	Mato Grosso do Sul	179	381	553	445
MT	Mato Grosso	127	348	527	449
GO	Goiás	138	283	455	449
BRA	**BRASIL**	**198**	**358**	**507**	**507**

Valores em R$ per capita

Table 4.2-9 – **Equalization with pre-prorating: aggregated per population range**

Faixa	RECEITA DISPONÍVEL PER CAPITA				DIFERENÇA		
	FPM Atual	Eq1 - VR máx. eficiência	Eq1 - VR intermediário	Eq1 - VR = maior RB	Eq1 - VR máx. eficiência	Eq1 - VR intermediário	Eq1 - VR = maior RB
Até 5000	957	455	445	439	(502)	(511)	(518)
5000 - 10189	547	439	413	402	(107)	(134)	(144)
10190 - 16980	446	428	396	384	(18)	(49)	(62)
16981- 30000	410	434	407	396	25	(3)	(13)
30001 - 50940	387	437	418	409	50	31	21
50941 - 75000	414	481	469	461	67	54	46
75001 - 101216	405	453	445	439	48	40	34
101217 - 125000	469	487	488	482	17	19	13
125001 - 156216	450	507	515	513	58	65	63
> 156216	490	517	517	515	27	27	25
Capitais	644	628	670	693	(15)	27	50
Brasil	**507**	**507**	**507**	**507**	**(0)**	**(0)**	**(0)**

Valores em R$ per capita

It is clear that equalization results in a greater balance in the disposable per capita revenue of the municipalities aggregated by state (Table 4.2-8). The similarity between the results obtained in this case with those of national equalization is also evident (Table 4.2-3).

Table 4.2.-9 shows the results for the cluster per population range. The same observations made for Table 4.2-4 apply to the Table 4.2-9, which shows the strong balance achieved by equalizing the disposable per capita revenue so as to correct the distortions of the current MPF.

The dispersion graphs are similar to Graphs 4.2-2 and 4.2-3 and the observations are the same as those of the national equalization alternative. There is therefore no need to present these results again.

Tables 4.2-10 and 4.2-11 compare the pre-prorating and national equalization simulations in terms of the coefficient of variation and of the number of municipalities included in the distribution. The tables show that the most redistributive alternative is pre-prorating with maximum efficiency national and state RVs, followed very closely by national equalization with the maximum efficiency RV. On the other hand, in terms of the number of participants the best alternative is national equalization with an RV equal to or greater than the base revenue. Nevertheless in a number of cases the coefficient of variation is greater than the actual MPF. It is interesting to note that the pre-prorating with maximum efficiency RV alternative, –in addition to being the most efficient option in terms of the coefficient of variation–, also includes a greater number of municipalities than national equalization with a maximum efficiency RV. This occurs for two reasons: Because the fiscal effort share is included in the first stage of the pre-prorating, the system equalizes on two counts: first nationally through pre-prorating and then through intra-state equalization in the second stage.

Table 4.2-10 **Equalization with pre-prorating versus national equalization: coefficients of variation**

ITEM	ESTATÍSTICA	FPM Atual	Equalização com pré-rateio			Equalização nacional		
			Eq1 - VR máx. eficiência	Eq1 - VR intermediário	Eq1 - VR = maior RB	Eq. VR máx. Eficiência	Eq. VR Intermediário	Eq. VR = maior RB
1	Norte	21,24%	1,05%	1,05%	1,05%	1,27%	10,30%	14,77%
2	Nordeste	11,16%	2,87%	2,87%	2,87%	3,20%	8,69%	12,62%
3	Sudeste	13,07%	11,59%	11,59%	11,59%	11,93%	12,71%	14,65%
4	Sul	4,02%	2,56%	2,56%	2,56%	2,59%	3,32%	4,26%
5	Centro-Oeste	8,16%	0,46%	0,46%	0,46%	0,21%	6,39%	8,22%
6	Agregado por Estado	27,07%	13,18%	13,18%	13,18%	14,22%	24,97%	33,26%
7	Por Município	66,93%	41,48%	47,04%	50,85%	42,10%	52,51%	64,70%
8	Intra-Estadual*	51,59%	23,69%	27,98%	30,60%	23,84%	32,17%	41,96%
9	Agregado por Tamanho	30,89%	11,58%	15,84%	17,94%	11,97%	18,28%	23,90%

* Foi utilizada a média dos coeficientes de variação de todos os estados.

Table 4.2-11 **Equalization with pre-prorating versus national equalization**

Alternativa	Número de Beneficiários		
	Eq1- Máx. Eficiência	Eq2 - Intermediário	Eq3 - Maior RB
Equalização com pré-rateio	4.647	5.448	5.537
Equalização nacional	4.601	5.459	5.562
Percentual de municípios incluídos			
Equalização com pré-rateio	83,53%	97,93%	99,53%
Equalização nacional	82,71%	98,13%	99,98%

The simulations presented here by no means pretend to exhaust the possibilities of an equalization system applied to the municipalities. The pre-prorating system multiplies these possibilities, since for each national RV there may be another 26 state RVs that lead to different results. However, this paper presents what may be called the two extremes: on one hand, pre-prorating with minimum national and state RVs that promotes the greatest level of redistribution possible; on the other, national equalization with an RV equal to or greater than the base revenue, which increases inclusion to the detriment of redistribution. It is of course possible to find less redistributive alternatives; all this requires is increasing the RV to above the greatest base revenue (see Graph 4.2-3). However, this alternative does not present relevant results in practice.

As to the choice between national equalization and equalization with pre-prorating, depending on the RV adopted the differences in redistribution will be negligible. Other factors should therefore also be taken into account in selecting the system: national equalization simplifies the system tremendously. –In truth, it is the simplest equalization system possible.– On the other hand, pre-prorating makes the system more agile and endows the states with greater

autonomy, since it allows them to define the desired level of redistribution and inclusion through their legislative assemblies or municipal councils.

Another important aspect concerns the proliferation of small municipalities; the national equalization system may be more vulnerable to this phenomenon. However, despite its simplicity it is very difficult to predict if a certain municipality will benefit from being divided or not, since this depends on several factors such as population distribution and income concentration.

2.4 Conclusions

The time has come to call attention to a number of points. First, it is never too much to emphasize that adopting an equalization system is not a panacea, since it will not be able to solve all the fiscal problems of the Brazilian Federation. Equalization merely offers a technically superior and more efficient system to operate the transfers that serve the purpose of reducing disparities in federated fiscal systems. In this sense, it is essential to call attention to a few limitations of equalization:

1) The extent of the equalizing effect, in this as in any other "closed account" system, depends on the total resource pool that will be set aside for this purpose. Even the most sophisticated equalization system, such as Australian system, will not have a large impact if the resources that feed it are insufficient. As such, if we wish the equalization system to have more comprehensive effects we must first reassess vertical resource distribution so as to increase the resource pool that feeds the system.

2) Equalization systems built upon per capita spending capacity ignore the fact that different governments have different fiscal needs. They treat all governments in the same manner, delivering more resources to those that have fewer resources, but without taking into account differences in costs and needs.

If autonomy is not a fundamental and absolute value then adopting national programs that focus on each public service according to the distribution of demand, such as the SUS, will probably be more efficient. On the other hand, if a particular federation does not use national programs and all basic services are provided through the national budgets, using only per capita revenue as the basis for equalization will not be a good model. This is because the demand for public social services will probably be irregularly distributed among the governments. In this case the most adequate model will have to resemble the Australian system, where revenue assignments are also weighted by differences in costs and needs.

3) Inasmuch as the federation uses national programs - and this is generally the case for basic health, education and infrastructure services - these sectors are financed through specialized systems with specific rules. In this case the programs cover the most socially and economically

relevant sectors. Equalization based on per capita spending capacity may be the most efficient in these cases, as efficiency in other expenditures will be strongly correlated to demographic distribution.

4) When equalization is supported by the actual tax revenue of governments, as previously referred to, it creates perverse incentives for subnational governments: lax tax efforts may be rewarded. This requires one of two measures to be taken, both of which present problems. First, as is done in the most advanced federations (Canada and Australia); it is possible to try to base the system on potential revenue. Potential revenue is very difficult to estimate, however. The experience of these two federations has shown that potential revenue can only be calculated when the tax agency institutes a precise and sophisticated system to obtain fiscal information from taxpayers. In a country like Brazil, where taxation of goods and services occurs across a complete disarray of tax bases governed by different legislations in 27 governments, calculating potential revenue is a problem. On the other hand, estimating potential revenue is facilitated by the taxation structure currently in place in the Brazilian states, in which so-called *blue chip* sectors (telecommunications, electricity and fuel) predominate and tax substitution (substituição tributaria) plays an important role.

The alternative to using potential revenue is the solution indicated in this study on a preliminary basis and not yet with the sufficient technical detail: adopting actual revenue and setting aside part of the total resource pool to distribute among the governments according to their tax effort. How efficient this solution will prove to be will depend on our ability to design a technically precise and safe criterion to measure the tax effort. This point is already on the Fiscal Forum agenda for the coming fiscal year.

On the other hand, it is also important to emphasize the unique advantages offered by equalization systems in the current context.

1) The main advantage lies in the fact that the system is based directly on the per capita revenue of the governments. By so doing it is able to respond immediately to any changes in the governments' own-source revenues. For instance, if a region of the federation enters a period of economic stagnation while the others maintain a normal economic growth rate the system will react immediately by increasing resource allocation to that region in proportion to its relative loss in revenue compared to the other regions. Likewise, if a tax reform aimed at modernizing or enhancing the system's efficiency ends up reducing the revenue of a given government, the system will compensate for this loss.

It is essential to note that in "closed account" systems the response capacity will depend on the size of the resource pool.

2) Equalization potentiates the dynamic nature of transfers. Revenue assignments will readily reflect changes in the relative

dimension of the tax bases. The degree to which the coefficients are updated will depend on the timeliness of the revenue statistics.

3) Because the system is directly based on revenue it avoids certain distortions that result from using macroeconomic parameters such as per capita income. A typical case would be of a state that has a high GDP but relies strongly on exports, which causes its tax base to be eroded by tax exemptions. Under an equalization system this state would receive more resources than under an income-based system such as the SPF, thus reducing the distance in spending capacity between the states.

4) As became clear in the different examples presented, unlike systems that use macroeconomic parameters equalization systems are flexible instruments that can be regulated to obtain different degrees of redistribution. If a federation places great value in equity it may evolve towards an open account system where a criterion is established and the FG contributes whatever amount of resources is needed. Even in a closed account system, a federation may choose to use its resources pool to provide greater benefits to the poorest or to distribute them in a more uniform manner. This type of system is also adequate for transition periods in tax reform processes. For instance, the CG may initially select a reference value similar to the distribution in force and then gradually change the RV to obtain the desired redistributive profile.

The fact that equalization systems are used in the most advanced and well-organized federations is by no means the final argument to recommend their adoption. Traditions and cultural aspects, among others, cause technical solutions to work differently in different societies. However, we were unable to find any arguments declaring this to be an inefficient option for the Brazilian Federation. The general belief is that we are currently facing a historical opportunity to advance Brazilian fiscal federalism. The 1989 "freezing" eliminated the ability to reduce horizontal imbalances from the system in place in the Brazilian Federation There is no doubt whatsoever that the participation funds can be extensively improved and made to accomplish the task for which they were created. In this process we can either adopt a conservative stance by merely bringing back to life the old system designed in 1965 or we can begin moving towards a system endowed with the most modern and efficient practices adopted in the federations of the first world. Instituting a perfect equalization system immediately is beyond our power. We can, however, begin a gradual process that leads us, in the course of one decade, to achieve this goal.

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