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**SUB-NATIONAL BORROWING INCENTIVES UNDER
THE PRINCIPAL-AGENT MODEL IN THE BOLIVIAN
DECENTRALIZATION EXPERIENCE**

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*to Boris, Margarita, Davor and Patricia for been,
as always, the centre of my life.*

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ACRONYMS

LG	Local Government
PPL	Popular Participation Law
ADL	Administrative Decentralization Law
MOL	Municipal Organic Law
BNPB	Basic Normative for Public Borrowing
VPEPP	Spanish Abbreviation for Viceministry of Strategic Planning and Popular Participation
VIPFE	Spanish Abbreviation for Viceministry of Public Investment and External Financing
FNDR	Spanish Abbreviation for National Fund for Regional Development
FPS	Spanish Abbreviation for National Fund of Social and Productive Investment
FRP	Financial Rescue Plan

SUB-NATIONAL BORROWING INCENTIVES UNDER THE PRINCIPAL-AGENT MODEL IN THE BOLIVIAN DECENTRALIZATION EXPERIENCE

“When is done well, fiscal decentralization can support hard budget constraints and macroeconomic stability, as well as reducing moral hazard and generating responsive, effective and sustainable service delivery. This in turn can promote increased incomes and productivity, improved literacy, better health and strengthened civil society.”

(Anand, 2001)

INTRODUCTION

Decentralization traditionally derives its rationale from the theory of fiscal federalism (Tiebout model, 1956) that emphasizes the benefits arising from governments functioning at lower levels, increasing allocative efficiency and responsiveness of government, through clear assignment of functions, informed decision-making, definition of local priorities and focus on accountability.

Experience however, shows that decentralization also has costs and some times these can outweigh the potential benefits. For instance, externalities between jurisdictions e.g. arising from tax competition, tax exporting and opportunistic behaviour of lower level governments, if allowed to go uncorrected, may inhibit growth. One manifestation of such externalities is the existence of soft budget constraint for the local governments (LGs), leading to fiscal indiscipline and negative borrowing incentives and their implications for economic stability and growth (Qian and Roland, 1998).

Much of the empirical studies in decentralization approaches the subject from an administrative perspective, examining issues like fiscal flows, taxation, expenditure and investment alongside very different areas like managerial efficiency, government responsiveness and political representativeness.

Bolivian decentralization experience presents several benefits for the local communities and the economy as a whole since 1994, when its implementation constituted a national priority. However, considering that the current borrowing system and dependence of the central government's transfers have created a perfect opportunity for some LGs to use their resources inefficiently, the

central administration in 2000 had to implement the financial “rescue” program, compromising the macroeconomic stability particularly in the fiscal field.

1.1. OBJECTIVES AND RESEARCH QUESTIONS

The objective of this research is to provide a critical analysis of the incentives and the impact of the decentralization process in the sub-national borrowing system in Bolivia. By analysing the characteristics of the LG’s incentives for an overindebted situation, the aim is to identify some common elements between their behaviour and try to explain the origins of the recent financial “rescue” interventions by the central administration.

The proposed research aims to answer the following questions:

- 1. Which LG’s characteristics create distorted incentives for the sub-national borrowing system in Bolivia under the decentralization process?*
- 2. Which are the implications of the local governments’ borrow behaviour upon the fiscal stability of the country?*
- 3. In which way the principal- agent model can be use to explain the local government’s borrowing incentives?*

The investigation will be limited to analyse the borrowing behaviour, revenue trends (local tax collection and other transferences), and the implications of the decentralization process in Bolivia.

1.2. SIGNIFICANCE OF THE STUDY

The findings of the proposed research would tend to explain the actual characteristics and outcomes of the decentralization process in Bolivia about the LG’s borrowing behaviour, considering its importance on the resource administration system. After nine years of implementation of the decentralization process (since Popular Participation law, 1994), is possible to evaluate and recommend some reorientation, in order to achieve the objectives of more efficient allocation and collection of resources, in our case, the fiscal stability at the local and national level, through the borrowing system analysis.

It is deemed that better economic performance will be obtained with a higher level of political and economic decentralization. The weaknesses of the system can be ascribed to the existence of some perverse incentives that lead to fiscal indiscipline among LGs and require the implementation of corrective measures, considering that LGs are the engine of growth and development in the country, due to the large number of responsibilities in social and productive investment.

1.3. SCOPE AND LIMITATIONS

The present study is based on data prepared for the period of 1998-2000, using information of LGs statistics. Due to the availability of the secondary information, the database will include the financial area: revenues, expenditures, debt stock and service, tax collection, others, and economic characteristics like population size, per capita economic growth, etc, for the 314 LGs in Bolivia.

1.4. ORGANISATION OF THE RESEARCH

The research paper is organized in five chapters. After this introduction, Chapter II provides the theoretical framework, focusing in the decentralization theory, the principal-agent model and the theories of incentives. Chapter III describes the decentralization process in Bolivia, detailing the inter-governmental structure and responsibilities, the resource transfer channels, the internal borrowing system and the implications for economic stability. Chapter IV provides the methodology and the results of the empirical analysis for the borrowing incentives captured by the LG's probability to be overindebted. Finally, the conclusions and policy recommendations of the research are reported in the last chapter.

CHAPTER 2

THEORETICAL FRAMEWORK

To accomplish the general objective of provide a critical analysis of the incentives and the impact of the decentralization process in the sub-national borrowing system in Bolivia, the current chapter introduces first a general framework about the decentralization process in order to establish the theoretical outline where Bolivian economic policy is stated. Second, we will describe the relations between central administrations and LGs in the so called principal-agent model, where all the incentives for the borrowing system are settled, and finally, the chapter ends with the theory of incentives applied to decentralization.

2.1. THE DECENTRALIZATION PROCESS

In order to describe the process of decentralization and its characteristics, is important to mention that decentralization is not just an economic strategy, moreover, in the beginning the main motivation for its implementation was politic not economic, at least in Latin America, where the decentralization was part of structural programs design to deepen the democracy in several countries (Rojas 1998; Willis, *et al* 1997).

The notion underlying theoretical discussions of decentralization is that LGs, which are closer to citizens, are likely to have better information on the population needs and/or demands and therefore they will be able to provide services more efficiently than the central government. This idea is supported by a large range of assumptions concerning the accountability of local governments, the degree of information flow, and the mobility of individuals¹.

The theoretical base for decentralization is related to the Tiebout model (1956), that considers individual preferences as the main factor upon which provision of public goods and services should be determined and where the demand for these goods and services is expected to be more homogeneous among smaller groups, for which the central government uniform provision is not likely relevant (Oates, 1990).

Decentralization can be conceptualised as a transfer of authority and responsibility for public functions from the central government to a subordinate or quasi-independent government

¹ World Bank document: "Decentralization In The Transition Economies: Challenges And The Road Ahead", 2001.

organizations or to the private sector (World Bank, 1999). According to this definition there are two main aspects of the process of decentralization: i) intergovernmental relations, referred to decentralization of governance between levels of government and ii) decentralization from government to market and non-governmental organizations.

Based on the Tiebout model, a growing body of literature analyses how the decentralization process can improve allocative efficiency and responsiveness of the government, through the adherence to several design principles like the administration of resources based on clear assignment of functions, informed decision-making, definition of local priorities and focus on accountability (World Bank, 1999).

The theory suggest several reasons supporting the implementation of a decentralization process inside an economy (Rondinelli, 1984; Helmsing,2000):

- Decentralization can allows greater flexibility in designing local plans that represents in better way the needs of the heterogeneous local units and also increasing efficiency of LG projects, through increasing support and participation of the civil society.
- Increase of administrative capability of local institutions developing managerial and technical skill of the LG workers.
- Diversity in public choice leads to more innovative, flexible and creative administrative systems.
- Because decentralization allows greater representation of civil organizations, this could result in greater equity in resource allocation.
- Increase the number of public goods and services as well as efficiency in their provision.
- Devolution of power and responsibilities to LGs relieves congestion at the centre and enables central governments to concentrate entirely in national issues.

2.1.1. Forms of Decentralization

The literature recognizes four forms of decentralization on the basis of objectives: political, spatial, market, and administrative. a) Political decentralization typically identifies the transfer of decision-making power to citizens or their elected representatives. b) Spatial decentralization is a term used by regional planners involved in formulating policies and programs that aim to reduce excessive urban concentration in a few large cities by promoting regional growth poles that have

potential to become center of manufacturing and agricultural marketing. c) Market decentralization focuses on creating conditions that allows goods and services to be produced and provided by market mechanisms been sensitive to the revealed preferences of individuals. This form of decentralization has become more prevalent due to recent trends toward economic liberalization and privatization. d) Administrative decentralization focus on the hierarchical and functional distribution of powers and functions between central and non-central governmental units.

Most of the literature on decentralization gives particular attention to only one form of decentralization: the administrative. This form of decentralization is also related to the fiscal field, where besides to pursue a redistribution of authority and financial resources for providing public services among different levels of government, is usually associated with the assignment of revenues and expenditure responsibilities within the public sector (World Bank, 1999).

2.1.2. Types of Administrative Decentralization

The theory presents three types of administrative decentralization: deconcentration, devolution, and delegation.

- **Deconcentration:** is the transfer of authority over specified decision-making, financial, and management functions by administrative means to different levels under the jurisdictional authority of the central government. Usually involve delegation of power to civil servants in the field, working within the “mother organization”, thus deconcentration preserves the hierarchical relationship between field staff and central government and therefore the personnel are accountable to central government (World Bank document, 1999). Typically, deconcentrated activities are those that the center, for political reasons, believes only it can or should control or closely supervise but that require field-level implementation in order to be effectively carried out (Cohen & Peterson, 1999).
- **Delegation:** refers to the transference of government decision and administrative authority for clearly defined tasks to organizations or firms that are either under its indirect control or are independent, but the ultimate power and authority remain with the central government.

Delegation can also be done to independent interest groups as professional associations, trade unions, community groups, cooperatives, private voluntary associations, NGOs, etc, where the major condition for this is that they have an established organization managed by

members as well as an administrative or technical capacity to effectively carry out the delegated responsibilities (Cohen & Peterson, 1999).

- **Devolution** implies the transfer of functions and authority to subnational units of government. Devolution transfers responsibilities for services to LG that elect their own mayors and councils, raise their own revenues and have independent authority to make investment decisions. In this case, the country contain autonomous elected subnational government capable of taking binding decisions in some policy areas, who are accountable to constituents usually through local elections. (Ballesteros, 2002).

2.1.3. Administrative Decentralization Framework

According to Cohen & Peterson (1999) there are two theoretical frameworks for the administrative decentralization, the *Type:Function Framework* and the *Administrative Design Framework*, their main characteristics are:

- A) Type:Function Framework (TFF)** focus on the spatial dimensions of centralization and decentralization. This framework recognizes delegation as an administrative design option, but in practice the framework has largely been used to design and implement reforms and initiatives based on spatial deconcentration and some devolution to urban areas. As such, the framework has not been particularly good at providing governments and practitioners with administrative options to address the problems of limited administrative and financial capacity as well as low levels of accountability.

Briefly there are four problems that are not well addressed by the TFF: 1) over concentration on end-states and inadequate attention to transition strategies; 2) inattention to accountability, legitimacy, and political commitment; 3) limited attention to levels of human and financial resources; and 4) failure to sufficiently consider coordination and linkage problems arising during a transition from different decentralization strategies.

- B) Administrative Design Framework (ADF)** central issue is not only the spatial relationship of structures, as is the case with the TFF, but the role of relationships among central governmental, non-central governmental, and private sector institutions and organizations relative to a given public sector task.

There are major similarities between the both frameworks are: first, they can facilitate the analysis of the large number of case studies. Second, they are based on the commonly agreed upon four forms of decentralization (political, spatial, market, and administrative) and the three types of administrative decentralization (deconcentration, devolution and delegation). Third, both frameworks focus on institutional or organizational structures.

The components of the ADF are: principles of the administration, purpose of the public sector, and properties of design.

- a) The **principles of the administration** are accountability, efficiency, and effectiveness. Together these three principles optimise the mobilization of public resources. Briefly, accountability is holding public servants responsible for outcome, efficiency is the positive relationship of resource outputs to inputs, and effectiveness is a measure of the appropriateness of outputs.
- b) The **purpose of the public sector** is defined by the three objectives set out in the literature on public finance: stabilization, distribution, and allocation. The framework disaggregates these objectives into goals. Goals are further disaggregated into tasks. Tasks are the final level of public purpose and are the specific activities that organizations and institutions implement through roles. According to Musgrave and Oates these objectives implies: 1) stabilization and maintenance of high levels of employment and output; 2) achievement of a desired distribution of wealth and income; and (3) efficient allocation of resources.

Musgravian orthodoxy holds that the stabilization objective should also remain centralized because most local-level governmental units lack the stabilization tool of monetary authority. As a result, they are not able to exercise deficit financing policies that compensate for lack of economic demand. The distribution objective should properly remain centralized because the mobility of recipients and the potential tax base are high. There are, however, benefits to administratively decentralizing the allocation objective, specifically to tailor the production and provision of public sector goods and services to the preferences of individuals.

There has recently been some **criticism** of the Musgravian categories and the theory of fiscal decentralization or fiscal federalism, as it is known in the public finance literature. If one accepts that the Musgravian categories provide the over-arching guidelines for designing administrative strategies, it is important to consider that this theory is empirically based on the

experience of developed countries and thus is not fully applicable to late developing countries, where some of the task should be deliver by the central administration, particularly the production and provision of goods and services, specially when local administrative capacity is more weak than central government.

- c) The **properties of administrative design**, center on the roles and the sequence of roles that together define an administrative strategy. Role is a core concept in the framework because it disaggregates the actions needed to implement a task and allows mapping of responsibility for implementation tasks (and thus goals and purpose) from a single organization/institution to many. Role thus defines the administrative strategy as being pursue.

2.2. ADMINISTRATIVE DESIGN FRAMEWORK

Viewed from the perspective of how concentrated roles are, Cohen & Peterson (1999) suggest that the theory of ADF identifies three administrative design strategies, which are:

1. **Institutional Monopoly**, or centralization of the roles.
2. **Distributed Institutional Monopoly**, or administrative decentralization to local-level governmental institutions or private sector firms and organization through deconcentration, devolution, and/ or delegation, but where roles are distributed spatially and concentrated in one organization or institution; and
3. **Institutional Pluralism**, or administrative decentralization through deconcentration, devolution, and/ or delegation, but where roles are shared by two or more organizations or institutions, which can be at the spatial center, distributed, or a combination of both.

The first two strategies of the Administrative Design Framework (Institutional Monopoly and Distributed Institutional Monopoly) share some of these limitations because, to some extent, roles are allocated or held in monopolistic ways by specific institutions located in central or differing geographic locations. However, its third strategy allows for a mix of central, non-central, and private sector relationships for implementing a given public sector task and by focusing on roles as well as structures and spatial relationships, Institutional Pluralism avoids the major problems that

are associated with the Type:Function Framework's tendency to have low accountability and static views of administrative governments.

The conventional approach to administrative decentralization in most late developing countries has been to create Distributed Institutional Monopolies. This approach has been largely unsuccessful. The attempt to recreate administrative monopolies is often a crucial error in administrative design and a major reason why interventions centered on administrative decentralization often fail or under-perform. Interventions based on the strategy of Distributed Institutional Monopoly are typically faulted because they have neither the legal basis nor the technical capacity of the center to sustain a monopoly and extract resources.

In the work of Cohen & Peterson (1999), the authors point out that "for indebted governments with moribund administrative systems, hard pressed to meet rapidly rising demands for local services, Institutional Pluralism may offer hope because it utilizes and promotes greater responsibility on the part of devolved local governments and delegated private sector's firms, civil organizations, or NGOs. Unlike the other two monopolistic-based administrative strategies, Institutional Pluralism promotes all three principles of administrative design, especially accountability. The Institutional Pluralism strategy may be the only administrative strategy by which late developing countries can bridge the fiscal gap and increase accountability".

2.3. PRINCIPAL-AGENT MODEL IN DECENTRALIZATION

The sub-national finance market is characterized by a basic set of principal-agent relationships between three types of entities: central government, private financial institutions/investors, and sub-national entities (in the Bolivian case: central administration, *prefecturas* and municipalities). Inside the sub-national entities, there is a sub-set of principal/agent relationships between various levels of local governments (private enterprises and other creditors).

These set of principal-agent relationships are characterized by a number of specific agency problems. The first agency problem is *hidden action*, in which sub-national borrowers (agents) may not have an incentive to repay their lenders (principals) because they perceive that they will be bailed-out by the central government in case of default, resulting in moral hazard. The second agency problem is *hidden information*, in which sub-national borrowers (agents) may not have an incentive to reveal certain characteristics about themselves to lenders as principals, resulting in

adverse selection. The incidence of both agency problems varies considerably depending on the structure of the sub-national debt market in each country (Noel, 2000).

These agency problems presents some constraints that hamper the development of sub-national debt markets in developing and transition countries. Five types of constraints are analysed by Noel (2000)²: 1) moral hazard; 2) lack of market transparency; 3) weakness of market governance; (iv) distortions in the framework for competition among market participants; and 4) lack of capacity for financial management by sub-national entities.

In recent years, several municipalities seem to incur fiscal crises that require interventions by the central government. Fiscal discipline or "hard" budget constraints appear to be lacking, and inefficient, inequitable and simply chaotic public policies may result. Unanticipated transfers from central governments or central banks to Municipalities may undermine macroeconomic and price stability³.

According to some analysts like Prud'homme (1995) and Tanzi (1996), when fiscal relations between governments is characterized by bailouts and soft budget constraints, they recommend re-establishment of central government control of the fiscal issues of the municipalities through limitations on their fiscal autonomy (constraints on local borrowing authority) or through reversals of recent fiscal decentralization initiatives, in order to make these relations ought to be characterized by transparency, accountability and predictability. However this solution takes to a reversion of the decentralization process itself.

According to the model of Wildasin (1997), central government matching grants can, in principle, induce socially-efficient provision of local public goods that produce spill over benefits. Local underprovision of public goods may however elicit direct central-government provision and finance (a bailout) that makes local residents better off than under grant-subsidized local provision; local underprovision that induces bailouts reveals the local budget constraint to be "soft." Simulations suggest that the ability of a locality to extract a welfare-improving bailout depends positively on its size: budget constraints are more likely to be "hard" for small localities⁴.

² Michel Noel: "Building Sub-national Debt Markets in Developing and Transition Countries A Framework for Analysis, Policy Reform, and Assistance Strategy"; 2000.

³ David E. Wildasin, "Externalities And Bailouts_ Hard And Soft Budget Constraints In Intergovernmental Fiscal Relations" , USA, 1997.

⁴ Small localities are referred in the paper as the LG that have low economic impact in the overall economy and/or the population size is below the average.

2.4. THEORY OF INCENTIVES IN DECENTRALIZATION

The theory of incentives applied to decentralization can be summarized in the following three theories or approaches. The first one considers the effect of a bailout in the incentive of local governments' fiscal behaviour and the "too big to fail" argument. The second, relates the incentives of decentralization and the macroeconomic stability, and finally, the last approach studies the effect of the incentives in the borrowing decisions where the results are separate from the "too big to fail" argument.

- a) The first theory of incentive in decentralization is the one developed by Wildasin (1997). The theory implies that a locality (local government) can find it advantageous to under provide local public goods in order to induce a bailout by the central government, and it will not just reduce its public good provision by a small amount but rather will deviate discretely from the optimal level. This discrete deviation is attributable to the hypothesized loss of local control that accompanies a bailout, represented in the model by the assumption that the central government, when bailing out a locality, only takes into account the benefits and costs of local public good provision that accrue to the rest of society.

The first basic premise of the theory is that the fiscal behaviour of an individual municipality is important to the central government, interpreted here as an agent that represents the interests of the country as a whole and thus of those who reside outside of the given municipality. Formally, it is assumed that local governments provide public goods which not only benefit their own residents but that produce external benefits for residents of other localities as well. Because of these externalities, the central government, acting in the interest of the whole society, may establish programs of intergovernmental transfers that function as Pigovian corrective subsidies.

A second basic premise is that there is a sequential structure to decision making. This policy establishes a budget constraint for municipalities, which then choose their levels of local taxes and expenditures. However, the central administration, after observing local fiscal decisions, can change discretely the level of resource transfers by taking direct control over local expenditures and by financing incremental local spending from central funds. This stage of fiscal intervention by the center, corresponds to a "bailout" and which, if it occurs, reveals the local government budget constraint to have been "soft."

According to Wildasin (1997), this shift of control over local expenditures to an outside agency makes a bailout a **discrete** event, and the loss of local control can only be advantageous to a locality if it receives a discretely higher level of transfers from the centre than it would at the socially-efficient level of local spending. The conditions under which bailouts occur are intuitively clear: if the level of local expenditures selected by a central government under a bailout is "close" to the level that the locality would choose at a social optimum, then there is not much cost imposed on the locality from the loss of control over local spending levels relative to the gain from having the central government finance the totality of local public good provision. It can be shown that bailouts definitely do not occur when localities are sufficiently small.

The theory results alleged if localities are found to pursue fiscal policies that induce bailouts, the analysis suggests that the problem is not that the *public sector is too decentralized, but rather that it is too centralized*. At least within the context of the model, institutional reforms that move the organization of the public sector in the direction of greater centralization may worsen rather ameliorate the problem of soft local government budget constraints.

It seems to be several examples of cases where *large localities are viewed as "too big to fail"* and where they pursue fiscal policies that do in fact induce interventions by higher-level governments. It also suggests that big states (those containing a large fraction of population or of economic activity) would be less likely to engage in fiscal saving or balance policies, widening the trend of their fiscal deficits waiting for the financial "rescue" programs.

- b) Another theory of incentives in decentralization is the one described in Bruki, *et al* (2000) where it is mentioned that the decentralization often expands the gap between the expenditure decisions and the tax collection when the local government's expenditures are financed by central transfers, like in the case of Latin America. This situation generates two types of incentives: 1) local governments (LG) tend to spend excessively if they expect new resources from the national common fund, by additional direct transfers or "rescues". 2) the financial lenders will not exceed their credits, will not have the perverse incentive of doing that, if they do not believe the central administration will support the LG, if the latter do not serve the debt.

The problem is when the central administrations, in order to support inefficient behaviour of the LG, reduce their own expenditures given as a result an ineffective composition of the public

resources: an excessive expenditures on local goods and a sub optimal provision of public goods at the national level. If the central administrations fill the resources gap increasing the taxes, will generate an unnecessary big State with higher expenditures and taxes, otherwise, if they can not rise taxes, will cause higher fiscal deficits and macroeconomic instability.

The compensatory policies to avoid this macroeconomic instability or the unnecessary higher expenditures and taxes, can produce inefficiency and inequity. In this case the decentralization would generate under provision of public goods, higher fiscal deficits and social struggles.

The outcomes of this theory can be summarized in the following points:

- a) The decentralization based on local taxes tends to decrease the size of the State in the long run.
 - b) The decentralization based on central transfer of financial resources, tends to increase the size of the State.
 - c) The decentralization is not related to higher or lower fiscal deficits in a stable state.
 - d) Local governments' higher expenditures and fiscal deficits induce an increase of them at the national level, thus, a faster transition from a centralized system to a decentralized one, will tend to increase the national expenditures and the macroeconomic instability.
 - e) A hard budget constrains for local governments is the base for fiscal stability, but also depends on the clear delegation of responsibilities and redistribution of roles and resources.
 - f) Clear and non negotiable limits for local indebtedness, however, they must respect the autonomy of the local governments.
- c) The third theory, in this case approach to the fiscal incentive effects, is presented by Garcia, Goodspeed and McGuire (2002), which objective is to "explore the sometimes perverse incentives for regional governments that can arise under systems of incomplete and evolving fiscal decentralization" using a two-period theoretical model in the case of Spain. This document develops a theoretical model of regional borrowing decisions in which the initiatives for regional borrowing depend basically on how the regions expect the federal system of finance to evolve.

This document is based on three related set of studies: first, the common elements of fiscal decentralization in emerging economies described in Fukasaku, *et al* (1999): "first, the

devolution of expenditures functions and revenue sources to lower levels of government has been unbalanced....Second, revenue-sharing arrangement have relied excessively on intergovernmental transfers....Third and most important, the design of institutional arrangements often allows to loss of central governmental control over subnational finances, leading to a deterioration of its fiscal position”.

Second, studies of the effect of institutional rules on borrowing. Bird, *et al* (1995), Prud'homme (1995) and Tanzi (1996) argue that the central governments needs to impose some sort of rule or constraint on regional borrowing government expectations. Third, related literature of soft budget constraints that induce incentives inefficient borrowing.

The main finding of this approach is related to the evidence of Spain decentralization process, where the incentive to borrow is grater the larger the region because the grant pie increases more when a larger region borrows. This result, that population matters for borrowing decisions is due to reasons separate from the “too big to fail” argument. When larger region borrow, their decisions have a larger impact on central taxes owed and grants received relative to the impact when smaller regions borrow, thus the size of the region undertaking the borrowing will affect the incentives faced by the region.

Because the theoretical model of the last approach will be used as a base model for this study, its specification and a detail description will be presented in a further chapter. However, elements of all the three sections of this chapter will be considered in the design of the final theoretical model for the LG borrowing incentives under the decentralization process in Bolivia.

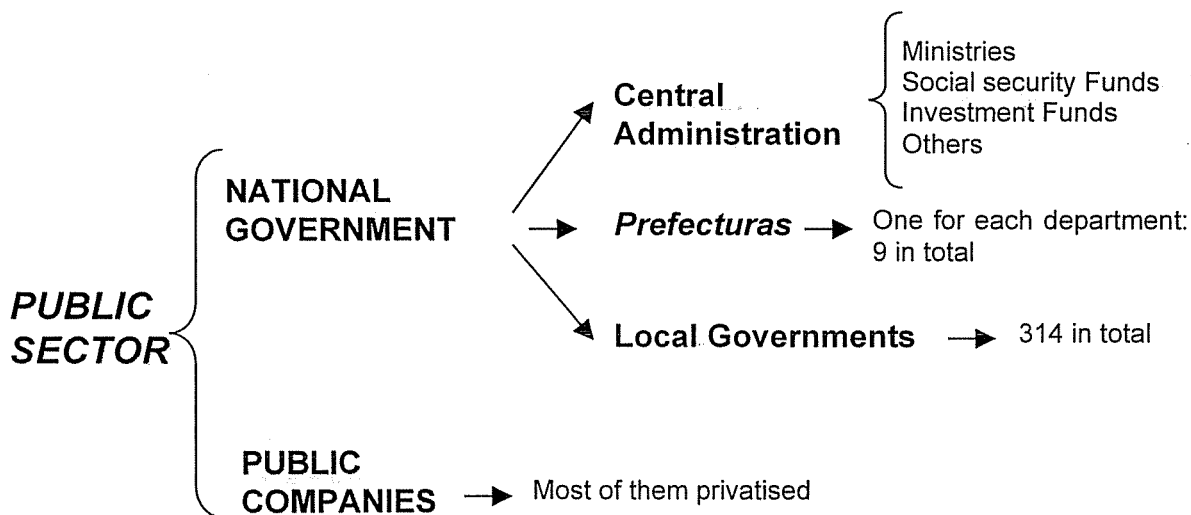
CHAPTER 3

3. THE DECENTRALIZATION PROCESS IN BOLIVIA

In Bolivia, where before the decentralization the state was involved at the local level, if at all, with local schoolhouses, health posts and, perhaps, a military garrison or custom office, each reporting to its respective ministry, after the decentralization process there is now an elected local government accountable only to local voters (Faguet, 2000).

After the 1993 national elections, the Bolivian government implemented a second generation of policy reforms⁵ to deepen economic changes and democracy. Apart from other important policies and changes in the economic structure such as capitalization, privatisation and the new regulation system, the decentralization process constitutes a radical economic and political transformation at the intergovernmental level aimed to modernize the government and to involve communities in public decision-making. The Bolivian decentralization model includes the reform to the local administrations and the deconcentration of activities to departmental governments or *Prefecturas*⁶.

The Bolivian public administrative system follows this structure:



In 1994 Bolivia started to establish the basis for increasing the efficiency of the public resources allocation, through the distribution of new roles and responsibilities to the *prefecturas* at the

⁵ The first generation of reform is related to all the policies implemented after the economic crisis of 1985, when Bolivia started a new economic and political era, under "free market" economic system and democratic electoral structure. At that time, the base for the new structure for resource administration was created with the Municipal Organic Law (1985) where the LGs developed under the democratic base.

⁶ *Prefectura* is a governmental institution part of the central administration but located at the meso level. There is one for each department, 9 in total. Ruled by the Administrative Decentralization Law.

departmental level and local governments (LGs) at the municipal level, strengthen the decentralization process. The main legal regulations that guide this process are the Popular Participation Law (1994) and the Administrative Decentralization Law (1995).

The decentralization framework considers the inclusion of local grassroots organizations in the planning, implementation and monitoring of municipal government functions, e.g. projects, accountability of the LG's council and others. In this sense, this radical reform involves the institutionalisation of social participation at the local level and constitutes an innovative attempt to institutionalise relations between civilian society and the Bolivian State (Thevoz, 1999).

In concordance with the objectives, the scope of the present chapter will concentrate on the description of the administrative decentralization process characteristics and the analysis of the borrowing system. The next section will describe the inter-governmental structure and responsibilities; followed by the description of the resource transfer channels and the effects of the decentralization process and it will end with the analysis of the internal borrowing system and the implications for economic stability.

3.1. INTER-GOVERNMENTAL STRUCTURE AND RESPONSABILITIES

The Popular Participation Law (PPL) and the Administrative Decentralization Law (ADL) constitute the basis for the Bolivian decentralization model and establishes a hybrid system of devolution of tasks to LGs (municipal level) and deconcentration of activities to *prefecturas*, according to the definitions presented in chapter 2 section 2.1.2. referred to the types of administrative decentralization. The main characteristics of both laws are:

- ✓ In general, the PPL establish LGs as a conjunction of urban and rural areas into territorial municipalities, which benefit from the provision of basic services and social infrastructure that in many cases were excluded before 1994. It defines as well the devolution or transference of tasks and new responsibilities to LG.
- ✓ The PPL law recognizes 198 new municipalities (64% of the total), and the existing ones were expanded to include suburbs and surrounding rural areas until the 314 municipalities comprise the entire national territory (Faguet, 2000). Notwithstanding their differences in size,

development and economic contribution, each LG responds to the similar duties and follows the same regulations⁷.

- ✓ The ADL establishes a deconcentration of administrative and policy formulation responsibilities on education, health, social assistance and delegation of responsibilities in transport, rural electrification, tourism and environmental protection, to *prefecturas*. Following the subsidiarity principle, the *prefecturas* also have the responsibility of strengthening municipal development and reaching isolated areas inside their departmental territory.

Table 1: ALLOCATION OF RESPONSIBILITIES UNDER DECENTRALIZATION

Function	Central Government	<i>Prefecturas</i>	Local Government
External Relations	Exclusively central		
Monetary policy	Exclusively central		
Fiscal Policy	Exclusively central		
Security	Exclusively central		
Natural Resources and Environmental Protection	Primarily central		
Mining	Primarily central		
Industry	Primarily responsibility		license for local business
Agriculture	Policy regulation and special projects implementation	Researching and training extension, public investment	Promotion of rural development and project implementation
Education	Policy development and regulation	Management of human and capital resources (responsibility delegated by central adm.)	Construction and maintenance of infrastructure and school equipment
Health	Policy development and regulation	Management of human and capital resources (responsibility delegated by central adm.)	Construction and maintenance of infrastructure and health care equipment
Irrigation	Policy planning and implementation	Elaboration of irrigation plans and project investment	Micro irrigation, construction and maintenance
Energy	Policy development and regulation	Investment in rural energy distribution	Investment in local energy distribution
Transport	Policy development and regulation	Construction and Maintenance of Regional roads	Construction and Maintenance of local roads
Regional Development	Interregional policy design	Regional strategy design and rural investment	Local development promotion

Source: PPL, ADL, Ballesteros (2002) and Aguilar (1994).

⁷ For example the tax collection and borrowing conditionality issues.

The table above presents the new structure of the allocation of responsibilities in the administrative organization of the State after the implementation of the decentralization process.

Other important characteristics of this process for the *prefecturas* and LGs can be summarized as follow:

a) **PREFECTURAS**

The *prefecturas* or departmental governments connects the national and the local level of government, acting as a meso level, by facilitating the implementation of national policies at the local level. However, there is a very weak coordination with other levels of government and usually the institutional relationships with them stand on political bases (VPEPP⁸, 2002). In this context it can be mentioned that the *prefecturas* constitute part of the executive power of the central government, the head of this institutional level, the *prefecto*, is not elected but is appointed by and henceforth accountable to the president.

The political intervention by the central administration sometimes could lead to an institutional structure that undermines accountability and transparency mechanisms, generating sometimes overlapping and poor coordination between different levels of government, e.g.: allocation of the capital expenditure of the public sector. Such situation is also reflected when the departmental governments attempt to exercise influence over municipalities and provinces.

b) **LOCAL GOVERNMENTS**

As it is shown in Table 1, the local infrastructure related to health, education, culture, sports, local roads and irrigation is transferred to LGs free of charge, along with the responsibility to administer, maintain and stock them with the necessary supplies, material and equipment, as well as invest in new infrastructure and the promotion of rural development (Antelo, 2000).

Another important consideration mentioned by Faguet (2000) is that the PPL also puts into place civil organizations, called overseeing committees (*comites de vigilancia*), in order to supervise, for instance, the municipal spending of Popular Participation funds and to propose new projects. These committees are composed of elected representatives from local, grass-root groups within each municipality, and are legally distinct from LGs. Their power lies on the possibility to suspend

⁸ VPEPP: Spanish abbreviation for the viceministry of strategic planning and popular participation, part of the Ministry of Finance.

all the disbursements from the central government to their respective municipality if they judge that such funds are being misappropriated.

In spite of the success of the decentralization as a process, particularly for medium and small LGs, according to one of the main critics, the problem lays in the imbalance of allocation of responsibilities due to: i) mismatch between expenditure responsibilities and revenue assignment, ii) the ambiguous definition of functions in shared responsibilities which undermines accountability, iii) production efficiency, economies of scale and deliver services not considered at the moment of the territorial partition; and iv) the uniform assignment of functions to LGs does not take into account differences in technical and managerial capacities (Ballesteros, 2002).

3.2. RESOURCE TRANSFER CHANNELS

The resource transfer channels will be explained according to the type of beneficiary, in this case *Prefecturas* and LGs.

- a) **Transference to *Prefecturas*.** There are three types of monetary resource transfers, which come from the central administration: coparticipation of the hydrocarbon special tax, the departmental compensatory fund of *regalias*⁹ and the conditional transfers (Peres *et al*, 1998).
1. The coparticipation in the hydrocarbon special tax is done using a simple formula; the half of the 5% of total tax collection is distributed within the nine departments on equal shares, and the other half uses the per capita criteria. On average, this source is equivalent to 22% of the *Prefectura's* total income.
 2. The departmental compensatory fund tries to reduce the differences in the *regalias* source of income, providing additional resources to *prefecturas* that receive less than the national average.
 3. The conditional transfers includes the ones that cover remuneration for teacher and medical personnel, over which resources the *prefecturas* have not any control, the amount of them, the number of beneficiaries and the remunerative structure are determined in coordination by the Ministry of Education, Health and Finance.

⁹ *Regalias* is the tax over the sales price of petroleum.

The 15% of the *Prefecturas*' total resources is the limit that can be assigned to functioning¹⁰ budget expenditures and the rest is to cover the departmental investment budget.

b) Transference to LGs. There are two types of monetary resource transfers, which come from the central administration: general task transfers and transfers for specific tasks¹¹. The most important general transfer is the coparticipation of the national tax revenues that rose from 10% to 20% due to the PPL. More importantly, whereas before these funds were apportioned *ad hoc*, with highly political criteria, after decentralization they are distributed strictly on per capita basis to each LG¹².

The LGs have to assign 3% of the resources transferred to the maternal-infant assistance insurance and no more of 15% to functioning expenditures, the rest of the resources are meant to cover social investment.

Specific task transfers are assigned in the form of cofinancing resources, in order to promote expensive or specific projects, especially those with high social impact, by providing resources that can cover all or part of the pre-feasibility and/or the project implementation expenses. These transfers can come in the form of donation or credit with concessional terms. The National Fund of Regional Development (FNDR) is the institution that represents the central administration in this project financing and acts like a state development bank as well as intermediary for international and national resource transfer to LG.

In addition, the specific tasks transfers are meant to correct for some externalities or shocks and to subsidise some activities that are national priority, e.g.: environmental protection projects or preventive health.

Although, these types of transfers can help to reduce the inequalities between LGs, the development differences between the capital LGs and the rest of the LGs is still wide.

¹⁰ According to the national accounting classification of expenditures, these resources can be used to cover 1) functioning expenditures: operating costs like wages and administrative and basic costs (energy, water, etc); and 2) investment: all the expenses related to investment projects including salaries, inputs, equipment, administration costs, etc.

¹¹ General task transfers are used to cover LG expenses in any activity in the functioning or investment classification under minimum conditions. Specific task transfers cover only well identify activities with high social impact that are expensive. In general are given under certain conditionalities and like support of a national policy (reduce illiteracy, health policy, etc).

¹² 5% of the national tax collection is distributed to state universities in the country, while the rest 75% covers part of the central administration expenditures.

The automatic coparticipation transfer mechanism allows LGs to plan their activities and investments in the short and medium run. Notwithstanding the LGs claim for a compensation fund every time that the transfers are below the amount estimated in their budget. On the other hand, the transfers to *prefecturas*, the *regalias* and the coparticipation of the hydrocarbon special tax, are unstable because they are directly connected to the international price fluctuations of the hydrocarbons.

The PPL also transfers to LGs the administration of property and vehicle taxes and allows them to rise revenues from business licenses, fees for municipal services provision, leases and sale of assets. However, their capacity is restricted due to the fact that any change of the tax rates has to be approved by the national parliament.

Finally the LGs have access to grants (without reimbursement) allocated by the Social and Productive Investment Fund (FPS), to credits administered by the National Fund of Regional Development among other sources, in general under concessional characteristics, situation that will be described later in this chapter.

3.3. RESOURCE ALLOCATION IMPACT OF THE DECENTRALIZATION PROCESS

There are many studies that confirm the overall benefits of the decentralization process in Bolivia. This section will not tend to present all the positive arguments, but the related ones to the scope of the research. It is considered that one of the main impacts of the process is the effect over the allocation of resources, to validate this aspect; the findings of the study presented by Faguet (2000) about the changes in the public investment patterns are summarized as follow.

The evidence presented by Faguet (2000), suggest that Bolivian LG's share of public investment increased 17 times, from 0.7 to 12% of the total, and significantly altered its distribution, due to the implementation of the decentralization process. Before decentralization the nine departmental capitals shared 93% of all the funds devolved from the center, leaving 7% for the 302 municipalities. The distribution of resources was such the biggest LGs, e.g.: La Paz, Cochabamba and Santa Cruz, accounted for 86% of the total of resources. After decentralization their shares fell from 93% to 38% and from 86% to 27%.

The application of the per capita criteria resulted in a massive shift in favour of smaller LGs in Bolivia. In contrast, the larger cities saw modest gains and only La Paz suffered a net reduction in this type of transfer, it is a clear sign of how disproportionately it benefited under the old system.

Before 1994 central government's main investment sectors were transport, hydrocarbons, multisectoral and energy. Together these 4 sectors account for 73% of the total public investment during 1991-93. After decentralization, LGs and *prefecturas* invested most heavily on education, urban development, and water & sanitation, together accounting for 79% of municipal investment during 1994-96. The study found therefore evidence that local and central government have very different investment patterns as a result of different prioritisation.

Furthermore, the investment under the centralized government was significantly skewed in favour of a few LGs that received enormous shares, other group had more or less significant investment, while almost half of the LGs received nothing at all.

Another benefit is the substantial increase in social investment, e.g.: health, education, sanitation and urban upgrading. Furthermore, by driving down a non-negligible proportion of public revenues to a level of local government which previously did not exist, they make possible a significant shift in the spatial and social distribution of public expenditure (Booth *et al*, 1999), which originated a clear prioritisation of social projects above productive projects (VIPFE¹³, 2000).

Table 2: SECTORIAL MUNICIPAL INVESTMENT (in US\$ and %)

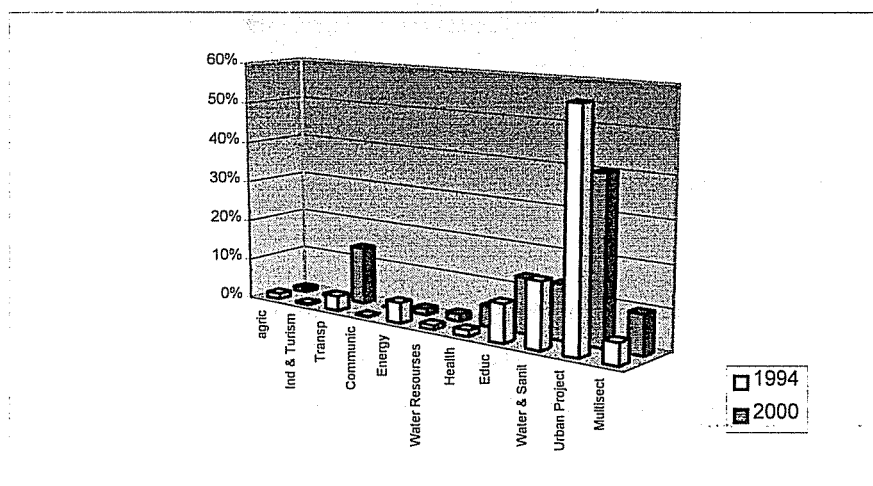
sector	1994	1996	1988	1999	2000	Var %94-00	%tot 1994	%tot 2000	Dif 94-00
agric	456,071	2,193,532	2,931,561	2,548,756	1,406,361	208.4%	1.40%	1.00%	-0.40%
Ind & Turism	75,023	562,359	64,872	2,837,754	467,602	523.3%	0.23%	0.33%	0.10%
Transp	1,175,776	7,147,979	11,754,950	28,754,825	19,611,379	1568.0%	3.61%	13.99%	10.38%
Communic	59,445	331,649	196,332	122,115	56,549	-4.9%	0.18%	0.04%	-0.14%
Energy	1,650,761	6,206,133	4,391,018	3,194,292	2,143,448	29.8%	5.07%	1.53%	-3.54%
Water Resources	327,733	1,961,989	2,975,882	5,050,575	2,340,013	614.0%	1.01%	1.67%	0.66%
Health	468,009	11,277,100	5,436,042	10,129,456	6,927,432	1380.2%	1.44%	4.94%	3.51%
Educ	3,039,131	34,311,349	26,600,439	28,403,920	18,852,782	520.3%	9.33%	13.45%	4.12%
Water & Sanit	5,215,377	15,130,730	21,282,274	20,890,911	18,715,393	258.9%	16.01%	13.35%	-2.66%
Urban Project	18,372,408	72,713,645	41,029,747	61,762,873	56,105,347	205.4%	56.41%	40.03%	-16.38%
Multisect	1,728,543	7,019,463	11,383,091	10,115,486	13,535,907	683.1%	5.31%	9.66%	4.35%
total	32,568,277	158,855,928	128,046,208	173,810,963	140,162,213	330.4%	100.00%	100.00%	

Source: VPEPP (2002)

¹³ VIPFE: Spanish abbreviation for the Viceministry of Popular Participation and External Financing, part of the Ministry of Finance.

Table 2 presents the evolution of the sectorial municipal or LG's investment. The statistical information confirm the findings of Faguet (2000), the LGs had change the patterns of the resource allocation, the investment shares difference between 1994 and 2000 shows clearly the shift towards social investment, with an increase of 4.4%, 4.1%, 3.5% and 10.4% in the shares of the multisectorial, education, health and transport investment respectively. Complementary Figure 1 presents the sectorial municipal or LG's investment shares for 1994 and 2000, we can observe that in 1994 the prioritising sectors were the urban projects and water and sanitation, capturing around 72% of the total resources, while in 2000 the prioritising sectors were urban projects, education, health and transport, representing 80% of the total resources.

Figure 1: SECTORIAL MUNICIPAL INVESTMENT SHARES (1994 Vs. 2000)



The LG's investment is not always covered with their own resources, in most of the cases the National Development Funds share the costs or it provides soft loans to the LGs. In other cases, the LGs borrow the resources needed for the implementation of projects or for the general investment, from private suppliers or other public entities.

The Bolivian sub-national borrowing system is regulated and follows certain characteristics that will be described in the following section.

3.4. SUB-NATIONAL BORROWING SYSTEM

The Basic Normative for Public Borrowing¹⁴ (BNPB) rules the borrowing administration, internal and external, provides the guide for the control system, assigns the limits for internal borrowing, and appoints the Ministry of Finance as the responsible institution for the administration, control and implementation of this normative.

The Financial or Budget Law that establish the specific normative for the public administration borrowing policy is approved every year. In concordance with the BNPB, the borrowing criteria limits are two¹⁵:

Table 3: BORROWING CRITERIA LIMITS

RATIO	LIMIT	CHARACTERISTIC
Current year debt service / previous year revenue	20%	Debt sustainability limit
Present value of the debt stock / previous year revenue	200%	Borrowing growth limit

Source: Financial Law

Although, the BNPB is meant to guide the internal borrowing system also the ADL and the Municipal Organic Law (MOL) extend its characteristics. The ADL extend to Prefectures the possibility to borrow, under the same conditions described in the BNPB and the MOL applies for LGs.

The MOL allows the LGs to emit or buy credit certificates following the normative of the financial system¹⁶ and to borrow from the National Investments Funds without any certificate from the Ministry of Finance until they reach the limits described in BNPB, supporting the LG “autonomy” principle of the PPL. The later consideration is not clearly described in the BNPB neither in the financial or budget law, which leads to a certain type of conflict of interests¹⁷ and misunderstandings e.g. for the internal debt control.

The magnitude of the internal indebtedness is large and has grown rapidly, it represents almost 5% of the GDP, which 45% correspond to *prefecturas* and 55% to LG (see tables below).

¹⁴ “Normas Basicas del Sistema de Credito Publico”, 1997, is part of the Governmental Administration and Control Law No. 1178, which rules all the public administration in Bolivia.

¹⁵ Financial Law, Article 35o.

¹⁶ Should be understood as the private financial system normative.

Although the indebtedness of the *prefecturas* is high, it had received less analysis because it has been considered part of central administration borrowing decisions (not independently) and also because its lack of reliable information, situation that will create fiscal conflicts in the future.

Table 4 and 5 present the borrowing situation for all the *prefecturas* and nine departmental capital LGs (except Cobija plus El Alto) for the year 2000 as a percentage of the GDP.

Table 4: PREFECTURA'S BORROWING SITUATION AND REVENUES
(% of GDP, 2000)

PREFECTURA	Debt Stock	Debt Service	Revenues	Debt Stock/ Revenues	Debt Service/ Revenues
La Paz	0.17%	0.03%	0.21%	83.4%	15.5%
Santa Cruz	0.75%	0.09%	0.34%	218.3%	25.8%
Cochabamba	0.15%	0.03%	0.20%	74.6%	17.5%
Beni	0.11%	0.00%	0.06%	199.3%	7.4%
Tarija	0.58%	0.02%	0.10%	559.9%	20.6%
Oruro	0.18%	0.01%	0.09%	196.6%	13.3%
Chuquisaca	0.16%	0.02%	0.09%	181.2%	18.9%
Potosi	0.22%	0.02%	0.09%	255.3%	18.0%
Pando	0.05%	0.00%	0.04%	116.2%	4.3%
TOTAL	2.37%	0.22%	1.22%	209.42%	15.70%

Source: IMF report, 2000.

If we consider the borrowing criteria limits, 200% for the debt stock/revenues ratio and 20% for the debt service/revenues ratio, three *prefecturas*: Santa Cruz, Tarija and Potosi, had to apply for the Financial Rescue Plan (FRP), however, at the moment this document was elaborated, only the Tarija's *Prefectura* had begun the application process.

Nevertheless the rest of the *prefecturas* had not exceeded the limits of borrowing, Chuquisaca, Oruro and Beni are near to reach them, particularly in the case of the borrowing growth limit. In the aggregate, the *prefecturas* borrowing situation had exceed the borrowing growth limit, and considering that this government level is closely related with the central administration, the impact of their indebtedness will affect directly the national fiscal balance in the future.

On the other hand, the LG's borrowing situation is also a matter of concern. As it can be seen in table 5, the information for nine departmental capital LGs (except Cobija plus El Alto) shows that the main problem is the debt sustainability limit, where five of the nine LG exceed the 20% limit, and this ratio represents in the aggregate almost 40%. This situation, which can also be extended

¹⁷ This consideration is also described in Peres *et al.*: "Bolivia: las Relaciones Fiscales Intergubernamentales. Propuestas para mejorar el uso de los recursos y el manejo macroeconomico", FMI, 1998.

for the rest of the LGs in the country, suggests that in the coming years mostly all the bigger LGs will face a fiscal constraint due to the need to repay their debts.

In the aggregate, the sub-national borrowing situation is a sign for potential fiscal imbalances. The debt stock ratio limit is close to be exceeded (180%) and the debt service ratio is higher than the limit (38.8%). Considering that the information correspond to the most important sub-national public institutions, in economic terms, the analysis of the nature of the borrowing incentives and their characteristics of the overindebtedness besides the implementation of corrective measures, are imperative.

Table 5: LOCAL GOVERNMENT'S BORROWING SITUATION AND REVENUES
(% of GDP, 2000)

LOCAL GOV	Debt Stock	Debt Service	Revenues	Debt Stock/ Revenues	Debt Service/ Revenues
La Paz	0.92%	0.13%	0.57%	144%	26%
Santa Cruz	0.76%	0.24%	0.42%	274%	93%
Cochabamba	0.50%	0.06%	0.32%	276%	93%
Trinidad	0.06%	0.01%	0.03%	327%	15%
Tarija	0.17%	0.05%	0.24%	148%	59%
Oruro	0.18%	0.02%	0.09%	199%	20%
Sucre	0.06%	0.02%	0.01%	64%	15%
Potosi	0.05%	0.01%	0.05%	113%	16%
El Alto	0.14%	0.02%	0.19%	75%	13%
TOTAL	2.84%	0.56%	1.92%	179.99%	38.80%
SUBNATIONAL¹	5.21%	0.78%	3.14%	194.71%	27.25%

Source: IMF report, 2000.

1: Prefectura and LG's borrowing situation.

In addition, Table 6 presents the debt structure of the same nine departmental capital LGs selected for the previous analysis. The statistics show that the major creditors are suppliers and salaries (31% and 14%, of the total) and for the public debt, the major creditor as it is expected is the National Investment Funds (19% of the total).

The called floating debt creditors, suppliers, non-paid salaries and social security debt, constitute the hardest debt to be controlled or observed before the borrowing occur, that creates a negative borrowing incentive for the LG to increase their debt burden. The debt evolution of this creditors increased in 144%, 30% and 120% respectively, between 1997 and 1999, and their weight over respect to the current revenues for 1999 reach to 52.9%, 23.4 and 7.9%, representing around 84% (134.7 Mill. of US\$) of the total revenues.

Table 6: LOCAL GOVERNMENT DEBT STRUCTURE (US\$)

CONCEPT	1997	1998	1999	% of tot.	Rel. Change	% of Current
					97-99	Revenues
Internal Debt	175,126,667	218,001,741	249,831,433	91.6%	42.7%	155.8%
<i>Private Debt</i>	95,545,049	147,306,541	148,540,265	54.5%	55.5%	92.7%
Banks	31,794,385	25,461,426	26,130,542	9.6%	-17.8%	16.3%
Suppliers	34,835,491	89,447,141	84,884,825	31.1%	143.7%	52.9%
Salaries	28,915,173	32,397,974	37,524,898	13.8%	29.8%	23.4%
<i>Public Debt</i>	79,581,618	70,695,200	101,291,168	37.1%	27.3%	63.2%
Central Adm.	19,670,161	12,388,774	31,557,112	11.6%	60.4%	19.7%
Social Security	5,746,327	7,612,638	12,642,413	4.6%	120.0%	7.9%
Investment Funds	38,076,226	41,227,999	51,359,707	18.8%	34.9%	32.0%
Others	16,088,904	9,465,789	5,731,936	2.1%	-64.4%	3.6%
External Debt	13,108,491	0	22,864,546	8.4%	74.4%	14.3%
TOTAL	188,235,158	218,001,741	272,695,979	100.0%	44.9%	170.1%
Current Revenues	133,288,477.5	140,795,250.0	160,323,133.1		20.3%	100.0%
Tot Debt/ Current Rev.	141.2%	154.8%	170.1%		20.4%	

Source: IMF report, 2000 and Ministry of Finance statistics.

The main criticisms of the internal borrowing system refer first to the criteria for the borrowing limits due to the fact that some LGs, particularly the bigger ones, have exceeded these limits and created social and economic conflicts at the local and national level raising the question of their usefulness. Second, the reliability of the statistics and detailed information over LG's indebtedness is low, as well as the estimation of magnitude and impact of the internal debt in the economy. Experts believe that the internal debt is underestimated, despite the national policy implemented in 1998 to clarify and organise the payments of the internal and external debt (Peres *et al*, 1998).

3.5. THE FINANCIAL RESCUE PLAN

In April of 2000 the Bolivian government approved the normative for the Economic Reactivation¹⁸, in which the need to restore the fiscal balance in the LG's counts is established, and few days after, the government approved the Financial Rescue Plan¹⁹ (FRP) for public entities. The objective of the Plan is to obtain fiscal sustainability in the medium term in the public entities classified as overindebted because they exceed the borrowing criteria limits analysed in the previous section. The entity responsible for the implementation and evaluation of the plan is the Ministry of Finance.

¹⁸ Economic Reactivation (Reactivacion Economica) Law No. 2064 of April 3rd of 2000, Art. 46o.

¹⁹ Financial Rescue Plan (Plan de Readequacion Financiera) approved by Ordinance (Decreto Supremo) No. 25737 of April 14th, 2000.

In the same year, five public entities were candidates to subscribe into this program, the LG of La Paz, Santa Cruz, Cochabamba, Tarija and Trinidad²⁰. Each one of them signed the agreements with the government, where they granted some specific goals for tax collection (revenues), limits for expenditures and borrowing and to introduce several accountability and administrative improvements, all in exchange for a soft loan that helps to overcome the liquidity constrain and in the reprogramming of their debt portfolio.

According to the evaluation presented in 2001²¹, at the time of the FRP implementation these LGs had accumulated around \$us 220 millions in debt, from which almost \$us 150 millions was short run passives representing an extremely financial liquidity problem. The FRP could, at the beginning, control the situation extending the term of the loans that included passives with public private entities, using a \$us 46 millions loan obtained mainly from the Andean Development Corporation²².

The FRP also persuaded to LGs to opened guarantee funds to serve the debt payments every month, in which part of the daily transfers form the coparticipation of the national tax collection was retained automatically. These guarantee funds forced the LGs to face a hard budget constrain at the beginning, however they managed to avoid the constrain by increasing their "floating" debt²³, situation that will creates economic instability in the coming years. The following tables will help to understand the hard fiscal situation of these LGs.

The table below presents the borrowing ratios and the fiscal balance of the five LGs for 2000, when the FRP was implemented. All five exceeded at least in one of the borrowing criteria limits, if not in both (20% for the debt service and 200% for the debt stock), and presented low or negative fiscal balance except for La Paz.

Table 7: BORROWING RATIOS AND FISCAL BALANCE (2000)

Local Gov.	Debt Stock (Mil. US\$)	Debt Stock/ Revenues	Debt Service/ Revenues	Fiscal Balance (Mil. US\$)
La Paz	69.4	144%	26%	13.79
Santa Cruz	70.6	274%	93%	-0.30
Cochabamba	65.4	276%	93%	-2.25
Trinidad ¹	6.1	327%	15%	-1.16
Tarija	6.6	148%	59%	0.95

Source: Ministry of Finance

1: The Debt Stock/revenue ratio information belongs to 2001.

²⁰ Trinidad signed the agreement in May of 2001, however the diagnosis was completed in 2000.

²¹ Vargas, Cesar: "FRP evolution and perspectives", World Bank Report, 2002.

²² The Andean Development Corporation (*Corporacion Andina de Fomento*) supported the program with \$us 45 millions and the World Bank with the rest, however, the conditions of the credit were not concessional (15 years term and 7% of interest rate), seen as "bridge" loan until the government could exchanged it for another with better terms.

²³ The floating debt is the debt accumulation of passives mainly from social security funds and non-paid salaries.

The 2000 and 2001 evaluations of the FRP suggest that it did not achieve the expected impact and these LGs had worsened their fiscal situation, do not following the path of debt sustainability that the plan had meant to. Part of the explanation is the external shock²⁴ that affected the economy, however, these LGs present low improvement in the accountability and information transparency goals and the control over new debt (floating debt). This situation is also the result of lack sancionatory measures credibility, taken into account that these LGs are the biggest (in population shares and economic impact) in the country, suggesting that these LGs consider themselves as too big to fail, forcing new bailouts by the central administration, presenting soft budget constrains in the resource management.

The increasing number of LGs that seem to follow the unsustainability debt path became a national concern in the last years. The number of applications to join the program and the ones that effectively may need has increased significantly. Considering that the FRP is a demand program, where the LGs have to request for its implementation, the Ministry of Finance does not have a detailed information of the borrowing condition until the LGs apply to be part of the program, situation that prevent a correct estimation of the internal debt.

3.6. IMPLICATIONS FOR ECONOMIC STABILITY

According to Burki, *et al* (2000), some examples in which the economic stability can be harm under a decentralization structure, that also can be applied for the Bolivian case, are: 1) if the tax bases are decentralized without clearly assigning expenditures to the level of government that receives the revenues, 2) when LGs accrued unsustainable debts and had to be bailed out by the central government, 3) when governments solve their fiscal imbalances at the center by decentralizing expenditure responsibilities without the matching revenues, in some cases leading to unsustainable sub-national deficits.

The economic tendency is to expect that sub-national governments have less incentive to consider the macroeconomic impact of their policies or the impact of sub-national stabilization policies tends to leak away to other jurisdictions, giving macroeconomic stability of public goods characteristics, while central governments are usually assigned the task of maintaining stability, and should have the tools to go with it, such as control over monetary policy, and at least some control over fiscal conditions. However, whether intended or not, sub-national policies can

²⁴ The Brazilian crisis that affected the domestic market, particularly the export sector.

influence stability: even balanced budget spending increases by sub-national governments can affect macroeconomic stability; and sub-national borrowing can become a major macroeconomic concern. In addition, macroeconomic shocks can hit the regions differently, making some sub-national influence on macroeconomic conditions actually desirable.

After the review of the main characteristics of the decentralization process in Bolivia, we can argue that the impact of this process comes in two different ways, as we said before, this process had been mainly positive considering its the effect over investment and the improvements in resource allocation equity, however, the negative effect of the sub-national borrowing unsustainability that would affect the national fiscal stability creates an uncertain final impact that can easily turn negative.

The next chapter will present the empirical results that will answer the research questions established at the beginning of the present document.

CHAPTER IV

4. THE PERVERSE INCENTIVES FOR THE SUBNATIONAL BORROWING BEHAVIOUR

One of the major achievement of the decentralization process in Bolivia is the enhancement of the access of people in rural areas and local communities to central government resources. However, the reallocation of responsibilities and goals transferred to local governments (LG) due to the decentralization process, was not necessarily matched with a sufficient level of resources: human, neither financial nor managerial. The shortage of financial resources transferred and collected by the LGs, had lead to an increase the LG's indebtedness situation. The previous chapter described the subnational borrowing system in Bolivia and its difficulties in the last years to maintain the internal debt in a sustainable trend, in the present chapter we will attempt to explain, using a panel data technique, how the fiscal behaviour, economic weight and population size of the LGs affect their borrowing incentives.

In the literature²⁵, the concept of perverse borrowing incentives is reflected in changes in the borrowing per capita of each LG in a second period. We consider that the best proxy for such incentives will be the analysis of the probability of repaying the debt, considering that some LGs in Bolivia were officially classified as over-indebted and subjects to central intervention under the financial "rescue" plans by the end of 2000, that compromises national fiscal stability, as it was exposed in the previous chapter.

The model will tend to probe that relatively bigger LGs, with characteristics such as major economic impact in the economy (income share), relatively higher revenues and expenditures, bigger population size (population share), higher development, will increase the probability to be overindebted than smaller ones, and this situation matches with the theory of incentives which emphasise that bigger the LG higher the borrowing incentives and higher their probability of been "rescue" by the central administration.

The next section will describe the theoretical model to be used for the empirical testing and analysis while the second part of the chapter will include the model design and specifications. Finally, the results of the estimation and the corresponding analysis will be presented in the third section.

²⁵ Like in Garcia, Goodspeed, and McGuire T. (2002) and in Wildasin, D. (1997).

4.1. A SUBNATIONAL BORROWING BEHAVIOUR MODEL

Garcia, Goodspeed, and McGuire (2002), develop a two-period inter-temporal theoretical and empirical model²⁶ (in the future: base model), using data from local governments (LGs) in Spain, which objective is to explore how LG's perverse incentives can arise under systems with incomplete and evolving fiscal decentralization, and how those perverse²⁷ incentives for borrowing depend crucially on the regions expectations about the response of the central finance system in period two.

In the theoretical model presented by the authors, the first period of spending responsibilities and not revenue-raising authority have been "devolved" to LG. The central government decides on an initial level of grants for each region in each of the two periods. To provide a rationale for regional borrowing (or lending), it is assumed that this initial exogenous choice of grant level by the central government does not exactly match the demand of the regional government for spending in at least one of the two periods.²⁸ The LG therefore borrows in period one to optimise its inter-temporal consumption decisions.

The assumptions of the model are:

- ✓ The LG chooses the level of borrowing in period one so as to maximize the utility of a representative consumer and considers other regions' borrowing as given. And it takes into account its expectation for future central government behaviour.
- ✓ i denotes the region and the numerals 1 and 2 the periods in the model.
- ✓ The utility of the representative consumer in region i is assumed to be a function of per-capita private consumption C_{i1} and C_{i2} and per-capita public consumption G_{i1} and G_{i2} , in periods one and two, and both consumptions are independent from each other.
- ✓ The representative consumer has a level of income in each period, Y_{i1} and Y_{i2} , net of initial central government tax payments.
- ✓ In addition to the exogenous central government per-capita grants received in each period, g_{i1} and g_{i2} , the region is allowed to borrow an amount per capita for public consumption in period one of B_{i1}^G . And the representative consumer can borrow an amount for private consumption in period one denoted by B_{i1}^C .

²⁶ This model makes use of the principal-agent model framework applied over the decentralization process in Spanish LGs, in the sense explained in chapter 2 of this document.

²⁷ The term "perverse" refers to the negative or inefficient decisions of the LG in their fiscal resource management.

- ✓ Each region takes the interest rate on loans, r , as given.
- ✓ For simplicity the model does not include a migration response, in which case the central government funding of initial grant levels would become relevant.

The model presents 3 cases that differ only in terms of LG expectations about the response of the central administration grants allocation for the second period. These are:

- i) When the LG does not expect the central government to change its allocation of grants in period two in response to its borrowing and it faces a *hard budget constraint*, in which the first period borrowing is paid back without considering the second period grants.
- ii) The hard budget constraint is maintained but the LG expects the central government to devolve taxing authority in period two;
- iii) the LG expects the central government to increase its second period grants, thus the LG can delay the repayments of the debt subscribed in period one and increasing its borrowing burden. In this case the LG faces a *soft budget constraint*.

4.1.1. Hard Budget Constraint

The assumption in this case is that the LGs do not expect changes in the financing system in the future. In other words, the regions do not expect the central government to increase second period grants in response to regional borrowing. The utility maximization problem for the Lgi, in terms of the borrowing for public (B_{i1}^G) and private consumption (B_{i1}^C), is²⁹:

$$MAX_{B_{i1}^G, B_{i1}^C} U_i(g_{i1} + B_{i1}^G | Y_{i1} + B_{i1}^C | g_{i2} - B_{i1}^G(1+r) | Y_{i2} - B_{i1}^C(1+r)) \quad (1)$$

Where:

g_{i1} = per-capita exogenous central government grant received in period 1 by the LG.

$B_{i1}^G | Y_{i1}$ = per capita borrowing for public consumption in period one, respect to the total income of the same period.

$B_{i1}^C | g_{i2}$ = borrowing for private consumption in period one, respect to the exogenous per capita central government grant received in period 2.

²⁸ It is assumed that the central government lacks enough information to match in terms of grants to spending demands of regions.

²⁹ In order to analyse the first order conditions, and other details of the model see: Garcia, Goodspeed, and McGuire (2002). Pg. 7-17.

$B_{i1}^G(1+r) \mid Y_{i2}$ = interest rate of the per capita borrowing for public consumption in period one, respect to the total income of period 2. It has a negative sign because the LG will tend to minimize this cost.

$B_{i1}^C(1+r)$ = interest rate of the borrowing for private consumption in period one. It has a negative sign because the LG will tend to minimize this cost.

The model assumes an independent inter-temporal budget constraint between G1 and G2 from private income, Y. If we assume the possibility of utility differentiation from both types of consumption, this assumption implies that regions with identical preferences and grants but with different per capita incomes will choose the same amount of the public good and borrow identical amounts³⁰.

In this case, the region can not change the level of taxes and therefore can not trade-off public for private consumption, the contemporaneous efficiency is not necessarily achieved, subnational capital markets may not correct for any initial over or under funding of LG. Nevertheless, if the inter-temporal efficiency is achieved: the central government forces the region to face a "hard" budget constraint and the representative consumer in each region considers the true opportunity cost of its borrowing decision, the value of reduced consumption in period two.

4.1.2. Regional taxing authority

The central government devolves taxing authority to the regions in period two (t_{i2}). This situation gives to regions the authority to tax their citizens in period two to pay off first period borrowing and/or to increase second period public spending. Second period grants received from the central government remain fixed. The regional government i problem, in terms of the borrowing for public (B_{i1}^G) and private consumption (B_{i1}^C) and the tax devolution authority (t_{i2}), is:

$$MAX_{B_{i1}^G, B_{i1}^C, t_{i2}} U_i(g_{i1} + B_{i1}^G \mid Y_{i1} + B_{i1}^C \mid g_{i2} + t_{i2} Y_{i2} - B_{i1}^G(1+r) \mid Y_{i2}(1-t_{i2}) - B_{i1}^C(1+r)) \quad (2)$$

Where:

g_{i1} = per-capita exogenous central government grant received in period 1 by the LG.

³⁰ Assuming that the public good is normal, rich regions will have higher levels of dissatisfaction with the resulting levels of public good consumption.

$B_{i1}^G | Y_{i1}$ = per capita borrowing for public consumption in period one, respect to the total income of the same period.

$B_{i1}^C | g_{i2}$ = borrowing for private consumption in period one, respect to the exogenous per capita central government grant received in period 2.

$t_{i2} Y_{i2}$ = LG's income tax revenue gained with the tax devolution authority in period 2.

$B_{i1}^G (1+r) | Y_{i2} (1-t_{i2})$ = interest rate of the per capita borrowing for public consumption in period one, respect to the income disposal (other income except taxes) of period 2. It has a negative sign because the LG will tend to minimize this cost.

$B_{i1}^C (1+r)$ = interest rate of the borrowing for private consumption in period one. It has a negative sign because the LG will tend to minimize this cost.

This case introduces two additional assumptions: a) The region i can impose a proportional income tax at rate t_{i2} in the second period, and b) the optimal amount of borrowing will be higher for regions with higher incomes, *ceteris paribus*³¹.

Since the contemporaneous marginal rate of transformation between public and private goods is also one, the solution in this case is contemporaneously as well as inter-temporally efficient.

If the central government initially allocates an insufficient level of grants to a region, and the region can impose taxes in the future to raise additional funds, the region will cover the gap between its allocated grants and its desired level of spending. As in the case before, the region takes into account the true opportunity cost of its borrowing decision, i.e., foregone second period consumption, so an efficient inter-temporal solution is achieved. Furthermore, unlike the previous case, the region can impose taxes in the future to raise additional funds; it is therefore able to trade-off private and public consumption, thus contemporaneous efficiency is also achieved.

4.1.3. Soft budget constraint

Under a soft budget constraint, region i expects the central government to increase second period grants when it increases borrowing, and also anticipates the same central government behaviour

³¹ The model does not consider any efficiency cost of either borrowing or taxes; that is, first-period taxation and first-period borrowing are perfect substitutes. If there were some efficiency cost to borrowing, such as an increase in the carrying costs of debt, and if taxes were available in the first period, the region would increase its reliance on taxes and reduce its reliance on debt finance. In the case of Bolivia is the other way, local governments reliance more on debt finance is less costly in the sense that they usually assume long term credits or a possibility a default in the debt service and also because any increase in tax rate implies a social and political cost. This fact will be analysed considering the outcomes of the model.

with respect to other regions' grant allocations. The LG i 's maximization problem, in terms of the borrowing for public (B_{i1}^G) and private consumption (B_{i1}^C), can be seen as:

$$MAX_{B_{i1}^G, B_{i1}^C} U_i(g_{i1} + B_{i1}^G | Y_{i1} + B_{i1}^C | g_{i2} + f_i(B^G)(1+r) - B_{i1}^G(1+r) | Y_{i2}(1-t_{i2}) - B_{i1}^C(1+r)) \quad (3)$$

Where all the variables are the same as equation (2), except for: $f_i(B^G)(1+r) = g_{i2}^B$ instead of $t_{i2}Y_{i2}$, which represents the additional amount of per capita grants that the central government is expected to give to region i .

When a region considers borrowing an extra monetary unit, the price it faces reflects two forces. In the first place the taxes paid by the representative agent to the central government will increase to finance the borrowing. Taxes may increase by less than a dollar because agents of all other regions contribute through central taxes to paying off the debt. In fact, the income of all other regions is viewed as common property that can be appropriated by borrowing and being bailed out. The second effect reflects an increase in central grants that the representative agent will receive as a result of the borrowing decision, and thus reflects the softness of the budget constraint.

Central grants will increase for some or for all of the extra monetary unit (in the future: dollar) of borrowing and will be distributed back to the region to compensate (perhaps only partially) for the borrowing. There are two cases derived from this perspective, e.g. bailout and rescue.

4.1.3.1. Bailout

In the case of a pure bailout the region expects the central government to increase second period grants dollar for dollar with the region's first period borrowing and thus there is no opportunity cost to be paid in terms of second period consumption. The price is less than one because the region shares the tax consequences of its borrowing with all other regions, and this leads to a far from efficient demand for public spending in period one and hence excessive borrowing.

The price faced by a region is equal to the region's share of national income because when a region chooses to borrow an extra dollar on behalf of its representative agent, that marginal decision to borrow a dollar is made for all of its n residents. Central grants and thus central taxes must increase by population size in order to bail the region out. This increase in central taxes will

be borne by residents in proportion to their incomes, e.g. residents of richer regions paying greater amounts. Thus, the increase in a representative agent's central tax obligation associated with its region borrowing an extra dollar is greater when the region has a larger share of national income³².

4.1.3.2. Rescue in the aggregate

Considering that pure bailout may be an unlikely event, this case takes into account a case when a region expects the central government to increase second period grants to all regions by an amount equal to the aggregate borrowing of all regions, and to distribute the additional amount among regions in proportion to each region's population³³. Two characteristics define the grant rule: each region's borrowing affects the amount to be finally distributed to every other region, and a predetermined criteria used to distribute the additional funds.

If the price faced by a region depends on a region's population share, when a region chooses to borrow an extra monetary unit, that marginal decision is made for all of its n residents. Because the central government has promised to increase aggregate grants in response to aggregate borrowing, central grants will increase in accordance to the population of the borrowing region. *The incentive to borrow is, therefore, greater the larger the region population because the grant pie increases more when larger region borrows.*

The theory suggest that population (and size more generally) matters for borrowing decisions and it is due to reasons separate from the "too big to fail" argument. When larger regions borrow, their decisions have a larger impact on central taxes owed and grants received relative to the impact when smaller regions borrow. The price faced by a region reflects these two phenomena and thus the size of the region undertaking the borrowing will affect the incentives faced by the region.

In the base model specification the fifteen Spanish LGs were divided into two groups, 5 LGs with high and 10 LGs with low responsibility in the education and health sector, using annual observations over the period 1984-1995. Using panel data for the per-capita borrowing in the two groups of LGs two equations with one share variable at a time were estimated, one with the income share and another with population share, both are proxy variables for the size effect of each LG, the other variables included were the aggregate income share and two control variables

³² Since the after-tax income in period two of any LG depends on the borrowing of all other regions, a complete solution would involve determining the equilibrium levels of borrowing for each region. A soft budget constraint not only changes the price of public consumption faced by a region but also changes after-tax income and therefore the demand for all goods.

that take the value of one if the LG have education and health responsibilities and is uni-provincial and a dummy variable that captures general borrowing trends over the period and general time-varying factors affecting borrowing, such as the interest rate.

The main result of their research is that the income share and population share have essentially the same effect in both equations: negative and insignificant for the ten lower responsibility regions and positive and significant for the other five. This result is consistent with the theory, the low responsibility regions tend to receive relatively smaller grants and thus the grant component of the price is not as important as for the former group and incentivate a hard budget fiscal administration.

The result for the five high responsibility regions confirm the theory where they have an expectation that the evolution of the fiscal system will entail a rescue in the aggregate or they will be bailed out by the central administration, creating the perverse incentives to borrow inefficiently and therefore to face a soft budget constrain.

4.1. THE BOLIVIAN BORROWING INCENTIVES MODEL

The empirical model for the borrowing incentives under the decentralization framework in Bolivia is based in the model described in the previous section. However, the characteristics of the Bolivian LG and the availability of the information creates the opportunity to apply some changes into the empirical application.

The theoretical model developed by Garcia, Goodspeed, and McGuire (2002) is based in the maximization of the LG's utility function, considering a two-period inter-temporal model, in which the LG borrows in period one to optimise its consumption decisions over time. This maximization problem will be affected by the LG's borrowing incentives that derives from their expectation of the future evolution of the fiscal system. The borrowing incentives will materialize into a hard or soft budget constrain, depending in the LG's expectations about the response of the central governments in front of their debt burden.

³³ The essence of the case would not change if different distribution criteria for the grants is used or if the increase in total grants were only a fraction of the aggregate borrowing of the regions.

The following table presents a summary of the variables introduced in the Garcia, Goodspeed, and McGuire (2002) theoretical and empirical model and their correspondence with the Bolivian estimation model.

Table 8: THEORETICAL AND EMPIRICAL VARIABLE CORRESPONDENCE

THEORETICAL MODEL: MAXIMIZATION FUNCTION VARIABLES	LINK WITH:	
	SPAIN EMPIRICAL MODEL VARIABLES	BOLIVIAN EMPIRICAL MODEL VARIABLES
Per-capita central government grant (resource transfer)		Per capita coparticipation of national revenues
Per capita borrowing for public consumption	Per capita grant	Per capita grant level
		Debt stock in average or for each year
Total income	Per capita income	Per capita income
LG's income tax revenue		Level of local tax collection or local tax collection over total revenue ratio
Interest rate of the per capita borrowing		not included*
Additional amount of per capita grants expected	Per capita borrowing = dependent variable	overindebtedness = dependent variable
	Aggregate income share	Average income
	Aggregate population share	Population share
		Household size
		Population density
		Investment var.: per capita, average, soc. & produc.
		Expenditures var.: average & per capita, & salaries
		Administration size, accountability support and economic transparency variables.
	Dummies: Health, education, others	Dummies: political link and economic activity

* The borrowing interest rate was not considered for the Bolivian model due to its concessional terms, which allows its exclusion from the maximization problem.

As it can be seen in the table above, the variables that will be used in the Bolivian estimation model maintain their relation with the theoretical frame.

The two-period inter-temporal model here applied can also be seen as a static model within the framework of the microeconomic game theory and the principal-agent models. This model can also be extended to more than two periods, and if it considers an accumulative maximization function over time, the LGs would face a dynamic model in which their maximization problem will take into account, besides the temporary restrictions, the previous responses of the fiscal system (the previous responses of the central administration). The historic behaviour would affect future decisions, e.g. if the central administration implements a financial rescue program for some LGs, they and also others would expect, *ceteris paribus*, the same response in the future, fact which will undermine the economic stability in any country.

In practice, one way to simulate a dynamic response is the use of time-series econometric analysis that follows an accumulative function, and if the information is available, this technique can be combined with the study of cross-sectional differences between individuals using a panel data estimation method³⁴. In the case of the Bolivian borrowing incentives model, the availability of three years information impede a deep analysis of a dynamic scenario, thus our model will follow a linear function for this period.

Furthermore, considering that the central administration had implemented the financial rescue programs in 2000, the analysis of the dynamic effects of this decision over the LG's borrowing incentives will constitute a more important factor in the subsequent years, aspect that is beyond the inter-temporal scope of the present research.

This innovative way to apply the principal-agent theoretical frame in the Bolivian study case, using a particular econometric specification, has the objective to find the variables or characteristics and their positive or negative influence over the LG's borrowing incentives to face a soft budget constrain that leads to an overindebted situation, which are captured by the probability to be overindebted for each one of the Bolivian LGs. Considering that almost all the variables selected for the simulation present a complete information for the 314 LG for three years: 1998, 1999 and 2000, the model specification selected will follow the panel data technique combined with a binary choice *Probit* model estimation.

4.2.1 Model Specification

The dependent variable specified for the Panel-Probit³⁵ estimation will take the value of 1 if the LG is overindebted and 0 otherwise. This specification provides a better understanding of the problem compare to the base model that studied the determinants of per capita borrowing in Spain, considering that the borrowing itself is not an inconvenience, each LG can chose to borrow if there is a gap between its revenues and expenditures or if it faces a financial constrain. The problem emerges when the borrowing exceed the limits of sustainability or possibility of repayment in the next periods, leading to an overindebted situation.

For the right hand of the equation, the probability to be overindebted by a certain LG depends on their fiscal and debt situation and other characteristics besides the population share and income

³⁴ For a detailed explanation see Greene, W.: "Econometric Analysis", Chp. 14: Models of Panel Data. Pg. 559-560. 4th Edition.

³⁵ See appendix for Panel-Probit estimation description.

share variables. The description of the variables and the expected effect over the dependent variable are shown in Table 9.

It is important to highlight that a positive effect of the explanatory variable over the probability of been overindebted is considered to be the path for a soft budget constrain, and the opposite is true for the negative effect.

As it was mention in the introduction of this chapter, the theoretical model had been modified and amplified in order to take into account all the available information. The model design will follow the form³⁶:

$$y_{it} = \alpha_i + \beta' X_{it} + \varepsilon_{it} \tag{4}$$

Where: $X_{it} = \beta_1 I_i + \beta_2 H_i + \beta_3 C_i + \beta_4 K_i + \beta_5 T_i + \beta_6 S_i + \beta_7 V_i + \beta_8 R_i + \beta_9 W_i$

And: $i = 1, 2, 3, \dots, 314$
 $t = 1, 2 \text{ and } 3$

The suffix *i* symbolizes each LG and *t* the period of time, in this case three years: 1998, 1999 and 2000. For the definition of the variables see next table.

Table 9: PANEL–PROBIT ESTIMATION VARIABLES

	VARIABLE DESCRIPTION	EXPECTED EFFECT ON THE PROBABILITY TO BE OVERINDEBTED	STATISTICALLY SIGNIFICANT COEFFICIENT AFTER ESTIMATION
I	Population share	positive	YES
H (vector)	Household size	positive	NO
	Population density	positive	NO
C (vector)	Per capita grant level	positive	YES
	Debt stock in average or for each year	positive	NO
K (vector)	Level of local tax collection or local tax collection over total revenue ratio	negative	YES*
	Per capita coparticipation level or ratio of coparticipation revenues respect to total income	negative	YES
	Per capita income	negative	NO
T (vector)	Total investment, per capita total investment or average total investment	positive	NO
	Social investment or per capita social investment	positive	NO
	Productive investment or per capita productive investment	positive	NO
	Per capita total expenditures	positive	YES
S (vector)	Total expenditures level or average total expenditures	positive	YES*
	Ratio of salaries expenditures respect to the total.	positive	NO
V (dummy)	<i>i</i> th LG's mayor belongs to the same political party of the national government	positive	YES

³⁶ This general form can also be inferred from the base model, however, our model includes additional variables. See Garcia, Goodspeed, and McGuire (2002), Pag. 26.

R (dummy)	<i>i</i> th LG's economic activity is different from agriculture	negative	NO
W (vector)	Number of workers in each LG for every 1000 habitant (administration size)	positive	YES**
	Number of NGO in the LG (accountability support)	negative	YES
	Number of OECA (grass-roots organizations) (accountability support)	negative	NO
	Economic transparency: total economic value demanded in all lawsuits presented at the justice court against each LG	positive	YES
α_i	Individual effect, which is taken to be constant over time but specific to the individual cross-sectional unit <i>i</i>		
ϵ_i	Error term of the estimation		

* In spite these variables were statistically significant, they reduced the overall significance of others in the model, thus their inclusion were dismissed.

** This variable is presented in a different estimation, because its theoretical explanation is not that clear.

The source of the information comes from the statistics from the Ministry of Popular Participation and the Ministry of Finance of Bolivia. The scope of the research includes the totality of the local governments in Bolivia, 314 in the period of 1998-2000. This period was chosen after considering the availability of the information and the particular deterioration of the sustainability of the LG debt in these years that led to the design of the financial “rescue” plans implemented since 2000, as it was explained in the previous chapter.

The three years Panel-Probit model designed for this study does not contain enough information to analyse the changes of the dependent variable over time, because the non-availability of detailed information for the early years of the decentralization process. However, the model is still valid for a cross-sectional analysis, where the individual characteristics of each LG in the three years will be related to their probability to be overindebted.

We consider the possibility that LG characteristics not captured by the explanatory variables may have an influence on the probability to be overindebted, in which case, the specification of fixed or random effects becomes important. The fixed effects model is a reasonable approach when there is confidence that the differences between units can be viewed as parametric shifts of the regression function³⁷. In our case, it is more appropriate to see individual specific constant terms as randomly distributed across cross-sectional units. As we will see later, the specification test indicate that LG specific effects are present: the Hausman test do not reject the random effects specification.

Considering that the specification model should include the random effects, the probit model has been commonly used for these cases, instead of the logit specification, leading to a consistent and

³⁷ Greene, W. : "Econometric Analysis", page 567, 4th edition, 2000.

efficient estimators for the coefficients of the explanatory variables or β , as it is mentioned in Baltagi (1995).

The results of the estimation can not be interpreted properly without the correction for the heteroscedasticity problem, because it can lead to wrong conclusions. As it is mentioned in Greene (2000, page 499) the problem of heteroscedasticity is sometimes consequence of data aggregation like time-series and cross-sectional models, in which the variances of the regression disturbances are not constant across the observations.

The STATA econometric program allows to correct the heteroscedasticity using the command *robust* in the estimation. This alternative produces valid standard errors even if the correlations within group are not hypothesized by the specified correlation structure³⁸. In the case of Panel-Probit model, the resulting standard errors are labelled “semi-robust” instead of “robust” as is the case for the simple probit estimation.

4.2.2. Estimation Results

The Panel-Probit estimation required the analysis of the statistical significance of all the variables described in the previous section. The following table presents the final results for the borrowing incentives model under the decentralization framework in Bolivia.

Table 10: PANEL-PROBIT ESTIMATION RESULTS

Prob.	Coefficient	Semi-robust Std. Err.	z	P> z	[95% Conf. Interval]	
Overindebt.						
popshare	1308.111	475.2211	2.75	0.006	376.6944	2239.527
gcorrpc	.009867	.0041444	2.38	0.017	.0017442	.0179898
copart	-7.55e-06	2.76e-06	-2.74	0.006	-.000013	-2.15e-06
deudapc	.0349309	.0112937	3.09	0.002	.0127958	.0570661
gob	3.111054	.79267	3.92	0.000	1.557449	4.664658
danoeco	1.14e-06	4.52e-07	2.52	0.012	2.54e-07	2.03e-06
_cons	-7.155551	1.338093	-5.35	0.000	-9.778165	-4.532938

Source: STATA estimation results

³⁸ Stata 8, Cross-Sectional & Time-Series manual for users. 2001, pg 173-182.

The variables selected for the final model that have a statistically significant impact over the LG's probability to be overindebted are: population share (*popshare*), per capita total expenditures (*gcorrpc*), coparticipation of the national revenues (*copart*), per capita grant level (*deudapc*), political link (*gob*) and economic transparency (*danoeco*). The concordance with equation (4) and table 10, the description and measurement units are presented in the appendix (table 2).

The columns z and $P > |z|$ in table 11 present the test for statistical significance, in this case the coefficient of the six variables are statistically significant or different from 0 with 95% level of confidence. The correlation analysis and the sign effect are presented below.

- a) The population share variable has a positive correlation, which means grater the number of inhabitants in each LG higher the likelihood of been overindebted, this result support the fact that the LG that were classified as overindebted in 2000 have the most population share in the country, particularly La Paz, Cochabamba and Santa Cruz. This outcome also confirm the theoretical frameworks applied in the Bolivian economy, which mention that the bigger LG will tend to borrow beyond the sustainable limits as a result of the expectation to be bailed out by the central administration.
- b) The per capita total expenditure variable is consider to be a better proxy than the total expenditures level, because it isolates its effect over the indebtedness situation leaving aside the financial size or economic weigh and the level of revenues for each LG. The results shows that each LG will be more likely to reach the overindebted situation with an increase of the per capita total expenditure. However, considering that this variable also includes social and productive investments, this finding should not lead to the conclusion that is better to reduce the total expenditure level rather than controlling the administrative size.

In order to isolate the effect of the administrative size in each LG over the dependent variable, a new regression is included (see appendix, table 4). There is evidence that the larger the number of LG's workers for every 1.000 inhabitants (*funcionario*) the higher the administrative costs and thus the higher is the probability to be overindebted for each LG.

- c) The level of coparticipation of the national tax revenues will decrease the probability to be overindebted. All the efforts to increase revenues will tend to increase the chance or repaying the debt, avoiding a debt un-sustainability situation. This result will be more consistent if we

use the local tax collection or the local tax collection over total revenue ratio instead of the coparticipation variable, however, in our model these variables were not statistically significant.

The impact of coparticipation of the national tax revenues over the dependent variable could lead to misinterpretations. An increase of the level coparticipation will increase even more the LG's dependence of these resources, not given the incentive to improve the local tax collection, as it was described in the previous chapter. It is believed that this variable is statistically significant because it became a kind of anchor when part of it is retained automatically by the central administration, forcing the LG to repay their debts, creating a false hard budget constrain going against of the decentralization process.

- d) As it was expected there is a positive correlation between the per capita grant level and the probability to be overindebted. The per capita grant level variable includes information of the overall debt, not only the current year borrowings, which implies that the LG that had a high indebted situation in the past will be more likely to be overindebted in the coming years, *ceteris paribus*. This finding supports the fact that bigger LG that had relatively high debt stocks, with credits acquired sometimes before 1994, now present higher probability to be overindebted.

The shortage of detail information for all the LG impeded to analyse deeply the borrowing or debt variables. If it would be possible to decompose the borrowing portfolio for each LG, it may allow us to identify the short and the long term debt. In the case of high short term debt, the overindebted situation will be faced in just one or few periods, is not harming badly the national fiscal stability.

- e) Considering the possibility that certain LG may obtain a preferential treatment by the central administration, which can also induce to perverse borrowing incentives, it was decided to include a dummy variable that tends to capture the political link between the different levels of administration. The proxy variable used became 1 if the mayor's political party was the same as the one in government for the period under analysis, and 0 otherwise. As it was expected, this variable presents a positive and statistically significant sign, meaning that the Bolivian political relations at different levels of the administration are still strong and can influence in the economic decisions, in our case, increasing the LG's likelihood to be overindebted.
- f) The economic transparency variable that measures the total economic value demanded in all the lawsuits presented at the justice court against each LG according to the last report of the

*Contraloria*³⁹, is used as a proxy for lack accountability and inefficient use of resources. Although, not every LG presented information for this variable and the result can be considered as partial, the outcome suggest enough evidence that a lack of accountability and inefficient use of resources also leads to increase the probability to be overindebted.

The analysis of the variables is based on the statistical significance of the coefficients or β'_s , and the direction or sign of their relation between the dependent variable, which are the objective of the econometric estimation. However, if we want to examine the coefficients estimated by the Panel-Probit model, they can not be explained without certain transformation⁴⁰. The econometric software STATA make this data transformation and by means of the *mfx* command allows to obtain the marginal effect of a 1% change in the explanatory variable's coefficients over the dependent variable, saving time in the calculations. These results are shown in the appendix (table 3) under the *dy/dx* column.

Although the Bolivian LG's borrowing incentives model is well specified and present the expected relations achieving the main objective of the, the marginal effects illustrate that the relations between the explanatory variables and the dependent variable are characterized by low elasticities. This result is due to the design of the variables, which in most of the cases are measured on per capita basis and an 1% of that per capita value will impact in less than 1% in the probability to be overindebted, because the magnitude differences in the variables. This situation creates the possibility to further research when more information would be available.

³⁹ *Contraloria Nacional* : National Accountability and Control Agency for the public administration.

⁴⁰ "Long, S. (1997) in "Regression Models for Categorical and Limited Dependent Variables" about this point mentions that: "Since the coefficients or β'_s are unidentified without assumptions about the mean and variance of ϵ , the β'_s are arbitrary in the sense: if we change the identifying assumption regarding $\text{Var}(\epsilon|x)$, the β'_s also change. Accordingly, the β'_s can not be interpreted directly since they reflect both: 1) the relationship between the x 's and the y^* ; and 2) the identifying assumptions. While the identifying assumptions affect the β'_s , they do not affect $\text{Pr}(y=1|x)$ ".

CHAPTER V

CONCLUSIONS AND POLICY RECOMMENDATIONS

The preceding analysis provides several insights of the impact of the decentralization process in Bolivia, particularly about the sub-national borrowing incentives, the soft budget constraints of the local governments (LGs) and the bailout programs implemented by the central administration in the year 2000.

The analysis begins with the revision of the relevant theoretical framework on decentralization, followed by the detailed description of the administrative decentralization frame. Considering that the main objective of this research is the analysis of the LG's borrowing incentives, the principal-agent model is presented, in which is explained the agency problems of hidden action and hidden information, resulting in moral hazard and adverse selection adapted to the decentralization frame.

The last section of the theoretical frame presents three theories of incentives related to decentralization. They explain the scenario in which the central government, acting in behalf of a large share of the society, may decide to intervene providing a bailout to certain LG helping to maintain its provision of public services or to accomplish other needs, and where the LG anticipating this response, may choose to increase its debt burden following a perverse borrowing incentive.

The two general borrowing incentives that can be inferred from the theory and the empirical findings, are the hard and soft budget constraints. The hard budget constraint is a fiscal response by the LG, in which it adjusts its budget in the next period (considering a two-period model) in order to cover its expenses included the debt repayment of the first period borrowing, without expecting an increase of the grant transference from the central administration. The soft budget constraint refers to the situation where the LG expects to be bailed out by the central administration, leading to an overindebted situation.

The theory of decentralization argues that the LGs incentives have a critical impact on the degree to which they foster LG and aggregate growth. According to the analysis of the decentralization process in Bolivia, presented in chapter III, we can conclude that the benefits of this process implemented since 1994 are higher than the shortcomings, considering their effects over investment and the improvements in resource allocation equity. However, the incentives

generated over the sub-national borrowing system are creating the base for a national fiscal balance instability in the future, leading to an uncertain final impact that can easily turn negative. The sub-national inefficient borrowing behaviour implications on the economic stability are related to the following aspects:

- 1) The increasing of the unsustainable LG's debts burden, which until 2000 five of the biggest LGs were declared as overindebted and subjects of intervention or bailout, presenting debts for around 3% of the GDP and adding the prefecturas debt burden, together reaches until 5.2% of the GDP.
- 2) The central administration bailout is done by the implementation of the financial rescue plans (FRP), until 2000 five LGs had signed the agreement to implement this plan. According to the 2000 and 2001 evaluations the FRP did not achieve the expected impact and these LGs had worsened their fiscal situation, do not following the path of debt sustainability that the plans had meant to.
- 3) Moreover, the overindebted LGs presented low improvement in their accountability and information transparency goals or the control over new debt (floating debt). This situation is also the result of lack in the sancionatory measures credibility.
- 4) It is expected that in the future the need to solve the fiscal imbalances at the local level, will tend to increase the centralize some of expenditure responsibilities, creating the risk to increase the national fiscal deficit, and harming the economic stability of Bolivia.
- 5) Although, the *Prefecturas'* debt burden is around 2% of the GDP, its unreliable information and no consideration as a fiscal problem create the perverse incentives to increase the amount of credits and worsen their fiscal situation.

The analysis of the Bolivian resource transfer channels and particularly, the sub-national borrowing system reflects the characteristics of the agency problems described in the theoretical framework. In order to present evidence in this sense, the model suggested by Garcia, *et al* (2002) was adapted to the Bolivian study case, adding other characteristics described in the remaining incentive theories.

The Garcia, *et al* (2002) model was chosen because its relevance in the explanation of the borrowing incentives and the principal-agent model, in spite that this model is applied to one developed country, Spain, the same analysis presented by Wildasin (1997) for developing countries, valid its application to the Bolivian case.

The empirical model implemented in this document follows an innovative structure, considering that there are no other studies in this area that use this econometric technique in the case of Bolivia and because it had to be adapted from other models in order to capture the Bolivian information particularities.

The Panel Data-Probit econometric model had the objective to find the variables and their positive or negative influence over the LG's borrowing incentives to face a soft budget constraint, which leads to an overindebted situation.

The estimation results were the expected according to the theory. The characteristics that increase the LG's probability to be overindebted are the population share, per capita total expenditures, per capita grant level, political link of the mayor's political party and the one in the national government and the economic transparency. On the other hand, the variable that reduces the likelihood to be overindebted is the coparticipation of the national revenues.

The implication of the population share variable is that the LG are seen as "too big to fail", this finding supports the fact that the LGs that had an overindebted status at 2000 were the bigger cities in Bolivia, larger than 50,000 inhabitants: La Paz, Santa Cruz, Cochabamba, Tarija and Trinidad. All of these are LGs of the departmental capital, whose inhabitants represent around 40% of the total population.

Considering that one way to avoid problems of bailout in the case of larger cities is to make it less attractive for these LGs to induce them, the policy recommendation would tend to improve the standard definition for fiscal responsibility for LG's management including limits on deficit spending. Other alternative, suggested in the theory is to improve the matching grants with more favourable terms. Although, this could create a distortion in the over provision of public goods, it could make the bailouts less attractive. The implementation of these or other related recommendations will also reduce the impact of the per capita total expenditures on the LG's overindebted situation.

In the case of the political link effect, in which the mayor's political party is the same as the one at the national government incrementing the LG's likelihood to be overindebted, the main recommendation will tend to improve the representativeness of the LG's head council. One way to accomplish this aspect is to support the inclusion or the participation of the majority of population

in the LG's elections or creating the transparent means of resource assignment reducing the possibility of a political intervention or capture.

The economic transparency variable tries to capture the effect of the inefficient use of resources, the evidence shows that it increases the probability to be overindebted in our case of study, situation that can be treated as a lack of accountability or administrative capacity. In this case, the administrative or technical support programs and the implementation of modern media technologies, would reduce the size of this variable, thus its effect on the overindebted probability.

The centre of the policy intervention should be the management and monitoring of the subnational borrowing. The finding of the positive and statistically significant impact of the per capita borrowing leads to formulate the recommendation of increasing the effective information and improving the monitoring systems, as well as the reporting mechanisms. It is known that strengthening information and monitoring systems for subnational debt are a critical elements for improved debt management overall, which are still inadequately implemented in most of the Bolivian LGs.

Considering that all the income or revenues variables help to reduce the probability to be overindebted, the major interest in the revenue policy intervention should be the way to improve the local tax revenue collection, rather than to increase the coparticipation of the national revenues, decreasing the LG's dependence of later resources. In this sense, an important task to be implemented is the development of a market value-based property tax with the establishment of a reviewed cadastre.

Extensions of the analysis to incorporate uncertainty or explicit dynamic functions with more detailed information, would complement it in a valuable ways. In addition, a deeply analysis of the borrowing variables e.g. distinction between short and long term debt and the dynamic effect of the financial rescue plans, that were outside of the scope of the present document, will also await for further research.

APPENDIX

ECONOMETRIC RESULTS

Table1: PANEL-PROBIT ESTIMATION RESULTS

Iteration 1: tolerance = 1.918e-08

GEE population-averaged model
 Group and time vars: code year
 Link: probit
 Family: binomial
 Correlation: unstructured
 Scale parameter: 1

Number of obs = 313
 Number of groups = 313
 Obs per group: min = 1
 avg = 1.0
 max = 1
 Wald chi2(6) = 51.83
 Prob > chi2 = 0.0000

(standard errors adjusted for clustering on code)

y	Semi-robust		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
popshare	1308.111	475.2211	2.75	0.006	376.6944	2239.527
gcorrpc	.009867	.0041444	2.38	0.017	.0017442	.0179898
copart	-7.55e-06	2.76e-06	-2.74	0.006	-.000013	-2.15e-06
deudapc	.0349309	.0112937	3.09	0.002	.0127958	.0570661
gob	3.111054	.79267	3.92	0.000	1.557449	4.664658
danoeco	1.14e-06	4.52e-07	2.52	0.012	2.54e-07	2.03e-06
_cons	-7.155551	1.338093	-5.35	0.000	-9.778165	-4.532938

Table 2: VARIABLE DESCRIPTION AND CONCORDANCE

Concordance with eq. 4) & table 8	Variable	Description
I	<i>popshare</i> = population share	LG's population respect to total population (%)
S	<i>gcorrpc</i> = per capita total expenditures	LG's total expenditure level (US\$ per capita)
K	<i>copart</i> = coparticipation of the national revenues	LG's coparticipation of the national tax revenues (US\$)
C	<i>deudapc</i> = per capita grant level	LG's grant level (US\$ per capita)
V	<i>gob</i> = political link	LG's mayor belongs to the same political party of the national government
W	<i>danoeco</i> = economic transparency	Total economic value demanded in all lawsuit presented at the justice court against each LG

Table 3: MARGINAL EFFECTS OF THE PANEL-PROBIT ESTIMATION

Marginal effects after xtgee
 $y = \text{normprob}(xb)$ (predict)
 $= 2.619e-12$

variable	dy/dx	X
popshare	2.33e-08	.003185
copart	-1.29e-16	596218
gcorrpc	3.09e-13	7.38115
deudapc	7.29e-13	10.4307
gob*	4.43e-06	.549521
danoecopc	1.74e-12	1.51565

(*) dy/dx is for discrete change of dummy variable from 0 to 1

**Table 4: PANEL-PROBIT ESTIMATION RESULTS:
 Administrative size effect (funcionario)**

Scale parameter: 1 Wald chi2(6) = 59.96
 Prob > chi2 = 0.0000
 Pearson chi2(313): 7.40 Deviance = 6.21
 Dispersion (Pearson): .0236399 Dispersion = .0198375
 (standard errors adjusted for clustering on code)

y	Semi-robust		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
popshare	1047.362	238.3556	4.39	0.000	580.1939	1514.531
copart	-5.53e-06	1.33e-06	-4.15	0.000	-8.14e-06	-2.92e-06
gcorrpc	-.0191816	.0063987	-3.00	0.003	-.0317229	-.0066404
deudapc	.0588138	.0133654	4.40	0.000	.0326182	.0850095
gob	8.320153	1.975449	4.21	0.000	4.448345	12.19196
funcionario	.8362334	.3118526	2.68	0.007	.2250137	1.447453
_cons	-16.72538	3.880067	-4.31	0.000	-24.33018	-9.120593

**Table 5: PANEL-PROBIT ESTIMATION RESULTS:
 household size (hhsiz), per capita local tax revenue (ingtpc) and per capita investment (invpc)**

Scale parameter: 1 Wald chi2(6) = 57.91
 Prob > chi2 = 0.0000
 Pearson chi2(313): 12.02 Deviance = 11.26
 Dispersion (Pearson): .0384072 Dispersion = .0359614
 (standard errors adjusted for clustering on code)

y	Semi-robust		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
hhsiz	.9654209	.843461	1.14	0.252	-.6877323	2.618574
gob	3.746803	.9633248	3.89	0.000	1.858721	5.634885
ingtpc	.1934083	.0458431	4.22	0.000	.1035575	.2832592
invpc	.0059141	.0092539	0.64	0.523	-.0122232	.0240514
deudapc	.0363442	.0081813	4.44	0.000	.0203092	.0523793
danoeco	1.12e-06	3.66e-07	3.06	0.002	4.04e-07	1.84e-06
_cons	-14.03038	5.343688	-2.63	0.009	-24.50382	-3.556945

**Table 6: PANEL-PROBIT ESTIMATION RESULTS:
population density (popdens) and per capita income (ingpc)**

Scale parameter: 1 Wald chi2(6) = 32.04
 Prob > chi2 = 0.0000
 Pearson chi2(314): 19.15 Deviance = 17.37
 Dispersion (Pearson): .0609764 Dispersion = .055305
 (standard errors adjusted for clustering on code)

y	Semi-robust		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
popdens	.0003022	.0006513	0.46	0.643	-.0009744	.0015788
gob	2.124704	.9086013	2.34	0.019	.343878	3.905529
ingpc	-.0065545	.0072376	-0.91	0.365	-.02074	.007631
gcorrpc	.040157	.0319684	1.26	0.209	-.0224998	.1028139
deudapc	.0328616	.0068397	4.80	0.000	.0194561	.0462672
danoeco	8.68e-07	5.04e-07	1.72	0.085	-1.20e-07	1.86e-06
_cons	-6.13713	1.108251	-5.54	0.000	-8.309263	-3.964998

**Table 7: PANEL-PROBIT ESTIMATION RESULTS:
Debt stock for each year (stock)**

Scale parameter: 1 Wald chi2(6) = 11135.09
 Prob > chi2 = 0.0000
 Pearson chi2(314): 0.00 Deviance = 0.00
 Dispersion (Pearson): 4.98e-16 Dispersion = 1.00e-15
 (standard errors adjusted for clustering on code)

y	Semi-robust		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
popshare	8117.044	168.2443	48.25	0.000	7787.291	8446.796
copart	-.0000822	1.11e-06	-74.32	0.000	-.0000844	-.00008
stock	8.44e-06	8.36e-08	100.99	0.000	8.28e-06	8.61e-06
gcorrpc	-.1124277	.01166	-9.64	0.000	-.1352809	-.0895745
gob	6.552973	.1961007	33.42	0.000	6.168622	6.937323
danoeco	.0001219	1.24e-06	98.16	0.000	.0001194	.0001243
_cons	-38.10743	.4136039	-92.14	0.000	-38.91808	-37.29678

convergence not achieved

**Table 8: PANEL-PROBIT ESTIMATION RESULTS:
Economic activity (agriculture, industry, turism and commerce)**

Scale parameter: 1 Wald chi2(9) = 1838.00
 Prob > chi2 = 0.0000
 Pearson chi2(314): 6.32e+201 Deviance = 1359.04
 Dispersion (Pearson): 2.0e+199 Dispersion = 4.328146
 (standard errors adjusted for clustering on code)

y	Semi-robust		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
popshare	-12.42289	108.0937	-0.11	0.909	-224.2826	199.4368
copart	-7.85e-06	1.51e-06	-5.20	0.000	-.0000108	-4.89e-06
deudapc	.0010033	.0099282	0.10	0.920	-.0184557	.0204623
invpc	-.0395721	.0071002	-5.57	0.000	-.0534881	-.025656
gob	.0077718	.1041766	0.07	0.941	-.1964106	.2119543
agric	-.0440405	.1486894	-0.30	0.767	-.3354663	.2473853
indss	-1.650468	.3104766	-5.32	0.000	-2.258991	-1.041946
tur	-3.607595	.1827225	-19.74	0.000	-3.965724	-3.249465
com	-1.731667	.2681355	-6.46	0.000	-2.257203	-1.206131
_cons	-4.423776	.1798836	-24.59	0.000	-4.776342	-4.071211

convergence not achieved

**Table 9: PANEL-PROBIT ESTIMATION RESULTS:
Number of NGO in the LG (accountability support variable) (numngo)**

Scale parameter: 1 Wald chi2(5) = 83.10
 Pearson chi2(314): 31.00 Prob > chi2 = 0.0000
 Dispersion (Pearson): .0987387 Deviance = 11.13
 Dispersion = .0354501
 (standard errors adjusted for clustering on code)

y	Semi-robust		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
popshare	615.6697	226.7787	2.71	0.007	171.1917	1060.148
copart	-3.77e-06	1.44e-06	-2.62	0.009	-6.59e-06	-9.53e-07
deudapc	.0227627	.0048715	4.67	0.000	.0132147	.0323106
gcorrpc	.0118288	.0048161	2.46	0.014	.0023895	.0212682
numngo	.1277792	.0518634	2.46	0.014	.0261288	.2294296
_cons	-4.114192	.7854594	-5.24	0.000	-5.653665	-2.57472

**Table 10: PANEL-PROBIT ESTIMATION RESULTS:
Remuneration expenditures (rem)**

Scale parameter: 1 Wald chi2(5) = 182.92
 Pearson chi2(313): 13.98 Prob > chi2 = 0.0000
 Dispersion (Pearson): .0446516 Deviance = 11.69
 Dispersion = .0373406
 (standard errors adjusted for clustering on code)

y	Semi-robust		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
popshare	-25.99855	78.69868	-0.33	0.741	-180.2451	128.248
ingtpc	.0687753	.0272791	2.52	0.012	.0153092	.1222414
deudapc	.0192918	.0051315	3.76	0.000	.0092342	.0293493
rem	7.89e-07	1.41e-06	0.56	0.576	-1.97e-06	3.55e-06
gob	5.385697	6.351931	0.85	0.397	-7.063859	17.83525
_cons	-8.808748	6.278628	-1.40	0.161	-21.11463	3.497137

**Table 11: PANEL-PROBIT ESTIMATION RESULTS:
Average per capita expenditures (gcorrpcprom)**

Scale parameter: 1 Wald chi2(5) = 123.65
 Pearson chi2(314): 20.82 Prob > chi2 = 0.0000
 Dispersion (Pearson): .066296 Deviance = 13.97
 Dispersion = .0444946
 (standard errors adjusted for clustering on code)

y	Semi-robust		z	P> z	[95% Conf. Interval]	
	Coef.	Std. Err.				
hhsz	.0936234	.3897003	0.24	0.810	-.6701751	.857422
copart	1.98e-07	3.82e-08	5.18	0.000	1.23e-07	2.72e-07
deudapc	.0214996	.00626	3.43	0.001	.0092301	.033769
gcorrpcprom	.008602	.0051544	1.67	0.095	-.0015005	.0187045
gob	2.248932	.9612763	2.34	0.019	.364865	4.132999
_cons	-5.936786	1.508883	-3.93	0.000	-8.894143	-2.979429

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1. The first part of the document discusses the importance of maintaining accurate records of all transactions.

2. It is essential to ensure that all entries are supported by appropriate documentation, such as receipts and invoices.

3. Regular audits should be conducted to verify the accuracy of the records and to identify any discrepancies.

4. The second part of the document outlines the procedures for handling disputes and resolving conflicts.

5. It is important to establish clear communication channels and to resolve issues promptly and fairly.

6. The final part of the document provides a summary of the key points and offers recommendations for future actions.

7. It is hoped that these guidelines will help to improve the efficiency and effectiveness of the organization's operations.

8. Thank you for your attention and cooperation in this matter.

9. Sincerely,
[Signature]