DECENTRALIZATION AND LOCAL GOVERNMENT PERFORMANCE IMPROVING PUBLIC SERVICE PROVISION IN BOLIVIA[1]

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ABSTRACT

This paper reviews some of the more important rationales for decentralization to date, examines their theoretical underpinnings, and then goes on to describe the elements of a new theory of decentralization which might take us far in our understanding of its effectiveness and implications. Lastly and most importantly, we review a large amount of new data on the effects of decentralization in Bolivia. We find strong evidence that devolving resources and power to local government has (i) increased the allocative efficiency of the Bolivian public sector, (ii) led to greater stability in cross-sectoral public investment patterns, (iii) led to more responsive, needs-oriented government locally than was ever achieved by the center, and (iv) very likely increased the cost-effectiveness of the public sector.

Key words: Decentralization, efficiency, accountability
JEL classification: H71, H72, H77, O18, O23

I. INTRODUCTION

The latter half of the twentieth century has witnessed the sustained growth of central state apparati throughout both the developing and developed world. Driven by the secular growth of the welfare state in the industrialized world, and in the developing world initially by the political imperative of creating national identities out of the ashes of colonialism, and subsequently by developmentalist attempts to guide the economy to growth and prosperity, central governments increased their authority

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and involvement in the political and economic lives of their electorates to degrees undreamt of by their 19th century forebears. In the wealthiest OECD countries, *central* government expenditures rose to between 40 and 50 percent of GDP,[2] and throughout the world governments nationalized large segments of their economies and circumscribed much of the remainder in a web of tariffs and regulations.

The effects of this increase in mandate were not entirely positive, however. With centralized policy control, regulation and production came high concentrations of political power and discretion over resource allocation, which in turn brought proportional incentives to corruption and clientelism. Electorates grew disenchanted with bureaucratic regimes which seemed distant, and which produced uniform outputs often unrelated to local needs and conditions. Local cultural and ethnic variation was quashed beneath the steamroller of national identity defined by the capital. And income in the developing and communist world did not converge with that of the richest countries, but mostly fell further behind, while the developed countries themselves grew more slowly than during the boom years of the 1950s and 1960s.

The modern debate about decentralization and the optimal size and structure of government begins with the perceptions of these and other failings of the modern state. Proponents of decentralization condemn the impotence and waste of centralized government, and seek to invigorate it and focus its efforts; the ills of corruption, clientelism and political alienation are often regarded as the natural by-products of a bureaucracy distant in space and rendered insensitive, inefficient, and inflexible by its size. Policy failure in the sense of sub-optimal choices is diagnosed as resulting from poor information and incentives that are skewed away from ideal outcomes. Reformers advocate the decentralization of political authority and public resources to sub-national levels of government as a general cure for these ills, operating through the reduction of government to more manageable dimensions, thereby making it responsive and accountable to the governed.

As the reader will surmise, the decentralization debate is both broad and often frustratingly imprecise. Arguments for and against decentralization frequently assume the character of sweeping, cross-disciplinary claims about the effects of administrative measures on the quality and efficiency of both government and social interaction. The lexicon in which discussion occurs is as varied as the backgrounds of those who participate (i.e. Economics, Political Science, Sociology, Anthropology, Public Administration, etc.), greatly impeding comparisons of proposed measures and of the effects they are designed to produce. Writers on decentralization, whose work more often than not consists of reports on past, or advocacy for future, reform, seldom specify the mechanisms by which favorable changes are meant to occur, and often fail to isolate the variables involved in a way which is both satisfactory and consistent.

2 World Development Report 1995.

II. AN UNRESOLVED DEBATE

Partly as a result of this, the economic and political literature on decentralization is inconclusive. The debate –both theoretical and empirical– on whether decentralization increases or decreases social welfare and efficiency is still very much unresolved. As we shall see in more detail below, arguments in the political science literature in favor of decentralization rely on incomplete, often anecdotal reasoning which describes situations where decentralization may be beneficial, but with a loss of generality and without distinguishing the conditions (assumptions) which are strictly necessary for this conclusion to obtain from those which are not. Often this literature simply assumes away the central problem of decentralization by asserting that "it brings decision-making closer to the people". That devolving power and resources to smaller administrative units will necessarily result in better decision-making and an accompanying increase in social welfare is, at least, highly contentious and unproven. Additionally, such an assertion directly contradicts the nation-building and developmentalist theories of the 1950's and 1960's, which made diametrically opposed claims that were equally unsubstantiated. Before boarding the decentralization train, it would seem prudent to establish stronger reasons for embracing it than the fact that it is the opposite of a previous, failed strategy.

The economic treatment of decentralization is similarly ambiguous. Notably, it is much easier to write an economic model which demonstrates that a highly centralized regime is more productively efficient than a decentralized regime (as is demonstrated below). The issue of allocative efficiency –a supply of goods and services that meet people's needs and wants– is less straightforward, and involves questions of the formation and aggregation of preferences that economists have turned to only recently. But it is nonetheless fair to say that the advantage of decentralization in terms of allocative efficiency has not yet been established.

Empirical results reported from a wide variety of decentralization experiences throughout the world are also mixed. Rondinelli, *et al.* (1984) report that Indonesia, Morocco, Thailand and Pakistan showed perceptible, but small, improvements in resource distribution, local participation, the extension of public services to rural areas, project identification and implementation, and employment generation after implementing decentralizing reforms of the public sector. Studies of decentralization in Algeria, Libya and Tunisia show that the performance of decentralized administrative units have been positive in some cases, but have not always met the goals of the original policy reformers. Devolution in Papua New Guinea increased popular participation in government, and has improved the planning, management and coordination capacity of provincial administrators. Reform there does seem to have made government more responsiveness to people's local needs, but has also added an additional layer to the state bureaucracy, thus weakening government's ability to attract foreign investment and stimulate long-term economic growth. Positive results from decentralization reported in this and other studies (notably Bennet 1993, Cheema and Rondinelli 1983, Rondinelli *et. al.* 1981, and Veira 1967) include, in general terms:

1. Decentralization has increased the access of people in previously neglected rural regions and local communities to central government resources, if only incrementally, in most of the LDCs where it has been tried.

2. Decentralization seems in some places to have improved participation and enlarged the capacity of local administration to put pressure on central government agencies, thus making available to them large quantities of national resources for local development.

3. The administrative and technical capacity of local organizations is said to be slowly improving, and new organizations have been established at the local level to plan and manage development.

4. National development strategy now increasingly takes account of regional and local level planning.

Negative results include:

1. Decentralization and privatization of state activities has a tendency to create greater inequities among communities and regions with different levels of organizational capacity.

2. This opens the door for local elites to play a disproportionate role in the planning and management of projects.

3. The absence of or weakness in supporting institutions (public or private) needed to complement the managerial capacity of local governments, as well as weaknesses in the linkages and interaction between local and central administrations, have led to disappointing results from decentralization in Africa and Asia.

4. Programs are usually justified on grounds of efficiency and administrative effectiveness, but then judged on their political results. Where political aims are important, considerable deviation from best practice is tolerated. Not surprisingly then, decentralization seldom lives up to expectations.

In general, these and other studies show that decentralization has achieved moderate success in some countries, moderate failure in others, and both in many. But the reasons for this are poorly understood. As the workings of decentralization remain largely a mystery, it is difficult to judge whether specific decentralization programs failed due to weakness in design or implementation, and more difficult still to recommend improvements.

III. DEFINITIONS OF DECENTRALIZATION

Before entering into the substance of arguments for and against decentralization, it is important to review the various meanings which the word has been given by both authors and the governments that implement it. Because such a discussion becomes very quickly an exercise in taxonomy, it is useful to proceed as succinctly as is prudent. As alluded to above, the word "decentralization" is more a semantic umbrella beneath

which are gathered many and different concepts than it is an analytically precise term. This study will concentrate on the more representative academic usages given "decentralization" by both political scientists and economists.

Perhaps the best general definition of decentralization is by Rondinelli, et. al.:

> the transfer of responsibility for planning, management, and resource-raising and allocation from the central government to (a) field units of central government ministries or agencies; (b) subordinate units or levels of government; (c) semi-autonomous public authorities or corporations; (d) area-wide regional or functional authorities; or (e) NGOs/PVOs.[3]

If we add "and private firms" to (e), then we have a good general definition with which we can approach most theoretical and empirical issues. Bennet (1990) highlights a useful distinction between two general decentralizing thrusts: *intergovernmental decentralization,* which involves transfers of authority, responsibility, power and resources downward among different levels of government, and *market-based decentralization,* where these are transferred from governments to the market and Non-Governmental Organizations (NGOs). Each category embraces numerous specific strategies for transferring functions. Wolman (in Bennet, 1990) delineates three types of decentralization: *political decentralization, administrative decentralization*, and *economic decentralization* (though admitting that there is no clear distinction between the first two).

An additional complicating factor is introduced by the question of the general class of regimes within which decentralization takes place. Aside from the issue of whether effective decentralization is more likely to occur under democratic, authoritarian, theocratic, or other regimes, the type of regime under which decentralization occurs is likely to have a great impact upon its effectiveness. For the sake of focus, this paper will concentrate on decentralization under democratic regimes. We shall see that the presence and nature of democratic controls will play a large role in our ability to theorize about decentralization.

It is clear that the underlying concepts regarding the forms which decentralization takes are broadly similar, but also that the taxonomic exercise could continue through innumerable permutations and categorizations.[4] The reasonable course to take, then, is to choose one definition and proceed. This study elects the following:

> *Decentralization* will be understood as the devolution by central (i.e. national) government of specific functions, with all of the administrative, political and economic attributes that these entail, to local (i.e. municipal) governments which are independent of the center and sovereign within a legally delimited geographic and functional domain.

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3 "Government Decentralization in Comparative Perspective: Developing Countries", *International Review of Administrative Science*, 47(2), Rondinelli, *et al.* (1981)

4 Some authors add a "Hybrid" category to the ones listed above. This would seem to be a futile gesture, as any categorization involves idealized forms abstracted from reality, and therefore most unlikely to be detected in their pure form, but which exist in order to facilitate exposition and understanding.

It will be useful to keep in mind the definition of Rondinelli, et. al. during the theoretical discussion, as most authors have adopted a more general approach to the question of decentralization than that proposed above. The empirical work and theoretical proposals, however, will stick closely to the latter definition. The two reasons for choosing this usage are both powerful and fortuitous. First, the clarity of the proposition greatly simplifies analysis, allowing it to focus on discrete, well-defined decentralizing measures and exogenous variables in order to gauge the empirical effects of each on policy outputs. Second, the empirical case which will be used to test these relationships involves precisely this form of decentralization (see below), implemented uniquely and vigorously.

IV. THE POLITICAL ECONOMY OF DECENTRALIZATION

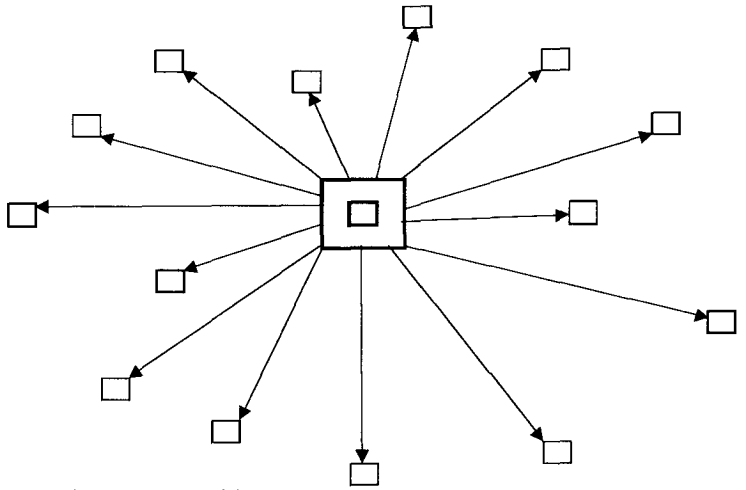
The intellectual case for decentralization originates in the most basic arguments concerning democratic government and the effective representation of citizens' interests, to which economic arguments based on efficiency have been added more recently. Political philosophers from the 17th and 18th centuries, including Rousseau, Mill, de Tocqueville, Montesquieu, and Madison distrusted autocratic central government and held that small, democratic units could like ancient Athens preserve the liberties of free men. In several of the Federalist Papers, Madison theorized about the prevention of tyranny via a balance of powers not only among the branches of central government, but between central and regional and local governments as well.

The modern case for decentralized government is well represented by Wolman (in Bennet, 1990), to whom we now turn. Wolman groups his arguments concerning decentralization under two main headings: Efficiency Values and Governance Values. *Efficiency Values* comprise the public choice justification for decentralization, where efficiency is understood as the maximization of social welfare. Wolman contrasts the provision of public goods with the market for private goods. Within the private economy, individual preferences are expressed through a market mechanism which facilitates continuous signaling between supply and demand via prices. The nature of public goods, however, is such that competitive markets will not provide them.

When public goods are provided, tax and service packages should reflect as accurately as possible the aggregated preferences of community members. However, because individual preferences for public goods differ, there will be some divergence between the preferences of individual community members and the tax and service packages reflecting the aggregated community preferences. It is likely that the average divergence of individual preferences from the tax and service package adopted by the community through its government will be less in small communities of relatively like-minded individuals than it will be in larger, more heterogeneous areas. [...Allocative] efficiency and social welfare are thus likely to be maximized under highly decentralized political structures.[5]

5 Wolman in Bennet, p. 27.

FIGURE 1



The Hyper-Centralization Model

Given:

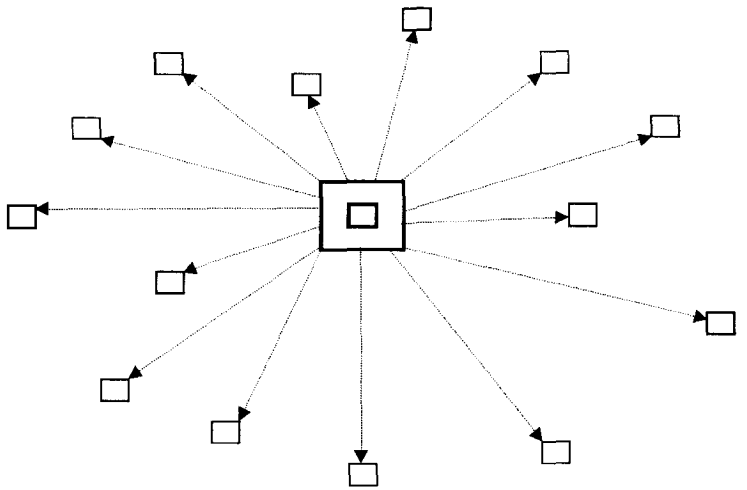
1 Highly competent national government at the center
2 Centralized (lean & flexible) production of a single "public good" [e.g. Toyota]
3 Central-government agents in each locality who measure local needs and relay information to the center
4 Efficient transport between center and periphery

If:

→ agents are honest
→ returns to scale outweigh transport costs

Then:

The efficient solution is to centralize all public goods production and abolish all local government.



A decentralized regime, even one with efficient local governments that accurately measured local needs and responded honestly to those, would consume more resources to produce the same outputs and the same level of social welfare than the hyper-centralized regime.

One counter argument to this rationale highlighted by Wolman is that decentralization will complement, or even exacerbate, disparities among communities with different economic means. In principle, however, this objection is easily addressed through grants administered centrally, designed to equalize localities' resources. Similarly, decentralization to low levels of government may reduce efficiency by inhibiting the achievement of economies of scale in the provision of some services, though this too is easily solved via different levels of government providing these services according to their technical characteristics. A more serious objection is posed by the existence of externalities[6] in the provision of local public goods, which reduce overall efficiency for society. These can be solved by reverting to higher levels of government, which internalize the externalities in their taxing and spending decisions.

But the fundamental objection to such efficiency arguments, and one which is generalizable for this literature, is that it simply *assumes* that central government will produce more standardized, less-differentiated outputs less suited to local preferences than local government. Although this is intuitively appealing, the lack of an explanation for how this comes about amounts to assuming away the problem. We can easily draw up a model where central government installs agents in each community to gather information and detect local needs and preferences, which data is then relayed at low cost back to the center (see Figure 1). All outputs are produced centrally, and then distributed in the desired amounts and qualities to all localities. If we assume economies of scale in at least some outputs, and transportation costs low enough that these gains are not canceled out (neither unreasonable), then it is easy to see that such a system would dominate the decentralized solution on (productive) efficiency grounds.[7] This could form the basis of an argument for the centralization of government which, in purely logical terms, is every bit the equal of its opposite.

Some authors have sought refuge in the position that the competing claims are primarily a metric question, and therefore resolvable through empirical research. But this response is also highly unsatisfactory. The issue in question –whether central government is likely to produce outputs that are more or less similar to individual's preferences– is intimately tied to the structure of governmental institutions and to the incentives that these produce. As such it is tractable to theorizing about cause-effect relationships concerning structure, product and aggregate outcomes. It is, in fact, a question *unsuited* for empirical study, as attempts to measure the allocational efficiency of "central" versus "decentralized" government, in ignorance of plausible mechanisms, are likely to omit important explanatory variables and result in models which conflate causes and produce meaningless estimates. It is therefore important to provide a mechanism which adequately explains the central feature of the standard efficiency argument.

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6 Uncompensated costs or benefits imposed by one unit on others - e.g. downstream water pollution from waste treatment.

7 Additionally, such a system of public goods-production would arguably have lower staffing requirements/running costs, as reproduction in local democratic government structures could be replaced by a smaller number of agents.

Governance Values comprise Wolman's second grouping, in which he includes: (i) responsiveness and accountability, (ii) diversity, and (iii) political participation. The first values, responsiveness and accountability, are easily the most important of these and comprise the political parallel to the argument about efficiency detailed above.

> Decentralization, by placing government closer to the people, fosters greater responsiveness of policy-makers to the will of the citizenry and, it is argued, results in a closer congruence between public preferences and public policy. This is not only because decision-makers in decentralized units are likely to be more knowledgeable about and attuned to the needs of their area than are centralized national-government decision-makers, but also because decentralization permits these decision-makers to be held directly accountable to the local citizenry through local elections.[8]

However this argument, as presented by the political science literature, is also *a priori*. Politics in decentralized governments may be more closed than national politics, and more susceptible to interest-group capture or manipulation by powerful agents. Alternately, local elections may be contested on non-local issues, such as the popularity of the national government (as occurs in the UK). Wolman asserts that the question of whether responsiveness and accountability increase or decrease with decentralization is an empirical one.

Diversity in public policy is another argument in favor of decentralization. Diversity is valued because (i) it offers citizens a greater choice in public services options when they are deciding where to reside (see the Tiebout model below); and (ii) it is thought to encourage experimentation and innovation in public policy. Decentralization will thus result in a variety of policy approaches at the local level, some of which will be more successful than others. Once given policies have been shown to work, they can be taken up by other decentralized units as well as central government. This argument obviously depends critically upon the empirical question of whether decentralized structures really do foster greater policy diversity than central government. Limited research suggests that it does, but the question cannot yet be considered closed. The question of the diffusion of successful policy experiments to other units and levels of government is also an open, empirical one. We note, however, that the organizational literature stresses that decentralized structures promote innovation, while centralized structures promote adoption.

The devolution of real power to localities is also thought to enhance political participation amongst the people, because of the increased levels of interest and involvement in local government which it brings about. This process, it is argued, enhances democratic values and performs a systems-maintenance function, thus promoting political stability. Similarly, decentralization provides the opportunity for citizens to debate and decide upon those local issues which matter most to them, thus promoting political education. Lastly, local politics provides a training-ground for local leaders, who can then progress to become national leaders. These claims are also subject to empirical investigation; initial results are inconclusive, but not favorable.

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8 Wolman in Bennet, p. 32.

Participation levels measured by turnout at elections in the United States, a country considered decentralized, are notoriously low, especially for local elections (typically around 30%). It is also low in the UK (around 40%), but much higher in countries considered more centralized, such as France (70%) and Italy (85%).[9] Nor is the educational function of decentralization evident in the level of political discourse in the US and UK. This last point is probably related to the importance of mass media in the modern political discourse. When most political debate is mediated by a technology that displays extremely centralizing characteristics, the electorate is likely to be better informed about the intricacies of the national and international politics that fill the airwaves than they are about the state of the municipal sewerage system, or the performance of local police.

In conclusion, and in the wake of a wide variety of arguments, it is important to note that the intellectual core of the case in favor of decentralization is composed of a combination of the allocational efficiency argument with that concerning the responsiveness and accountability of local government. Other arguments regarding diversity, education and leadership development may bolster this reasoning, but are of secondary importance. The possibility that local government can be designed in such a way that it accurately perceives the needs of its electorate and faces clear incentives to attend to them, both to greater degrees than central government, constitutes a powerful hypothesis in its favor.

V. WHAT IS THE MECHANISM?

But the above discussion, though it would seem to point us in the direction of a theory of decentralization, does not explain in rigorous terms how decentralization achieves these results. Much of the argument is *a priori,* counterclaims are not adequately examined before being dismissed, and the conditions necessary for decentralization to succeed are not clearly delineated. What is the mechanism by which decentralization of the public economy brings about improvements in allocative efficiency? Is local government accountability an input or an output? Are local elections the only necessary legal/institutional prerequisites, or are other conditions necessary? It is to these issues that we now turn.

We begin by examining the economic literature. The most influential economic model of the local public sector is Tiebout's (1956) *A Pure Theory of Local Expenditures.* This paper imagines a world where efficient local governments compete to lure perfectly informed individuals, who move costlessly between localities and choose the one which offers their optimal bundle of public services and taxes. This revelation of preferences through migration brings about a competitive equilibrium in locational decisions which ensures that no individual can make himself better off without making someone else worse off: a Pareto-efficient result. But the mechanism which Tiebout posits –individual mobility in a context of fixed public service supply– amounts to

9 Wolman in Bennet, p. 34.

moving voters around while holding politicians constant. This directly contradicts our experience of the world, where – save for extreme cases[10] – it is individuals who are largely fixed and governments which, via elections, change. Even in a highly mobile country such as the United States, during any given electoral cycle the overwhelming majority of the population is geographically static, and it is their governments and politicians (local, state and national) that change. Thus we must conclude that this model is fundamentally flawed: it posits a relationship which does not by and large exist in the world, and ignores a series of others (amongst voters, between voters and governors, amongst politicians vying for power) which do and may very well be important to the question of decentralization and social welfare.

Another way in which decentralization might improve public service provision involves information. Although the economics of information is a relatively new and still-developing field, the basic argument is that information about local preferences, along with technical data concerning the production and provision of public services, is so voluminous and complex that central governments are incapable of gathering it all and processing it adequately. Thus, important information will not be reported, or will be lost in transit, or will be interpreted incorrectly at the center, or some other sort of informational obstacle will arise which prevents the center from knowing what services the periphery most needs and how best to provide them. These models' inability to explain why this is so in a precise and convincing fashion, however, amounts to an assumption that it is true. Though admittedly more elegant, this is not far removed from the operative element of the political arguments examined above. Perhaps more importantly, it is not clear in the closing years of the 20th century that distance poses a significant obstacle for the fluid transmission of information. In an age when CNN and MTV reach most corners of the globe, it is simply not credible that data on local preferences and other relevant conditions, once accurately gathered, somehow cannot be transmitted to the center without significant distortion or cost. Indeed, the modernization of communications systems would seem to have the opposite effect; as bandwidth increases and unit costs fall, central government becomes more viable, not less.

And yet we should not dismiss this line of thinking entirely. There is intuitively some sense in which local people have easier access to better local knowledge than non-locals. But to call this an information problem is to conflate distinct concepts. For the problem does not lie in the information *per se*, but rather in the agent who collects it. With proper incentives and local cooperation, a non-local agent could easily gather the relevant information necessary to provide a routine public service. And indeed, a local in the same position would require comparable conditions to succeed. But the local has obvious advantages on both counts. As a local, it is she, her family, friends and community who benefit from the efficient provision of that service. Thus she has natural incentives to perform her job accurately and honestly which her non-local colleague does not. For similar reasons, she may find obtaining cooperation

10 Rwanda is one recent example.

less costly. And she will have obvious, though not necessarily large, advantages of familiarity with local conditions which it would cost an outsider to learn.

This argument is completely independent of the character, quantity or quality of the information involved, and concerns instead the performance incentives which agents face. As such, it is easily generalizable to a large number of tasks incumbent upon government agents, whether central or local, and therefore to the question of central vs. local government generally. Indeed, this insight lights the way to a deeper understanding of the efficiency implications of local government. As discussed above, where economies of scale dominate, central government will enjoy productive efficiencies in the supply of public services. Local government will enjoy advantages in allocative efficiency, however, to the degree in which local officials' professional incentives are more in line with the interests of the local population than the incentives of central government officials. This condition will obtain where local officials are fully accountable and responsible to the local population, and where electoral representation is sufficient to ensure that all groups have a voice in local affairs. Compared to such an environment, the incentives faced by national public servants, with a much broader and probably more diverse constituency, would by definition be less propitious to satisfying the needs of a given local population.

Such an argument constitutes the kernel of a theory of institutions, incentives and accountability in the provision of local public services. It comprises the heart of a political-economy model of decentralization, local government and optimal local-service provision which I am developing elsewhere, in a larger theoretical and empirical study of decentralization. I will not present a formal, fully specified version of this model here, but will instead limit myself to saying that such a model relies explicitly on local government autonomy in a context of real local power and resources, open and transparent local democracy, good (though not necessarily perfect) information on the part of voters, and some form of countervailing power or safeguard, institutional or otherwise, to protect against abuses of power by local leaders. It can be shown with this model, and in a systematic and rigorous way, that decentralization changes the incentives which public officials face by making local government accountable to its electorate. Local officials will tend to respond to their voters' needs more than their central government peers, in the knowledge that their jobs depend on doing so. Local government will in this way produce outcomes (i.e. public services) which are more allocatively efficient than central government. The theory also predicts the possibility, given certain conditions, that decentralized governments can be more cost-effective (i.e. more outputs for a given budget) than central government as well. We now turn to the empirics of decentralization, where we shall see that both of these predictions are confirmed by data from a recent, radical decentralization reform.

VI. TESTING THE THEORIES: DECENTRALIZATION IN BOLIVIA

We are fortunate to have an extraordinarily suitable case-study of the transition from highly centralized public service provision to one that is highly decentralized, including large amounts of data concerning not only budgeting and real expenditures, but local *preferences* as well. This is the case of Bolivia, since 1953 one of the most

highly centralized countries in Latin America, which underwent an extremely rapid, nearly overnight process of decentralization in 1994. Because the process was accomplished so quickly, and because the degrees of centralization/decentralization were so great, the Bolivian case comprises a sort of social experiment which we can use to test the ideas developed above.

The Popular Participation Law promulgated by the Bolivian government in April, 1994, and implemented as of July of the same year, brought about an enormous change in the balance of power between local and central government. The legal context in which decentralization took place was that of a unitary (as opposed to federal) state where municipal governments are independent, freely elected, and report to no one other than their constituencies. The core of the decentralization reform consists of four points: *First,* the share of all national tax revenues devolved from central government to the municipalities was raised from 10 percent to 20 percent. More importantly, whereas before these funds were apportioned according to *ad hoc*, highly political criteria, after decentralization they are allocated strictly on a per capita basis.[11] *Second,* title to all local infrastructure related to health, education, culture, sports, local roads and irrigation was transferred to municipalities free of charge, along with the responsibility to administer, maintain and stock this with the necessary supplies, materials and equipment, as well as invest in new infrastructure. *Thirdly,* Oversight Committees (Comités de Vigilancia) were established to oversee municipal spending of Popular Participation funds, and propose new projects. These are composed of representatives from local, grass-root groups within each municipality, and are legally distinct from municipal governments. Their power lies in the ability to suspend all disbursements from the central government to their respective municipal governments if they judge that such funds are being misused or stolen, as well as the natural moral authority which they command. When suspension occurs, the center undertakes no arbitration, but simply waits for the two sides to resolve their dispute, relying on economic incentives to speed their agreement. Oversight Committees thus comprise a lean (their officials are unpaid), corporatist form of social representation which is parallel to elected municipal legislatures and serves somewhat like an upper house of parliament, as a check on the power of mayors and municipal councils.[12] *Fourthly,* municipalities were expanded to include suburbs and surrounding rural areas, to the point where the 311 municipalities exhaustively comprise the entire national territory.

In anticipation of decentralization, communities throughout Bolivia took part in a series of Participative Planning Exercises (PPEs) held at the provincial level (i.e. sub-departmental; Bolivia has nine departments), which led to the drawing up of Municipal Development Plans for some 150 municipalities so far. These seminars were convoked for three days each by facilitators from La Paz, included representatives from all

11 Whereas before reform the three main cities in the country received 84 percent of all devolved funds, and the majority of communities received nothing, after reform the three cities' share fell to 29 percent and that of provincial and rural increased between 42 percent and over 3000 percent.

12 I am indebted to Dr. Teddy Brett for this insight.

sectors and strata of society, and were designed to discuss local problems and needs, suggest solutions, and eventually produce a list of projects for each municipality drawn up by consensus. While it is true that this methodology presents opportunities for the manipulation of opinion by the wealthy, educated, etc., there is no practical method for ascertaining information on needs other than asking the needy. Having observed one such complete exercise, I have every reason to believe that reasonable precautions were taken to ensure objectivity, and no reason to think that repeating the exercise would produce superior results.

In a year-long study of decentralization in Bolivia, I seek to combine the standard econometric analysis of a large, municipal-level database which I have built with more qualitative, deeper analysis of the social and institutional dynamics of municipal governments and municipal societies, which affect institutional performance but are not captured in the objective data. The large database includes substantial and very detailed data on the sources and uses of municipal funds, local preferences and priorities captured by the PPEs, a large amount of social and demographic data from the most recent census and integrated household surveys, electoral data from the last two elections, and comprehensive measures of local-level institutions and municipal government processes and practices from a Municipal Census. Most of this data has only become available during the past three years, as many of the types of information I am working with were not produced until quite recently, and financial and demographic data were not compiled at the municipal level before 1994. It is an additional stroke of luck that a national census was carried out in 1992, supported technically and financially by various aid donors. The main previous source of such demographic and social information were estimates based on the 1976 census, which by 1992 were woefully inaccurate. The qualitative research, by contrast, was carried out during 6 months of work in the field, most of which was spent in 9[13] municipalities spread throughout the far reaches of Bolivia, selected to control for size, region, economic base, rural vs. urban setting, and cultural and ethnic makeup. This research involved extensive interviews with grass-roots representatives, elected and appointed government officials, and a variety of other business, labor, religious, and indigenous/ethnic leaders, as well as gathering planning, budgetary, and geographic data from local sources.

Does Decentralization Make A Difference?

The lessons which we can draw from this research are not yet final, as some work remains to be done. But a large portion of the data has been carefully analyzed and there are already a number of robust conclusions which we can discuss. To begin with, aggregate public spending patterns *do* change when resources and power are devolved to lower levels of government. And they do so in ways which this researcher at least finds positive and heartening, although we do not wish to make too much of

13 Figure 25 lists 10 municipalities: 9 case studies and 1 pilot. The annexes which follow include graphs with only 8 observations. This is due to incomplete information when they were made, which will soon be remedied.

FIGURE 2
National Public Investment by Sector
1989 & 1991

	1989		1991	
	($'000s)	% of Total	($'000s)	% of Total
Education	1.191	0,4%	1.909	0,5%
Civil Works	6.238	1,9%	8.888	2,1%
Water & Sanitation	25.272	7,6%	9.829	2,3%
Health	4.534	1,4%	11.053	2,6%
Transport	118.577	35,5%	113.291	26,9%
Agriculture	35.518	10,6%	38.905	9,3%
Energy	22.377	6,7%	49.312	11,7%
Multisectoral	3.529	1,1%	11.600	2,8%
Industry & Tourism	1.492	0,4%	945	0,2%
Communication	5.612	1,7%	14.174	3,4%
Mining & Metallurgy	12.272	3,7%	7.108	1,7%
Hydrocarbons	92.894	27,8%	117.618	28,0%
Watershed Management	3.783	1,1%	5.556	1,3%
Other	711	0,2%	30311	7,2%

this as we will examine spending in the light of objective needs below. A comparison of Figures 2 and 3 shows that the share of Education, Civil Works, and Water & Sanitation in total national investment rose dramatically after decentralization, whereas investment in Multisectoral, Industry & Tourism, and Communications fell. And if we disaggregate local from central government figures, we see that municipal spending in these first three categories was proportionally much higher than that by the center. This is further bolstered by examining *average* municipal investments (Figure 3),[14] where we see that in both percent and per-capita terms it is the smaller municipalities which place a higher priority on Education and Health. A much coarser measure – the number of municipalities which spend (any amount) in each sector (Figure 4) – reveals a similar picture. We must conclude that decentralization is not a policy-neutral measure, and does indeed have significant implications for the structure of public spending and investment. As the theory above predicts, local priorities are different from those at the center, and shifting power and money into the hands of the community[15] produces different outcomes. Whereas the national government prioritized investment in Hydrocarbons and Transport, local governments prefer to

14 Here we calculate sectoral shares of each municipality's budget and then average over 311 municipalities, in effect treating all municipalities as equals. This is as opposed to aggregate spending totals, which emphasize the priorities of larger municipalities which invest more.

15 How power is exercised locally – i.e. whether local government is run in the interests of the community or against them – is one of the more important issues of decentralization. We examine it further below.

FIGURE 3
National Public Investment by Sector, 1994 & 1995

	Municipal		National		Total	
	Percent	Total ($'000s)	Percent	Total ($'000s)	Percent	Total ($'000s)
Education	15,0%	21.710	3,6%	22.832	5,7%	44.542
Civil Works	54,0%	77.955	3,9%	24.469	13,2%	102.425
Water & Sanitation	14,1%	20.351	6,8%	43.137	8,2%	63.488
Health	2,4%	3.463	5,5%	34.497	4,9%	37.960
Transport	4,2%	6.015	39,6%	250.442	33,0%	256.457
Agriculture	1,2%	1.785	3,7%	23.695	3,3%	25.480
Energy	3,8%	5.451	8,9%	56.074	7,9%	61.525
Multisectoral	3,0%	4.398	6,7%	42.347	6,0%	46.745
Industry & Tourism	0,2%	278	0,1%	534	0,1%	812
Communication	0,3%	493	1,3%	8.294	1,1%	8.787
Hydrocarbons	0,0%	9	17,2%	108.622	14,0%	108.631
Watershed Mgmt.	1,7%	2.395	1,3%	7.932	1,3%	10.327
Mining	0,0%	0	1,5%	9.202	1,2%	9.202
TOTAL	100,0%	**144.302**	100,0%	**632.076**	100,0%	**776.378**

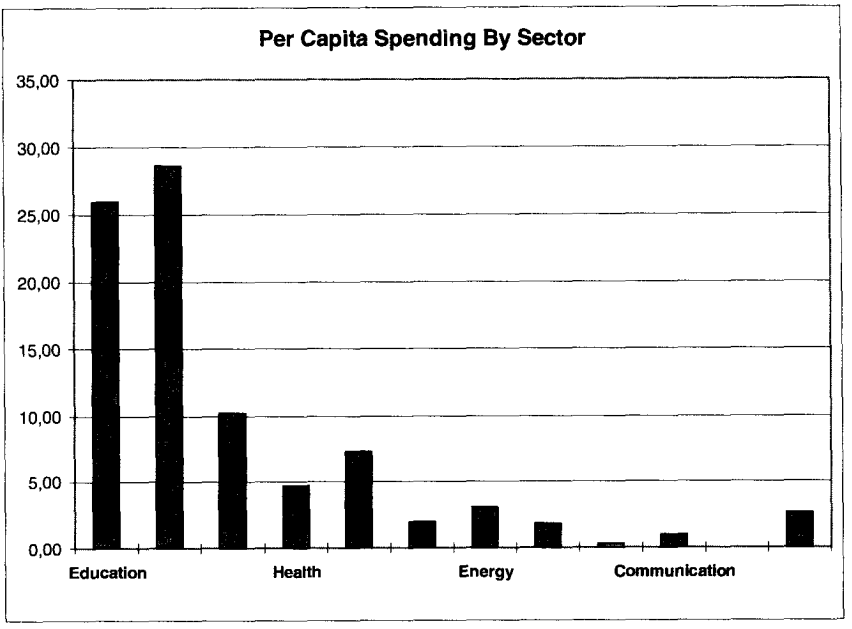
Average Municipal Expenditure by Sector
1994 & 1995

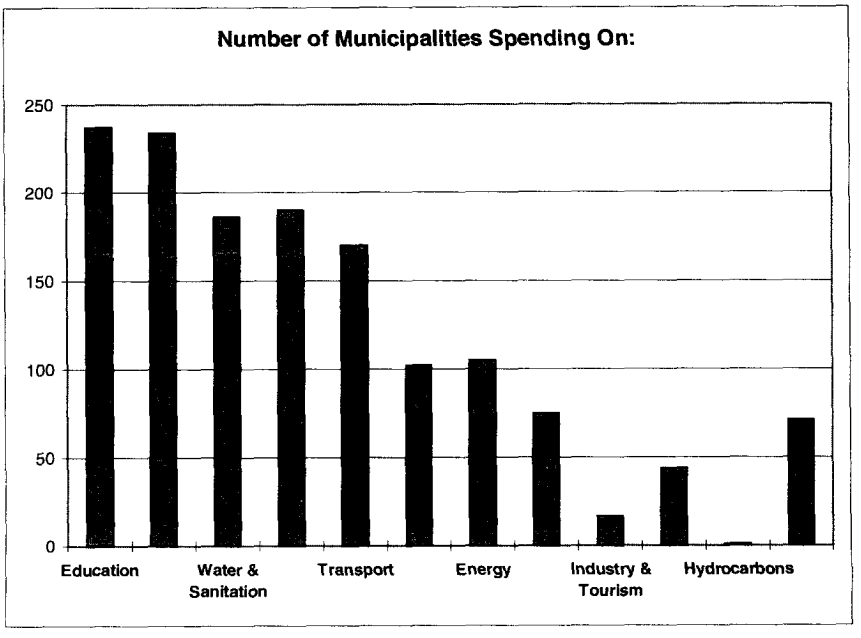
	Per Capi (Bs.)	% of Budget
Education	25,94	30,7%
Civil Works	28,61	31,7%
Water & Sanitation	10,19	10,7%
Health	4,72	5,5%
Transport	7,27	8,9%
Agriculture	1,99	2,8%
Energy	3,06	3,4%
Multisectoral	1,80	1,8%
Industry & Tourism	0,33	0,7%
Communication	0,93	1,3%
Hydrocarbons	0,02	0,0%
Watershed Mgmt.	2,66	2,6%

invest in human capital and social services. The latter, public goods with significant externalities, appear – to this researcher at least – to be preferable to items such as Hydrocarbons, or Industry & Tourism, sectors from which local governments should almost certainly stay away. But we do not wish to emphasize subjective assessments. We turn now to demographic data to investigate whether or not municipalities spend according to objective needs.

Allocative efficiency, a theme so central to any discussion of decentralization, can be investigated quite carefully for Bolivia by comparing public spending patterns

FIGURE 4


Per Capita Spending By Sector
35,00
30,00
25,00
20,00
15,00
10,00
5,00
0,00
Education
Health
Energy
Communication


Number of Municipalities Spending On:
250
200
150
100
50
0
Education
Water & Sanitation
Transport
Energy
Industry & Tourism
Hydrocarbons

before and after decentralization to (a) health, education, water and sanitation, and other indicators and demographic data which together represent objective need for given public services, and (b) popular demand for public investment, for which we can use the results of the PPEs. Part (b) of the analysis is not entirely complete, although initial results are quite telling; unfortunately this paper is too brief a forum in which to delve into these issues. Once these results are finalized, they will by their nature be an especially powerful indicator of whether or not local governments respond to demand. Part (a), on the other hand, is far advanced, and rewards scrutiny.

Figures 5-14 contain the results of econometric models of local public investment in ten different sectors over the period 1994-6, as carried out by Bolivia's 311 municipalities. Figures 15-24 contain similar models for the period 1991-3, i.e. for investment in local services as carried out by central government in the final years before the reform. Having already examined above how aggregate public investment changes after decentralization, I seek to use these models to explain the patterns of variation in public sector investment across municipalities under a centralized v. decentralized regime. By examining the importance of a number of economic, institutional, demographic and other variables in these models, we can establish the degree to which municipalities' investment in public goods responds to objective local needs, and the degree to which different institutions, interest groups, and political and bureaucratic processes affect local outcomes. We then perform a similar exercise for local public investment undertaken by central government, and compare the outcomes.

Before decentralization central government, essentially unfettered by structural or external political constraints other than its budget, was free to choose whatever investment project struck its fancy, and distribute them geographically in any way it saw fit. In reality the binding constraints on central government's local investment choices were a result of the political process, and depended on municipalities' relative political weight and the regional base of the political parties in power in La Paz. If the efficiency argument in favor of the central government has any validity, then the period up to 1993 should have been when public investment was most sensitive to local demand, and the greatest level of efficiency were obtained. If the opposite is true, then the period 1994-96 should have seen allocative efficiency in public investment rise across the country.

Municipal Government Performance: Post-Decentralization

The models I use regress sectoral investments *per capita* on a set of exogenous variables. The reason for using per capita amounts is to strip size and wealth effects out of municipal aggregate sums. In terms of finding models with high explanatory power this serves to raise the goalposts – inserting population into a model of aggregate sums immediately yields large R^2 values. But this is a price worth paying in the name of analytical clarity. The structure of the models I use is the following:

- ***Group 1*** – *Economic, Demographic and Regional variables:* these include variables for ethno-linguistic group, wealth, household structure, economically active population, and geographic region.

- ***Group 2–*** *Political Preferences and Social Organization and Institutions:* including the existence of Oversight Committees and Neighborhood Councils, and the electoral share of right-wing parties and a large populist party in the 1993 local elections.

- ***Group 3–*** *Municipal Government's Institutional Capacity and Local Decision-Making Processes:* including variables for local-government training, hiring and contracting processes, project evaluation, municipal council reporting, and the presence of a central-government executive agency.

- ***Group 4–*** *Sector-Specific Indicators:* including indicators of current service penetration or existing infrastructure, and those institutional and procedural variables specific to a given sector.

This structure is determined by the need for thoroughness - in order to examine local public investment adequately, it is important to include all of the relevant factors which might affect local investment decisions; even when they are not significant, it is important to establish this and control for their effects. Avoiding specification errors is important if we are to reach robust conclusions about which factors affect investment under each regime. In this way we can account for and then strip away economic, institutional and political effects, leaving the effects of real need on local decisions clearly identified. We follow the same structure for all of the models, varying only the sector-specific indicators. For the sake of consistency and easier comparability, all other variables remain constant across all sectors. We do this in the knowledge that alternative specifications for any given sector offer greater explanatory power and fewer insignificant variables. But to offer a different model of investment for each sector would make comparisons across sectors much more difficult, and would imply that a different decision-making process is at work in each, which we do not believe to be true.

Even so the results are startling. Of the 10 sectors we investigated, public investment is highest in localities where the need for it is greatest in 5 of the 6 sectors for which good indicators of need exist, and 3 of the 4 sectors in which the greatest number of municipalities made investments. In health, education, water and sanitation, communication and water management, municipalities increased their investments significantly after decentralization. For all of these sectors save communication, this resulted in a large increase in national investment totals. But what these results additionally show is that it was those municipalities most deficient in these services –where the stock of educated adults, existing health services, water and sanitary infrastructure, etc. was lowest– that most increased investments in these areas. This is surprising when one considers that these are precisely the poorest towns in Bolivia, where human resources are most scarce and for a variety of reasons local government might be expected to work least well. Of the sectors where we found no evidence of need-based investment, reasonable indicators of need exist for only one –urban development– while for the others they are either poor or non-existent.

We see in Figure 5 that the stock of health infrastructure has a negative effect on health investment, whereas the rate of malnutrition enters positively. This implies that municipalities with the fewest existing health posts, clinics, etc are the ones which

invest more heavily, as do those with more malnourished children. In education, likewise, investment is higher where the number of educated adults is lower, where the illiteracy rate is higher, and where school are most scarce.[16] These relationships are all linear, and imply a rational, need-based approach to local government that concentrates outputs where they are most useful. In water and sanitation, investment increases as a quadratic function of existing water and storm drainage infrastructure, and as a linear function of the proportion of population without access to sewerage. Investment in water and sanitation rises in the first two factors up to a maximum penetration rate of 41% of the population for water and 27% for drainage, and then decreases. The linear relationship between the proportion of the population unserved by sewerage and investment in this sector is similar to those described above for education and health. Investment in water management shows similar characteristics, rising as a quadratic function of water and drainage penetration rates to maxima of 56% and 21% respectively, before falling away.

This implies that a virtuous cycle operates in Bolivian towns and villages in water and sanitation and water management – once some part of the population is connected to this service, others see the benefits that flow from it and demand more. Investment so rises up to a maximum in each dimension, where decreasing returns began to dominate demand for greater penetration, and thereafter investment falls. The maxima above calculated from the coefficients are reasonable given Bolivian national connection averages, which are higher for water than for drainage, and conform to the importance which local populations gave each service in in-depth field interviews (see below). But might this not indicate a poverty trap? The notable feature of any such quadratic relationship is that at very low prior service levels, new investment may be extremely low or non-existent.[17] This implies that communities without access to these services will be unable to launch the virtuous cycles that fill their needs. Indeed, the existence of such a dynamic would virtually define the conditions by which an external intervention by central government and/or external donors might be both justified and necessary to kick off investment and lift populations out of such traps.

Investment in urban development seems to behave exactly opposite to that in primary services described above – investment is highest where the greatest stock of urban infrastructure already exists, and where urban populations are greatest. It is the largest, richest and best endowed municipalities which invest most in this area, while poorer locales spend their money otherwise. This may be understood if we conjecture different models of local investment operating over different ranges of municipal development. It might be the case, for example, that worse-off towns employ a model of public investment focused on primary needs, whereas richer cities, whose primary needs are more highly satisfied, have the luxury of turning to community-building

16 Separate models for education establish this. Only the first of these is included for reasons of brevity, but the omitted models are in all respects similar to it.

17 Fifty-six municipalities had no investment in water and sanitation at all during this 3 year period.

urban projects that generate civic pride or satisfaction. This would explain why municipalities with low stocks of urban infrastructure spend little on these projects, and those with high stocks spend more. But such a theory is not readily testable in the current framework, and is left for further research.

Communication, in which only 73 municipalities made any investments at all between 1994-96, shows some indications of responding to need –specifically to the share of population having telephone service– but at the low significance level of 17%. A lack of non-zero observations for this sector most likely explains the relatively poor performance of this model. Without the benefit of more data, and more comprehensive indicators of need, however, we cannot conjecture further. Energy shows no relationship to indicators of need whatsoever, despite the presence of a variable for the share of population served by electricity, which in principle should be a reasonable, if incomplete, measure. Investment in transport, agriculture, and industry and tourism all show no sensitivity to the poor indicators of need which we are obligated to use. This is especially unfortunate in the case of agriculture, a sector of great importance to 200 small, rural Bolivian localities, which respondents valued highly in field interviews. The development of new indicators for this sector could potentially yield more interesting results.

General trends are less clear for economic, demographic and regional variables. Investment in education and agriculture seem to be progressive, with poorer populations investing more in these areas than rich ones. The evidence for education is quite convincing, but that for agriculture is weak –significant only at the 12% level. Investment, on the other hand, seems to be regressive for water and sanitation, communication, water management, and industry and tourism, with per capita sums rising with the population's wealth. This is as we would expect, and may be due in part to higher local tax revenues in these areas. The remaining sectors show no relationship with our indicators of wealth.

The striking fact is how education stands out against this general pattern. In light of the above findings this could be primarily a phasing issue, in which the poorest and neediest populations invest most in primary services, beginning with education on grounds of cost-effectiveness and least technical complications (i.e. compare building schools to hospitals or sewerage systems). In this case investment would rise over time in health and water and sanitation at the expense of education, as communities finished building their schools and turned to their next needs. An alternative view, however, is that this pattern is a result of the poor investing in mobile capital over fixed capital. In this perspective, public services have private income effects which cannot be fully realized in the poorer, more distant communities where subsistence economies predominate. Thus, given the choice between investing in education, health, or water and sanitation, the poorest of the poor rationally opt for education which they can take with them over bricks-and-mortar or pipes buried in the ground. Once these poor have arrived at the peri-urban areas which characterize all of Bolivia's cities, they can better realize the private income boost from increased education through opportunities unavailable back home.

The remaining group 1 indicators yield largely predictable and reasonable results. Economic activity among the population is not significant for most sectors, the altiplano invests the lowest sums in energy and the flood-prone, amazon east the highest on water management. It is interesting, however, to note that the altiplano spends the least of all 3 regions on urban development, and the most on education. This is curious, as the altiplano is Bolivia's oldest regions, littered with communities many centuries old, while the east has boomed during the past 50 years and is home to hundreds of new towns and villages. It may indicate an increased cultural appreciation of the value of education among Bolivia's settled, traditional highland cultures. Or conversely it could indicate a dearth of alternative investment projects on the dry, desolate altiplano (though this would not explain why spending on urban development is lower).

Group 2 indicator effects are notable mainly by their absence. Only in 5 cases is either political variable a significant factor, notably in education, where the populist party Condepa's share of the vote is associated with lower per-capita investment. In agriculture, right-wing political parties raise investment, which is odd given the official policy positions of the Bolivian parties of the Left. We must conclude either that they are insincere, or that the Right has co-opted the Left's platform. The presence of an Oversight Committee increases investment in transportation and decreases it for agriculture, both of which are broadly consistent with my qualitative field results. A surprising result, however, is that while Oversight Committees do not seem to affect investment in urban development, the same decreases with number of Neighborhood Councils. Transportation and industry and tourism investments also decrease in this term. This is odd as these councils are explicitly urban phenomena, and one therefore would expect the opposite relationships. This is difficult to explain, but one possibility is that in urban areas where the population does not organize, powerful lobby groups composed of private sector contractors who stand to gain from such projects succeed in pushing up investment levels. The fact that the number of commercial firms is strongly positive supports this view. But where urban populations do organize, they are able to act through the political system to limit such projects – typically large and capital intensive – and direct investment funds to higher priorities. It is difficult to say what these priorities might be, however, as Neighborhood Councils are not positive and significant for any sector, though they come close in health.

Group 3 indicators of municipal governments' institutional capacity and local decision-making processes are a mixed bag of contrasting effects across different sectors and insignificance, with one notable pattern: in the 3 models where detailed information exists about municipalities' access to sector-specific information –health, education and water and sanitation– these information variables are insignificant. This is surprising, as this researcher expected to find that where local authorities were better informed about the status of their public services as well as technical service standards, government would be better and investment higher. More generally, these indicators were included in the models as indicators of good government. I expected to find positive relations between such procedural variables, covering training programs, hiring and contracting practices, and project evaluation, among others, and investment in those sectors most desired by voters. The fact that these relationships do not exist

leads us to conclude that the variables in question are not related to good government, and stand for nothing other than what they purport to be –indicators of particular procedures and processes which are not necessarily to good government, and which may, on this evidence, even get in the way of it. We must conclude that local government effectiveness operates more subtly than through an accumulation of particular procedures, and that any set of may be subverted by the authorities who are charged with implementing them in the name of the people.

Central Government Performance: Pre-Decentralization

We turn now to Figures 15-24 and to the 1991-93 period. These models cover a similar time-span as the above, and also include data from all 310 Bolivian municipalities. As opposed to the previous models, however, all of the investment data represented here was carried out by central government on behalf of the residents of said localities, 198 of which did not legally exist before 1994. As such these are very much models of central-government decision-making and central-government priorities. Because of this, it is necessary to reduce these models by dropping all of the variables in groups 2 and 3, which refer to characteristics of local politics, civic institutions, and municipal government, and hence which are not relevant to this period. We are left with the full complement of group1 variables (economic, demographic and regional), as well as most of those in group 4.

The results of these regressions are even more stark than the previous set, and can be summarized quickly. We find almost no determinants to public investment between 1991-93. Investment patterns across Bolivia bear essentially no relation to wealth, household structure, region, language group, economically active population, or –and this is the crucial link– indicators of need. Investment as carried out by central government seems to be entirely arbitrary, *ad hoc*, and fundamentally alien to the systematic relationships which we find for the period 1994-96. Objective indicators of need are completely insignificant except for urban development, where – as above – investment is greatest where there is least need. The only other pattern discernible is one of regressiveness in water and sanitation, communication and education, where investment increases in wealth. In order to control for possible specification errors from dropping groups 2 and 3 variables, we ran the same reduced models on pre-decentralization spending as well. The results were similar to those in Figures 5-14.

These results point consistently to a highly rational model of local decision-making where the fundamental criterion is need, and governmental outputs are conceived of as the equivalent of productive capital, with the marginal investment going to those municipalities where the return is highest. This finding is both robust and surprising, especially when we consider that most of the municipalities which account for it suffer high degrees of deprivation, with poor, badly educated voters and governing officials generally unprepared for their posts. And yet the decisions they make are not only rational, but more rational – the evidence above is very strong – and more in line with local needs than decisions made at the center. In fact, we cannot find evidence of any criteria whatsoever to explain central-government investment decisions, including obvious regional or urban ones, beyond a regressiveness in indicators of

both wealth and need. Powerful supporting evidence comes from comprehensive interviews from the municipal case studies. Out of over 200 interviews, a mere 4 responded being less satisfied with local government than with government from the center; another 41 opined that the two were roughly similar; and the remaining 167 reported significant or dramatic improvements in public sector responsiveness. It is true that these were subjective interviews, with some risk of insinuating responses or misinterpreting answers.[18] But the magnitude of this trend cannot be ignored. We must conclude that allocative efficiency, public service provision, and indeed popular satisfaction with government have all improved with decentralization.

This directly contradicts claims that local government is too poor, too ignorant, or too prone to interest-group capture to operate efficiently, necessitating the guiding hand of national government which is technocratic, capable, and generally knows what to do. Here we begin to see evidence of the opposite: local government has a deep understanding of its task, and has the capability and the incentive structure to produce the public outputs that people want, and it is central government which acts haphazardly, arbitrarily, and in the end irrationally.

Local Government Effectiveness

Having established that decentralization does work, we turn to the question of how, and to the ultimately similar question of where, it works. And we begin noting that regression analysis obscures the existence of enormous diversity in municipal performance and local responses to the challenges of decentralization. From huge, urban, complex La Paz strung off the edge of the altiplano to tiny Baures deep in the bowels of the Amazon, the 311 Bolivian municipalities vary immensely in their levels of human capital, institutional capacity, natural resources, size, populations, and many other factors that affect in differing ways the quality of government they achieve. Close inspection of their spending patterns, action plans, and results obtained thus far reveals a similarly broad range of local-government effectiveness and efficiencies. What variables explain this variation? Why does local government succeed in some localities and fail in others? Are the determining factors mainly economic, geographic, social or institutional? Are they susceptible to policy interventions, or are some municipalities simply destined to corruption and failure?

Additional econometric work will undoubtedly shed much light on this question. But we turn now to qualitative research from the case studies, which offers insights with a richness of depth and detail that econometric approaches cannot match. Figure 25 shows descriptive and selected administrative data on the municipalities chosen. We see here how these cases varied in size, region, language and culture, environmental and social diversity, and economic base;[19] insofar as possible, we tried to control for

18 Equal numbers of well and badly-performing municipalities were chosen for the case studies. Thus, there should be no bias in favor of municipalities where respondents are happier.

19 This would seem a large number of variables for which to control in a "sample" of 9, but in Bolivia region, language, culture, and diversity largely track each other.

local government success to date as well. The following results come from over 350 hours worth of semi-structured and unstructured interviews carried out at all levels of society, in several different languages, and under startlingly different conditions. The semi-structured interviews began with investment projects currently in execution, focusing on how they were planned and executed, and if they responded to real local needs. The interviews then broadened to include a range of questions concerning local government performance, interest-group capture and representation, and satisfaction with municipal outputs, trying always to establish *why* subjects responded as they did. Unstructured interviews were much more far-ranging, according to subjects' interests and willingness, but were mainly concerned with social and political conflict and their effects on the quality of local government. The results from these interviews were characterized and systematized into a series of discrete variables ranging in value from 1 to 100. These were then classed as dependent and independent variables, and used to create the graphs in Figure 26, which explore the causes of local government effectiveness. The following is not the only, or even the main, way in which findings from the cases will be ultimately used; but it is a very efficient way in which to present a vast amount of information.

We see in the first two scatter plots that Mayor's Effectiveness tracks Local Government Effectiveness[20] (LGE) very well, whereas Municipal Council Effectiveness seems to have less of an effect. This resonates with the general impression that strong mayors have a large effect –for good or ill– on the municipalities over which they preside, and might be explained by the persistence of patriarchy and paternalism in large parts of Bolivian society. But as a theoretical explanation and policy prescription it is not very helpful: "To have good local government we need good mayors". We must look deeper.

The next two graphs reject prominent tenets of the conventional wisdom on decentralization. Defenders of centralism claim that poor, rural, distant locales lack the human, technical and economic resources for successful local government, and that ignorance and poverty mix with tradition to create a dangerous brew of domination and oppression. If this is true, we would expect LGE to fall as the index of Unsatisfied Basic Needs rises (where 1.0 is maximum deprivation) along the diagonal line. Likewise, this view holds that government will be more effective in large, urban populations than in small, rural ones. But our evidence indicates the opposite. Those populations where unsatisfied needs are greatest achieve the highest LGE values; if there is a systematic relationship, it is upward, not downward, sloping. And LGE shows no strong relationship with municipal urban-ness, although, again, if there is a relationship it is the opposite of what conventional wisdom suggests.

The last three graphs also contradict the centralist thesis, and offer reasons for why it is wrong. We see in the first that LGE decreases with employees per municipal

20 Local Government Effectiveness combines measures of distributional equity, citizens' prioritization of services provided, and their satisfaction with outcomes with an indicator of local political transparency to calculate this index.

population, whereas one might expect government to be better where it is more fully staffed. Likewise, as local tax revenues increase a municipality has more resources to work with, and so might fairly be expected to offer better services.[21] But the opposite is true: LGE increases as the local tax base shrinks, rising quite quickly as taxes approach zero. This is a surprising conclusion – municipalities which have fewer employees per capita and less money provide better local government. More careful examination of the data reveals that it is the smaller, poorer municipalities farther removed from urban centers which produce better government and higher levels of citizen satisfaction, whereas cities score low on distributional equity and popular satisfaction with outcomes. Data on aggregate spending totals discussed above confirm this result: average municipal spending patterns, which favor the many smaller, rural municipalities in Bolivia, are skewed much more towards primary needs and the social sectors than national totals, in which large cities are over-represented. The last graph in Figure 26 offers the beginning of an explanation: it shows a decreasing quadratic relationship between Mayor's Effectiveness and total local taxes. Thus, as local taxes fall to zero, and especially in the region near zero, mayoral ability increases dramatically. This suggests – as per above – that the best mayors are in the smallest, poorest locales, and the worst are ensconced in the cities.

To understand this result, we must consider that the Bolivian decentralization reform was launched with much fanfare and a publicity assault which attempted to communicate to everyone the simple per-capita formula of revenue sharing, and urged communities to demand of local government their rightful share. My research indicates that this campaign was largely successful, and throughout the country the pressure on mayors to deliver is significant. Own resources and the local tax base, on the other hand, are mysterious topics in municipalities that have them. Interviews in such municipalities consistently showed that only the Mayor and his Financial Officer had information on local revenues. Oversight Committee members, grass-roots leaders, business executives, and even Municipal Council members were typically ignorant of how much was raised, let alone who paid it and – most importantly – how it was used.

This leads us to propose the following, incentives-based theory of local leadership, which is consistent with the political economy model of local government discussed above. In a context of many municipalities of varying size and resources, and many political entrepreneurs who are mobile, corrupt politicians will seek office in large, complex, relatively resource-rich localities, and not in small, rural municipalities with no tax base. Thus, government of the latter will be left to relatively virtuous politicians with a public service ethic, or those who are cajoled into office. This is because: (a) small municipalities with no tax base are financed entirely by revenue-sharing, which is effectively watched over by the entire community as a result of the initial public relations campaign; (b) local, spontaneous forms of supervision and control are much stronger in small, rural places where anonymity is rare and word-of-mouth suffices to

21 Because central revenue-sharing to municipalities is on a strict per-capita basis, municipalities looking to invest more must turn to local taxes.

disseminate information throughout the community[22]; and (c) the social fabric is stronger, and the costs to social organization and mobilization lower, thus facilitating corrective action at the grass-roots when politicians go astray.

In cities, by contrast: (a) local resources are treated as a municipal secret, providing politicians with numerous opportunities for corruption; (b) spontaneous forms of social control are much weaker due to the high degrees of anonymity and complexity which characterize social relations in urban areas; (c) the fabric of city society is much weaker, as multilayered forms of organization based on activity or purpose, and not simple geographic location, prevail; and (d) urban anonymity and complexity significantly raise the costs of grass-roots mobilization against bad politicians. The burden of supervision and review thus falls upon the legal system, which in many countries like Bolivia is too weak to serve as an effective counterweight to abuses of municipal power. Thus, political entrepreneurs looking for opportunities to capture rents will naturally drift toward cities, and will actively avoid rural municipalities, which by default will be left to politicians who may be ignorant or hapless, but at least are honest.

VII. CONCLUSIONS AND POLICY RECOMMENDATIONS

This analysis points to an ordinal ranking of the most important problems facing local government. Both the evidence set out above, and the theoretical framework which it supports, identify effective democratic representation and corruption as the most urgent challenges to good municipal government. Before these first-order issues, local capacity shrinks to the status of a second-order concern. But the usual priorities of local-government programs, including those financed by the international aid community, focus precisely on capacity building measures – implementing information and budgeting systems, accompanied less often with instruction in the rules of parliamentary procedure. These activities concern the mechanics of running a municipal government, but ignore the deeper problems that go to the heart of public accountability and legitimacy. If we ignore these problems we risk not merely wasting money and efforts in the wrong battle, but actually worsening the state of local governance by putting resources and knowledge in the hands of those bent on subverting local government.

Instead, efforts must concentrate on building a regime where the systemic incentives promote accountability and public responsiveness to local needs and demands. The point must be not to stop corruption at a given moment, but rather to install a system where politicians are held fully responsible for their actions; where they receive full credit for their successes, and the full weight of public opprobrium is brought to bear when they transgress the bounds of legal and ethical conduct, through the media, the

22 "Quitarle el saludo", literally to deny someone a greeting (i.e. as one crosses the central plaza), is a common saying in Bolivia, and expresses the sort of spontaneous ostracism which communities inflict upon politicians fallen out of favor.

normal and spontaneous channels which arise in any social setting, *and through regular, fair elections.* In such a system, politicians interested in turning popular demands into municipal outputs will thrive, not only for the duration of a program, but sustainably over the long run.

Such a regime does not come about spontaneously, but depends crucially upon a number of minimum political and social conditions. The first is *an open, fair political system* – open to all parties and individuals, and with free and fair elections. The underlying rules of the game must be well-established, clear, and must be enforced if the system is to be legitimate and binding. Anything less risks corroding popular faith in the regime, erecting barriers to accountability, and may tempt extra-systemic behavior which can ultimately undermine local democracy, at least in substance. The second is *transparency in local political and economic affairs* – good information widely disseminated on the political and economic dealings of government. As per the case of local tax revenues discussed above, anything that serves as a barrier to transparency in the business of government allows rent-seeking to flourish. Thirdly, *social cohesion and organization* – where the fabric of society is strong, private –sometimes informal– methods of supervision and control can substitute for the legal safeguards which in many developing countries are too weak to ensure that high standards of public conduct are met. Lastly comes *central government as neutral administrator and referee.* Although this paper has dealt little with the role of central government, there can be no doubt that it is very important to the success of any decentralization program. Because most such schemes will include some element of central-local grants, and because the power of central government will extend to the local level even in a highly decentralized framework, its behavior will do much to define the context in which local government operates and the possibilities that are open to it. It is thus very important that the center resist the temptation to intervene in local affairs, so perverting the incentives inherent to the local system. A significant degree of local autonomy is crucial if local democratic incentives and controls are to have any meaning, and if voters are to take an interest in municipal affairs. Excessive meddling from the center risks downgrading local officials from administrators and decision-makers to lobbyists seeking national favor in the capital.

These, then, are the conditions under which decentralization –with good will, careful planning, and luck– can thrive. And with it the increased governmental effectiveness, distributive equity, and popular satisfaction which comprise decentralization's bright promise. We end this paper with a hopeful note from the field.

Bolivia is the poorest, most backward country in South America. It has dozens of spoken languages, a ruinous geography, and almost no infrastructure. If we can make decentralization work here, it can work anywhere.

– Armando Godinez, anthropologist and social researcher

FIGURE 5

Source	SS	df	MS	Number of obs 277
Model	0.021926113	28 .0	783075	F(28, 248) 3.31
Residual	0.058720601	248 .0	236777	Prob > F 0
				R-squared 0.2719
				Adj R-squared 0.1897
Total	0.080646714	276 .0	292198	Root MSE 0.01539

Health Invest., per capita	saprcp_e	Coef.	Std. Err	t	P>|t|	[95% Conf. Interval	
% Population Speaks Indig. Langs. Only	id_trad	-0.0002183	6.79e-005	-3.216	0.001	-0.0003519	-0.0000846
% Population Speaks - No Answer	id_sine	0.0004389	0.001302	0.337	0.736	-0.0021255	0.0030032
% Households, One Room	cuarto1	-0.0002549	0.0001099	-2.319	0.021	-0.0004714	-0.0000384
% Households, Two Rooms	cuarto2	-0.000857	0.0002037	-4.206	0	-0.0012582	-0.0004557
Housing Category - High Income	catvi_hi	-0.0002074	7.54e-005	-2.751	0.006	-0.0003558	-0.0000589
No. of People per Bedroom, 2	ppdorm2	-0.0004102	0.0001636	-2.507	0.013	-0.0007324	-0.0000879
No. of People per Bedroom, 4	ppdorm4	-0.0007808	0.0004021	-1.942	0.053	-0.0015727	0.0000111
% of Population Economically Active	ecact	0.0001009	0.0001147	0.88	0.38	-0.0001249	0.0003266
Altiplano Regional Dummy	altiplan	-0.0037534	0.0033161	-1.132	0.259	-0.0102847	0.0027779
Eastern Regional Dummy	orient	0.0016153	0.0038594	0.419	0.676	-0.0059861	0.0092167
Oversight Committee Present	cv	6.03e-005	0.0022491	0.027	0.979	-0.0043695	0.0044901
No. of Neighborhood Councils	jvec2	0.0001011	7.14e-005	1.415	0.158	-3.96e-005	0.0002418
Condepa's Vote (%), 1993	condep93	-0.0001622	0.0001335	-1.216	0.225	-0.0004251	0.0001006
Right Parties' Vote (%), 1993	right93	-0.0002108	9.27e-005	-2.273	0.024	-0.0003934	-0.0000282
Social Inv. Fund Project	fis	0.0011611	0.0020811	0.558	0.577	-0.0029379	0.0052601
Mun. Training, Internal Control Methods	capci1	-0.0010532	0.0024729	-0.426	0.671	-0.0059238	0.0038173
Mun. Training Requested, Cadaster	temacz	-0.0023637	0.0019446	-1.216	0.225	-0.0061938	0.0014664
Inv. Projects Are Evaluated *Ex-Post*	evalres	-0.0092571	0.0025322	-3.656	0	-0.0142444	-0.0042699
Mun. Hiring According to Technical Eval.	evte_de	-0.0034495	0.0024642	-1.4	0.163	-0.0083029	0.001404
Mun. Formulates Contracting/ Hiring Plans	progcont	0.0034443	0.0022061	1.561	0.12	-0.0009008	0.0077893
Public Performance Report, Mun. Council	cuenpu_c	-0.0011219	0.0020178	-0.556	0.579	-0.0050961	0.0028523
Bidding Documents Used	pliego	9.74E-06	0.002667	0.004	0.997	-0.0052432	0.0052626
Sectoral Regs. Applied to Water Projects	reconu_a	-0.00466	0.0022678	-2.055	0.041	-0.0091266	-0.0001934
Mun. Govt Has Info. on Health Sector	info_sa	0.0028156	0.002107	1.336	0.183	-0.0013343	0.0069656
Mun Council Supervises Health Authorities	supsa_c	0.0034191	0.0020024	1.708	0.089	-0.0005247	0.0073629
Local Health Directorate Operates	dilos	0.0043515	0.0043092	1.01	0.314	-0.0041358	0.0128388
No. of Doctors in Basic Hospitals	medpu_hb	-0.0004458	0.0002139	-2.084	0.038	-0.000867	-0.0000245
Rate of Low Child Malnutrition in Sample	deslev	0.000308	0.0001673	1.841	0.067	-2.16e-005	0.0006375
Constant	_cons	0.1025177	0.0260025	3.943	0	0.0513039	0.1537315

Group 1 – Economic, Demographic and Regional variables
Group 2 – Political Preferences and Social Organization and Institutions
Group 3 – Municipal Government's Institutional Capacity and Local Decision-Making Processes
Group 4 – Sector-Specific Indicators

FIGURE 6

Source	SS	df	MS	Number of obs	293
				F(23, 269)	3.23
Model	0.032155358	23 .0	1398059	Prob > F	0
Residual	0.116259209	269 .	43219	R-squared	0.2167
				Adj R-squared	0.1497
Total	0.148414567	292 .0	508269	Root MSE	0.02079

Transport Invest., per capita	trprcp_e	Coef.	Std. Err	t	P>| t |	[95% Conf. Interval	
% Population Speaks Indig. Langs. Only	id_trad	7.46E-06	8.43e-005	0.089	0.93	-0.0001584	0.0001734
% Population Speaks - No Answer	id_sine	-0.0005675	0.0015028	-0.378	0.706	-0.0035263	0.0023913
% Households, One Room	cuarto1	0.0002915	0.0001404	2.076	0.039	1.5e-005	0.000568
% Households, Two Rooms	cuarto2	-1.9e-005	0.0002577	-0.074	0.941	-0.0005264	0.0004883
Housing Category - High Income	catvi_hi	0.0001898	9.72e-005	1.953	0.052	-1.58E-06	0.0003811
No. of People per Bedroom, 2	ppdorm2	-0.0003888	0.0002017	-1.928	0.055	-0.0007859	0.00000833
No. of People per Bedroom, 4	ppdorm4	-0.0003604	0.0005138	-0.702	0.484	-0.001372	0.0006511
% of Population Economically Active	ecact	0.0002035	0.0001458	1.396	0.164	-8.36e-005	0.0004905
Altiplano Regional Dummy	altiplan	-0.017845	0.0042149	-4.234	0	-0.0261433	-0.0095466
Eastern Regional Dummy	orient	-0.0133207	0.0049403	-2.696	0.007	-0.0230473	-0.0035941
Oversight Committee Present	cv	0.0062505	0.0028595	2.186	0.03	0.0006206	0.0118805
No. of Neighborhood Councils	jvec2	-0.0001404	7.87e-005	-1.784	0.075	-0.0002952	0.0000145
Condepa's Vote (%), 1993	condep93	0.0002652	0.0001703	1.557	0.121	-7e-005	0.0006004
Right Parties' Vote (%), 1993	right93	0.0002027	0.0001192	1.701	0.09	-3.19e-005	0.0004374
Social Inv. Fund Project	fis	-0.0004795	0.0027196	-0.176	0.86	-0.0058338	0.0048749
Mun. Training, Internal Control Methods	capci1	-0.0036964	0.0031233	-1.183	0.238	-0.0098457	0.0024529
Mun. Training Requested, Cadaster	temacz	-0.0021458	0.0025393	-0.845	0.399	-0.0071451	0.0028536
Inv. Projects Are Evaluated *Ex-Post*	evalres	0.0050638	0.0032897	1.539	0.125	-0.001413	0.0115406
Mun. Hiring According to Technical Eval.	evte_de	-0.0040232	0.0032548	-1.236	0.218	-0.0104314	0.0023849
Mun. Formulates Contracting/ Hiring Plans	progcont	-0.002876	0.0027768	-1.036	0.301	-0.008343	0.0025909
Public Performance Report, Mun. Council	cuenpu_c	0.0046569	0.0026269	1.773	0.077	-0.0005149	0.0098288
Bidding Documents Used	pliego	0.0002879	0.0034015	0.085	0.933	-0.006409	0.0069848
No. of Parking Areas	parqueo4	2.68e-005	4.62e-005	0.58	0.563	-6.42e-005	0.0001177
Constant	_cons	0.0117695	0.0318116	0.37	0.712	-0.0508619	0.0744008

FIGURE 7

Source	SS	df	MS	Number of obs	293
				F(24, 268)	2.5
Model	0.018942482	24 .	78927	Prob > F	0.0002
Residual	0.084484308	268 .	31524	R-squared	0.1831
				Adj R-squared	0.11
Total	0.10342679	292 .0	354201	Root MSE	0.01775

Agriculture Invest., per capita	agprcp_e	Coef.	Std. Err	t	P>| t |	[95% Conf.	Interval
% Population Speaks Indig. Langs. Only	id_trad	3.18e-005	7.15e-005	0.444	0.657	-0.000109	0.0001726
% Population Speaks - No Answer	id_sine	0.000934	0.0012945	0.722	0.471	-0.0016147	0.0034827
% Households, One Room	cuarto1	0.000191	0.0001211	1.578	0.116	-4.73e-005	0.0004294
% Households, Two Rooms	cuarto2	3.32e-005	0.0002208	0.15	0.881	-0.0004014	0.0004678
Housing Category - High Income	catvi_hi	2.38e-005	8.42e-005	0.283	0.777	-0.000142	0.0001896
No. of People per Bedroom, 2	ppdorm2	0.0002517	0.0001732	1.453	0.147	-8.93e-005	0.0005926
No. of People per Bedroom, 4	ppdorm4	-0.0007598	0.0004401	-1.727	0.085	-0.0016263	0.0001066
% of Population Economically Active	ecact	-0.0001949	0.0001243	-1.568	0.118	-0.0004396	0.0000498
Altiplano Regional Dummy	altiplan	-0.0050777	0.0036077	-1.407	0.16	-0.0121808	0.0020254
Eastern Regional Dummy	orient	-0.0111747	0.004197	-2.663	0.008	-0.0194379	-0.0029114
Oversight Committee Present	cv	-0.0046753	0.00246	-1.901	0.058	-0.0095186	0.0001681
No. of Neighborhood Councils	jvec2	-7.75e-005	7.39e-005	-1.048	0.295	-0.0002231	0.0000681
Condepa's Vote (%), 1993	condep93	-2.08e-005	0.0001484	-0.141	0.888	-0.000313	0.0002713
Right Parties' Vote (%), 1993	right93	0.0002419	0.0001026	2.357	0.019	3.99e-005	0.000444
Social Inv. Fund Project	fis	-0.0005746	0.0023261	-0.247	0.805	-0.0051543	0.0040051
Mun. Training, Internal Control Methods	capci1	0.0002481	0.0027064	0.092	0.927	-0.0050804	0.0055766
Mun. Training Requested, Cadaster	temacz	-0.0040649	0.0021644	-1.878	0.061	-0.0083264	0.0001965
Inv. Projects Are Evaluated *Ex-Post*	evalres	0.0030249	0.002823	1.072	0.285	-0.0025333	0.008583
Mun. Hiring According to Technical Eval.	evte_de	-0.0003735	0.0027966	-0.134	0.894	-0.0058797	0.0051326
Mun. Formulates Contracting/ Hiring Plans	progcont	-0.0012106	0.002384	-0.508	0.612	-0.0059043	0.0034831
Public Performance Report, Mun. Council	cuenpu_c	-0.0042054	0.0022477	-1.871	0.062	-0.0086308	0.0002199
Bidding Documents Used	pliego	0.0004147	0.0029133	0.142	0.887	-0.0053211	0.0061505
No. of Slaughterhouses	matad4	5.19E-06	1.5e-005	0.345	0.73	-2.44e-005	0.0000348
No. of Storage Refrigerators	frigo4	-8.90E-06	9.43e-005	-0.094	0.925	-0.0001945	0.0001767
Constant	_cons	0.0249908	0.0272424	0.917	0.36	-0.0286455	0.0786272

FIGURE 8

Source	SS	df	MS	Number of obs	285
Model	0.022255248	25	89021	F(25, 259)	1.59
Residual	0.1446734	259	.0 558585	Prob > F	0.0397
				R-squared	0.1333
Total	0.166928648	284	.0 587777	Adj R-squared	0.0497
				Root MSE	0.02363

Energy Invest., per capita	enprcp_e	Coef.	Std. Err	t	P>| t |	[95% Conf.	Interval]
% Population Speaks Indig. Langs. Only	id_trad	0.0002322	9.75e-005	2.381	0.018	4.01e-005	0.0004242
% Popula:ion Speaks - No Answer	id_sine	5.26e-005	0.0017197	0.031	0.976	-0.0033337	0.0034389
% Households, One Room	cuarto1	-0.0001644	0.000161	-1.021	0.308	-0.0004814	0.0001527
% Households, Two Rooms	cuarto2	-0.000344	0.0002983	-1.153	0.25	-0.0009315	0.0002435
Housing Category - High Income	catvi_hi	7.02e-005	0.0001203	0.584	0.56	-0.0001666	0.000307
No. of People per Bedroom, 2	ppdorm2	-0.0005957	0.0002515	-2.369	0.019	-0.0010908	-0.0001005
No. of People per Bedroom, 4	ppdorm4	-0.0017053	0.0005959	-2.862	0.005	-0.0028787	-0.000532
% of Population Economically Active	ecact	-0.0003707	0.0001659	-2.234	0.026	-0.0006974	-0.0000439
Altiplano Regional Dummy	altiplan	-0.0117312	0.0049022	-2.393	0.017	-0.0213844	-0.002078
Eastern Regional Dummy	orient	-0.0065799	0.0056353	-1.168	0.244	-0.0176768	0.004517
Oversight Committee Present	cv	0.0004369	0.00332	0.132	0.895	-0.0061006	0.0069745
No. of Neighborhood Councils	jvec2	-3.27e-005	6.48e-005	-0.505	0.614	-0.0001603	0.0000949
Condepa's Vote (%), 1993	condep93	0.0001526	0.0002023	0.755	0.451	-0.0002456	0.0005509
Right Parties' Vote (%), 1993	right93	-0.0001254	0.000137	-0.915	0.361	-0.0003953	0.0001444
Social Inv. Fund Project	fis	-0.0048645	0.0031386	-1.55	0.122	-0.0110449	0.001316
Mun. Training, Internal Control Methods	capci1	0.0066413	0.0035859	1.852	0.065	-0.0004199	0.0137024
Mun. Training Requested, Cadaster	temacz	0.0012299	0.0029375	0.419	0.676	-0.0045546	0.0070143
Inv. Projects Are Evaluated *Ex-Post*	evalres	0.0035154	0.0038219	0.92	0.359	-0.0040104	0.0110413
Mun. Hiring According to Technical Eval.	evte_de	-0.0082258	0.0037499	-2.194	0.029	-0.01561	-0.0008416
Mun. Formulates Contracting/ Hiring Plans	progcont	-0.0051891	0.003188	-1.628	0.105	-0.0114667	0.0010885
Public Performance Report, Mun. Council	cuenpu_c	0.0022643	0.0030531	0.742	0.459	-0.0037477	0.0082764
Bidding Documents Used	pliego	0.0021494	0.0040595	0.529	0.597	-0.0058444	0.0101432
Municipal Government Has Electricity?	hamluz	-0.0072562	0.0053303	-1.361	0.175	-0.0177525	0.00324
% of Population Served by Electricity	elec_pc	2.76e-005	0.0001908	0.145	0.885	-0.0003482	0.0004034
Square of % of Pop. Served by Electricity	elec_pc2	2.93E-07	1.99E-06	0.147	0.883	-3.64E-06	0.00000422
Constant	_cons	0.1348629	0.0378034	3.567	0	0.0604217	0.2093041

FIGURE 9

Source	SS	df	MS	Number of obs	274
				F(23, 250)	4.18
Model	0.002214597	23 .0	96287	Prob > F	0
Residual	0.005759482	250 .0	23038	R-squared	0.2777
				Adj R-squared	0.2113
Total	0.007974079	273 .0	29209	Root MSE	0.0048

Communications Invest., per capita	coprcp_e	Coef.	Std. Err	t	P>| t |	[95% Conf.	Interval
% Population Speaks Indig. Langs. Only	id_trad	-3.02e-005	2.02e-005	-1.498	0.135	-6.99e-005	0.0000095
% Population Speaks - No Answer	id_sine	-0.0001835	0.0003532	-0.519	0.604	-0.0008791	0.0005122
% Households, One Room	cuarto1	-0.0001278	3.41e-005	-3.748	0	-0.000195	-0.0000606
% Households, Two Rooms	cuarto2	-0.0002788	6.34e-005	-4.398	0	-0.0004036	-0.0001539
Housing Category - High Income	catvi_hi	-1.66e-005	2.38e-005	-0.698	0.486	-6.34e-005	0.0000302
No. of People per Bedroom, 2	ppdorm2	-0.000199	4.72e-005	-4.212	0	-0.000292	-0.0001059
No. of People per Bedroom, 4	ppdorm4	-0.0002071	0.0001235	-1.676	0.095	-0.0004503	0.0000362
% of Population Economically Active	ecact	6.83e-005	3.48e-005	1.96	0.051	-3.19E-07	0.0001369
Altiplano Regional Dummy	altiplan	0.0039258	0.0010102	3.886	0	0.0019362	0.0059154
Eastern Regional Dummy	orient	-0.0012824	0.0012003	-1.068	0.286	-0.0036464	0.0010815
Oversight Committee Present	cv	-0.001111	0.0006992	-1.589	0.113	-0.0024881	0.0002661
No. of Neighborhood Councils	jvec2	8.86E-06	1.41e-005	0.63	0.529	-1.88e-005	0.0000366
Condepa's Vote (%), 1993	condep93	-8.03e-005	4.17e-005	-1.926	0.055	-0.0001624	0.00000182
Right Parties' Vote (%), 1993	right93	2.71E-07	2.87e-005	0.009	0.992	-5.63e-005	0.0000568
Social Inv. Fund Project	fis	0.0013109	0.0006572	1.995	0.047	1.67e-005	0.0026052
Mun. Training, Internal Control Methods	capci1	0.0010594	0.0007429	1.426	0.155	-0.0004038	0.0025226
Mun. Training Requested, Cadaster	temacz	-3.39e-005	0.0006032	-0.056	0.955	-0.0012219	0.001154
Inv. Projects Are Evaluated *Ex-Post*	evalres	0.0016481	0.0007874	2.093	0.037	9.74e-005	0.0031988
Mun. Hiring According to Technical Eval.	evte_de	-0.0009866	0.0007751	-1.273	0.204	-0.002513	0.0005399
Mun. Formulates Contracting/ Hiring Plans	progcont	-0.0012033	0.0006715	-1.792	0.074	-0.0025258	0.0001192
Public Performance Report, Mun. Council	cuenpu_c	0.0017891	0.0006308	2.836	0.005	0.0005468	0.0030315
Bidding Documents Used	pliego	-0.0021632	0.0008244	-2.624	0.009	-0.0037868	-0.0005396
% of Population With Telephone Service	tele_pc	-9.06e-005	6.55e-005	-1.383	0.168	-0.0002197	0.0000384
Constant	_cons	0.0265058	0.0076785	3.452	0.001	0.0113831	0.0416285

FIGURE 12

Source	SS	df	MS	Number of obs	295
Model	0.083525818	28 .0	2983065	F(28, 266)	2.42
Residual	0.328239611	266 .0	1233984	Prob > F	0.0002
				R-squared	0.2028
				Adj R-squared	0.1189
Total	0.411765429	294 .0	1400563	Root MSE	0.03513

Education Invest., per capita	*edprcp_e*	*Coef.*	*Std. Err*	*t*	*P>| t |*	*[95% Conf. Interval*	
% Population Speaks Indig. Langs. Only	id_trad	-4.83E-06	0.000182	-0.027	0.979	-0.0003632	0.0003535
% Population Speaks - No Answer	id_sine	-0.0015661	0.0025897	-0.605	0.546	-0.0066651	0.0035329
% Households, One Room	cuarto1	0.0001071	0.0002403	0.446	0.656	-0.0003659	0.0005802
% Households, Two Rooms	cuarto2	-0.0004177	0.0004432	-0.942	0.347	-0.0012904	0.0004549
Housing Category - High Income	catvi_hi	-0.0004305	0.0001676	-2.568	0.011	-0.0007605	-0.0001005
No. of People per Bedroom, 2	ppdorm2	1.64e-005	0.0003707	0.044	0.965	-0.0007135	0.0007464
No. of People per Bedroom, 4	ppdorm4	0.0008497	0.0009117	0.932	0.352	-0.0009453	0.0026447
Altiplano Regional Dummy	altiplan	0.019872	0.0072503	2.741	0.007	0.0055968	0.0341473
Eastern Regional Dummy	orient	0.0051438	0.0088177	0.583	0.56	-0.0122175	0.0225051
Oversight Committee Present	cv	0.0041411	0.0049095	0.843	0.4	-0.0055253	0.0138075
No. of Neighborhood Councils	jvec2	7.33e-005	9.68e-005	0.757	0.45	-0.0001173	0.0002639
Condepa's Vote (%), 1993	condep93	-0.0006943	0.0002885	-2.407	0.017	-0.0012623	-0.0001264
Right Parties' Vote (%), 1993	right93	-7.55e-005	0.0002042	-0.37	0.712	-0.0004775	0.0003265
Social Inv. Fund Project	fis	0.0097304	0.0046827	2.078	0.039	0.0005106	0.0189503
Mun. Training, Internal Control Methods	capci1	0.000406	0.0053946	0.075	0.94	-0.0102155	0.0110275
Inv. Projects Are Evaluated *Ex-Post*	evalres	-0.0025661	0.0056131	-0.457	0.648	-0.0136179	0.0084857
Mun. Hiring According to Technical Eval.	evte_de	-0.0082325	0.0055763	-1.476	0.141	-0.0192118	0.0027468
Mun. Formulates Contracting/ Hiring Plans	progcont	0.0027967	0.0047118	0.594	0.553	-0.0064804	0.0120738
Public Performance Report, Mun. Council	cuenpu_c	0.003596	0.0044232	0.813	0.417	-0.0051129	0.0123049
Bidding Documents Used	pliego	0.0122307	0.0058277	2.099	0.037	0.0007564	0.023705
Mun. Govt Has Info. on Education	info_ed	-3.04e-005	0.0047128	-0.006	0.995	-0.0093096	0.0092488
Local Education Directorate Operates	dile	0.0047032	0.0044648	1.053	0.293	-0.0040877	0.0134941
Literacy Rate %	ed_alfa	0.0011624	0.0005182	2.243	0.026	0.0001422	0.0021827
Ed. attainment rate, basic	ni_basic	-0.000852	0.0004929	-1.728	0.085	-0.0018225	0.0001185
Ed. attainment rate, intermediate	ni_im	-0.0018703	0.0006987	-2.677	0.008	-0.0032459	-0.0004946
Mun. Training Requested, Cadaster	temacz	-0.0102314	0.0042824	-2.389	0.018	-0.0186632	-0.0017996
% of Population Economically Active	ecact	0.0002262	0.0002507	0.902	0.368	-0.0002675	0.0007199
Mun. Council Supervises Ed. Authorities	suped_c	-0.0030768	0.0044361	-0.694	0.489	-0.0118112	0.0056577
Constant	_cons	0.0171838	0.0581006	0.296	0.768	-0.0972118	0.1315794

FIGURE 13

Source	SS	df	MS	Number of obs	269
Model	0.039963414	30 .0	1332114	F(30, 238)	2.74
Residual	0.115506923	238 .0	485323	Prob > F	0
Total	0.155470337	268 .0	580113	R-squared	0.257
				Adj R-squared	0.1634
				Root MSE	0.02203

Water & Sanitation Invest., per capita	**sbprcp_e**	**Coef.**	**Std. Err**	**t**	**P>| t |**	**[95% Conf. Interval**	
% Population Speaks Indig. Langs. Only	id_trad	-4.72e-005	9.44e-005	-0.5	0.617	-0.0002331	0.0001387
% Population Speaks - No Answer	id_sine	0.0057503	0.0017563	3.274	0.001	0.0022905	0.0092101
% Households, One Room	cuarto1	-0.0001946	0.0001583	-1.23	0.22	-0.0005064	0.0001171
% Households, Two Rooms	cuarto2	-0.0002116	0.0002878	-0.735	0.463	-0.0007786	0.0003554
Housing Category - High Income	catvi_hi	0.0002513	0.0001117	2.25	0.025	3.13e-005	0.0004713
No. of People per Bedroom, 2	ppdorm2	0.0001761	0.0002448	0.72	0.473	-0.0003061	0.0006583
No. of People per Bedroom, 4	ppdorm4	0.0001829	0.0006278	0.291	0.771	-0.0010538	0.0014196
% of Population Economically Active	ecact	2.11E-07	0.0001723	0.001	0.999	-0.0003392	0.0003397
Altiplano Regional Dummy	altiplan	-0.0016826	0.0048107	-0.35	0.727	-0.0111596	0.0077944
Eastern Regional Dummy	orient	0.0034558	0.006291	0.549	0.583	-0.0089374	0.0158489
Oversight Committee Present	cv	0.0042114	0.003337	1.262	0.208	-0.0023624	0.0107853
No. of Neighborhood Councils	jvec2	3.8e-005	8.08e-005	0.47	0.639	-0.0001212	0.0001971
Condepa's Vote (%), 1993	condep93	-0.000285	0.0002138	-1.333	0.184	-0.0007061	0.0001362
Right Parties' Vote (%), 1993	right93	-6.62E-06	0.0001331	-0.05	0.96	-0.0002689	0.0002556
Social Inv. Fund Project	fis	0.0066873	0.003126	2.139	0.033	0.0005291	0.0128454
Mun. Training, Internal Control Methods	capci1	0.0068299	0.003616	1.889	0.06	-0.0002935	0.0139532
Mun. Training Requested, Cadaster	temacz	-0.0040509	0.0028792	-1.407	0.161	-0.0097229	0.0016211
Inv. Projects Are Evaluated *Ex-Post*	evalres	0.0021083	0.0036281	0.581	0.562	-0.005039	0.0092557
Mun. Hiring According to Technical Eval.	evte_de	-0.0074262	0.003669	-2.024	0.044	-0.0146541	-0.0001982
Mun. Formulates Contracting/ Hiring Plans	progcont	0.0070682	0.0032042	2.206	0.028	0.0007559	0.0133805
Public Performance Report, Mun. Council	cuenpu_c	-0.0035432	0.0029826	-1.188	0.236	-0.0094188	0.0023324
Bidding Documents Used	pliego	-0.0105097	0.0039799	-2.641	0.009	-0.0183501	-0.0026693
Health & Ed. Info. is Used for Planning	plan_sye	0.0050913	0.0040814	1.247	0.213	-0.002949	0.0131316
Sectoral Regs. Applied to Water Projects	reconu_a	0.0058062	0.0033514	1.732	0.084	-0.0007961	0.0124085
% of Population With Water Service	agua_pc	0.000225	0.0001509	1.491	0.137	-7.23e-005	0.0005223
Square of % of Pop. With Water Service	agua_pc2	-2.64E-06	1.46E-06	-1.806	0.072	-5.53E-06	2.41E-07
% of Population Served by Storm Drainage	dren_pc	0.0012229	0.0004329	2.825	0.005	0.0003701	0.0020757
Square of % of Pop. With Storm Drainage	dren_pc2	-2.33e-005	7.88E-06	-2.956	0.003	-3.88e-005	-7.77E-06
% of Pop. Without Access to Sewereage	sin_alca	0.0002432	0.0001243	1.957	0.051	-1.55E-06	0.000488
Mun. Govt Has Info. on Health Sector	info_sa	-0.0037608	0.0039869	-0.943	0.346	-0.0116149	0.0040932
Constant	_cons	-0.0099192	0.0399958	-0.248	0.804	-0.0887101	0.0688717

FIGURE 14

Source	SS	df	MS	Number of obs	267
Model	0.21965268	27 .0	8135284	F(27, 239)	7.98
Residual	0.243613862	239 .0	1019305	Prob > F	0
				R-squared	0.4741
Total	0.463266542	266 .0	1741604	Adj R-squared	0.4147
				Root MSE	0.03193

Urban Development Invest., per capita	uvprcp_e	Coef.	Std. Err	t	P>| t |	[95% Conf.	Interval]
% Population Speaks Indig. Langs. Only	id_trad	-0.0001074	0.0001331	-0.807	0.421	-0.0003697	0.0001549
% Population Speaks - No Answer	id_sine	0.0001211	0.0025229	0.048	0.962	-0.0048488	0.005091
% Households, One Room	cuarto1	0.0002154	0.0002292	0.94	0.348	-0.0002362	0.000667
% Households, Two Rooms	cuarto2	-7.89e-005	0.0004188	-0.188	0.851	-0.0009038	0.0007461
Housing Category - High Income	catvi_hi	0.0002364	0.0001681	1.407	0.161	-9.46e-005	0.0005675
No. of People per Bedroom, 2	ppdorm2	0.0005549	0.0003255	1.705	0.09	-8.64e-005	0.0011961
No. of People per Bedroom, 4	ppdorm4	0.0003682	0.000834	0.441	0.659	-0.0012748	0.0020111
% of Population Economically Active	ecact	0.0004738	0.000242	1.958	0.051	-2.89E-06	0.0009505
Altiplano Regional Dummy	altiplan	-0.0117221	0.0068348	-1.715	0.088	-0.0251862	0.001742
Eastern Regional Dummy	orient	-0.0003886	0.0083994	-0.046	0.963	-0.0169349	0.0161577
Oversight Committee Present	cv	0.0001763	0.0046936	0.038	0.97	-0.0090698	0.0094224
No. of Neighborhood Councils	jvec2	-0.0005189	0.000284	-1.827	0.069	-0.0010785	0.0000406
Condepa's Vote (%), 1993	condep93	-0.0001747	0.000294	-0.594	0.553	-0.000754	0.0004045
Right Parties' Vote (%), 1993	right93	-8.63e-005	0.0001942	-0.445	0.657	-0.0004688	0.0002961
Social Inv. Fund Project	fis	-0.0100375	0.0044133	-2.274	0.024	-0.0187314	-0.0013437
Mun. Training, Internal Control Methods	capcit	-0.0005542	0.005068	-0.109	0.913	-0.0105379	0.0094296
Mun. Training Requested, Cadaster	temacz	0.000998	0.0041373	0.241	0.81	-0.0071522	0.0091482
Inv. Projects Are Evaluated *Ex-Post*	evalres	0.0063586	0.005197	1.224	0.222	-0.0038792	0.0165965
Mun. Hiring According to Technical Eval.	evte_de	-0.0116195	0.0053514	-2.171	0.031	-0.0221614	-0.0010775
Mun. Formulates Contracting/ Hiring Plans	progcont	-0.002856	0.0045753	-0.624	0.533	-0.011869	0.006157
Public Performance Report, Mun. Council	cuenpu_c	0.0052797	0.0043229	1.221	0.223	-0.0032363	0.0137956
Bidding Documents Used	*pliego*	*0.0107823*	*0.0056062*	1.923	0.056	-0.0002616	0.0218262
Urban Pop, % of Total	pobpc.u	0.0002654	0.0001321	2.01	0.046	5.27E-06	0.0005256
% of Pop. Served by Garbage Disposal	basu_pc	0.0002476	0.0001378	1.797	0.074	-2.39e-005	0.0005191
No. of Assorted Sports Facilities	infotro4	0.0078573	0.0015314	5.131	0	0.0048406	0.0108739
Solid Waste Infrastructure	dessol4	0.0130755	0.0063237	2.068	0.04	0.0006183	0.0255328
No. Econ. Entities Reg., Commerce	eereg_cm	1.77e-005	4.65E-06	3.808	0	8.54E-06	0.0000269
Constant	_cons	-0.0274722	0.051492	-0.534	0.594	-0.1289084	0.0739639

FIGURE 15

Source	SS	df	MS	Number of obs 290
Model	0.173741714	12 .0	14478476	F(12, 277) 1.04
Residual	3.84093005	277 .0	13866173	Prob > F 0.4084
				R-squared 0.0433
				Adj R-squared 0.0018
Total	4.01467176	289 .0	13891598	Root MSE 0.11775

Health Invest., per capita	**psisapc1**	**Coef.**	**Std. Err**	**t**	**P>|t|**	**[95% Conf. Interval**	
% Population Speaks Indig. Langs. Only	id_trad	-0.0003706	0.0004736	-0.782	0.435	-0.001303	0.0005618
% Population Speaks - No Answer	id_sine	-0.0037939	0.0091171	-0.416	0.678	-0.0217416	0.0141537
% Households, One Room	cuarto1	-0.0005673	0.0007997	-0.709	0.479	-0.0021416	0.001007
% Households, Two Rooms	cuarto2	-0.0004682	0.0014294	-0.328	0.743	-0.003282	0.0023456
Housing Category - High Income	catvi_hi	-0.0004835	0.0004873	-0.992	0.322	-0.0014427	0.0004758
No. of People per Bedroom, 2	ppdorm2	0.002601	0.001118	2.326	0.021	0.0004001	0.0048019
No. of People per Bedroom, 4	ppdorm4	8.8e-005	0.0028602	0.031	0.975	-0.0055425	0.0057185
% of Population Economically Active	ecact	-9.26e-005	0.000834	-0.111	0.912	-0.0017344	0.0015492
Altiplano Regional Dummy	altiplan	-0.0179846	0.019446	-0.925	0.356	-0.0562654	0.0202961
Eastern Regional Dummy	orient	0.008934	0.0242058	0.369	0.712	-0.0387167	0.0565847
No. of Health Posts	estpu_pu	0.0004454	0.0015956	0.279	0.78	-0.0026957	0.0035865
Rate of Low Child Malnutrition In Sample	deslev	0.0011563	0.0012403	0.932	0.352	-0.0012853	0.0035978
Constant	_cons	-0.0453598	0.1787564	-0.254	0.8	-0.3972534	0.3065339

FIGURE 16

Source	SS	df	MS	Number of obs 306
Model	55.8460632	11 5.	7691484	F(11, 294) 0.66
Residual	2271.94073	294 7.	72768954	Prob > F 0.7787
				R-squared 0.024
				Adj R-squared -0.0125
Total	2327.78679	305 7.	63208783	Root MSE 2.7799

Transport Invest., per capita	**psitrpc1**	**Coef.**	**Std. Err**	**t**	**P>|t|**	**[95% Conf. Interval**	
% Population Speaks Indig. Langs. Only	id_trad	-0.0108035	0.0103376	-1.045	0.297	-0.0311486	0.0095417
% Population Speaks - No Answer	id_sine	0.0619497	0.1895833	0.327	0.744	-0.3111627	0.435062
% Households, One Room	cuarto1	0.0256062	0.0181344	1.412	0.159	-0.0100835	0.061296
% Households, Two Rooms	cuarto2	0.0230458	0.0306377	0.752	0.453	-0.0372513	0.0833428
Housing Category - High Income	catvi_hi	-4.97e-005	0.0114111	-0.004	0.997	-0.0225076	0.0224081
No. of People per Bedroom, 2	ppdorm2	0.0394097	0.0243125	1.621	0.106	-0.0084389	0.0872583
No. of People per Bedroom, 4	ppdorm4	0.0152406	0.0637164	0.239	0.811	-0.1101575	0.1406386
% of Population Economically Active	ecact	0.0059752	0.018957	0.315	0.753	-0.0313334	0.0432839
Altiplano Regional Dummy	altiplan	-0.4992863	0.4469164	-1.117	0.265	-1.378847	0.3802745
Eastern Regional Dummy	orient	-0.3470337	0.5650843	-0.614	0.54	-1.459157	0.7650892
No. of Parking Areas	parqueo4	5.19e-005	0.0043114	0.012	0.99	-0.0084333	0.0085371
Constant	_cons	-3.116516	3.812673	-0.817	0.414	-10.62011	4.387073

FIGURE 17

Source	SS	df	MS	Number of obs	306
				F(12, 293)	0.53
Model	0.065630907	12 .0	5469242	Prob > F	0.8977
Residual	3.04928965	293 .0	10407132	R-squared	0.0211
				Adj R-squared	-0.019
Total	3.11492055	305 .0	10212854	Root MSE	0.10202

Agriculture Invest., per capita	psiagpc1	Coef.	Std. Err	t	P>| t	[95% Conf.	Interval
% Population Speaks Indig. Langs. Only	id_trad	-0.0001969	0.0003787	-0.52	0.604	-0.0009422	0.0005485
% Population Speaks - No Answer	id_sine	0.0017442	0.0069857	0.25	0.803	-0.0120043	0.0154927
% Households, One Room	cuarto1	0.0007019	0.0006732	1.043	0.298	-0.000623	0.0020267
% Households, Two Rooms	cuarto2	0.0005137	0.0011267	0.456	0.649	-0.0017037	0.0027311
Housing Category - High Income	catvi_hi	0.0001136	0.0004196	0.271	0.787	-0.0007121	0.0009394
No. of People per Bedroom, 2	ppdorm2	0.0004982	0.0008948	0.557	0.578	-0.0012627	0.0022592
No. of People per Bedroom, 4	ppdorm4	0.0015953	0.0023443	0.681	0.497	-0.0030185	0.0062091
% of Population Economically Active	ecact	-0.0001582	0.0006935	-0.228	0.82	-0.001523	0.0012066
Altiplano Regional Dummy	altiplan	-0.0311101	0.0165464	-1.88	0.061	-0.0636749	0.0014547
Eastern Regional Dummy	orient	-0.0307663	0.0207463	-1.483	0.139	-0.071597	0.0100644
No. of Slaughterhouses	matad4	4.41E-06	7.43e-005	0.059	0.953	-0.0001418	0.0001507
No. of Storage Refrigerators	frigo4	-6.99e-005	0.0005126	-0.136	0.892	-0.0010787	0.0009389
Constant	_cons	-0.052569	0.140222	-0.375	0.708	-0.328539	0.223401

FIGURE 18

Source	SS	df	MS	Number of obs	298
				F(12, 285)	0.57
Model	2.25630286	12 .1	88025238	Prob > F	0.8688
Residual	94.7131968	285 .3	32327006	R-squared	0.0233
				Adj R-squared	-0.0179
Total	96.9694997	297 .3	26496632	Root MSE	0.57648

Energy Invest., per capita	psienpc1	Coef.	Std. Err	t	P>| t	[95% Conf.	Interval
% Population Speaks Indig. Langs. Only	id_trad	-0.0011649	0.0021832	-0.534	0.594	-0.0054621	0.0031323
% Population Speaks - No Answer	id_sine	0.0200477	0.0395306	0.507	0.612	-0.0577613	0.0978566
% Households, One Room	cuarto1	0.0022427	0.003786	0.592	0.554	-0.0052094	0.0096947
% Households, Two Rooms	cuarto2	0.0046635	0.0064448	0.724	0.47	-0.0080219	0.0173488
Housing Category - High Income	catvi_hi	-0.0012559	0.0025559	-0.491	0.624	-0.0062867	0.0037749
No. of People per Bedroom, 2	ppdorm2	0.0065505	0.0054083	1.211	0.227	-0.0040948	0.0171958
No. of People per Bedroom, 4	ppdorm4	0.0039975	0.0134168	0.298	0.766	-0.0224112	0.0304061
% of Population Economically Active	ecact	0.0010796	0.0039256	0.275	0.784	-0.0066472	0.0088064
Altiplano Regional Dummy	altiplan	-0.0748948	0.0936867	-0.799	0.425	-0.2593004	0.1095109
Eastern Regional Dummy	orient	-0.0240441	0.117582	-0.204	0.838	-0.2554834	0.2073951
% of Population Served by Electricity	elec_pc	0.0009689	0.003831	0.253	0.801	-0.0065718	0.0085096
Square of % of Pop. Served by Electricity	*elec_pc2*	1.33e-005	4.32e-005	0.308	0.758	-7.17e-005	0.0000983
Constant	_cons	-0.5818597	0.8032641	-0.724	0.469	-2.162943	0.9992232

FIGURE 19

Source	SS	df	MS	Number of obs	287
				F(11, 275)	1.56
Model	0.092756512	11 .	843241	Prob > F	0.111
Residual	1.48819834	275 .	541163	R-squared	0.0587
				Adj R-squared	0.021
Total	1.58095485	286 .0	5527814	Root MSE	0.07356

Communications Invest., per capita	psicopc1	Coef.	Std. Err	t	P>| t |	[95% Conf.	Interval
% Population Speaks Indig. Langs. Only	id_trad	0.0003242	0.0002834	1.144	0.254	-0.0002337	0.0008822
% Population Speaks - No Answer	id_sine	-0.0006432	0.0051283	-0.125	0.9	-0.0107389	0.0094525
% Households, One Room	cuarto1	-0.000291	0.0005013	-0.58	0.562	-0.0012779	0.000696
% Households, Two Rooms	cuarto2	-0.0019828	0.0008465	-2.342	0.02	-0.0036492	-0.0003164
Housing Category - High Income	catvi_hi	9.12E-06	0.0003175	0.029	0.977	-0.0006159	0.0006341
No. of People per Bedroom, 2	ppdorm2	-0.0008413	0.0006572	-1.28	0.202	-0.002135	0.0004524
No. of People per Bedroom, 4	ppdorm4	-0.0034408	0.0017371	-1.981	0.049	-0.0068605	-0.0000212
% of Population Economically Active	ecact	-0.0002247	0.000518	-0.434	0.665	-0.0012445	0.0007951
Altiplano Regional Dummy	altiplan	0.002206	0.0121949	0.181	0.857	-0.0218012	0.0262131
Eastern Regional Dummy	orient	0.041186	0.0154156	2.672	0.008	0.0108384	0.0715335
% of Population With Telephone Service	tele_pc	0.0002769	0.0009584	0.289	0.773	-0.0016098	0.0021637
Constant	_cons	0.226158	0.1039277	2.176	0.03	0.021563	0.430753

FIGURE 20

Source	SS	df	MS	Number of obs	281
				F(16, 264)	0.54
Model	0.017849029	16 .0	1115564	Prob > F	0.9215
Residual	0.540831123	264 .0	2048603	R-squared	0.0319
				Adj R-squared	-0.0267
Total	0.558680152	280 .0	1995286	Root MSE	0.04526

Water Management Invest., per capita	psirhpc1	Coef.	Std. Err	t	P>| t |	[95% Conf.	Interval
% Population Speaks Indig. Langs. Only	id_trad	-0.0001471	0.000173	-0.85	0.396	-0.0004877	0.0001936
% Population Speaks - No Answer	id_sine	-0.0005948	0.0033659	-0.177	0.86	-0.0072222	0.0060327
% Households, One Room	cuarto1	-0.0001009	0.0003035	-0.333	0.74	-0.0006984	0.0004966
% Households, Two Rooms	cuarto2	9.14e-005	0.0005187	0.176	0.86	-0.0009299	0.0011126
Housing Category - High Income	catvi_hi	-0.0002228	0.0002285	-0.975	0.33	-0.0006726	0.000227
No. of People per Bedroom, 2	ppdorm2	0.0004024	0.0004222	0.953	0.341	-0.000429	0.0012337
No. of People per Bedroom, 4	ppdorm4	-0.000281	0.0011105	-0.253	0.8	-0.0024676	0.0019056
% of Population Economically Active	ecact	5.97e-005	0.000335	0.178	0.859	-0.0005999	0.0007193
Altiplano Regional Dummy	altiplan	-0.0004262	0.0074985	-0.057	0.955	-0.0151907	0.0143383
Eastern Regional Dummy	orient	-0.003014	0.0099402	-0.303	0.762	-0.0225861	0.0165581
% of Population Served by Storm Drainage	dren_pc	-0.0002413	0.0008672	-0.278	0.781	-0.0019488	0.0014663
Square of % of Pop. With Storm Drainage	dren_pc2	4.01E-06	1.59e-005	0.252	0.801	-2.73e-005	0.0000353
% of Population With Water Service	agua_pc	0.0001386	0.0002845	0.487	0.627	-0.0004217	0.0006988
Square of % of Pop. With Water Service	agua_pc2	1.33E-07	2.77E-06	0.048	0.962	-5.32E-06	0.00000559
Mayor Supervises Health Authorities	supsa_a	-0.0031246	0.0058014	-0.539	0.591	-0.0145475	0.0082984
Urban Pop, % of Total	pobpc.u	9.66e-005	0.0001667	0.579	0.563	-0.0002316	0.0004248
Constant	_cons	-0.0017429	0.0639742	-0.027	0.978	-0.1277076	0.1242217

FIGURE 25

Descriptive Data

Municipality	Total Pop.	Urban Pop.	% Urban	Indig. Comms	Rural Comms	School houses	Total # Students	Total # Teachers	Students/ Teacher	PAO TA	Institu-tion	NBI	Urban NBI	Rural NBI
Pucarani	32237	0	0,0%	0	48	317	6970	383	18,2	1	FNDR	0,964	0	0,964
Viacha	54761	19036	34,8%	0	300	787	18860	1153	16,4	1	FNDR	0,852	0,598	0,974
Desaguadero	4337	0	0,0%	0	32	51	1123	78	14,4	1	SNPP	0,927	0	0,927
Charagua	18769	2486	13,2%	51	37	141	4316	246	17,5	1	SNPP	0,873	0,453	0,926
Porongo	8272	0	0,0%	0	29	89	2209	101	21,9	0		0,928	0	0,928
Sucre	153153	131769	86,0%	1	103	1462	47211	3099	15,2	1	FNDR	0,467	0,388	0,971
Atocha	12216	5275	43,2%	0	0	135	3552	191	18,6	1	FNDR	0,555	0,499	0,605
Baures	5133	0	0,0%											
Guayaramerín	32273	27706	85,8%	0	23					1	FNDR	0,659	0,627	0,978
Sipe Sipe	19132	2033	10,6%	0	7	125	3685	231	16,0	0		0,815	0,659	0,834

source: UDAPSO data base

Municipality	Region	Size	Urban/ Rural	City Nearby?	NGO Present?	NBI (+/-)	Primary Languages	Indigenous Communities
Pucarani	A	M	R	0	Yes	+	Aymara	No
Viacha	A	L	U	1	Yes (Rural)	-	Aymara	No
Desaguadero	A	S	R	0	No	+	Aymara	No
Charagua	E	M	R	0	Yes	=	Guarani	Yes
Porongo	E	S	R	1	Yes	+	Spanish/Quechua	No
Sucre	V	L	U	1	Yes	-	Spanish/Quechua	Yes
Atocha	A	S	R	0	No	-	Spanish/Quechua	No
Baures	E	S	R	0	No	----	Spanish	Yes
Guayaramerín	E	M	U	1	?	-	?	?
Sipe Sipe	V	M	R	0	?	-	?	?

NB: A - Altiplano
V- Valleys/Foothills
E- East/Lowlands
Average Municipal Population in Bolivia is 20,646
NBI: Above or below Bolivian average (=0.8857)

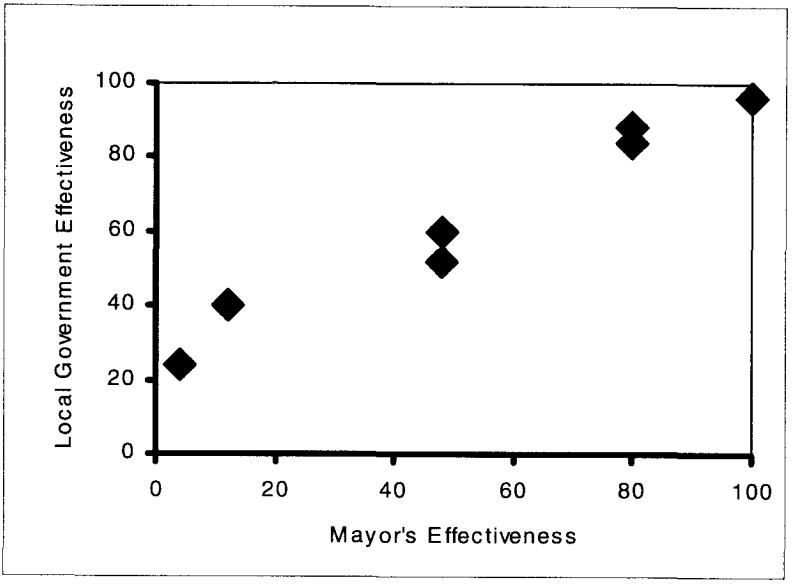
Municipal Administration and the Local Economy

Municipality	Local Economic Base 1st	2nd	3rd	4th	Municipal Employees 1997	1993	% Increase	per 1000 pop	Top Salary	Qualif. Reqs.
Pucarani	Agriculture	Cattle	Fishing		16	3	433,3%	0,50	Bs1.000	No
Viacha	Industry	Agriculture	Cattle	Artesanery	150	70	114,3%	2,74	Bs1.560	Yes (?)
Desaguadero	Commerce	Transport	Agriculture	Fishing	23	14	64,3%	5,30	Bs700	No
Charagua	Agriculture	Cattle	Education	Commerce	9	4	125,0%	0,48	Bs1.700	Yes (?)
Porongo	Agriculture	Cattle			10	1	900,0%	1,21	Bs1.300	Yes (?)
Sucre	Services	Industry	Commerce	Agriculture	361	520	-30,6%	2,36	Bs4.891	No
Atocha	Mining	Commerce	Agriculture	Cattle	9	5	80,0%	0,74	Bs600	No
Baures	Agriculture	Cattle	Hunting		7	4	75,0%	1,36	Bs1.500	No

Municipality	Local Tax Revenues Current	Potential	Municipal Budget 1996/7	1993	% Increase	Operating/ Total	Local Tax/ Total Budget	Investment % Seat Gov	Population % Seat Gov	% Excess Investment
Pucarani	Bs1.000		Bs2.827.931	Bs800	353391%	15%	0%	20%	3%	545%
Viacha	Bs1.500.000		Bs13.000.000	Bs600.000	2067%	?	12%	?	35%	
Desaguadero	Bs500.000		Bs1.192.000	Bs500.000	138%	16%	42%	70%	35%	101%
Charagua	Bs49.000	Bs350.000	Bs2.993.714	Bs45.000	6553%	4%	2%	38%	41%	-9%
Porongo	Bs316.865		Bs1.635.643	Bs66.000	2378%	15%	19%	14%	14%	0%
Sucre	Bs40.458.326		Bs76.274.915	Bs48.892.500	56%	23%	53%	86%	86%	0%
Atocha	Bs140.000		Bs2.411.496	Bs50.000	4723%	9%	6%	?	20%	
Baures	Bs112.558	Bs225.000	Bs1.082.489	(created 1996)	N/A	3%	10%	?	43%	

NB: *Cattle* includes Llamas and Alpacas on the Altiplano.
Municipal Employees % Increase compared to 1993-4.
Top Salary: Salary of highest administrative official below Mayor.
Local Revenues: Estimated for Viacha.
Municipal Budget: Excluding one-off transfers from external sources (e.g. central government).
Data for 1993 are estimates for Desaguadero, Charagua, Sucre and Atocha.
% Budget: Municipal operating costs as percent of total municipal budget (overhead + investment).
% Seat Gov: Share of total municipal investment going to the main town or community in the municipal area.
This is in addition to municipal operating costs, almost all of which are spent in the main town.

FIGURE 26


Local Government Effectiveness
100
80
60
40
20
0
0
20
40
60
80
100
Mayor's Effectiveness

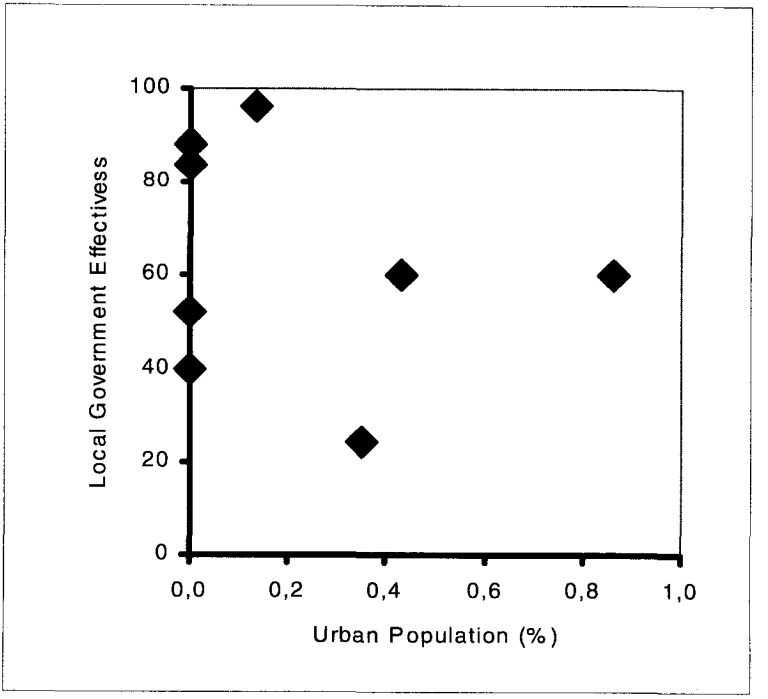
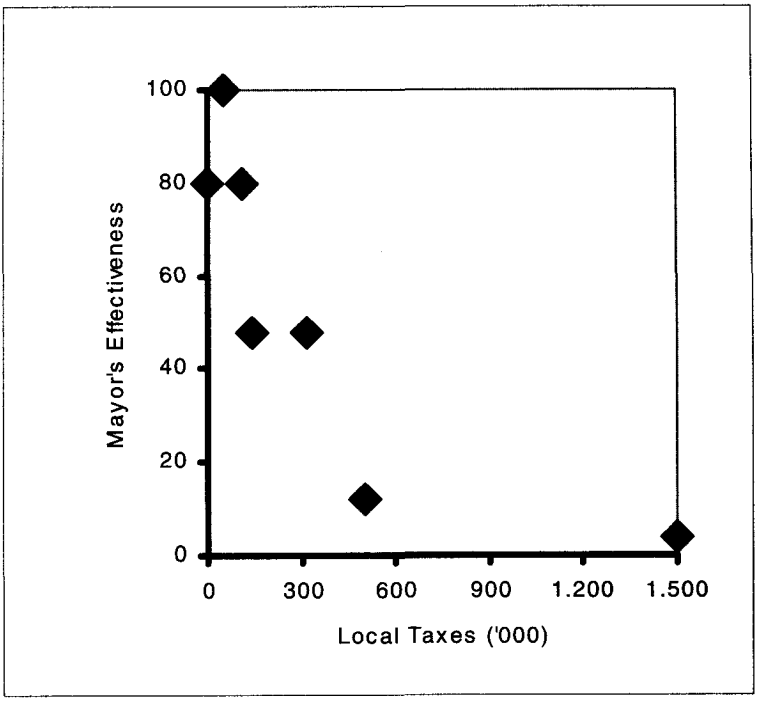

Local Government Effectivess
100
80
60
40
20
0
0,0
0,2
0,4
0,6
0,8
1,0
Urban Population (%)

FIGURE 26


Mayor's Effectiveness
100
80
60
40
20
0
0
300
600
900
1.200
1.500
Local Taxes ('000)

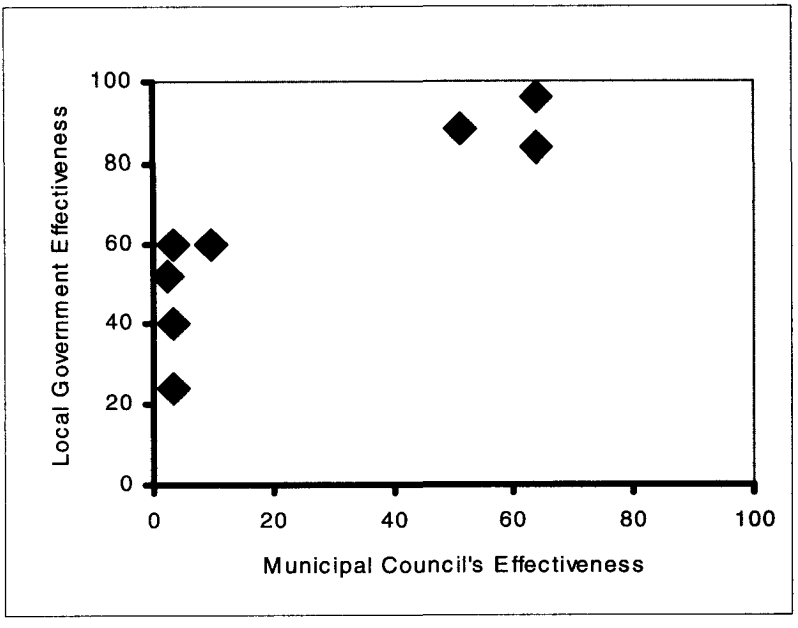
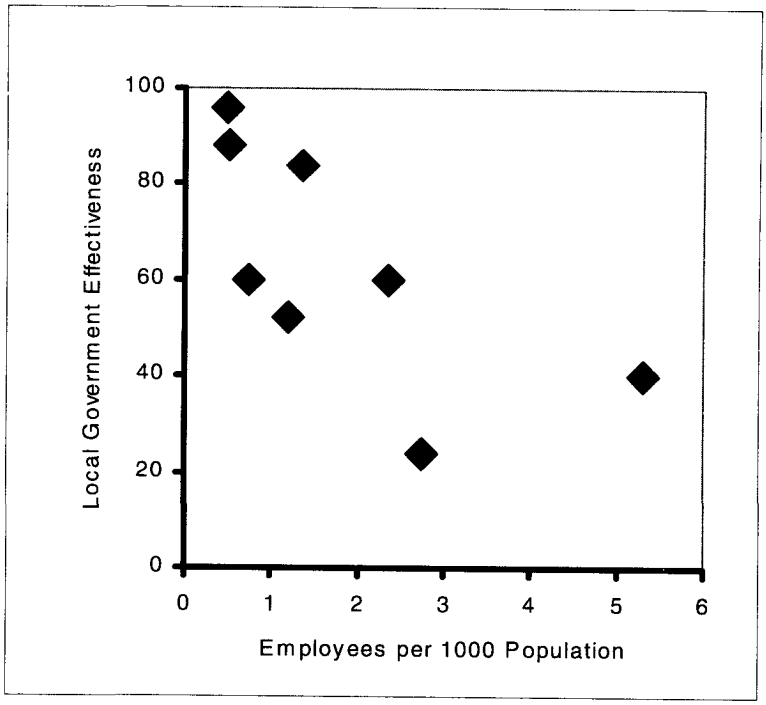
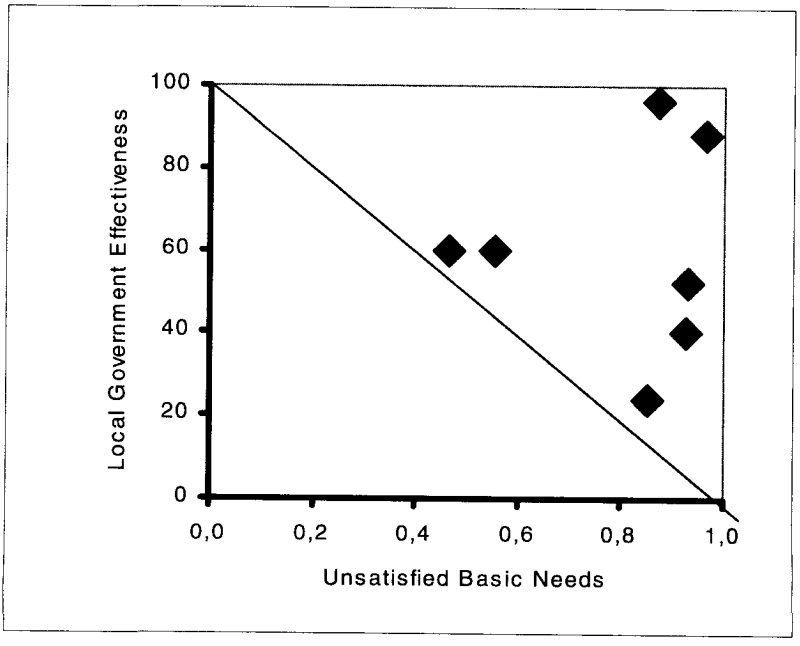

Local Government Effectiveness
100
80
60
40
20
0
0
20
40
60
80
100
Municipal Council's Effectiveness

FIGURE 26


Local Government Effectiveness
100
80
60
40
20
0
0
1
2
3
4
5
6
Employees per 1000 Population


Local Government Effectiveness
100
80
60
40
20
0
0,0
0,2
0,4
0,6
0,8
1,0
Unsatisfied Basic Needs

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