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Evaluating and Disseminating Experiences in Local Economic Development: Brazil BNPP Research

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Introduction

With the advancement of democratization, the decentralization of policy decisions in developing countries, mainly in Latin America, became a feasible goal. With macroeconomic stabilization, particularly the drastic reduction of the inflationary processes that transpired in Latin America during the 1980s and 1990s, countries began to focus on the reduction of unemployment, as well as the generation of income and incentives for economic activity more generally. The combination of decentralization with the above-outlined policy goals points to the increased attention given to the possibility that these goals be accomplished by local governments. This type of public policy will be denominated in this report as Local Economic Development (LED).

In the most recent literature, there are essentially two lines of inquiry with respect to local development studies. The first, called the “New Economic Geography” (NEG), seeks to reinvigorate the findings in classical studies by Marshall, Myrdal, Hirshman and others. The second research stream specifically directs itself at examining case studies on LED implementation in developing countries. Curiously, there is scant interchange between these two lines of inquiry in Brazil. NEG searches to define models based on microeconomic fundamentals in order to study the relationship between increasing returns to scale, transportation costs and agglomeration advantages.

Based on these theoretical models, the empirical analysis inspired by the NEG seeks to evaluate the primary sources for these advantages or to estimate the size of the scale economies derived from these processes. However, limited attention has been directed at linking the theoretical implications of the new economic geography literature to most of the traditional arguments found in urban and regional economics. On the other hand, the literature on LED has sought to establish general parameters which define what a LED program is and have essentially concentrated on case studies with only limited reference to NEG.

This report and the research behind it attempts to work on bridging this gap in the Brazilian literature. In doing this it will build on and extend existing frameworks. LED is a potentially important factor affecting spatial equity and empowerment of the poor. The NEG studies can give some general advices on policy oriented meters but it can give very few suggestions on the implementation process. On the other hand, the case studies approach that seems to dominate the literature on LED can expose important implementations process but it cannot give clear advices on general purposes such as which policies to pursue or to establish causality relations between instruments and performance.

Although NEG come out as a renaissance of location theory, it has been accompanied by very little policy analysis. Fujita, Krugman and Venables (1999) textbook just ignores policy¹. The problem is that the basic model has the unfortunate feature of being almost impossible to work with analytically. The result is that the interesting endogenous variables cannot be expressed as explicit functions of the relevant variables of the model – trade

¹ This is also the case for Neary (2001) or Ottaviano and Puga (1998).

costs, economies of scale, etc. For that reason, the empirical analysis of the insights of the NEG was lagging behind until the end of the 1990s. Very recently a group of scholars started to work empirically with NEG models that are analytically tractable. The empirical analysis shed some light on public policies that are more or less desirable from the point of view of development and empowerment of the poor at different geographic levels such as nations, provinces or local governments. This report applies this kind of approach to derive some policy insights at the local level in Brazil.

Research on regional economic development is particularly important for countries such as Brazil where the uneven spatial distribution of economic activity has been particularly marked and has tended to persist over time. Yet, research on how issues of public administration and policy are impacted by spatiality remains an emerging field, most especially in the case of local economic development policies in the case of developing countries such as Brazil. The first chapter synthesizes the research findings emerging from both the “New Economic Geography” and “Local Economic Development” literatures with particular attention to the policy implications for governments. It synthesizes insights on patterns of development across regions and the policy implications emerging from the NEG literature. On the other hand, it presents finding from LED research on the importance of institutions (organizational forms) and processes in LED efforts giving particular attention to the case of local economic development policies directed at Brazil.

Studies directed at examining the most recent wave of local economic development initiatives that have emerged across many developing countries since the 1990s have to date limited their focus on examining how LED policy implementation contrasts with predicted theoretical outcomes and the possible insights that can be gleaned from such comparisons across time and localities. In the case of Brazil, our review of the literature confirms this problem. Indeed, few evaluations of Brazil LED programs have been carried out. The same patterns are found with respect to LED research in the United States (Bartik & Bingham, 1995).

Furthermore, most case study analysis is descriptive, often not focused on rigorous hypothesis testing. Limited in part by scant available data, those studies that do undertake evaluations are often inconclusive with respect to the efficiency of program interventions relative to the public investments directed at specific initiatives. Because evaluations of LED remain a major challenge for those interested in public policy and administration, assessments on whether the private and social returns of a LED intervention are positive should be encouraged.

We are not saying that descriptive analysis is not very important for undertaking public policy initiatives. Brazil is among the developing countries with the most advanced system of statistics. Thus, a very elevated quantity of data is observed on the municipal scale, i.e. at the city level. Brazil has more than 170 million inhabitants. This aspect allows for observing a diversity of policies within a single country. Besides, during the 1990s there was a considerable change in the federalist system with the passing of the 1988 constitution. As a result, municipalities became federative entities and a series of tax collection and expenditure responsibilities were transferred to these new entities. On the other hand this same constitution has limited local expenditure to be at least 20% in health

and 30% in education. Chapter 2 mainly describes the behavior of the municipalities during the 1990s using the extensive data available in Brazil at the municipal level.

As is well known the spatial distribution of income per capita Brazilian follows a concentration pattern in which the South and Southeastern states are considerably richer than the remaining states of the North and Northeast with the Midwest in an intermediary position. This characteristic is repeated at the municipal level. The regional disparity in Brazil is unparalleled—the richest state (São Paulo) has income per capita more than seven times higher than the poorest state (Piauí). The difference is much higher if we consider municipalities. In 2000, São Paulo, SP has income per capita 25 times higher than the income per capita of Guajará in the Amazon. This pattern of inequality in income is enough for justifying any program that would reduce the differences faster.

On the other hand, the regional concentration of the population below the poverty line does not follow the spatial distribution observed with respect to income per capita. Care should be taken in this analysis since more populous municipalities may have a larger number of poor in absolute terms, but a smaller proportion of poor. Nevertheless, the richest states have a significant share of the population below the poverty line. It is true that the concentration of this population in the states of the Northeast is greater relative to other states, as would be expected, but the difference is less striking than regional comparisons related to the distribution of income. This observation makes sense if we consider that the lower class population living in poor localities tends to migrate to richer municipalities in search of improved opportunities or social support system. This pattern suggests that LED programs are (legitimately) demanded in large and rich cities but they may be just moving poor families from one place to another.

To make a more focused descriptive analysis we should identify which municipality indeed attempted to implement a LED effort. This is not an easy task and it is one of the big challenges of this report. Actually, the first effort was defining what a LED program is. The literature offers a very broad definition ranging from income generation, employment increase, poverty reduction or sustainable growth as main goals. On the other hand means ranged from cluster creation, municipal consortia, taxes subsidies, training programs, other kind of direct or indirect subsidies, etc. In any case, LED programs are often related with some innovation in the implementation stage. We use this broad definition of goals and means in our attempt to identify the municipalities that have implemented a LED program.

Our first bet was looking at best practice awards. The *Gestão Pública e Cidadania* is an award coordinated by the Getúlio Vargas Foundation and the Ford Foundation with BNDES support that has been running annually since 1996. This is a very successful award that currently receives around one thousand submissions each year. The program coordinators keep track of all the information although not all the information is digitalized. We first thought that we could use its coding as a way to separate the municipalities. Unfortunately its coding is by “sectors” like administration and government; infrastructure and environment; etc. This kind of coding, detailed on Appendix B, do not allow the division of the municipalities by means or goals. However, the submissions we have carefully read, selected randomly, relates to one or more of the goals or use one or more of the means cited above. Furthermore all programs, at least from the point of view of the municipality

itself, were innovative. So, one possible attempt would be considering that municipalities that have participated in the GPC did have implemented some sort of LED program.

The problem with this definition is that we cannot assume that a municipality that did not participate in the program had not implemented any LED initiative. So, we turn our attention to the public management module of MUNIC, a survey conducted annually by IBGE with the totality of Brazilian municipalities. Besides the fact that using this survey we can get information for the whole universe, the kind of coding in this survey allows the separation of programs by some general means: fiscal incentives, non-fiscal incentives, income generation and job training programs.

Regardless of the LED definition adopted, our main finding is that there is a clear barrier for poorer and smaller municipalities to adopt a program. Municipalities below some threshold for either population or income are very unlikely to implement any LED program. More complex programs have higher thresholds. These results pose some serious doubts on the feasibility of LED type programs funded by the municipal government to reduce spatial inequality that was one of our main arguments for such a program in the first place. Programs funded by the State or Federal governments but implemented at the local level may be the only way to make an effective LED program for reducing poverty in the short run. This descriptive finding is qualified in the two following chapters.

The descriptive analysis does illustrate the problems related to LED implementation and assessment. In Chapter 3 we conduct further empirical analyses to evaluate the impact of different policies on local economic growth in order to strengthen research on what types of LED policies are most effective for Brazilian municipalities. The careful look at the data available at the municipal level however, shows that evaluations involving more robust testing are very difficult to undertake. The data at the sub-national level to make specific analyses in the case of Brazil are still missing. Thus, a necessary precursor to evaluation efforts should be to strengthen data gathering in order to make more rigorous evaluations of LED programs possible. This question is discussed in Chapter 4. That is, Chapter 2 presents the current pattern of local development in Brazil and furnishes the motivation for Chapters 3 and 4.

The analysis in Chapter 3 is connected to a new generation of studies that take into account the insights emerging from both the NEG and LED research streams. In contrast to the research conducted to date, greater discussion and debate is encouraged between both literatures as they compliment each other very well. Research building on the work in the NEG literature is quite effective for studying the desirability of a particular intervention across regions and thus helping to identify cross-regional policies that have been effective. Yet, studies modeled in the NEG framework will offer few insights on policy implementation. In contrast, case studies carried out in the LED field have a great deal to offer on this type of questions. Thus, the two approaches should be regarded as complimentary, rather than substitutes. Chapter 4 does a first effort toward bridging the gap noted in the literature.

Local economies within a country differ substantially in their economic performance and such differences might persist over long periods of time. Although differences in local

development performance have always been a familiar feature of the economic landscape, increasing concern with regional disparities and poverty levels have prompted a growing interest in the factors giving some places better conditions for enhancing performance and overcoming development challenges. Moreover, researchers and policy makers have been trying to further understand the related role of public policy at local level. Here, the key question relates to the capability of local governments in significantly impacting their realities despite their historic, economic, social and geographical constraints. The central aim of Chapter 3 is to empirically investigate the factors influencing local development across Brazilian municipalities, emphasizing the role of local public policy. To do that we adopt spatial econometric models inspired by the neoclassical growth theory and by some recent development of spatial economics.

Observed correlations between the proportion of expenditure in education, health or infrastructure expenditures and municipal performance cannot be presumed to be correlated with other initial characteristics. There is enough variance in the sample that gives us a good opportunity to estimate the trade-offs between two classes of expenditures at the local level—education and health spending and infrastructure (energy, transportation, housing, and regional development) spending. However, to measure the implicit trade-offs, we need a measure of the goal of these programs. We believe that a program of LED should have as a basic purpose the improvement of well-being of its residents. While the fundamental concern is with equity and development, the empirical investigation utilizes the population below the poverty line as a proxy for inequality and per capita income as a measure of growth.

Program goals often appear among the objectives that should be means and not final objectives. In particular, it is common to find employment, income generation, firm recruitment or the support for local companies among program objectives. This would be a justifiable objective if there were some production scale gains or idle resources (for instance unemployment). The increase of the scale of the municipality could generate productivity gains and consequently increase the well-being of its residents. The use of idle resources would increase total income. For that reason, to measure the performance of a local public policy we will look at employment variation as well.

The way we are analyzing public policy at the local level parallels empirical analysis on convergence across municipalities. We want to know which combination of policies leads a municipality to converge towards the average level of income, poverty or employment generation at the fastest rate. The empirical analysis of income convergence departs from the classical theory of economic growth. The main idea is that in regions with a smaller stock of capital this factor should be more productive than in regions with a larger stock of capital. So, the argument goes, capital would flow from over-capitalized regions to under-capitalized ones and income would converge within regions. This hypothesis is called “absolute convergence”. One variation of the hypothesis, known as “conditional convergence” states that given differences in preferences or initial conditions, regions may converge to a different level of income. The main findings in Brazil is that while conditional convergence is very close, absolute convergence will take a very long time to happen.

In this report we are not worried about whether absolute or conditional convergence occurs, but rather, whether local policies affect the rate of growth. However, if we did not control for initial conditions we may be neglecting a highly significant variable. Actually, the “convergence component”² is one of the highest determinants for any goal (growth, poverty reduction or employment generation). For income per capita, we confirm the conventional wisdom that we are very close to conditional convergence (less than 2 years) and we find some indirect evidence of convergence clubs, i.e., some municipalities are converging to a lower level and others converging to a (relatively) higher level. Convergence in employment captures the congestion costs (firms leaving very concentrated regions). Convergence in population below the poverty line means that poor migrants are leaving the municipalities with a (relative) high proportion of poor to regions with a lower proportion. We test our results using different statistical methodologies (especially regarding the spatial component) and the results are very robust to any methodology adopted.

Our results contribute to the identification of the determinants of local performance measured by three variables, as discussed above (employment change, income per capita change and the change in the population below the poverty line). From the empirical estimates evidence is provided regarding the factors suggested by the recent literature on growth and development. In addition, we test for the possibility of spatial dependence in the models. The results confirm findings of the importance of the initial conditions on municipal performance in accordance with theoretical and empirical results found in previous studies. However, the policy responses offer a new vision of what would be the most adequate policy at the local scale. Since we are analyzing all Brazilian municipalities, we can observe the relative (to the country) behavior of a municipality that would be more difficult in a case study.

The most efficient policy for increasing per capita income in this time horizon is reallocating resources towards infrastructure. According to our estimation this type of expenditure also contributes to poverty reduction (significant at 10%). However, the variable is not significant for employment. The two other considered policies have counterintuitive results. Firstly, increasing the proportion of spending in health would actually decrease growth of income per capita and contribute to the increase of population below the poverty line. Second, transfers from the federal government are negatively correlated with the 3 measures of local development but not significant for poverty.

Also, as we mentioned above, the increased autonomy of the local governments must be qualified. Most of the municipalities in Brazil rely mainly on Federal or State grants. On the other hand, grants may be a way to reverse the spatial inequality as far as the poorer municipalities receives (proportionally) larger grants. Our descriptive analysis shows that this is not the case. Yet our findings in the regression analysis are even worse since they show that municipalities who relied on grants as a greater proportion of total spending from 1994 to 1996 experimented a slower growth both in income as in employment during the 1990s. The results suggest some serious problems in the interregional grants system in Brazil.

² That is, the log of the initial dependent variable.

These results with respect to policy variables deserve some qualification. We suspect that in these cases expenditure might not be the best way of capturing the impact of the respective policy initiatives, being the qualitative aspects of them more important. Moreover, these variables might capture only the fact that the localities with higher expenditures with health or higher transfers from central governments are actually the ones with worse social and economic conditions. Although we are considering rates of growth, those municipalities may be trapped in a very bad initial position distorting the results.

The econometric analysis adopted in this study sheds some light on the role of local public policies in impacting subsequent development. However, fully explaining the underlying mechanisms connecting local policy with development is beyond the analytical capability of the proposed methodology. Moreover, as mentioned our variables might not have conveyed all the relevant information for a dully policy evaluation. In order to accomplish a more comprehensive assessment it would be necessary more information on the qualitative features of LED programs. This challenge is faced in Chapter 4 where we conduct four case studies and link the studies with the econometric analysis by developing a methodology for selecting case studies. The case selected are among those that are not properly explained by the parameters estimated in Chapter 3.

One of the problems of a general statistical analysis is that it does not contribute to understanding on the actual implementation process of LED programs. Furthermore, a LED program usually comprises a set of institutions, innovative programs and other characteristics that would be very difficult to capture with a general analysis such as the types of exercise conducted in chapters 2 and 3. For this reason we attempt to discuss how it would be possible to analyze the specifics of a LED program in this chapter while noting the shortcomings of case study approaches.

Chapter 4 has two goals. The first one is contributing to the collection of primary data on LED. We propose and run a pilot of a survey to be applied for all Brazilian municipalities. The survey attempts to get information on municipal public policies that are not available in any other source. We attempt to standardize the information on local policies to construct a typology of local economic development. We end up making a typology of programs. Initially our main concern, confirmed by the panelists in a workshop organized for criticizing the survey instrument, was having an overwhelming number of programs. Our pilot and our literature review showed that this is not the case. There are few types of programs adopted by the municipalities. Unfortunately we do not have enough observations (even in the literature) to make a robust statement over this conclusion. However we show that the survey would be much more efficient if the unit of analysis were the programs adopted and not the municipality.

The main innovation in the brief case studies was the methodology for selecting the municipalities. The methodology proposed combines the results from the regression with a case study through the selection strategy. Mainly we select the municipalities within the extreme groups regarding the residuals of the regression. In other words we select the municipalities in the group with the “worst fit” (above or bellow) to the estimated parameters. This is the way we attempt to bridge the gap between statistical analysis and case studies. Since we only use census and administrative records for sample selection,

information available in several countries, we believe that this methodology can be applied to other countries.

Case studies are sometimes criticized because they do not replicate a controlled environment when implementing the research. We believe that our methodology partially overcome this critique. We follow most of the econometric studies dealing with non observable variables that understand that the residuals do carry a lot of information. However we must keep in mind the potential contribution of a case study to analyze LED. First, the description of a theory may help in validating the theory. Second it can find similarities and differences in the case studies that suggest good and bad practices. Since the methodology identify extreme and average groups, similarities in the “positive” group not found in the average or “negative” group may be elected as a possible “good” practice and *vice versa*. For all those reasons we believe that the method proposed maximizes the possible benefits of a case study in LED.

The cases do not deny the idea that special programs may contribute to the performance of the municipality. However the findings are far from robust given the very small sample and the inherent endogeneity problem (better municipalities in every aspect may be more likely to implement special programs). One very interesting result is that we realize that some municipalities consider higher level programs as a local program: Recife considered the federal program “Bolsa Familia” as a local program and it is controlled by a mayor from the same party as the president while Jundiaí considered the state government program in micro credit as local and is controlled by a mayor from the same party as the governor. This connection may not be problematic if it is just a matter of “identification”: the municipalities from the same party have similar goals so they identify themselves more easily. This finding will represent an institutional failure however if the municipalities from the same party have more influence on the higher level policy.

In any case, we do think that both programs brought in the case study funded by higher level may be indeed analyzed as local economic development programs. It makes a lot of sense funding a program like the “Bolsa Familia” by the federal government. A program like that funded by the municipality may just move poor households from other municipalities. It may make sense for the state (or federal) government to fund a micro-credit program since there may be increasing returns in the financial market. A more in deep study of those programs will contribute to a better understanding of LED funded by higher government levels. Given our evidence that small and poor municipalities are not able to implement any program we believe that studying these two cases is a must for understanding the possibilities and limitations of an effective LED program lead by the state or the federal government.

In brief the report gives a comprehensive review in the LED experiences documented in Brazil focused on the 1990s. It includes a literature review and a compilation of most of the secondary data available at the municipal scale. We discuss the main stylized factors and attempts to evaluate broad groups of local public policy. The report also addresses the data needed for a more in deep analysis and proposes and runs a pilot of a survey to collect this data. Finally we propose a way to select case studies in LED that is consistent with a regression analysis of the determinants of local performance. We expect that this report

gives a good knowledge of local development in Brazil during the 1990s and, at the same time, advance in the methodology of LED studies linking two traditions for which we observe almost an absence of dialog.

Chapter 1:

Review of the Literature on Local Economic Development in Brazil: Theory, Evidence, and Implications for Policy

The interest and active participation of governments at the municipal, state, regional and federal levels to promote and guide local economic development (LED) in Brazil has surged dramatically over the last decade. With macroeconomic stabilization, particularly the drastic reduction of inflation, governments have directed increased attention to microeconomics reforms towards the reduction of unemployment, as well as the generation of income and incentives for economic activity in specific geographic regions within Brazil. Though research directed at examining how growth can be ignited at the local level has occupied the attention of scholars, research on how issues of public administration and policy are impacted by spatiality in the case of Brazil remains an emerging field.

In the most recent literature, there are essentially two lines of inquiry with respect to regional development studies. The first, called the “New Economic Geography” (NEG), seeks to reinvigorate the findings in classical studies by Marshall (1890 (1961)), Myrdal (1957), Hirschman(1958) and others. NEG seeks to develop and test models to study the relationship between increasing returns to scale, transportation costs and agglomeration advantages based on microeconomic fundamentals. Building on theoretical models, NEG seeks to evaluate the primary sources for these advantages or to estimate the size of the scale economies derived from these processes. The second research stream, largely advanced by urban planners, business economists, geographers and urban sociologists, has studied the development and impact of local economic development (LED) initiatives in developed and developing countries. The literature on LED has sought to establish general parameters which define strategies for fostering innovation and prosperity in regional economies. In the case of developing countries, such as Brazil, research has essentially concentrated on case studies.

Research on regional economic development is particularly important for countries such as Brazil where the uneven spatial distribution of economic activity has been particularly marked and has tended to persist over time. Yet, research on how issues of public administration and policy are impacted by spatiality remains an emerging field, most especially in the case of local economic development policies in the case of developing countries such as Brazil. This chapter synthesizes the research findings emerging from both the “New Economic Geography” and “Local Economic Development” literatures with particular attention to the policy implications for governments. Section 2 synthesizes insights on patterns of development across regions and the policy implications emerging from the NEG literature. Section 3 presents finding from LED research on the importance of institutions (organizational forms) and processes in LED efforts. Section 4 gives particular attention to the case of local economic development policies directed at Brazil. Section 5 draws attention to the scant interchange that exists between these two lines of inquiry and argues that spatial econometric models present a valuable tool to bridge these research streams and promote further advances in research on local economic development.

The New Economic Geography Literature and Regional Development

Research on why economic activity clusters in centers, how new centers develop and the consequences of remoteness are particularly important for countries such as Brazil where the uneven spatial distribution of economic activity has been particularly marked and has tended to persist over time (Krugman 1999). As Table 1.1 indicates, the uneven spatial distribution of economic activity in Brazil has remained concentrated in a core region centered in São Paulo throughout industrialization, persevering until the present day. In fact, empirical evidence suggests that the share of Brazil's population and income remained concentrated in the state of São Paulo and its neighbors, the states of Paraná and Minas Gerais, throughout the 20th century. Whereas, 63% of national income and 44.5% of the population were concentrated in these regions in 1939, the level of economic activity had only fallen by 5% in 57 years to 58.1% for the Southeast states (São Paulo, Paraná and Minas Gerais) and population to 42.7% by 1996 (Azzoni 2001). In contrast, the Northeast region of Brazil's share of income decreased from 16.9% to 13.5% during the same period.

Table 1.1 Regional GDP as a share of National GDP (1991-2000)

| Region | Regional GDP as a share of National GDP |
|---------------|--|
| North | 4.5 |
| Center-West | 9.5 |
| Northeast | 12.6 |
| South | 17.3 |
| Southeast | 56.2 |

Source: IPEA;. GDP calculated based on 2000 constant values.

Building on earlier work on the geographic concentration of economic activity and urban/rural differences, recent research in the so-called “New Economic Geography (NEG)” literature sparked Krugman’s (1991a; 1991b) seminal studies have called renewed attention to examination of how increasing returns, both at the internal level of the firm and externally with respect to other firms, may contribute to explaining agglomeration forces at the country, regional and city levels (Baldwin, Forslid, Martin, Ottaviano, and Robert-Nicoud 2003; Fujita and Thisse 2002). In contrast to standard regional convergence theories where income disparities arising from differences in regional capital/labor ratios diminish over time, these models do not predict convergence in growth rates. Thus, one of the key insights revealed by this research stream is that growth may be uneven and tend towards divergence within regions in an economy (Aghón, Albuquerque, and Cortés 2001; Henderson, Shalizi, and Venables 2001).

Consequently, NEG studies have drawn renewed attention at the conditions which drive firms to locate in close proximity to large markets and to each other. Models have emphasized both supply (reduced transport costs, access to immobile factors), as well as demand (namely market access) factors as the determinants of the agglomeration of economic activity with increasing returns (Fujita, Krugman, and Venables 1999). And

unlike models predicated on constant or diminishing returns, these models show that production, trade and investment patterns evolve in a geographically concentrated, or gravitational, manner which seems to be the very processes observed empirically by those studying development trajectories.

Under different assumptions regarding factor mobility, NEG models predict that different growth performance outcomes are possible. Under conditions where factors are immobile and there are broader linkages between particular industries, Krugman and Venables (1995) show that industrial activity concentrates in the "core" as the benefits from concentration (due to market access or demand driven factors) outweigh the labor cost savings of moving "periphery" predicting increased inequality across geographical regions. These predictions contrast with earlier work that argued that the mobility of capital and labor and the closer linkages between industries, would lead to more diffused development patterns with particular cities specializing in particular types of industries (Henderson 1974). More recent research, such as that performed by Puga (1998), for example, argue that urbanization patterns in contemporary less developed economies will follow a reverse trend to that experienced during Europe's expansion in the 19th century where patterns led to more evenly distributed regional growth. With lower costs of spatial interaction, economies of scale, and elastic supply of labor to the urban sector, Puga concludes that the dominant pattern in developing countries will be economic development in which primate cities dominate.

By shedding light on the concentration of economic activity and spread of development to developing regions, the NEG literature has also provided evidence to show how policy interventions can circumvent geographical determinism (Krugman 1991a). Specifically, under certain conditions, government policies directed at reducing the costs of remoteness can allow new economic centers to develop. Building on these earlier models, more recent NEG research has begun to focus its attention on how public infrastructure (roads, airports, industrial parks), as well as technology and production subsidies influence location patterns and economic development (Puga 2002). In these models, government policies directed at public infrastructure investments decrease transportation costs, as well as lower wages and rents outside the primate city. Thus, policies directed at transportation infrastructure may contribute to the diffusion of economic activity to outer provinces. In the case of Brazil, these theoretical models might explain the observed process of the deconcentration of industry from metropolitan São Paulo to the State of São Paulo, as well as the emergence of industrial production in other regions (Hansen 1987; Townroe and Keen 1984).

However, one of the principal lessons from the studies on the effects of public policies in NEG models is that because of the cumulative, nonlinear processes under way it is very difficult to anticipate the impact of specific policy interventions due to complex interactions and endogeneity. With agglomeration, multiple equilibria with distinctly different outcomes in terms of growth and regional inequalities are possible. As a result, outcomes in which a "good" equilibrium with high growth and low spatial concentration and a "bad" equilibrium with low growth and high spatial concentration coexist are entirely feasible (Baldwin et al. 2003).

Similarly, policy interventions to provide public infrastructure can yield enhanced growth in less-developed regions, but NEG models also provide insights as to why these trends may not necessarily materialize, or the benefits may be less than initially predicted. Policies may successfully promote the diffusion of industrial activity across states, but also contribute to the formation of new clusters within these regions. In this vein, both Glaeser, Dumais, and Ellison (2002) and Glaeser, Scheinkman, and Shleifer (1995) develop models to show how the spread of economic activity can create new endogenous processes that induce further concentration in spatial growth within the new region. Still other models show that reduced transportation costs, for example, can also facilitate the entry of supplies by larger firms to rural, more distant markets and thereby reduce the likelihood that industrialization will take place. NEG models have provided insights as to why strategic interactions may result in a “race to the bottom” between competing regions (Baldwin et al. 2003). Because each region has strategic interests to adopt a counterstrategy to retain firms in its locality, regional or local governments may have incentives to implement policies which run counter to the interests of other localities.

Local Economic Development Research in Developed and Developing Countries

Fomenting development in specific geographic regions through targeted policies and reducing levels of regional inequality have been consistent objectives in both developed and developing countries for several centuries. Drawing on these experiences, the so-called literature on “Local Economic Development (LED)” has sought to examine how development is shaped by the exercise of strategic control by local actors who seek to maximize the potentials of local human, institutional and physical capabilities in a strategic manner. While also emphasizing factor (input) and demand conditions, this body of research has made particularly strong advances in elucidating how supply-side factors lead to agglomeration in core activities.

Stimulated by Porter’s (1990) work on competitiveness, an important part of the research in LED has focused on clusters, private sector firms’, their strategies, their structure and rivalry, as well as their relationships to supporting industries and how these factors translate into self-reinforcing determinants of sustained economic growth. Research on LED has contributed three key insights that underscore the importance of institutions (organizational forms) and processes in LED efforts. First, LED research has stressed that activity types, as well as locality matter (Webster and Muller 2000). Saxenian’s (1994) work on the Silicon Valley and Route 128 is illustrative of the insights derived from this framework. In these cases, the region’s development is shown to be the result of the buildup of firms within a defined geographic region, the complex set of relationships and linkages within this network spanning firms, universities and the public sector, the sector’s embeddedness and centrality in the global production chain, and the effective shift in innovation from computer manufacturing to semiconductors to Internet technologies. Secondly, studies have highlighted the importance of studying the presence of, and linkages to, related activities and institutions (Porter 2000). Finally, the LED literature has also stressed that an important determinant of the success or failure of specific initiatives is the ability for coalitions-

centered development strategies to effectively translate into positive outcomes (Meyer-Stamer 2003a).

Within this framework, governments are viewed as a central actor in creating a favorable environment for business activity, as well as for upgrading factor conditions (Silva Lira 2005).³ Governments are also recognized as playing a key role in remedying specific market failures, such as the lack of visibility of new businesses and the lack of access to capital for new entrants (Bartik 1990; Meyer-Stamer 2003b; Tendler 2002b). In terms of courses of action, LED initiatives have been characterized by the promotion of policies including fiscal subsidies, tax incentives, free trade zones, reduced transportation costs and the provision of a trained labor force. Common approaches to LED emphasize strategic planning, local economic development agencies, and cluster promotion policies. The specification of locality varies significantly and LED frameworks have been used to focus on strategies targeted at the broad range of geographic regions within a nation, ranging from the country as a whole to the specific neighborhood levels (Ettlinger 2001).

Historically, LED initiatives were often promoted by national governments, such as the case of the TVA to advance progress in the economically depressed areas of the Appalachian Region of the U.S. and the creation of the SUDENE (Superintendência de Desenvolvimento do Nordeste) to promote development in the nine states of northeastern Brazil.⁴ In recent decades, the number of actors has increased significantly ranging from national, sub-national, and local governments, to the private sector, NGOs and international organizations, as well community development organizations and NGOs. In addition, whereas traditionally LED efforts were undertaken by a single agency, increasingly initiatives are elaborated as parts of partnerships and coalitions comprised of the public and private sectors, as well as community development organizations.

³ Martin and Sunley Martin, Ron, and Peter Sunley. 2003. Deconstructing Clusters: Chaotic Concepts or Policy Panacea. *Journal of Economic Geography* 3:5-35. discuss the policy challenges posed by these concepts.

⁴ For an excellent historical summary of spatially explicit regional policies in Brazil, see Fay, Marianne, Paulo Correa, and Somik Lall. 2005. Brazil Regional Economic Development – (Some) Lessons from Experience: World Bank..

Box 1.1 The Role of Clusters in Brazil's Local Economic Development

Research on clusters, commonly referred to as *Arranjos Produtivos Locais* (APLs) or *Sistemas Locais de Produção* (SLPs) in Brazil, have surged to become an important and complementary field of inquiry (Altenburg and Meyer-Stamer 1999; Prosiga 2004). The concentration of specialized skilled labor, primary material or specialized service suppliers, and knowledge and technical know how of specific industries are among the spillovers most often cited as arising from the agglomeration of firms and institutions within specific regions or districts.

In a recent study, Suzigan, Furtado, Garcia, and Sampaio (2004) employ a location Gini coefficient, a traditional location quotient and a specialization index and utilize this map to create a typology of four types of APLs in the State of São Paulo. First, there are APLs that dominate a significant share of total state and national production, such as the infant shoe industry in Birigui and Franca for male shoes. In the case of these nuclei of regional development, the regional economy tends to be dominated by industry. Second, there are other APLs that represent a sizeable force in the local economy with reduced sectoral importance. In the case of these advanced vectors, the contribution of these APLs to local dynamics also tends to be more diffuse. An illustration of this type of APL common to larger industrial cities is the clothing industry in Metropolitan São Paulo. Third, there are other clusters whose importance for a region tends to outweigh their industrial significance which the authors denote as a vector for local development. Such is the case of the Dracena in the production of ceramics and the sweater industry in Amparo. The final type of cluster is denoted as an embryonic cluster with limited local or industrial significance. These are found in Ourinhos for leather shoes, Pirassununga for textiles and ceramics and Ribeirão Preto for the production of agricultural machinery.

Differences between LED in the “North” (i.e. Europe and U.S.) versus the “South” (i.e. developing countries) have also been identified as critical in explaining the variation in the size, scale and scope of LED interventions (Nel 2001). In Europe and the U.S., LED has been largely driven by locality-specific crisis of deindustrialization, as well as pressures to “rollback the role of the state.” In the European Union, the primary instrument of regional policy is through the financing of impoverished regions through objective 1 of the Structural Funds, which now comprises approximately 30% of the EU budget (Puga 2002). In the U.S., the locus at the government level has also shifted towards local city governments and local development agencies promoting initiatives targeted at business retention, new business development, high technology development, development of brownfields, distressed neighborhoods, and downtowns (Bartik 2003). Thus far, research on LED exists for only a select group of countries in Latin America, Asia and South Africa (Helmsing 2001a). The available evidence suggests that LED initiatives have been underway since at least the mid-20th century in developing countries. For example, in a survey focused on Latin America in the early 1970s conducted by Stohr (1972), 73 LED programs were identified.

In the case of Latin America, Helmsing (2001b) argues that LED initiatives have entered a third stage in the 1990s. Whereas the first stage in the 1950s and 1960s, LED was dominated by national governments seeking to balance the uneven character of economic development and attracting new firms to locations, the second generation spanning the 1970s and 1980s largely tended to reject the potential benefits which could be reaped from state-led industrial policies. In this second stage, endogenous regional development alternatives emphasizing the role of local actors, resources and capacities in industrialization strategies were promoted. Since the early 1990s, Helmsing argues, a third-stage of LED policies have been instituted. Unlike previous initiatives, the new stage of LED posits that endogeneity is an important point of departure for policy initiatives. Helmsing notes that meso-institutions, defined as institutions at the sectoral or regional level, have become key actors to third-generation LED efforts in Latin America. Indeed, newly created meso-institutions played a critical role in nine of the twelve cases examined by Helmsing (2001b) and in contrast to earlier periods, small enterprise or new business development programs have tended to be the primary focus. In addition to the central role played by state and local governments, Helmsing sustains that NGOs and community development remain mostly absent in most LED initiatives in Latin America.⁵

In the literature focusing on Latin America and South Africa, the transition to democracy which has created democratically elected local structures and greater autonomy has been noted as contributing to the multiplication of LED initiatives underway (Llorens, Albuquerque, and Castillo 2002; Nel 2001). Nevertheless, Nel (2001) stresses that although pressures including decentralization, globalization and economic restructuring have fomented a renewed emphasis on efforts aimed at igniting economic growth at the local level in recent decades, the lack of resources hinder the capacities of local governments and community development organizations in developing countries from being able to mobilize effective programs and thus success has been limited.

As this section has attempted to highlight, to date, LED research has focused on characterizing different trajectories and pathways to economic development for different types of cities— metropolis, suburban cities, small cities and rural areas (Wong 2002). However, more rigorous evaluations of local economic development policies remain a significant gap in the literature on LED. While research on the differences between LED factors (inputs) and performance variables (outputs) has evolved, the few evaluations that have been conducted have focused on process more often than impact evaluations (Bartik 2002). As Bartik and Bingham (1995) conclude "economic development evaluation is where job-training evaluation was 20 years ago— with the few good evaluations, more low-quality evaluations, and too few evaluations overall." Others are even more pessimistic, noting that there is only scant evidence that LED has ever been successful anywhere (Meyer-Stamer 2003b).⁶

⁵ This is not unanimous in the literature. Actually there are many initiatives in Brazil that contradict this assertion. Our own research found more NGOs than municipalities engaged in promoting LED.

⁶ An exception is a special *Economic Development Quarterly* issue focused on Critical Perspectives on Local Development Policy Evaluation. For an overview of this issue, see Reese and Fasenfest Reese, Laura A., and David Fasenfest. 1999. Critical Perspectives on Local Development Policy Evaluation. *Economic Development Quarterly* 13 (1):3-7..

Research on Local Economic Development in Brazil

Work on examining Brazil's local economic development experiences has generally developed along three distinct paths. The first path has directed its attention at studying the evolution of convergence and agglomeration patterns across the nation in different periods and the role of federal, state and local government spending on national or sub-national growth patterns. The second path, largely driven by a recent set of case studies written in a comparative context with other Latin American countries, has sought to map of the types of initiatives taking place, as well as some of the distinguishing characteristics of this new stage of LED in Brazil. The third path has directed its efforts at examining the impact of specific government policies on industrial development and economic growth. In this section, we focus on the preliminary findings derived from each of these three research areas.

Convergence and Agglomeration Forces

To date, limited research has been undertaken with respect to applying NEG frameworks to public policy analysis in the case of Brazil. The magnitude of the productivity advantages gained for cities in the core region of Brazil (the state of São Paulo and its vicinity) has been documented by several studies (Hansen 1987; Henderson 1988; Townroe 1985). Seeking to examine the rate of convergence across different states in Brazil for the period 1939-1990, Azzoni (2001) reports strong signs of increasing divergence within the poorer regions of the country simultaneously with increasing convergence within the richer regions. Several others studies by Azzoni and others have confirmed the persistence of these trends (Azzoni, Menezes-Filho, Menezes, and Silveira-Neto 2000; Mossi, Patricio Aroca, Fernández, and Azzoni 2003).

In contrast to research on long-term trends on Brazilian development over the course of the 20th century, more recent studies have focused on the period after 1970 based on the view that more recent decades are considerably distinct due to structural economic changes. Seeking to understand whether regions with lower incomes per capita are growing at faster rates over time relative to more prosperous regions and whether these trends are conditional on specific factors, this research has found that that some evidence that suggests that the gaps in Brazil's uneven spatial development appear to be narrowing (Azzoni, Menezes-Filho, de Menezes, and Silveira-Neto 2000). Studies report that convergence in GDP per capita between Brazilian states did take place between the 1970s to the mid 1980s, however evidence indicates that this process has diminished and may have even reversed in the 1990s (Ferreira 2000). Other studies, however, have drawn attention to the existence of different convergence clubs among Brazilian states (Mossi et al. 2003).

At the municipal level, evidence of the persistence of the concentration of per capita income in the South and Southeast and the lagging and persistence of gaps in the North and Northeast has also been reported. Andrade, Laurini, Madalozzo and Pereira (2004) report a lack of convergence across municipalities between 1970 and 1996. Using alternative methodologies, Gondim and Barreto (Gondim and Barreto 2004) report a convergence trend among Brazilian municipalities but only between 1970 and 1990; in the 1990s a

divergent movement emerged leading to the formation of two convergence clubs—the poor North and Northeast of Brazil (excluding Amazonas, Mato Grosso and Goiás) and another group of more prosperous states in the South, as well as in São Paulo, Rio de Janeiro, Espírito Santo and Amazonas. For the municipalities in the Northeast, (da Silva Porto Jr. and Ribeiro 2003) do not find convergence between 1970 and 1996. Vergolino and Monteiro Neto (1996), on the other hand, report conditional convergence in the Northeast between 1970 and 1993. Convergence across municipalities in the South of Brazil is also reported by Pôrto Júnior and Ribeiro (2000).⁷ Expanding the analysis of convergence trends to examine the evolution of per capita income, literacy, years of study and longevity across Brazilian municipalities, Magalhães and Miranda (2005) report convergence for variables related to education, but convergence in clubs for per capita income and longevity.

In a recent empirical inquiry, da Matta, Deichmann, Henderson, Lall and Wang (2005) examine 123 Brazilian agglomerations between 1970 and 2000 to test whether mostly external factors or specific city policies influence economic growth using a framework that combines both traditional urban modeling with NEG concepts. Inflows of rural migrants, inter-regional transport improvements and the educational attainment of the labor force are reported to have strong impacts on city growth, but the size of cities in the base year counteracts these effects. In the work of targeted toward examining evidence of convergence in the 1,372 municipalities of the Northeast Brazil between 1985 and 1997, Lall and Shalizi (2003) show that although there is convergence within the region toward a steady state, growth in neighboring districts is negatively associated with local municipal growth. This recent preliminary evidence is suggestive that further empirical research utilizing NEG models could help elucidate observed spatial economic growth trends for Brazil and yield valuable insights in terms of implications for government policy. We will return to this question on Chapter 3.

Federal, State and Local Government Policies and Local Development

LED initiatives have tended to follow similar patterns across countries with federal governments coordinating programs initially (Fay, Correa, and Lall 2005). Brazil has accompanied these trends. Helmsing (2001b) traces these successive stages noting that the first wave of regional economic development initiatives in Brazil that emerged from the 1950s and 1960s, such as the SUDENE for the Northeast and the SUDAM (Superintendência de Desenvolvimento da Amazônia) for the Amazon and the Free Trade Zone of Manaus (Zona Franca de Manaus), were initially national government programs. In the last decade, however, a new wave of programs largely led by state and municipal governments has emerged in Brazil.⁸

⁷ Few of these studies incorporate spatial dynamics into convergence analysis. For an analysis with spatial dynamics for the state of Rio Grande do Sul, see Monasterio and Ávila Monasterio, Leonardo M., and Rodrigo Peres de Ávila. 2004. Uma Análise Espacial do Crescimento Econômico do Rio Grande do Sul (1939-2001). *Economia* 5 (2):269–296..

⁸ These efforts have also been complemented by federal programs, such as the Estudos de Eixos Nacionais de Integração e Desenvolvimento. For more on this specific program, see Nasser Nasser, Bianca. 2000. Economia Regional, Desigualdade Regional no Brasil é o Estudo dos Eixos Nacionais. *Revista do BNDES* 7 (14):145-178..

Decentralization has been a particularly important driver of locally-targeted development programs. Efforts by municipal governments have risen in significance since the promulgation of the 1988 Brazilian constitution that endowed these third tiers of government with increased tax and spending powers, as well as devolved certain service delivery responsibilities. As part of the impetus of decentralization, there has been a concomitant rise in the number of municipalities that has risen dramatically from 3,991 in 1980 to 4,491 in 1991 to 5,507 by 2000 (IBGE 2001). By the end of the 1990s, municipal governments were responsible for collecting 32% of Brazilian tax revenue. Resources available to local governments, however, were greater due to the receipt of federal and state transfers (see Table 1.2). Municipalities received a total of 44% of total tax revenue in 1998. With respect to spending, Serra and Afonso (1999) estimate that local governments had become responsible for 27.2% of overall government spending by 1998, 19% of which was directed at public sector salaries and 49.7% toward fixed investments.

| Table 1.2 Local taxes and constitutional transfers to Brazilian municipalities | | |
|---|--|---|
| <i>Local Taxes</i> | <i>Federal Transfers</i> | <i>State Transfers</i> |
| Service tax (ISS) | 22.5% of income tax and the tax on industrial products (IPI) | 25% of value-added tax (ICMS) |
| Urban property tax (IPTU) | 50% of rural property tax (ITR) | 50% of motor vehicle registration tax (IPVA) |
| Property transfers (ITBI) | 70% of the tax on financial operations on gold (IPF/gold) | 25% of State's share of Cide (petroleum, gas and alcohol consumption tax) |
| <i>Source: (Souza 2004)</i> | | |

Given the unprecedented shift in local government responsibilities, some scholars have noted that Brazil has become not only the largest federal republic in the region, but also in addition to Argentina, the Latin American country which gives the most autonomy to municipal governments at the local level (Llorens, Alburquerque, and Castillo 2002). Other scholars, albeit recognizing the significant advances in decentralization, call attention to the challenges that remain. Among the key concerns cited is the current regime's uneven distribution of revenue, thus leading to the persistence of Brazil's historical regional inequalities (Serra and Afonso 1999). A second concern has focused on the degree of bona fide autonomy given to local governments. Bound by spending requirements on health and education and the recently passed Fiscal Responsibility Law of 2000, local governments have far less discretion on how to spend the resources in their coffers. As (Souza 2004) notes, "municipalization in Brazil has not necessary meant the transfer of policy decision making to local governments, but rather it has delegated responsibility for implementation".⁹

With respect to LED, local governments have become prominent players in promoting public policies to attract firms and industries to their localities. Our review of the Local Economic Development (LED) policies adopted across Brazilian municipalities reveals that

⁹ As we discuss on Chapter 2, this assertion is not confirmed looking at municipal average spending between 1994 and 1996.

efforts often consist of a range of policies varying from municipalities that have implemented, for instance, only land donation programs to others which have adopted a combined set of policies, such as reducing IPTU and ISS taxes, donating land, creating industrial districts, and launching employment and income generation programs. By 2001, IBGE's survey of the country's 5,560 municipalities revealed that 1,945 municipalities (35%) had implemented some type of fiscal incentive program and that 2,892 municipalities (52%) had implemented some type of employment or income generation program. We will get back to analyzing this pattern on the next chapter.

A series of recent studies have turned their attention to the examination of the impact tax revenue spending by local governments along two different research veins. First, research has analyzed the efficiency of local government spending (Gasparini and Ramos 2004; Ramos and Sampaio de Sousa 1999; Sampaio de Sousa and Ramos 1999; Sampaio de Sousa and Stošić 2003; Sousa and Ramos 1999). This body of research shows that smaller cities tend to be less efficient than larger ones. The reasons for these differences in resource spending efficiency have included explanations related to economies of scale advantages for larger municipalities.

A second research stream has begun to focus on the impact of local government spending on overall municipal performance. De Mello (2002) examines the impact of local government spending on output growth using a panel of 26 Brazilian municipalities (the state capitals for each state in Brazil). Recognizing that local government spending is an endogenous variable, De Mello utilizes a system of simultaneous equations of cross-municipality panel data from 1985-1994 with fixed effects to test the impact of fiscal policy on long-run economic growth. Municipal economic growth is shown to be positively associated with the provision of public goods and services by local governments. Several important policy findings also emerge from the da Matta, Deichmann, Henderson, Lall and Wang (2005) study. In terms of local government policy, the existence of laws to collect property taxes (IPTU) is not found to have a statistically significant association with city growth, whereas local land use and zoning enforcement laws are found to be positively associated with city growth.

A third line of inquiry has turned attention to evaluating the role of specific policies and how these influence the location and performance of industrial activity, a topic of key interest given the objectives of this chapter. At the state level, research has focused on one specific policy, the use of state-level recruitment policies through subsidies or fiscal incentives. Since Brazil's state governments acquired the right to excise value-added taxes (ICMS), there has been a surge in state recruitment subsidies given by states to outsider firms through a ten-year exemption guarantee. Often argued in the literature as a collective action problem of causing a "race to the bottom," the so-called "guerras fiscais" have become an important instrument of local economic development efforts at the local level throughout Brazil.

Though limited studies have been directed at examining the local economic impacts of firms recruited through government subsidies, these studies reveal some noteworthy findings. In a review of recruitment policies targeted at the nine states in the Northeast of Brazil, Tendler (2000) contends that recruitment policies, which focus on generic qualities,

are sub-optimal because they focus on qualities which are not unique to those regions seeking to lure firms. As Tandler notes, "recruitment policies are at their worst, in turn, when they cast their net widely in terms of the kinds of firms they want to attract; when they did not focus strategically and firms that would create some synergy with existing economic activity and help to make those connections happen; when they sell themselves to the outside on the grounds of generic qualities possessed by other states in the Northeast (let alone other countries); and when they did not negotiate conditions with the recruited firms that help build on what already exists in the local economy, and separates their benefits more widely." As further proof, Tandler cites a recent study by Vasconcelos, et.al. (1999), which found that only 25% of firms recruited by the state of Ceará between 1991 and 1994 were actually functioning in 1999 and only 22% of employment targets had been achieved.¹⁰

Focusing on the recent dispersion of automobile sector production in Brazil, Rodríguez-Pose and Arbix (2001) view the trend towards new plant locations outside the São Paulo metropolitan area as a negative trend hindering development. The de-concentration of the industry away from the traditional hub of the Brazilian motor industry, contend the authors, is not the result of lower labor costs or improved infrastructure in the rest of the country. Instead, the authors argue that perverse territorial competition among Brazilian states represents a pure waste of resources, both for the states engaged in them, as well as for Brazil as a whole.

Using estimates for spatial profit function for industrial activity in Brazil that explicitly incorporates infrastructure improvements and fiscal incentives in the cost structure of individual firms based on the 2001 annual industrial survey, Lall, Funderburg, and Yepes (2004) find that there are considerable cost savings from being located in areas with relatively lower transport costs to reach large markets. However, the authors also report that fiscal incentives, such as tax expenditures, have modest effects in terms of influencing firm level costs. Moreover, the authors note that even the purported benefits gleaned from investments in public infrastructure may be not be as significant in assisting the development of lagging regions as these will also facilitate the entry of larger players to serving these markets.

On the other hand, some preliminary evidence is also emerging which reveals that the effects may be more complex. Tandler (2000) argues that there have been some successful cases where recruitment subsidies have been used strategically shifting the development strategies from narrowly focused "catching an outside firm" to broader LED objectives. Among the successful cases, Tandler argues are those in which recruitment policies are focused on maximizing existing local firms and institutions, such as the case of the Paraíba footwear industry, and those cases where governments to effectively exercise their capacity to negotiate and excise improved conditions for the local economy, such as the case of the Porto Alegre municipality's negotiation with Carrefour and Zaffari supermarket chains. Remarkably, Tandler notes, the municipal government was much more effective in its negotiations with larger multinational chains than the state government of Rio Grande do

¹⁰ Although the opening and closing of firms occurs at a rapid pace in Brazil, we found that around 75% of the firms that existed in 1991 were still functioning on 1996 using a special tabulation of RAIS.

Sul, which during the same period lost a contract to the state of Bahia for the location of the Ford Motor Company. Tandler's observation is noteworthy as it draws attention to the fact that the size of government may not necessarily be as important as other factors in ensuring that government recruitment policies have greater benefits for local economies. However this, as is the case with many of the hypothesis revealed to date is only preliminary, as there is insufficient case study evidence of the differences between state and municipal governments in terms of local economic development efforts.

Case Study Research on LED in Brazil

Recent work on examining Brazil's local economic development experiences has followed the LED literature largely through the elaboration of case studies. These studies have sought to map the types of initiatives taking place, as well as some of the distinguishing characteristics of this most recent stage of LED policies in Brazil. This work has also been comparative focusing on contrasting Brazilian examples with evidence in other Latin American countries. Other studies have directed their efforts to examining the impact of specific government policies on industrial development and economic growth largely based on empirics made possible by the availability of data permitting these types of exercises. In this section, we focus on the findings and policy implications derived from these analyses.

Though LED initiatives appear to be fairly widespread, our review of the literature reveals that to date research has largely focused on a discrete number of familiar cases in Brazil (see Appendix 1.A).¹¹ Case study specific research has examined well-known examples such as the Greater ABC Region in São Paulo (Cocco, Silva, and Sperotto 2001; Klink 2001; Rodríguez-Pose, Tomaney, and Klink 2001); the shoe industry in the Sinos Valley (Meyer-Stamer 2003a; Schmitz 1995) and the furniture clusters in São Bento do Sul (França, Caldas, and Vaz 2004; Meyer-Stamer 2003b); intermediate-sized cities in the state of Paraná; and the local economic development challenges confronting the Northeast of Brazil and in particular the state of Ceará (ILDES; Tandler 2002a; Tandler 2002b). These studies seek to characterize the origin, evolution and unique features of LED initiatives. Cross city/region surveys of the recent wave of LED initiatives in Brazil have been conducted by Affonso (2001) and Llorens, Albuquerque and del Castillo (2002) and França, Caldas, and Vaz (2004).

Examining the experience of Brazil in comparative context and largely drawing on specific case studies, Meyer-Stamer (2003b) argues that LED is most critical in supporting the emergence of new industries by minimizing costs of infrastructure, real estate labor and skills development, but that there may be particular adverse incentives for government action and reduced incentives for collective action. He cites three factors. First, in companies that are in emerging and growing industries, greater reliance is placed on localized factors, but these companies also tend to be not very organized which makes it difficult for the creation of local government partnering efforts. On the other hand,

¹¹ Nel Nel, Etienne. 2005. Investigation of Pro-Poor Local Economic Development in South Africa: World Bank-Netherlands Partnership Program (BNPP), "Evaluating and Disseminating Experiences in Local Economic Development". reports a similar finding in the case of South Africa, where the majority of studies have concentrated their efforts on a select number of cities particularly Johannesburg and Durban.

companies that are in mature and declining industries tend to be more organized and more effective in terms of lobbying efforts. Secondly, based on the Brazilian cases of the footwear cluster in Sinos Valley and the furniture cluster in São Bento do Sul, Meyer-Stamer underscores that leading companies in global value chain tend to disregard or take over the role of government. Finally, mobile companies and multi-location companies do not often become engaged in LED efforts. Companies contribute to locational quality while enhancing their own competitiveness and the problem of free riding increases. For Meyer-Stamer, the exception to these problems are the cases of hub-and-spoke and cohesive clusters.

Positing that LED represents a new development paradigm for developing countries Llorens, Albuquerque, and del Castillo (2002) find that cases in Latin America respond to three motivations —responses to crises, extreme need and strategic administration. Four of the 16 cases studied are in Brazil and of them only one corresponds to a financial institution initiative, *Banco do Nordeste*, the start-up funds for another initiative in Ceará were provided by UNDP and the end result was a state-led development effort. Three of the four cases are municipal-centered programs. For these authors, LED initiatives in the Greater ABC are largely due to the response to crises, programs in Ceará and *Banco do Nordeste* largely due to a response to extreme needs and programs in Porto Alegre due to strategic administration. Strategic plans emerged ex-ante only in the case of Porto Alegre. Finally, they note that oftentimes, there is a lack of coordination between national policies and LED initiatives, as well as a lack of capacity at the local level. However, no evaluation or impact assessments for LED policies are provided by the authors.

To date, one of the most important gaps in LED case study research on Brazil follows challenges noted by Bartik and Bingham (1995). Evaluations of LED efforts are limited and lacking. Most evidence is descriptive, but often not corroborated by rigorous hypothesis testing. Limited in part by scant available data, those studies that do undertake evaluations are often inconclusive with respect to the efficiency of program interventions relative to the public investments directed at specific initiatives. Given that case studies have been concentrated in a series of specific studies, this result is somewhat surprising and underscores an important area for future research focus.¹²

Conclusion

In undertaking this examination of the ‘new economic geography’ (NEG) and the local economic development (LED) literatures, we find that there is scant interchange between these two lines of inquiry. Each field is largely advancing without much discourse with the questions posed by research in the other. The problem is especially profound for those concerned with the policy implications emanating from both research streams. As Henderson, Shalizi, and Venables (2001) argue, that to date, limited attention has been directed at linking the theoretical implications of the new economic geography literature to the traditional arguments found in urban and regional economics. Similarly, studies

¹² In Chapter 3 we argue that the lack of evaluation is related to the fact that case studies, by construction, have no counterfactual.

directed at examining the most recent wave of local economic development initiatives which have emerged across many developing countries since the 1990s have to date, limited their focus on examining how LED policy implementation contrasts with predicted theoretical outcomes and the possible insights that can be gleaned from such comparisons across time and space.

In the case of Brazil, our review of the literature reveals that most case study analysis has to date largely been descriptive, with few studies focusing on evaluations of LED programs per se. Finding LED experiences and assessing its return is a major challenge for those interested in public policy and administration. The problem with the case study approach is that it is very difficult to conduct a counterfactual analysis. By construction each case study is unique. If the analysis assessed the social return of the project and it is positive, it is not possible to know if there were better options and even if the same policy will pay off in a different municipality. Moreover, for Brazil, most case studies have not yet progressed towards even attempting to conduct preliminary evaluations, let alone contemplate policy alternatives.

Regarding public policy, most of the (non case studies) empirical analyses have concentrated on performance measures, i.e. analyzing the impact of different policies on overall objectives. Given the characteristics of the available data, econometric analysis of sub-national public policies in Brazil has not yielded insights on the implementation at this level. It may be the case that the data needed to do such an analysis cannot be collected or, more precisely, cannot be recalled or standardized, a topic we discuss in greater detail in Chapter 4. For instance, Tendler (2000) found that recruitment policies which focus on generic qualities are sub-optimal because they focus on qualities which are not unique to those regions seeking to lure firms. It is very difficult to test such hypothesis and even to collect this information in a survey. However, it is a very important insight to for municipalities implementing a firm recruitment program.

In other words, econometric analysis can provide important insights concerning the desirability of, let us say, a firm recruitment program. However, it offers limited insights into how to actually implement a program for maximizing its effectiveness. On the other hand, case studies cannot say if the policy should be implemented. Recognizing the limitation of each perspective, the two approaches are complimentary, rather than substitutes. In the example on firm recruitment describe above, if we find out that firm recruitment is indeed a good policy, we could study some cases where the policy was implemented to verify what types of programs were implemented more successfully. However, the case study must include an assessment to help explain which processes were more successful. This is definitely not an easy task.

One of the goals of this report is to bridge both approaches. Our attempt departs from econometrics and uses the model tested in these exercises to select the case studies. The modern study of municipal performance in the mainstream literature started with convergence hypothesis testing in the early 1980s. At the same time, studies of municipal efficiency attempted to find the efficient frontier of (municipal) production. Both types of studies have the appeal of using a model based on clear micro foundations. In addition, advances in estimation techniques have made convergence tests very powerful. Tests

examining conditional convergence allow for verifying whether the impact of initial endowments or policy variables influence convergence speed. If we are interested in whether LED programs reduce spatial disparities, these techniques offer a path for analyzing outcomes based on policy inputs.

However, convergence studies have largely ignored space. Even convergence club tests do not take into account the distance between units. Since there are clusters of poverty and richness in space, clubs may end up concentrating in a region. But space is just not in the econometric model. Krugman (1995) argues that space remained out of mainstream for a long period of time because economists did not know how to deal with increasing returns to scale. Considering that convergence tests developed following Solow-Swan type models use a constant return to scale production function, one could argue that convergence theories did not include space because the model would not allow for such a construction.

Empirical work in the mainstream that uses some NEG insights, such as Ellison and Glaeser (1997), have undertaken analyses using a non-spatial model. Thus, space has been disregarded by the mainstream econometrics literature. Krugman's "technical" argument, therefore, does not seem to hold. The principles of spatial theory were already systematized in the textbook by Paelinck and Klaasen (1979). Paelinck himself coined the term "spatial econometrics" in the early 1970s "to designate a growing body of the regional science literature that dealt primarily with estimation and testing problems encountered in the implementation of multiregional econometric models" (Anselin 1988). Despite their existence, it is curious to note that the advances in spatial econometrics were not adopted in most of the mainstream empirical analysis until very recently.

In recent years, models that incorporate both spatial dependence and spatial heterogeneity, allowing for specification testing, estimation, and prediction of spatial phenomena have advanced considerably (Goodchild, Anselin, Appelbaum, and Harthorn 2000). In particular, spatial regressions, spatially weighted regressions, and related methods of spatial statistics, methods to analyze the spatial character of economic development have advanced dramatically (Anselin 2001). Fingleton (2003) and Lall and Shalizi (2003), for instance, used spatial econometrics in a convergence style regression to account for spillovers or aggregation problems between municipalities. In this report we do control for spatial dependence utilizing spatial autoregressive models, an approach that is frequently utilized in the spatial econometric literature to adjust for spatial dependence (Anselin 2001; Anselin 2003; Fingleton 2003; McMillen 2003). Although the analysis is still very ad hoc, at least the basic of spatial dependence revealed by NEG models are taken into account. We understand that there is still an important gap in the literature to give more foundations to the uses of spatial matrix for these type of studies.

The inclusion of location, spatial interaction, and space-time dynamics, is central to studies focusing on the impact of local economic development initiatives on regional development. As we have described in this chapter, there are some features of economic development that clearly follow spatial distribution patterns. In the case of Brazil, spatial concentration is clearly an important feature. Agglomeration in central regions has tended to persist over several decades. Moreover, the formation of new agglomerations as a result of frontier expansion in less developed regions is a salient feature which has been underscored in the

LED case study literature. Yet, evidence that positive externalities generated by agglomerations may be offset to some degree by negative externalities due to congestion effects for large metropolitan areas is also emerging. In order to account for these factors, local economic development patterns must be explored from a spatial perspective.

Appendix 1.A: Case Study Descriptive Findings on LED in Brazil in Literature

| Region | Studies | Initiative Type | Highlights or Main Features |
|---|--|---|--|
| Grande ABC São Paulo (SP) (Santo André, São Bernardo do Campo, São Caetano do Sul, Diadema, Mauá, Ribeirão Pires and Rio Grande da Serra) | (Llorens, Albuquerque, and del Castillo 2002); (Cocco, Silva, and Sperotto 2001;Klink 2001;Rodríguez-Pose, and Arbix 2001;Rodríguez-Pose, Tomaney, and Klink 2001) | Supra-municipality comprised of seven municipalities Metropolitan region <i>Polos de Desenvolvimento Integrado</i> (inter-municipality consortium) | Initiatives started in 1990; Reaction to crisis in automobile sector; Strategic Plan Not Developed until 1998; ample social participation; presence of large firms and unions; creation of a local development agency; financing of micro and small enterprises through Banco do Povo de Santo André; |
| Nordeste | (ILDES; Llorens, Albuquerque, and Castillo 2002; Tendler 2002a; Tendler 2002b) | State-run initiative Agro industries, small and medium cities medium-size municipalities <i>Banco ol Nordeste</i> , financial institution, as development agency focusing on the agro industrial productive chain. UNDP funding (1993-1999) as a precursor | Initiative started in 1997; Response to situation of extreme need; Strategic vision and plan developed; reduced level of social participation; improved identification of investment projects financed by BNB; investment in infrastructure and training |

| Region | Studies | Initiative Type | Highlights or Main Features |
|-------------------|--|---|--|
| Ceará | (Llorens, Albuquerque, and del Castillo 2002); (Tendler 2002a;b) | Agro industries (cotton, aviculture); long-term strategic plan; metropolitan plan for Fortaleza (urban development); Municipal initiative | Reaction to crisis Strategic plan developed afterwards; |
| Porto Alegre (RS) | (Llorens, Albuquerque, and del Castillo 2002) | Industrial nucleus in metropolitan region Municipal agency for the promotion of productive activities, municipal Portosol credit institution for small and medium enterprises, industrial park in Resinga; Trade Point Porto Alegre; business technology incubator for startups; 24 municipalities; PORTOSOL | Initiative started in 1989; Response to strategic administration of development; Strategic plan developed afterwards; ample social participation; municipality offers infrastructure for business operation in industrial park; participatory budgeting |
| Curitiba (PR) | (Affonso 2001) | Banco de Brasil and BNDES <i>Pólo Agroforestal de Rio Branco</i> | Initiatives started in ? Reaction to attempt to transition from exploitation of natural resources(wood) to a manufacturing base. Employment-- focused on promoting employment in the 14 neighborhoods of the periphery of the city. |

| Region | Studies | Initiative Type | Highlights or Main Features |
|-------------------|----------------|--|--|
| Rio Branco (Acre) | (Affonso 2001) | <p>Agriculture development</p> <p>SUDAM & Ministry of the Environment, as well as larger network of partners</p> <p>Microenterprise loans</p> | <p>Response to situation of displacement of rubber planters due to collapse of industry</p> <p>Small land redistribution of plots to former rubber planters (200 to 20,000 families)</p> |
| Quixadá (Ceará) | (Affonso 2001) | <p>Programa de Geração de Renda e Emprego</p> <p>Banco do Nordeste, Prefeitura Municipal, Banco do Estado de Ceará, Secretaria do Trabalho, Sistema Nacional de Emprego</p> <p>Municipality</p> | <p>Initiatives started in 1993</p> <p>Reaction to high unemployment, employment increased in municipality</p> |
| Tupandi (RS) | (Affonso 2001) | <p>Fondo de Desenvolvimento Agropecuário de Tupandi (FUNDAT)</p> <p>Conselho Municipal de Agricultura, Sindicato de Trabalhadores Rurais, Empresa de Assistência Técnica e Extensão Rural</p> <p>Credit-Line with funding from Banco Regional de Brasília, FUNSOL and Secretaria do Trabalho</p> | <p>Initiatives started in 1993</p> <p>focus on improving agricultural and livestock production in order to increase local employment and municipal tax revenue</p> |
| Brasília | (Affonso 2001) | <p>Projeto Merco-Favelas</p> | <p>Initiatives started in 1995</p> <p>lending for small businesses</p> <p>No strategic plan</p> |

| Region | Studies | Initiative Type | Highlights or Main Features |
|--|--|--|---|
| Rio de Janeiro (RJ) | (Affonso 2001) | Programa Favela - Barrio Fundação Federich Ebert, Secretaria do Trabalho - Município de Rio de Janeiro, Rocinha and Jacarezinho | Initiatives started in 1995 Construction of a productive local environment through local development agents |
| State of Santa Catarina (Joinville, Blumenau, Criciúma, Tubarão, and São Bento do Sul) | (Meyer-Stamer 1998a) | Clusters in textiles; metal engineering, electromechanicals, and ceramics | No LED initiative policy per se defined by local or state government; business associations and unions play important role; limited or reduced level of federal, state or local governments |
| Sinos Valley (RS) (Novo Hamburgo; Campo Bom, Sapiranga, São Leopoldo) | (França, Caldas, and Vaz 2004; Schmitz 1995) | Shoe industry Cluster | Industry started in 1960s; Shifted from inward to outward-oriented, export strategy; Impressive rise in self-help institutions (six industry associations; two professional associations; and four training centers); Federal government policies impacted development of cluster (export incentives and inflation) |

| Region | Studies | Initiative Type | Highlights or Main Features |
|--------------------------------|---|--------------------------|--|
| Simplício Mendes (PI) | (França, Caldas, and Vaz 2004) | Honey Production Cluster | Initiative started by parish priest; leadership role of Catholic Church in 1980s; seventeen year process to launch project; difficult and ongoing process requiring continuous efforts to encourage community and honey producers to engage in project |
| Região das Serras Gaúchas (RS) | (França, Caldas, and Vaz 2004) | Furniture Cluster | Initiative started by State Government; public policies to foment import substitution of expensive machinery and create partnerships between small and large firms |
| Votuporanga (SP) | (França, Caldas, and Vaz 2004) | Furniture Cluster | Industry started by entrepreneurs in 1990s with formation of <i>Associação Industrial da Região de Votuporanga</i> ; No federal, state or local government involvement; creation of a job training center to enhance local labor market skills |
| São Bento do Sul (SC) | (França, Caldas, and Vaz 2004; Meyer-Stamer 1998) | Furniture Cluster | Micro, small- and medium-sized firms; no foreign companies; the sector has never enjoyed much government support. |

Chapter 2:

Patterns of LED and Spatial Inequalities in Brazilian Municipalities

The study of local public policy in Brazil offers some characteristics that turn its description extremely powerful for increasing the knowledge on LED practices. In the first place, Brazil is among the developing countries with one of the most advanced system of statistics. Thus, a vast quantity of data is observed on the municipal scale, i.e. at the city level. Brazil is the fourth country in the world in terms of population. This second aspect allows for observing a diversity of policies within a single country. Finally, during the 1990s there was a considerable change in the federalist system with the passing of the 1988 Constitution. As a result, municipalities became federative entities and a series of tax collection and expenditure responsibilities were transferred to these new entities.

This chapter shows what we know about local public policy in Brazil that can be used for analyzing LED programs undertaken by Brazilian municipalities. While there are detailed studies in papers and articles, which we reviewed in the previous chapter, these represent only a small subset of the sample.¹³ Furthermore, the way a case study is structured makes it a bad instrument for a counterfactual analysis. You may learn that some policies performed well, but you do not know if another decision would have performed better. Actually, in our review, most of the studies did not even measure performance. The few evaluations that have been conducted have focused on process more often than impact evaluations.¹⁴

We begin by questioning if local economic development programs make sense or not. In our view, such a program is justifiable for at least one reason: the potential to reduce enormous spatial inequalities in Brazil. If a LED program can help a municipality to converge faster towards the mean national income, it may be justifiable. First, inequalities can be a profound source of poverty across municipalities. Second there are feed-backs, i.e., reduction of poverty depends on aggregate development and its distribution. Of course, there are some other reasons like the increase in governance, voice, etc. Those reasons are not connected with economic performance, although a closer look to see if LED actually increases governance, recognition or other non-(strict) economic factors is extremely important. However, the focus of this report is in (strict) economic performance. For that reason the first section of this chapter describes the patterns of inequality in Brazilian municipalities.

As is well-known the spatial distribution of income per capita Brazilian follows a concentration pattern in which the South and Southeastern states are considerably richer

¹³ The exceptions are Tendler (2002a and b), who studies programs in the Northeast as a whole with more detailed study about municipalities in the state of Ceará, and Llorens, Albuquerque, and Castillo 2002, who examine 16 cases of LED initiatives in Latin America including six initiatives (including Great ABC Sao Paulo and Banco do Nordeste in Brazil) and 10 case studies (including Ceará and Porto Alegre in Brazil) coordinated by subnational governments (provinces, departments, regions or states) and municipalities.

¹⁴ Bartik and Bingham (1995). Nel (2005) found a similar result for South Africa.

than the remaining states of the North and Northeast with the Midwest in an intermediary position. This characteristic is repeated at the municipal level. As is known, the regional disparity in Brazil is unparalleled—the per capita income for the richest state (São Paulo) is more than seven times higher than the poorest state (Piauí). The difference is much higher if we consider municipalities. In 2000, São Pedro in São Paulo has income per capita 25 times higher than the income per capita of Guajará in Amazonas. This pattern of inequality in income is enough for justifying any program that would reduce the differences faster.

On the other hand, the regional concentration of the population below the poverty line does not follow the spatial distribution observed with respect to per capita income. Care should be taken in this analysis since more populous municipalities may have a larger number of poor in absolute terms, but a smaller proportion of poor. Nevertheless, the richest states have a significant share of the population below the poverty line. It is true that the concentration of this population in the states of the Northeast is greater relative to other states, as would be expected, but the difference is less striking than regional comparisons related to the distribution of income. This observation makes sense if we consider that lower income households living in poor localities tend to migrate to richer municipalities in search of improved opportunities or social support system. This pattern suggests that LED programs also make sense in richer and denser municipalities.

To detect patterns we should identify which municipality indeed attempted to implement a LED effort. That is the goal of the second section of this chapter. This is not an easy task and it is one of the most significant challenges of this report. Actually, the first challenge was to define what constitutes LED. The literature offers a very broad definition ranging from income generation, increases in employment, poverty reduction or sustainable growth as main goals. On the other hand, means cited range from cluster creation, municipal consortia, taxes subsidies, training programs, other kind of direct or indirect subsidies, etc. In any case, LED programs are often related with some innovation in the implementation stage. We use this broad definition of goals and means in our attempt to identify the municipalities that have implemented a LED program.

Our first strategy was to examine best practice public management awards. The Gestão Pública e Cidadania (GPC) is an award coordinated by the Getúlio Vargas Foundation and the Ford Foundation with BNDES support that has taken place annually since 1996. This is a very successful award that currently receives around one thousand submissions each year. The program coordinators keep track of a complete description of each entry submission, although not all the information is digitalized. We first thought that we could use the coding adopted by GPC to classify municipalities. Unfortunately, coding is by “sectors” like administration and government; infrastructure and environment; etc. This kind of coding, detailed in Appendix 2.B, does not allow the division of municipal policies according to means or goals. However, it should be noted that upon reading randomly selected submissions, we were able to identify that programs do, identify themselves with one or more of the aforementioned goals or cite one or more of the previously mentioned means. Furthermore all programs, at least from the point of view of the municipality itself, were innovative. So, we believe that all the municipalities that have entered the award at least once have implemented some sort of LED program.

One problem with this criterion is that some municipalities that have implemented similar programs may have not entered the program. This is not a problem if the decision to not enter the program was completely random. However, if “self-selection” was not random our sample may not represent the entire universe of municipalities that have implemented LED programs. For instance, if some municipalities did not enter the program because they do not have conditions to fill out required award submission paperwork, our sample may be biased. Furthermore, it is difficult to have a control group of municipalities that have not implemented any program. So, we turn our attention to the public management module of MUNIC, a survey conducted annually by Ibge across all Brazilian municipalities. In addition to the fact that this instrument provides information for the entire universe, the kind of coding in this survey allows the separation of programs by some general means: fiscal incentives, non-fiscal incentives, income generation and job training programs.

Both sources of information share one shortcoming for our purposes. They are too recent to conduct a causality analysis. The oldest information in MUNIC is from 1999 and GPC started in 1996. The information we have on performance is from 1991 to 2000. It is difficult to believe that a policy implemented in 1999 would impact the performance from 1991 to 2000. Given this limitation we decided to look at the contemporaneous data for the municipalities that have implemented some kind of (observable) LED program. We look at the entire distribution, rather than only examining averages. This is very important given the spatial inequalities observed in Brazil discussed before. Our main finding is that there is a clear barrier for poorer and smaller municipalities to adopt LED programs (in the broad sense). Municipalities below either population or income thresholds are very unlikely to implement an LED program. More complex programs have higher thresholds. These results pose some serious doubts on the efficiency of LED type programs to reduce spatial inequality that was our main justification for such a program in the first place.

To overcome the shortcoming stated in the previous paragraph, the third section of this chapter turn the attention to municipal budget data. We were able to recover average revenues and expenditures by municipality for the period 1994 to 1996. The period was selected because we wanted to capture policy decisions of one administration. Although the administration took office on 1993, the first year budget is decided in the previous year, i.e., by the previous administration. It is usual for current and future administration to make a deal regarding the (next year) budget but we did not want to distort the average. We split the expenses in education, health and infrastructure. These expenditures are key variables which we further analyze in the next chapter.

In this chapter we describe the expenses by category as means of obtaining the goal of a LED program. Of course they represent very broad means. However those variables overcome some shortcomings for our analysis. Besides the endogeneity problem commented before, expenditure data respects, by principle, the budget constraint: a municipality spending more in one of the items has to reduce the other. It is difficult for case studies to take the budget constraint into account since the analysis is usually done regardless of other municipal spending. The variables are continuous, opening much more room for differentiation. Actually, we demonstrate that for all expenditure categories there is enough variance and that the distribution is not highly correlated with initial

endowments, increasing the power of the results of chapter 3. In other words, priorities are very different across Brazilian municipalities.

In the fourth section we analyze the creation, closure and migration of firms between 1991 and 1996. To the best of our knowledge, this decomposition has not been examined by other studies. The tabulation was made by the authors especially for this report. So, we dedicate some time to the variable construction itself. As the policy variables discussed above, we believe that the endogeneity problem is minimized with this group of variables measured over this period of time. Another reason for giving special attention to this variable is that, although it is a mean variable, from our point of view, it appears as an objective of many local programs. The decomposition shows that employment increases mainly due to new firm creation, while the main factor contributing for job reduction is lay offs from firms that already existed in the beginning of the period (1991). The final section summarizes the main conclusions of the chapter.

Patterns of Spatial Inequality Across Municipalities in Brazil

Brazil has one of the worst spatial inequalities in the world. The spatial distribution of income per capita Brazilian follows a concentration pattern in which the South and Southeastern states are considerably richer than the remaining states of the North and Northeast with the Midwest in an intermediary position. This characteristic is repeated at the municipal level. The difference is much higher if we consider municipalities. In 2000 São Pedro in São Paulo had income per capita 25 times higher than the income per capita of Guajará in Amazonas.

Table 2.1 presents the data for the totality of Brazilian municipalities by population strata. The Brazilian population is distributed extremely asymmetrically with nearly 73% of the municipalities with population having less than 20,000 inhabitants. In 2001 only 533 municipalities (less than 10% of the total 5,560 existing municipalities in 2001) had population levels above 50,000 inhabitants and only 13 municipalities had population levels above one million inhabitants. The exponential ratio between the population of the municipality and its population ranking is an expected characteristic. This phenomenon is commonly referred to in the literature as “Zipf’s Law” in homage to the first author to note this relation.

The population strata on Table 2.1 below were generated in order to represent approximately equal accumulated proportions of the population for each strata. However, as we sought to focus special attention on municipalities with more than 50,000 inhabitants, the strata of 20,000 to 50,000 inhabitants is disproportionately lower. A notable fact in Table 2.1 is that income per capita, per capita GDP and the number of years of education are clearly increasing by population strata. Although this phenomenon is justifiable based on the hypothesis that there are economies of scale for firms, this behavior is not observed in developed countries. This is a characteristic Brazilian and several developing countries. Wealth is extremely concentrated in the more densely populated municipalities.

Table 2.1: Average Data for Brazilian Municipalities by Population Strata

| Inhabitants | Municipalities** | % Sample | % Pop* | Population* | Income per Capita** | GDP per Capta*** | Gini Coefficient** | Schooling** |
|---------------------------|------------------|---------------|---------------|---------------|---------------------|------------------|--------------------|-------------|
| 0 to 20 thousand | 4,059 | 73.0% | 19.5% | 8,273 | 157 | 2,903 | 0.55 | 3.81 |
| 20 to 50 thousand | 968 | 17.4% | 16.9% | 30,011 | 174 | 2,905 | 0.58 | 4.09 |
| 50 to 200 thousand | 422 | 7.6% | 21.9% | 89,449 | 247 | 4,134 | 0.57 | 5.38 |
| 200 thousand to 1 million | 98 | 1.8% | 21.6% | 379,129 | 338 | 6,064 | 0.56 | 6.65 |
| More than 1 million | 13 | 0.2% | 20.2% | 2,681,113 | 474 | 9,920 | 0.63 | 7.83 |
| Brazilian Average | 5,560 | 100.0% | 100.0% | 31,005 | 171 | 3,087 | 0.56 | 4.04 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * IBGE: *Base de Informações Municipais – Gestão Pública (2001-5560 municipalities)*; ** IPEADATA. (2000 - 5507 municipalities); *** IPEADATA (1996 - 4921 municipalities).

The most populous municipalities are, in general, along the coast. This rule seems not to follow for the South of Brazil. In the three states (Parana, Santa Catarina and Rio Grande do Sul), the concentration seems to be greater in the hinterlands. As well, the interior of the Northeast has similarly sized municipalities to coastal units. However, coastal density is considerably higher relative to the interior in general. The Southern interior of the country is considerably more developed for historical reasons. Thus, the large darker areas that are seen largely for the State of São Paulo and in Southern Minas Gerais are due to the large number of municipalities in these states.

Table 2.2 presents selected data for Brazilian municipalities by income strata. In this case, we constructed reasonably uniform samples representing quintiles of the distribution of income. The first result, compatible with the findings in the previous table, is that the population mean of the last income quintile (the richest municipalities) is well above the fourth quintile (nearly 4 times). Note that the mean population of the other income strata is quite similar, with a small increase from the first to the second quintile and from the third to the fourth quintile (in the order of 30%). This result strengthens the evidence that income is concentrated in the more populous municipalities.

It is interesting to note that income growth across income quintiles is similar to observed patterns across cumulative population quintiles. Except for the first population strata whose income is relatively close (11%) to the income of the next strata (municipalities with 20 to 50,000 inhabitants), the variation in income across population strata is similar to the observed patterns across income strata. In addition, the mean income of both municipalities with more than one million inhabitants and of municipalities and for those with between 200,000 and one million inhabitants is greater than the average national income. In particular, the 13 municipalities with more than one million inhabitants have mean income 50% greater than the richest quintile of the country. With regard to the spatial distribution of income in Brazil, the concentration in the South and in the Southeast municipalities is quite clear. The most interesting finding, however, is that the majority of Northeastern municipalities are among the 20% poorest of the country. These results make us concerned with whether LED programs may have a regressive effect.

Table 2.2: Average Data for Brazilian Municipalities by Income Strata

| Inhabitants | Municipalities** | % Sample | % Pop* | Population* | Income per Capita** | GDP per Capta*** | Gini Coefficient** | Schooling** |
|---------------------|------------------|----------|--------|-------------|---------------------|------------------|--------------------|-------------|
| R\$ 0 até R\$ 79 | 1.090 | 19,8% | 8,2% | 12.966 | 64 | 956 | 0,58 | 2,46 |
| R\$ 79 até R\$ 123 | 1.112 | 20,2% | 11,4% | 17.648 | 98 | 1.378 | 0,58 | 3,19 |
| R\$ 123 até R\$ 188 | 1.111 | 20,2% | 11,1% | 17.113 | 158 | 2.922 | 0,56 | 4,13 |
| R\$ 188 até R\$ 248 | 1.091 | 19,8% | 13,8% | 21.724 | 217 | 4.022 | 0,54 | 4,74 |
| Mais de R\$ 248 | 1.103 | 20,0% | 55,5% | 86.643 | 316 | 5.663 | 0,54 | 5,67 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * *IBGE: Base de Informações Municipais – Gestão Pública (2001-5560 municipalities)*; ** *IPEADATA. (2000 - 5507 municipalities)*; *** *IPEADATA (1996 - 4921 municipalities)*.

Schooling essentially follows income, an expected pattern given the strong correlation between these two variables. Average GDP in municipalities with less than 20,000 inhabitants and in municipalities with between 20,000 and 50,000 inhabitants is roughly similar. However, this pattern is not repeated for the first two income strata where GDP growth is notable. The possible correlation between production and income can be a strong indication of LED policies, but this can also mean that it will be difficult to break away from the standard concentration of municipal income. The spatial distribution of GDP also follows the spatial distribution of income, although more “gaps” are seen in the South and Southeast with respect to GDP than can be seen with respect to income.

As is well-known, education explains much of the observable differences in income across individuals. When we observe the spatial distribution of municipalities by years of education, it is shocking to observe that the Northeastern region is a great deal less educated than all other regions except Amazonas. Municipalities with extremely low educational levels in the North are in the Amazon forest and are less populous. Thus, we see that education continues to be a tremendous challenge in the Northeast. For this reason, all regional analyses call attention to the fact that inequality across states is largely a distributive and not regional issue.

As we evaluate a variable measuring human capital, we understand that it is also fundamental to evaluate some indicator of physical capital. This is a variable for which there are various measures, although none entirely inclusive. The census provides data on the number of connections to electric, water, sewage and telephone networks, as well as refuse collection. In practice all of these variables are highly correlated. Thus, it is sufficient to select one. In addition, some important data for physical capital such as transportation infrastructure are not available at the municipal scale. Thus, we selected to use the percentage of households with access to bathrooms and running water in 1991 as a measure of physical capital.

The spatial distribution of physical capital is considerably different from patterns for human capital. The Northeast remains among the least served, but the North has much lower level of infrastructure relative to the South. One could draw a line of separation above Mato

Grosso do Sul, including Southern Goiania and Southern Minas as well as the South and Southeastern states. Many of the municipalities with a higher percentage of households with bathrooms and running water are concentrated below this line. Practically the totality of the municipalities for the state of São Paulo, except for some to the south, in the Vale da Ribeira, and the west, in Pontal do Paranapanema, have the highest percentage of connections to the water system. The state of São Paulo has a relatively higher endowment of physical infrastructure than mean years of education.

The Gini coefficient is quite stable across population and income strata. The shameful Gini coefficient of almost 0.6 for Brazil is consistently repeated in the majority of municipalities. There is only a small reduction among the richest municipalities and a small increase in the 13 municipalities with more than one million inhabitants. None of these variations appear to be significant if we consider the standard deviation of 0.06. The greater inequality observed in larger municipalities also makes sense. In these municipalities, there is a much greater diversity. In addition, an individual can remain unemployed much longer in a large municipality given that the probability of finding a specialized job in these municipalities is higher. South and Southeast municipalities are also those with greater equality. Except for some regions (the southern part of the State of São Paulo, the north of Minas Gerais and the State of Parana), municipalities with a smaller Gini coefficient are concentrated in the richer states. This result amplifies the Northeastern problem. Along with the serious problem of insufficient income, Northeastern municipalities are also extremely unequal. Across Brazil, the poorer the city, the more unequal it will be.

The regional concentration of the population below the poverty line does not follow the spatial distribution that was observed with respect to income per capita. We should note that care should be taken since this analysis is carried out in relation to the (natural logarithm of the) absolute number of people earning less than the average minimum wage. More populous municipalities may have a larger number of poor in absolute terms, but a smaller number in relative terms. Nevertheless, the richest states have a significant share of the population below the poverty line. It is true that the concentration of this population in the states of the Northeast is greater relative to other states, as would be expected, but the difference is less striking than regional comparisons related to the distribution of income. This observation makes sense if we consider that the lower income households living in poorer localities tend to migrate to richer municipalities in search of improved opportunities or social support system.

Mean income improvement and inequality reduction are usually regarded as the essential goals of any public policy since they summarize the principal components of well-being. However, a series of local economic development programs target employment and income generation as their goals. Although this objective can potentially create policy distortions, it may make particular sense in the presence of economies of scale or agglomeration gains. For this reason, we describe two more variables representing this policy objective: total municipal employment and total municipal income. Although the two variables are highly correlated, they are not identical. This is because it is possible to attract more skilled or less skilled companies. Both could produce similar level of employment, however in the first case we would expect higher income levels would be generated relative to the second case.

Perhaps the most striking difference between these two measures occurs in the Midwest, specifically in the North of Goiania. These municipalities appear to have smaller levels of utilization, except for a small nucleus, and exhibit total income below the median. What occurs is that these municipalities specialize in agricultural production that is capital intensive. Thus, agricultural production is limited to a lower skilled labor pool. In addition, this distortion is also due to the fact that the RAIS only represents the formal workforce, i.e. those with signed labor contracts. The agricultural sector presents a degree of far greater informality than the industrial sectors, for example. Thus, municipalities specialized in agricultural or in personal services should present a disproportional level of formal employment relative to municipalities concentrated in industry or productive services.

This distortion due to the use of formal employment data could lead to the questioning of the validity of this variable. However, as the literature previously reviewed indicates, we believe that the objective of local economic development policies is best achieved when there is inclusion of workers within the formal economy. In addition, the RAIS has an important attribute for our ends. As the information is taken based on information collected at the firm level, it captures total employment demand in the municipality. In metropolitan regions such as São Paulo, we know that the location of supply and demand for employment is not the same. Various individuals live outside the municipality of São Paulo, but commute on a daily basis in order to work in the municipality. In addition, income data collected by the census is indexed by the housing municipality location of the individual. Thus, the employment variable allows us to measure the impact on employment demand, while the total income variable allows us to examine the impact on the supply (skilled) of employees.

Identification of Municipalities that Implemented LED Programs

Given the scarcity of LED initiatives available from the Internet or from available information from financing institutions discussed in the previous chapter, we decided to concentrate on the municipal public management awards as source of additional information. Five awards with national coverage were identified: the “Gestão Pública e Cidadania” (GPC) award coordinated by the Getúlio Vargas Foundation and the Ford Foundation with BNDES support; the “Melhores Práticas em Gestão Local” award promoted by the Caixa Econômica Federal; the “Melhores Cidades” award promoted by *Exame* magazine; the “Prefeito Empreendedor” award promoted by SEBRAE; and the “Prefeito Amigo da Criança” award promoted by the ABRINQ Foundation. Details of the awards are reported in Appendix 2.A.

For the municipalities who submit their practices to these awards there are major benefits in electoral terms from obtaining an award,¹⁵ and therefore, we believe that this could be an important source for deepening understanding of municipal programs without the need for significant field work. The first observation with regard to the awards is that both the ABRINQ and *Exame* awards do not seem totally appropriate for our ends. The award by

¹⁵ Mendes (2004) shows that one of the most relevant variables in the determination of the probability of re-election of a city mayor is for its management to have been highlighted by GPC.

Exame, in particular, is only carried out based on secondary information and, therefore, it does not add any primary data. Although programs supporting children, such as the ABRINQ Foundation award, are desirable, its highlighted programs may not necessarily promote local development.

Thus, in this report we concentrate on the GPC award. The first reason for this selection is due to a quite practical reason: GPC is the only program with complete data available on the Internet¹⁶ for all participants in the program¹⁷ since 1996. For the Caixa Econômica Federal award, information is only given for the best 10 practices in each of the three bienniums, while information is only available for semifinalists¹⁸ in the case of the SEBRAE award. More substantive reasons also exist. GPC is the only program with eight years of uninterrupted existence, similar programs exist in various countries, the database is quite broad including a detailed coding of the program, data on the principal institutions involved, etc. for each municipal participant.¹⁹

If we only selected municipalities that submitted at least one program in the “Economic and Social Development” area, our sample of less than 40 municipalities found in the literature and summarized in Appendix 2.A increases to 242. In reality, as we will discuss further, various GPC subjects are LED related. If we utilize all municipalities who participated in the award program, the sample of LED candidates increases to 796 municipalities. This number is not very high considering that 1,945 municipalities reported utilizing some type of fiscal incentive or that 3,392 municipalities affirmed that they have implemented some type of employment generation and/or income program.²⁰

The apparent gap between the data in the public management module of MUNIC and the municipalities that participated in the GPC award indicates that there certainly should be local development programs in municipalities that did not participate in the award. This is not a problem if the decision to participate in the award program is absolutely random. However, we have some suspicion that this is not exactly the case. In addition, the specification of the control sample (municipalities that did not have LED programs) becomes quite problematic: should we only include those that did not declare any promotion policy in the MUNIC?

The “Gestão Pública e Cidadania” Award: Municipal Policies at the Project Level

An analysis of the objectives of the programs that concur for the GPC management award shows that the majority of projects seek to generate income, increase employment, reduce poverty, and promote sustainable growth. All these objectives are compatible with LED

¹⁶ In reality, we were kindly provided access to the program’s original database by the organization. The data, however, are available for online consultation at: <http://inovando.fgvsp.br>.

¹⁷ A total of 6,257 projects were submitted and registered by 796 municipalities.

¹⁸ Besides being selected as a semifinalist, the city can be chosen as a finalist or first placed. However, this classification is only known for the municipalities in the state of São Paulo.

¹⁹ The Caixa and SEBRAE awards were only carried out 3 times; the SEBRAE award was interrupted in 2004 for the training of municipalities that received awards in the previous year.

²⁰ MUNIC – Bloco de Gestão Pública – IBGE, 2001.

definitions found in the literature. The database collected by the organization that administers the GPC makes it possible to analyze all the projects that municipalities judged as being in a position to compete (and who had conditions to fill out required award submission paperwork).

If we assume that municipalities submitted all relevant projects for the award, or instead that these projects are a good sample at least of successful municipal projects, this database permits an analysis of what no other survey currently available permits—the ability to analyze local development initiatives at the project scale. A first problem, according to participant accounts of the program, is that a municipality can re-enter the same project with marginal modifications. In this case the project is usually useless for purposes of classification. Thus the database would have to be “cleaned” indicating these multiple entries in several years as a single project entry. Each entry, however, also could provide information on the marginal change and the term of duration of the project.²¹ A more serious problem is that although a municipality may enter the contest with a project, this does not mean that all the projects of that municipality were presented for the award. It is probable that in municipalities whose projects were selected as “‘most outstanding’ awardees” there is an increased incentive for the submission of additional projects. For example, Porto Alegre presented almost 300 projects since the onset of the program. Since the existence of the award, participating municipalities have presented nearly eight projects on average with a major project concentration among a few municipalities.

Table 2.3 presents data for the municipalities that participated and those which did not participate in the GPC program. The overwhelming majority of municipalities (86%) never entered the award program. However, the municipalities that have participated represent 55% of the Brazilian population. In fact, the average population of participating municipalities is greater than the average of those choosing to not enter projects into the contest. Given the mean and standard deviation of the population of non-participating municipalities, we can conclude that very few municipalities with more than 50,000 inhabitants did not participate in the award program. Considering that less than 600 municipalities have populations above 50,000 inhabitants in Brazil, the large majority of these local governments should be included among the municipalities that submitted projects at least once.

²¹ It should be noted that information on the term of duration of the project is extremely difficult to utilize since municipalities do not necessarily all submit and resubmit projects. It may be the case that the project was not resubmitted because the responsible organ “learned” that its project was not competitive.

Table 2.3: Average Data by GPC Award Classification Position

| Groups | Municipalities** | % Sample | % Pop* | Population* | Income per Capita* | GDP per capita*** | Gini Coefficient* | Schooling** | Projects by Municipality |
|---------------|------------------|----------|--------|-------------|--------------------|-------------------|-------------------|-------------|--------------------------|
| Never applied | 4764 | 85,7% | 44,6% | 16134 | 156 | 2.809 | 0,56 | 3,84 | - |
| Applicants | 796 | 14,3% | 55,4% | 120005 | 258 | 4.612 | 0,56 | 5,24 | 7,86 |
| Semifinalist | 244 | 4,4% | 39,2% | 276913 | 282 | 5.269 | 0,57 | 5,62 | 19,46 |
| Pre-Finalist | 104 | 1,9% | 29,6% | 490045 | 310 | 5.741 | 0,58 | 5,86 | 32,73 |
| Finalist | 89 | 1,6% | 25,9% | 500847 | 309 | 5.763 | 0,58 | 5,81 | 33,31 |
| Star | 31 | 0,6% | 13,8% | 765139 | 342 | 6.064 | 0,60 | 6,10 | 44,52 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * IBGE: *Base de Informações Municipais – Gestão Pública* (2001-5560 municipalities); ** IPEADATA. (2000 - 5507 municipalities); *** IPEADATA (1996 - 4921 municipalities).

GPC participant municipalities represent 62% of municipalities with more than 60,000 inhabitants, but only 7.5% of municipalities with less than 20,000 inhabitants.²² The concentration is still greater in municipalities with a population greater than 220,000 (85%) and the 13 Brazilian municipalities with more than one million inhabitants which submitted at least one project to the program over the last eight years. The concentration of projects in more populous municipalities is even greater than confirmed in the aggregate sample by municipality. Nearly 80% of projects were presented by municipalities with more than 100,000 inhabitants, which represent less than 5% of the Brazilian municipalities. This result may be due to the fact that larger municipalities may be more likely to undertake projects of greater scale than smaller municipalities. However, part of the difference may be due to efficiency gains from the preparation of projects for submission, which would also distort the results.

In recent years the GPC program has received nearly one thousand projects per year. Of these, 100 semifinalists are selected. This sample is then narrowed to thirty pre-finalists and, finally twenty finalists from which are selected five “most outstanding” awardees. The “most outstanding” awardees receive an award of R\$ 20,000, while the other remaining finalists receive an award of R\$ 6,000. There is a major concentration of semifinalists among victorious municipalities. In the eight years of the award, there could have been 800 semifinalist municipalities if no municipality had been selected to this phase twice. However, only 244 municipalities were selected as semifinalists, 30% which would be practicable in a perfect distribution. The award becomes more evenly distributed, however, in the advanced phases of the selection. Forty-three percent of eligible municipalities enter the pre-finalist phase, 56% of eligible municipalities reach the finalist phase and 78% of eligible municipalities reach the star stage (31 of 40 municipalities). This means that of the nearly 800 municipalities that present projects for the award, the large majority (70%) never reach the top 100 selection during the first phase.

Population, mean income, per capita GDP, the number of years of education all increase along with award ranking for municipalities surpassing the semifinalist stage. An exception, however, should be noted in comparisons between pre-finalists and finalists. In

²² Detailed data by strata is presented in Appendix 2.A.

this case there is no significant change in the means between both groups. This result is as expected since the sample size change is relatively small decreasing from 30 to 20 projects, i.e. finalist municipalities represent 67% of the pre-finalists sample.²³ In other words, the probability to improve ones “status” in the award increases with population or income. Once again, this result may be associated with efficiency gains (larger municipalities are more competitive in generating local development programs) but, as we have insisted, this can be also related to the problem linked to the resubmission of the projects that can bias the sample.

Reviewing income strata, GPC award participants are concentrated in the country’s richest municipalities. Each income strata represents approximately 20% of municipalities. Participants of the award represent less than 4% of the 20% poorest in the country, but they represent almost 40% of the richest municipalities (income per capita above R\$ 248). As the income strata by construction represent approximately the same number of municipalities, the growth in the number of municipalities represents the growth in the proportion of participants among every strata (see Table 2.A.2). The “spring” from the fourth to the richest strata is the most remarkable. Although this result also is expected since the richest municipalities certainly have superior conditions to invest in LED programs, regardless of the possible submission bias, this result demonstrates that more populous, richer municipalities also are more likely to have the conditions to execute good quality LED programs. In other words, if municipalities that submitted their projects for the GPC award are those that have LED programs and those that are successful, the award serves exactly those targeted.

Practically all GPC areas can be classified potentially as LED depending on their objective, except for the Legislative and Judiciary areas, although an improvement in one of these fields can be one of principal constraints to development in some municipalities. However, the few municipalities that entered with projects in these areas also entered with projects in other areas as well, which provides some assurance that the municipality would be selected in anyway. All the other areas can be said to represent features of LED programs. For example, municipal consortia are systematically cited in the literature of LED and included in the Administration and Government area. As can be observed in Table 2.B.2, where all sub-areas are presented, LED applies to practically all sub-areas.

With regard to geographical distribution, there is a greater concentration of Southern and Southeastern participating municipalities. However, the other categories (Semifinalist, Pre-Finalist, Finalist and Most Outstanding) are more evenly distributed. In particular, the “most outstanding” awardees are very evenly distributed throughout the territory. The same result applies if we consider each group separately.

IBGE’s Data on Public Management

²³ In the other cases, the changes are far greater: pre-finalists represent 30% of semifinalists and the “most outstanding” programs represent 25% of finalists.

The Municipal Information database (BIM) is IBGE's effort to tabulate the majority of available municipal variables. Version 4, for example, has 829 variables divided into various categories. The BIM includes data reported from school census, vital records, electoral data from the TRE, demographic census data, agricultural sector and cattle raising production data, as well as a primary survey on municipal government administration known as MUNIC. Curiously, this database has been less utilized than would be expected.

One of the modules of MUNIC, that concerning Public Management, has been utilized in the literature in order to analyze the impact of promotion policies on municipal development. For example, Lall, Fundenberg and Yepes (2004) show that fiscal incentives have a limited impact in reducing firm costs. Although this result can be explained theoretically—municipal policies are offset with promotion actions by other municipalities—the major criticism of this type of analysis is that it is based on binary information and the information is from 1999, i.e., too late to expect observable results on 2000. We will return to this issue when we discuss the need for new data.

Table 2.4 presents the municipalities that declared some form of fiscal incentive (IPTU and or ISS) in 2001. Thirty five percent of municipalities declared utilizing some type of fiscal incentive policy. As is the case of municipalities participating for the GPC award, municipalities that provided fiscal incentives in 2001 were more populous and richer in general terms. With respect to population, the difference between municipalities that provided incentives and those which did not is much smaller (2.5 times) than the difference between the participant and non-GPC participants (7.5 times). This result is even more accentuated among the municipalities that presented some type of non-fiscal incentive program and those that did not (1.5 times).

Table 2.4: Average Data According to the Presence of Fiscal Incentives

| Groups | Municipalities** | % Sample | % Pop* | Population* | Income per Capita** | GDP per Capta*** | Gini Coeff. ** | Schooling** |
|-------------------|------------------|----------|--------|-------------|---------------------|------------------|----------------|-------------|
| Fiscal Incentives | 1.945 | 35,0% | 56,2% | 49.804 | 202 | 3.595 | 0,56 | 4,51 |
| ISS | 1.626 | 15,9% | 43,3% | 45.949 | 203 | 3.624 | 0,56 | 4,52 |
| IPTU | 1.665 | 29,3% | 338,9% | 52.664 | 203 | 3.628 | 0,56 | 4,53 |
| ISS and IPTU | 1.346 | 24,2% | 38,0% | 48.685 | 205 | 3.670 | 0,56 | 4,55 |
| No Fiscal Inc. | 3.615 | 65,0% | 43,8% | 20.890 | 154 | 2.791 | 0,56 | 3,78 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * IBGE: *Base de Informações Municipais – Gestão Pública (2001-5560 municipalities)*; ** IPEADATA. (2000 - 5507 municipalities); *** IPEADATA (1996 - 4921 municipalities).

If we consider that any municipality qualifies as having an LED program if it is implementing some type of fiscal incentive, the GPC sample is effectively biased as it clearly underestimates the degree of LED activity underway in Brazil. This initial hypothesis implies that only a small share of the population difference observed in the MUNIC data can be explained by scale economies in the supply of public services or in tax collection. In reality, the hypothesis that opens this paragraph is quite strong. For example, if the mayor chooses to donate land to his brother-in-law, the municipality could technically be considered as having a non-fiscal incentive program in place. This donation would probably not have the least chance of winning the GPC award. Thus, the question of IBGE

seems to be “too open-ended.” It is possible that there are more than 800 municipalities with LED programs, but it is difficult to believe that more of half of the municipalities have really consistent programs of economic development.

It is interesting that the differences observed in income are not identical to the ones observed for population. Although the mean income in 2000 of municipalities providing fiscal or non-fiscal incentives in 2001 is lower than that of GPC participating municipalities, the average for municipalities that did not provide fiscal or non-fiscal incentives is also slightly less than that for non-GPC participants. The difference in mean income among GPC participating and non-participating municipalities (1.6 times) is approximately similar to the difference in means between municipalities with and without fiscal incentives (1.3 times) and those with and without non-fiscal incentive programs (1.4 times). This indicates that income is a difficult limit to transpose in any local public policy even when the definition of local public policy is as *soft* as that implicitly utilized in this section. In all those municipalities that did not implement one of the aforementioned policies income was equal to R\$ 150, i.e. below the median for Brazil.

If we examine the concentration of municipalities who adopted fiscal or non-fiscal incentives by population strata, we can see that the distribution of municipalities with incentives is approximately close to the national distribution, although slightly less concentrated in the first strata (less than 20,000 inhabitants), contrary to what is observed in the GPC participant sample. It should be pointed out that 5 (4) of the 13 municipalities with more than one million inhabitants did not provide fiscal incentives (non-fiscal) in 2001.

If we review the proportion of households across income distribution, we note that patterns differ substantially from the proportions observed for Brazil. If we construct income strata corresponding exactly to quintiles by municipality, i.e. each strata has 20% of the municipalities in Brazil ranked by income, the total number of municipalities is increasing in income for both fiscal and non-fiscal incentives. The greatest concentration occurs in the richest quintile with nearly 30% of the sample. This result strengthens the previous observation that there is a clear barrier for poorer municipalities to adopt fiscal incentive policies. Although this barrier is less extreme than that observed among GPC participants (where 51% of participating municipalities belonged to the highest income quintile), it is significantly more notable than comparisons by population. Thus, this may suggest that even though it may be possible to promote local development, this policy can be a concentrator of income since it further increases the gap between rich (capable of implementing the policy) and poorer municipalities (incapable).

Table 2.5: Average Data According to the Presence of Non-fiscal Incentives

| Groups | Municipalities** | % Sample | % Pop* | Population* | Income per Capita** | GDP per Capta*** | Gini Coeff. ** | Schooling** |
|--------------------------|------------------|----------|--------|-------------|---------------------|------------------|----------------|-------------|
| Non Fiscal Incentives | 2.892 | 52,0% | 61,4% | 36.595 | 199 | 3.695 | 0,56 | 4,45 |
| Land Donation | 2.041 | 25,2% | 35,5% | 29.989 | 194 | 3.611 | 0,56 | 4,40 |
| Infrastructure provision | 1.945 | 19,8% | 44,9% | 39.756 | 210 | 3.966 | 0,55 | 4,59 |
| Industrial District | 1.330 | 12,1% | 38,5% | 49.868 | 241 | 4.563 | 0,55 | 5,04 |
| Other | 1.119 | 9,3% | 27,9% | 42.958 | 205 | 3.848 | 0,56 | 4,54 |
| All above | 362 | 6,5% | 11,2% | 53.504 | 242 | 4.653 | 0,55 | 5,11 |
| None above | 2668 | 48,0% | 38,6% | 24945 | 140 | 2.374 | 0,57 | 3,59 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * IBGE: *Base de Informações Municipais – Gestão Pública (2001-5560 municipalities)*; ** IPEADATA. (2000 - 5507 municipalities); *** IPEADATA (1996 - 4921 municipalities).

The public management survey also includes information on two additional local public policies: the existence (or not) of employment and income generation programs and labor training programs. A large number of municipalities reported employment and income generation programs (3,392), and an equally high number indicated they had implemented labor training programs (3,820). It is very likely that training programs were financed at least partly by federal government resources provided by the Fundo de Assistência ao Trabalhador (FAT). As for the term “employment and income generation,” the reference is so generic that it is not possible to know if these programs are linked to higher level government programs.

What is most noteworthy however is that the relationship between the population mean of the group that declared some program of employment and income generation and the group that did not declare (2.7 times) is greater than the observed relationship for municipalities that declared fiscal or non-fiscal incentives. The relationship observed between municipalities with and without fiscal incentives is slightly lower than the one observed when compared to municipalities with and without labor training programs (2.4 times). However, the income differential is much smaller: 1.2 times for employment and income generation programs and 1.1 times for labor training programs. This means that labor training programs succeeded in breaking the income barrier probably due to the FAT itself.

Table 2.6: Average Data According to the Existence of Income and Job Generation Programs

| Groups | Municipalities** | % sample | % Pop* | Population* | Income per Capita** | GDP per Capta*** | Gini Coeff. ** | Schooling** |
|----------------|------------------|----------|--------|-------------|---------------------|------------------|----------------|-------------|
| Job and Income | 3392 | 61,0% | 81,1% | 41199 | 181 | 3.288 | 0,56 | 4,21 |
| None | 2167 | 39,0% | 18,9% | 15056 | 154 | 2.758 | 0,56 | 3,77 |
| Training | 3820 | 68,7% | 83,8% | 37836 | 175 | 3.171 | 0,56 | 4,13 |
| None | 1739 | 31,3% | 16,2% | 16011 | 160 | 2.893 | 0,56 | 3,83 |
| All programs | 3030 | 54,5% | 76,6% | 43577 | 181 | 3.255 | 0,56 | 4,21 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * *IBGE: Base de Informações Municipais – Gestão Pública (2001-5560 municipalities)*; ** *IPEADATA. (2000 - 5507 municipalities)*; *** *IPEADATA (1996 - 4921 municipalities)*.

This result suggests that it may possible to counterbalance the possible regressive effect of LED programs with federal and state government policies. In other words, if it is proven that it is possible to generate local development, but that this only is possible for initially richer municipalities, then strategies based on higher level government grants may be effective in counterbalancing this effect. Apparently a federal program, such as the FAT, was capable of transforming the probability of a municipality to adopt a program for labor training practically independent of income, although the population barrier does not appear to have been totally overcome. Our analysis of the impact of higher level grants on municipal performance in Chapter 3 provides further evidence on this hypothesis .

Among geographic regions, fiscal incentives are concentrated in the Southern and Southeastern regions and also in coastal municipalities. An exception is Ceará, in the Northeast, with a considerable number of municipalities in the hinterland indicating they have some fiscal incentive program.²⁴ Another significant region is Mato Grosso do Sul. The concentration in the South and Southeast is less striking in the case of non-fiscal incentives. The largest municipalities in the North remain less propitious to offering incentives. Coastal municipalities are not as strongly represented in non-fiscal incentive promotion, except in the case of the Northeast where incidence of this kind of incentives is still rather concentrated on the coast. The concentration in the South and Southeast is considerable when we examine every non-fiscal incentive sub-program. As should be expected, the employment and income generation programs are more evenly distributed in geographic terms, with the absence of incentives in some “big pockets” of the central regions. These “big pockets” are even more remarkable in the case of labor training programs. This result is unexpected as we had indicated that this was one of the most widespread programs and, as we argue, its dissemination should be linked to the FAT (a federal program) and, therefore, should not reveal geographical partiality.

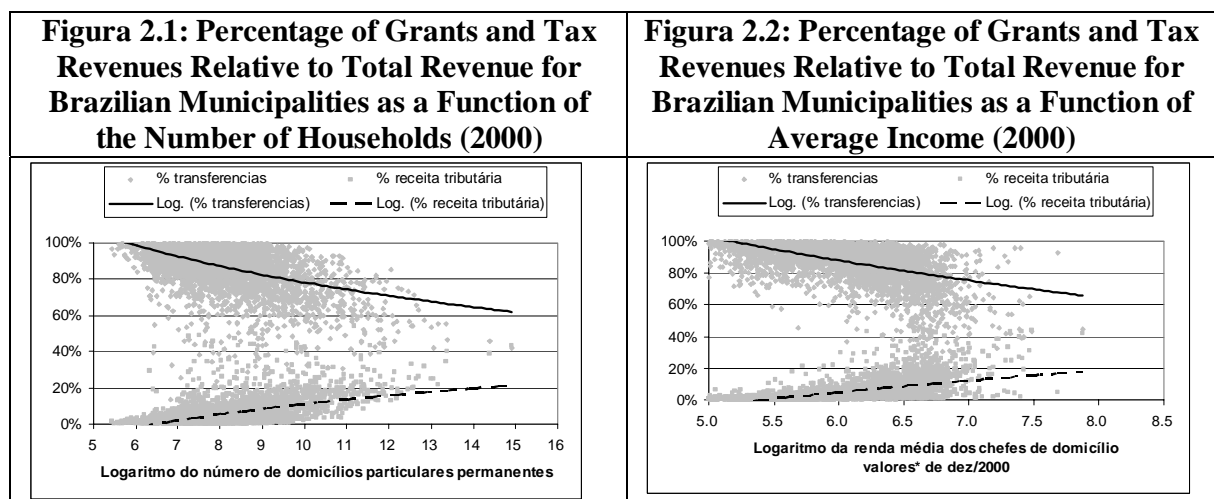
²⁴ This observation is consistent with the case studies found in the literature that give considerable emphasis to initiatives in Ceará. See Llorens, Albuquerque and del Castillo (2002) or Tendler (2002 a and b). It is curious though that we found no study on fiscal incentives in Mato Grosso do Sul, although it is well-known in the business arena in Brazil the incentives for moving to Mato Grosso.

LED Means and Municipal Budget Constraints

Public finance data represent an important source of information for this study. The analysis explored in this section seeks to examine two important questions. First, we discuss if Brazilian municipalities actually have discretion in defining how to spend their budgets. To motivate this discussion we provide data on municipal revenues further disaggregated into tax revenues and grants received from state and federal governments. We also discuss the main institutional changes during the 1990s, namely, the “Lei Jobim,” which increased the difficulties in creating a new municipality, and the “Lei de Responsabilidade Fiscal” (LRF – Law of Fiscal Responsibility), which imposed budget constraints on municipalities. Second, we present the budget allocation decision of the municipality and discuss whether there is enough variance in the (observed) policy decision of Brazilian municipalities.

Municipal Revenue: Is There Room for Discretion?

A key consideration that should be noted at the offset is that Brazilian municipalities are responsible for a relatively small parcel of total tax collection. On average, nearly 88% of municipal revenue is received from superior federative entity grants. As grants decrease with the “size”²⁵ of the municipality (Figure 2.1), the average weighted by the share of tax collection is much smaller (68%). It is a fact that the large majority of municipalities depend essentially on grants, which results in significant constraints on local public policies derived from the municipality’s limited tax base and restricted possibilities for granting tax exemptions.



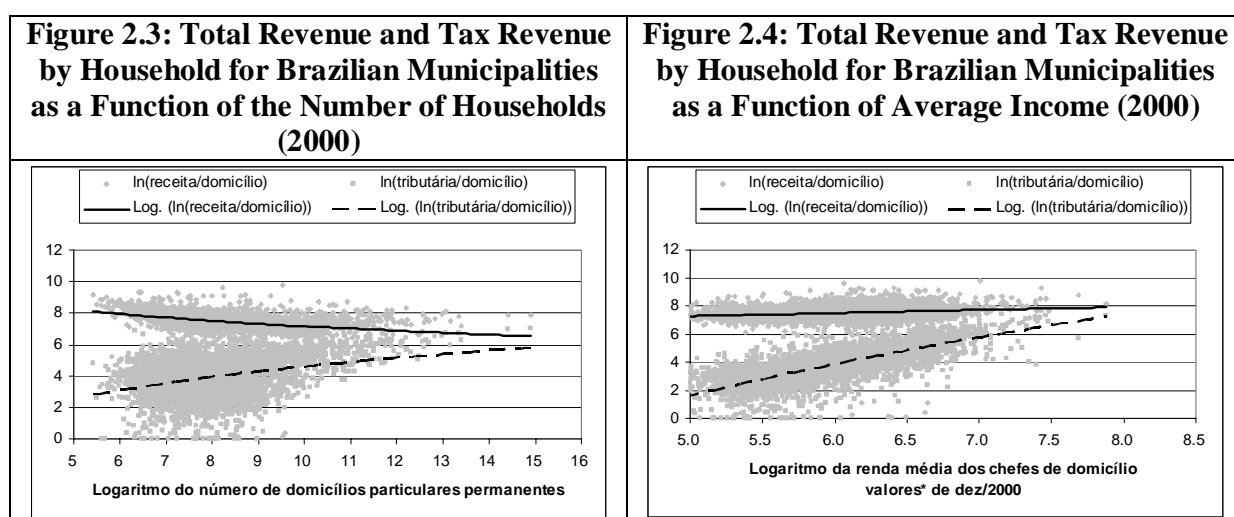
Values in December 2000 reais corrected by IGP-di.

Source: Elaborated by Cepesp using data from 2000 Census (Ibge) and STN

²⁵ As a measure of size, we will utilize the number of households in the municipality. There is not major difference between this variable and population and, in the case of local public finances, the total number of households is a more significant measure since IPTU tax collection depends on the number of households as well as various infrastructure costs.

Figure 2.2 shows that grants also diminish with respect to municipal income. The larger or richer the municipality, the less dependent it will be on higher-level government entities. The inverse relationship is confirmed with respect to tax revenue. These results are expected and reveal that economies of scale are present in municipal tax collection. In addition, grants are presumed to provide redistribution, guaranteeing that poor municipalities have tax revenue approximately equal to that of rich municipalities. In reality, grants are unable to guarantee perfect equality in municipal revenue with respect to household income as observed in Figure 2.4.

The growth of *per capita* tax revenue is much slower than the rate of tax revenue growth, showing once more the progressive role of grants. On the other hand, Figure 2.3 shows that total tax revenue decreases as the number of households increases. This result does not seem to be exactly desired. *Per capita* tax revenue increases with respect to the number of households, strengthening the hypothesis that there are economies of scale present in tax collection. However, since tax revenues decrease with municipal size, grants must be more than compensatory. This characteristic of the structure of grants has, therefore, resulted in a perverse effect encouraging the creation of new municipalities.



Values in December 2000 reais corrected by IGP-di.

Source: Elaborated by Cepesp using data from 2000 Census (Ibge) and STN

The relationship between the distribution of municipal tax collection, size, and income is roughly depicted in the figures above. However, we do not know the precise influence of size and income, or what is the relationship between tax revenue and the number of households after controlling for mean income of the household head and vice versa. Furthermore since states may have a rather different behavior on grants the analysis to the whole country may be blurred. We would like to know the “partial” effect of each variable, i.e. the variation in, let us say, grants received for two municipalities that have exactly the same size and are in the same state. One way to do this kind of analysis is using regression techniques as detailed in Appendix 2.C and described on Box 2.1 below.

Box 2.1: Partial Effects of Income and Size on Municipalities Revenues

The partial analysis allows much more robust statements about the tax structures of Brazilian municipalities. The Midwest is the only region that does not present significant differences with respect to the structure of tax collection relative to the North. For the other regions, grants systematically represent a smaller share, whereas tax revenue represents a greater share of total revenue. This relationship is more accentuated in the South and Southeast. If a municipality has double the income of another, but the same number of households, the share of grants as a percentage of total revenue of the first municipality should be 9% less than the later, while the share of tax revenue should be 6% higher. If municipalities only depended on their tax revenue, the poorer municipality in the previous example would have 160% less resources than the richer and not only 51%. Due to federal and state grants, income and household size explain a much smaller share of total tax revenue.

If a municipality has double the number of households than another and exactly the same income, *per capita* tax revenue would be 25% lower in the larger municipality. This result shows a perverse side in the Brazilian fiscal structure. The Brazilian fiscal structure of grants provides incentives for the creation of new municipalities. To avoid the inherent coordination problem, the creation of new municipalities was almost prohibited in Brazil with the so called “Lei Jobim” in 1996.

So far the analysis has concentrated on total revenues and total grants. In Brazil there are two main sources of tax revenues for the municipalities: property taxes (IPTU) and service taxes (ISS). Also, the municipalities receive grants from state and federal government. The behavior of each component is rather different. This is important for LED policies for two reasons. First, fiscal incentives are one of the primary instruments for recruiting firms. The incentives are very different if they are directed to property taxes or to service taxes. Property tax incentives may attract any sector and can also attract households. Service taxes will obviously attract firms in the service sector. As we discussed above, there are vast differences in Brazilian states regarding income, population, etc. If municipalities rely on state grants, it is not very likely that grants will be able to revert the current spatial inequality observed in the country. Box 2.2 summarizes the main components of Brazilian municipal revenues.

This portrait of municipal public finances is noteworthy in elucidating the challenges between what municipalities can actually do relative to LED program needs. As the majority of municipalities “live off” state and federal grants without practically any proper tax collection sources, their maneuvering room becomes quite limited. The evidence pointed out in the previous section that poorer and smaller municipalities are less likely to implement local public policies may be a mere consequence of the structure of municipal finances. In addition the larger municipalities, in principle, should have greater access to investments subsidized by multilateral institutions or development banks.²⁶

²⁶ We have anecdotic evidence that some small municipalities are not able to fill out application forms necessary to submit a loan request.

Box 2.2: Breaking Down Municipal Revenues

The two principal municipal taxes are the ISS (Imposto Sobre Serviços, or tax on services) and IPTU (Imposto Sobre Propriedade Territorial Urbana, or the urban land and property tax). Both revenues increase with the number of households. This indicates that there are economies of scale in the collection of both the ISS and IPTU. Income and municipal size better explain the proportion of ISS collection versus IPTU. In addition, IPTU collection is much more sensitive to income as compared to the size of the municipality. These two variables have similar magnitudes for ISS.

On the other hand, we notice an inverse relationship between the IPTU and ISS taxes relative to income. This result is expected as the richer a municipality, the more expensive real estate will be and, therefore, on higher the IPTU tax base. These municipalities do not depend on the collection of taxes from companies in order to guarantee their revenue. Assuming that there exists a cost for mixed land use (business and residential), these municipalities can afford to exonerate companies (especially those least desired) from the payment of service taxes as IPTU revenue is sufficient for the desired level of local expenditures. On the other hand, there is always a risk that the municipality is using taxes to segregate poor households from its jurisdiction.

State and federal grants present a reverse pattern: state grants are increasing in the number of households and in average income. In principle, the decrease in the proportion of grants with respect to municipal size could be justified as being due to economies of scale in tax collection. Larger municipalities should be less dependent on higher level government entities and, for this reason we would argue, they would have less of a need to depend on grants. However, compensation does not follow this pattern. Instead, municipalities with the same level of income, but with different sizes, receive different levels of grants and thus have different total revenue levels. Thus, state grants to municipalities distort the tax structure of Brazilian municipalities, a result that is only partially offset by federal government grants.

There is still rationality as to why the level of state grants may increase with respect to municipal size. Large municipalities require major public works projects that are usually co-financed by state governments, and more rarely by the federal government. State capitals are the largest municipalities of the country and investments in these municipalities are usually considered beneficial to the entire state. However, such a justification does not exist with respect to state grants to municipalities with higher income levels. Thus, in general terms, state grants are regressive, reducing the progressive effect of federal government grants.

Box 2.3: Law of Fiscal Responsibility

The 1988 Constitution declared municipalities a federative entity. This increased the responsibilities and rights of municipalities. The goal of decentralizing expenditures was very clear in the constitutional text and in a series of complementary laws instituted during the 1990s. Thus, a change in the tax structure of municipalities throughout the 1990s was expected. However, the Union's fiscal deficit has increased considerably during the last decade. Part of the increase is due to the drastic reduction in "inflationary financing". However, part of the blame is the result of overspending by lower federal entities, namely states and municipalities. These entities were spending more than their revenues and covering the gap with loans that were eventually assumed by the federal government.

To solve this coordination problem the Brazilian Congress approved a law that has become one of the most important currently enforced regulatory frameworks on public spending. The *Lei de Responsabilidade Fiscal* (LRF – Law of Fiscal Responsibility) was implemented in 2000 severely punishing deficits in all entities of the Federation. Although the law was to be applied initially only for municipalities with more than 50 thousand inhabitants, the table below shows that, by 2000, essentially all population strata had adapted to the new law.

| Average by Household | Sample | | >100,000 Households | | <10,000 Households | |
|----------------------|---------|---------|---------------------|---------|--------------------|---------|
| | 2000 | 1991 | 2000 | 1991 | 2000 | 1991 |
| Fiscal Outcome | 24 | -4.18 | 81.04 | -30.15 | 21.28 | -3.02 |
| Total Revenue | 2180.3 | 1709.73 | 2174.96 | 2470.58 | 2241.42 | 1726.07 |
| Tax Revenue | 107.55 | 112.16 | 502.47 | 706.33 | 85.82 | 90.27 |
| Grants | 1817.59 | 1297.22 | 1210.79 | 1209.09 | 1905.13 | 1334.83 |
| Total Expenses | 2155.16 | 1741.24 | 2090.06 | 2698.01 | 2219.12 | 1748.86 |
| Observations | 4617 | 4161 | 44 | 33 | 4013 | 3648 |

Values in December 2000 reais corrected by IGP-di.

Source: 1991 and 2000 Census (Ibge) and STN

It is interesting to observe that the reversion in the deficit was not due to a reduction in expenditures, but to an increase in revenue. Thus, for municipalities in the sample, real revenue grew at a higher rate than expenditures. What turns us a little skeptical in regard to this result is that taxes fell slightly (4%) in real terms in the period. In other words, the reversion of the result for small municipalities was due essentially to the increase in grants that grew nearly 40% in the period. The LRF poses new challenges for the discretionary possibilities of Brazilian municipalities.

Although part of the explanation for the absence of programs may be due to the lack of self-generated resources, there may be possibilities for supporting LED programs with other sources of financing. For Brazilian municipalities ensuring sufficient resources to support specific programas has represented one of the most significant challenges in implementing

LED programs. Excluding the large and more wealthy municipalities, most Brazilian municipalities do not have means to implement any relevant program. The LRF, on one hand, increased this problem but, on the other hand, opened a possibility of directing funding towards those municipalities that have a “responsible” behavior. Though depending upon federal and state grants, , municipalities in principle do have some power over their expenditures. So, we would like to check if this power effectively translates into the implementation of different policies by municipalities.

Municipal Expenses: Is There Room for Differentiation?

Although the decision-making power of municipalities has increased substantially since the 1988 Constitution, this same legal text has limited the discretion available to municipalities with regard to spending. Municipalities must spend a minimum 20% of their expenditures on health and 30% on education. Thus, health and education expenditures are major budget items. In principle all expenditures related to the construction of hospitals, salaries of physicians, nurses, staff members of municipal hospitals or of the Ministry of Health should be included in this category. Similarly, expenditures related to the construction of schools, salaries of professors in the municipal network of schools, etc. should be included in the education category. Thus, a loan, say, to expand the park of municipal schools, should appear in this category (eventually differed). These two sources of expenditure represent the investment of municipalities in human capital.

Given the minimum spending caps specified by the 1988 Constitution, we would expect that a majority of municipalities spend the minimum values on both public services. Actually the mean is 18% in health and 31% in education. However, the standard deviation of the proportion of health expenditures is 20% and in education is 18%. Despite the major concentration of municipalities that spend between 20% and 40% in education and between 0 and 20% in health, we still have nearly 40% of municipalities with other types of expenditure patterns. A series of municipalities exceed the minimum required by the Constitution.

The proportion of spending on education is well distributed throughout AMCs. Particular states do not seem to have concentrated levels of given expenditure. All states offer a sufficiently broad distribution of municipal expenditure by strata that the impact of the spending on education does not seem to be correlated with the initial advantages of states in the South and Southeast discussed in the previous section. In other words, it can not be said that there are differences in the distribution of education expenditures for municipalities in the South or Southeast relative to other regions.

The same cannot be said of the proportion of health expenditures. However, also in this case, the relationship between the share of municipal expenditures does not bear a relation to the other initial characteristics of municipalities previously discussed. The municipalities of the South, Northern, and Midwestern states are more concentrated at the median, while states in the Southeast and Northeast are more concentrated at the ends of the distribution. Thus, observed correlations between health expenditures and municipal performance

cannot be presumed to be correlated with other initial characteristics, a pattern similarly found with respect to education expenditures.

Another significant target of municipal expenditure is infrastructure, which can be said to represent investments in physical capital. To account for investments in infrastructure we aggregated municipal spending on energy, transportation, housing, and regional development. In principle, spending on the construction of an industrial district, or on a roadway improvement, should be included in this category. It is clear that we also are capturing expenditures such as public transportation subsidies that are not exactly infrastructure investments in a strict sense. Nevertheless, this is a good measure of the proportion of resources that the municipality is channeling for physical capital relative to human capital investments.

The proportion of local government spending on infrastructure also varies considerably across states without any discernible concentration in a particular state. Thus, once more, any correlation between performance and the proportion of spending cannot be attributed to differences in initial conditions. The absence of constitutional limitations on infrastructure investments has probably contributed to the observed and more evenly distributed pattern in the spatial distribution, a trend that is contrary to other policy variables. Although the concentration is quite elevated in the medium strata (from 20% to 40%), there are a considerable number of municipalities on the two ends of the spending distribution (0% to 20% and 40% to 60%). The average proportion of expenditures in infrastructure is 29% with a standard deviation of 19%.

Firm Recruitment: Means or Objectives?

A program of economic development should have as a basic purpose the improvement in the well-being of its residents. This improvement can be divided into two objectives: a reduction in inequality and an improvement in the mean. Many programs have multiple objectives, i.e. they try to address both purposes, while others are more concerned with either inequality or mean growth. Program goals often appear among the objectives that should be means and not final objectives. In particular, it is common to find “employment or income generation” among the list of objectives. This would be a justifiable objective if there were some production scale gains. Thus, the increase of the scale of the municipality would generate productivity gains consequently increasing the well-being of its residents. It is also usual to find “company attraction” or the support for local companies among the program objectives. In this case, as well, this objective only makes sense as a means and not an end.

To address this goal we analyze the creation and closing of firms in the municipality during two periods: 1991 to 1996 and 1996 to 2000. This variable was created thanks to an agreement with the Ministry of Labor that gave us access to this RAIS data at the level of the firm. By following a company based on its CNPJ code, it was possible to establish if a company was created or if it was closed during the period of analysis. As many local economic development initiatives aim to attract companies and/or impede their closure,

these variables can potentially capture this specific program aspect. In this case the value of this objective with respect to its implications for the well-being of the municipality is even more questionable than in the case of employment generation. The simple attraction of new companies can simply result in the increase in concentration of companies in the municipality without having, therefore, an impact on agglomeration gains.

Various promotion programs seek to attract new companies and/or to increase the value of local companies. In other words, this type of objective seeks to: *i.* attract new companies to the municipality; *ii.* attract companies originally located in another municipality; and *iii.* increase the utilization rates in companies originally located in the municipality. The procedure for analyzing this question is to utilize a special tabulation of data based on the *Relação Anual de Informações Sociais* (Annual Relation of Social Information (RAIS)) kindly provided by the Ministry of Labor and Employment (MTE). This data contains information on employment and wages at the firm level coded by the CNPJ of each company. Using this data, it is possible to follow firms across time and thereby obtain the type of information that indicates if the aforementioned objectives were achieved in the particular municipality or not.

As mentioned before, the major problem with utilizing RAIS data is that the survey captures formal market employment since it is constructed based on the information provided by firms to the MTE. Almost 40% of total jobs estimated by the 2000 census were not captured in the RAIS of the same year. In addition, the proportion of informality increased considerably in the decade from 31.4% in 1991 to 38.6% in 2000.

When we compare the overall data with the RAIS data by sector we note that the degree of informality varies considerably in relation to the sector of activity. Notwithstanding the difficulties of harmonization among the demographic and RAIS databases, some conclusions can be derived. Smaller degrees of informality (of the order of 20%) can be found in highly skilled industries, public utility services, and business services. Associative activities had the next lowest ranking of informality, where 27% of workers were informal in 2000. The greatest degree of informality occurred in commerce and personal services as qualifications decrease (this includes ambulant commerce and remunerated domestic services) where RAIS employment represents less than 20% of total employment. The agriculture, extractive and construction sectors also present an extremely elevated degree of informality (of the order of 70%) followed by low skilled industries and, finally, by medium skilled industries. In other words, the greater the degree of specialization, the less informality should be expected.

The attractive of using firm level data is the possibility of analyzing the relationship between the variation in the level of employment and the life cycle of companies. There are essentially three ways that employment in a sector in a given period of time varies: *i.* the variation in the number of new companies created in the period (“births”) net of the companies that existed at the beginning of the period and were subsequently closed (“deaths”); *ii.* the variation (net) in the number of companies that existed at the beginning of the period and did not close at the end of the period (“survivors”); and *iii.* the variation in the number of firms that entered the region from other regions net of the companies that exited.

The main result analyzing such a decomposition is that the increase in employment depends essentially on the creation of new companies in order to compensate for the reduction of employment among “surviving” firms. This result is comprehensible from the standpoint of the life cycle of companies. A company that enters the market is in the growing phase of worker contracting, while more mature companies tend to either maintain or reduce employment. In this regard, the dynamic factor of a region is the generation of employment in newly created companies. A sector will only increase the number of positions if new companies create more jobs than those reduced by “surviving” companies. For this reason, we propose that the decomposition of both these effects is fundamental for evaluating municipal LED programs. Furthermore given the fact that employment growth is very much dependent on the number of firms created, firm recruiting may make sense.

It is worth noting that the high qualification sectors presented the greatest reduction in formal Brazilian employment between 1991 and 1996 and were only above job losses in the public utility services and the construction sector between 1996 and 2000. This result is due in part to the productivity gains in the durable goods sector, but it is also tied to the opening of the economy (especially in the first period). The classical result in international economics is well noted: upon opening exports for which the country's inputs are more abundant should increase. As Brazil is abundant in less-skilled manual labor, it was in this sector that the trade gains became evident.

Conclusion

As is well-known, the regional disparity in Brazil is unparalleled—the richest state (São Paulo) has income per capita more than seven times higher than the poorest state (Piauí). In this chapter we showed that the difference is much higher if we consider municipalities. For instance, São Pedro in São Paulo has income per capita 25 times higher than the income per capita of Guajará in Amazonas in 2000. The Brazilian population is also distributed extremely asymmetrically with nearly 73% of the municipalities with population having less than 20,000 inhabitants. The majority of Northeastern municipalities are among the 20% poorest of the country. The Northeastern region is a great deal less educated than all other regions except Amazonas. This pattern of inequality in income is enough for justifying any program that would reduce the differences faster.

However, when we identify the municipalities that have participated in a LED program (using very broad definitions) we observe that a richer and denser municipality is more likely for to undertake such a program. For instance, participants of the GPC award represent less than 4% of the 20% poorest in the country, but they represent almost 40% of the richest municipalities (income per capita above R\$ 248). The difference in mean income among GPC participating and non-participating municipalities (1.6 times) is approximately similar to the difference in means between municipalities with and without fiscal incentives (1.3 times) and those with and without non-fiscal incentive programs (1.4 times). This indicates that a minimum income threshold is difficult to be traversed in any local public policy. This result suggests that LED programs may not contribute for reducing

spatial inequalities across municipalities questioning its original purpose. The only clear exceptions are job training programs. We suspect that those programs were partially funded by federal government through the FAT (Fundo de Assistência ao Trabalhador). This is a good sign that a higher level transfers may improve the distribution of LED programs between richer and smaller municipalities.

The 1988 Constitution considerably increased municipal spending discretion . However, municipalities are still very dependent on state and federal level grants. On average 88% of municipal total revenue comes from grants. This fact could imply that the autonomy in the legal text is not real. However, when we analyze the distribution of spending we find that there is clear margin for differentiation. The standard deviation is around 20%. Despite the major concentration of municipalities spending between 20% and 40% on education and between 0 and 20% in health, we still have nearly 40% of municipalities with other types of expenditure patterns. A series of municipalities exceed the minimum required by the Constitution (20% for health and 30% for education). Thus, using municipal expenditure data to analyze local public policy has the potential to shed important insights on the types of programs being implemented and their outcomes.

When we attempt to link the performance of firms with the life cycle of firms, the main result is that the increase in employment depends essentially on the creation of new companies in order to compensate for the reduction of employment among “surviving” firms. This result is comprehensible from the standpoint of the life cycle of companies. A company that enters the market is in the growing phase of worker contracting, while more mature companies tend to either maintain or reduce employment. In this regard, the dynamic factor of a region is the generation of employment in newly created companies. This result suggests that firm recruiting may make sense as a LED program. Furthermore firm creation is an important variable to control for when analyzing the performance of the municipality.

Appendix 2.A: Detailed Tables for Municipalities by Public Policy Group

Table 2.A.1: Average Data by Population Strata for Municipalities Participating in the GPC (796 Municipalities)

| Inhabitants | Municipalities** | % Sample | % Pop* | Population* | Income per Capita* | GDP per Capita*** | Gini Coefficient* | Schooling** | Projects by Municipality |
|---------------------|------------------|----------|--------|-------------|--------------------|-------------------|-------------------|-------------|--------------------------|
| 0 to 20 thousand | 306 | 38,4% | 3,1% | 9.558 | 209 | 3.858 | 0,55 | 4,49 | 2,29 |
| 20 to 50 thousand | 189 | 23,7% | 6,3% | 31.898 | 239 | 3.861 | 0,57 | 4,94 | 2,80 |
| 50 to 200 thousand | 205 | 25,8% | 21,1% | 98.447 | 297 | 5.193 | 0,56 | 5,87 | 8,23 |
| 0.20 to 1 million | 83 | 10,4% | 33,0% | 379.930 | 353 | 6.561 | 0,57 | 6,72 | 23,37 |
| More than 1 million | 13 | 1,6% | 36,5% | 2.681.113 | 474 | 9.920 | 0,63 | 7,83 | 107,69 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * IBGE: *Base de Informações Municipais – Gestão Pública* (2001-5560 municipalities); ** IPEADATA. (2000 - 5507 municipalities); *** IPEADATA (1996 - 4921 municipalities).

Table 2.A.2: Average Data by Income Strata for Municipalities Participating in the GPC (796 Municipalities)

| Income Strata | Municipalities** | % Sample | % Pop* | Population* | Income per Capita* | GDP per Capita*** | Gini Coefficient** | Schooling** | Projects by Municipality |
|-------------------------|------------------|----------|--------|-------------|--------------------|-------------------|--------------------|-------------|--------------------------|
| Bellow R\$ 79 | 41 | 5,2% | 0,8% | 17.758 | 64 | 925 | 0,60 | 2,39 | 2,15 |
| From R\$ 79 to R\$ 123 | 80 | 10,1% | 2,6% | 30.599 | 100 | 1.274 | 0,59 | 3,32 | 2,78 |
| From R\$ 123 to R\$ 188 | 95 | 11,9% | 4,3% | 42.981 | 159 | 3.177 | 0,57 | 4,36 | 3,66 |
| From R\$ 188 to R\$ 248 | 172 | 21,6% | 9,9% | 55.039 | 221 | 3.949 | 0,54 | 5,04 | 3,49 |
| More than R\$ 248 | 408 | 51,3% | 82,5% | 193.132 | 347 | 6.155 | 0,55 | 6,19 | 12,25 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * IBGE: *Base de Informações Municipais – Gestão Pública* (2001-5560 municipalities); ** IPEADATA. (2000 - 5507 municipalities); *** IPEADATA (1996 - 4921 municipalities).

Table 2.A.3: Average Data by Program Area for Municipalities Participating in the GPC (796 Municipalities)

| Groups | Municipalities** | % Sample | % Pop* | Population* | Income per Capita** | GDP per Capita*** | Gini Coefficient** | Schooling** | Projects by Municipality |
|-----------------|------------------|----------|--------|-------------|---------------------|-------------------|--------------------|-------------|--------------------------|
| Administração | 173 | 21,7% | 59,7% | 329.440 | 315 | 5.948 | 0,57 | 5,92 | 24,54 |
| Infra-estrutura | 186 | 23,4% | 60,8% | 312.295 | 318 | 6.356 | 0,56 | 6,02 | 22,74 |
| Serv. Públicos | 503 | 63,2% | 85,6% | 162.571 | 275 | 5.002 | 0,56 | 5,45 | 11,51 |
| Cidadania | 369 | 46,4% | 77,9% | 201.535 | 287 | 5.297 | 0,56 | 5,63 | 14,38 |
| Desenvolvimento | 242 | 30,4% | 67,2% | 265.375 | 283 | 5.283 | 0,56 | 5,63 | 19,07 |
| Legislativo | 10 | 1,3% | 23,1% | 2.206.225 | 600 | 13.345 | 0,60 | 8,15 | 129,80 |
| Judiciário | 16 | 2,0% | 20,9% | 1.247.589 | 365 | 7.171 | 0,59 | 6,75 | 81,81 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * IBGE: *Base de Informações Municipais – Gestão Pública* (2001-5560 municipalities); ** IPEADATA. (2000 - 5507 municipalities); *** IPEADATA (1996 - 4921 municipalities).

Table 2.A.4: Average Data by Population for Municipalities– With Fiscal Incentives: 1945 Municípios

| Population | Municipalities * | % Sample | % Pop* | Population* | Income per Capita** | PIB per Capita *** | Gini ** | Years of Schooling ** |
|--------------------|------------------|----------|--------|-------------|---------------------|--------------------|---------|-----------------------|
| 0 a 20 mil | 1.192 | 61,3% | 11,1% | 9.031 | 180 | 3.189 | 0,55 | 4,14 |
| 20 mil a 50 mil | 411 | 21,1% | 13,2% | 31.187 | 204 | 3.588 | 0,57 | 4,54 |
| 50 mil a 200 mil | 269 | 13,8% | 25,3% | 90.947 | 251 | 4.395 | 0,56 | 5,45 |
| 200 mil a 1 milhão | 65 | 3,3% | 26,8% | 399.479 | 358 | 6.451 | 0,57 | 6,80 |
| Mais de 1 milhão | 8 | 0,4% | 23,6% | 2.856.976 | 443 | 9.334 | 0,64 | 7,77 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * IBGE: *Base de Informações Municipais – Gestão Pública (2001-5560 municipalities)*; ** IPEADATA. (2000 - 5507 municipalities); *** IPEADATA (1996 - 4921 municipalities).

Table 2.A.5: Average Data by Income Per Capita for Municipalities– With Fiscal Incentives:: 1945 Municípios

| Income Levels | Municipalities * | % Sample | % Pop* | Population* | Income per Capita** | PIB per Capita *** | Gini ** | Years of Schooling ** |
|---------------------|------------------|----------|--------|-------------|---------------------|--------------------|---------|-----------------------|
| R\$ 0 até R\$ 79 | 213 | 11,0% | 3,2% | 14.736 | 65 | 974 | 0,58 | 2,50 |
| R\$ 79 até R\$ 123 | 335 | 17,2% | 8,5% | 24.658 | 98 | 1.414 | 0,59 | 3,30 |
| R\$ 123 até R\$ 188 | 362 | 18,6% | 8,4% | 22.427 | 160 | 3.049 | 0,56 | 4,24 |
| R\$ 188 até R\$ 248 | 458 | 23,5% | 15,8% | 33.332 | 219 | 3.809 | 0,54 | 4,87 |
| Mais de R\$ 248 | 577 | 29,7% | 64,1% | 107.601 | 326 | 5.798 | 0,54 | 5,85 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * IBGE: *Base de Informações Municipais – Gestão Pública (2001-5560 municipalities)*; ** IPEADATA. (2000 - 5507 municipalities); *** IPEADATA (1996 - 4921 municipalities).

Table 2.A.6: Average Data by Population for Municipalities– With Non-Fiscal Incentives: 2892 Municípios

| Habitantes | Municipalities * | % Sample | % Pop* | Population* | Income per Capita** | PIB per Capita *** | Gini ** | Years of Schooling ** |
|--------------------|------------------|----------|--------|-------------|---------------------|--------------------|---------|-----------------------|
| 0 a 20 mil | 1900 | 65,7% | 15,4% | 8.566 | 184 | 3.518 | 0,55 | 4,19 |
| 20 mil a 50 mil | 581 | 20,1% | 16,8% | 30.536 | 196 | 3.450 | 0,57 | 4,40 |
| 50 mil a 200 mil | 332 | 11,5% | 28,2% | 89.832 | 252 | 4.352 | 0,56 | 5,47 |
| 200 mil a 1 milhão | 70 | 2,4% | 25,4% | 384.684 | 343 | 6.203 | 0,57 | 6,69 |
| Mais de 1 milhão | 9 | 0,3% | 14,2% | 1.673.692 | 451 | 9.120 | 0,64 | 7,86 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * IBGE: *Base de Informações Municipais – Gestão Pública (2001-5560 municipalities)*; ** IPEADATA. (2000 - 5507 municipalities); *** IPEADATA (1996 - 4921 municipalities).

Table 2.A.7: Average Data by Income per Capita for Municipalities– With Non-Fiscal Incentives:: 2892 Municípios

| Faixas de Renda | Munici- palities * | % Sample | % Pop* | Population* | Income per Capita** | PIB per Capita *** | Gini ** | Years of Schooling ** |
|------------------------|-----------------------------------|---------------------|-------------------|--------------------|------------------------------------|-----------------------------------|--------------------|--------------------------------------|
| R\$ 0 até R\$ 79 | 323 | 11,2% | 4,5% | 14819 | 65 | 1.017 | 0,58 | 2,47 |
| R\$ 79 até R\$ 123 | 444 | 15,4% | 9,7% | 23096 | 99 | 1.512 | 0,58 | 3,31 |
| R\$ 123 até R\$ 188 | 573 | 19,8% | 10,6% | 19516 | 160 | 3.055 | 0,56 | 4,20 |
| R\$ 188 até R\$ 248 | 709 | 24,5% | 17,1% | 25543 | 218 | 4.090 | 0,54 | 4,82 |
| Mais de R\$ 248 | 843 | 29,1% | 58,1% | 72952 | 318 | 5.804 | 0,54 | 5,71 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * *IBGE: Base de Informações Municipais – Gestão Pública (2001-5560 municipalities)*; ** *IPEADATA. (2000 - 5507 municipalities)*; *** *IPEADATA (1996 - 4921 municipalities)*.

Appendix 2.B. Public Management Awards

Table 2.B.1: Different Public Management Awards in Brazil

| Award | Gestão Pública e Cidadania | CAIXA Melhores Práticas em Gestão Local | Prêmio Prefeito Empreendedor |
|---------------------|--|--|---|
| Objective | The award aims at identifying, disseminating, and rewarding innovative initiatives of local governments | The award seeks experiences that aim at the promotion of the local economy and the support of productive activities of micro and small enterprises | The award highlights municipal administration initiatives that support and give sustainability to the emergence of new micro and small enterprises or created conditions in order to expand the capacity of survival of those already established |
| Organization | Fundação Getulio Vargas Ford Foundation BNDES | CAIXA | Sebrae |
| Periodicity | Annual | Biannual | Annual |
| Beginning | 1996 | 1999 | 2001 |
| Coverage | State and municipal governments, and indigenous organizations | Federal, state and municipal governments, private agencies and civil society organizations | municipal governments |
| Criteria | <ul style="list-style-type: none"> - introduce qualitative or quantitative change with regard to previous practices; - have an impact on the improvement of the quality of life of the beneficiary public; - be able to be replicated; - expand or consolidate the dialogue between civil society and public agents; - utilize resources and opportunities in order to promote self-sustainable development | <ul style="list-style-type: none"> - have been financed by CAIXA, CAIXA was the financing operating agent, or provided technical support or partnership; - have an impact on the improvement of the quality of life of the beneficiary public; - expand or consolidate the dialogue between civil society and public agents; - utilize resources and opportunities in order to promote self-sustainable development; - Leadership and strengthening of the community; - Gender and social inclusion; - Innovations in the local context; - replicability | <ul style="list-style-type: none"> - systematic widespread coverage; - impact on the local economy; - high cost benefit; - continuity; - technical quality; - creativity and innovation |
| Award | 1° to 5° placed: R\$20.000; 6° to 20° placed: R\$6.000 | 1° to the 10° placed: R\$20.000 | Dissemination Trip in Brazil or abroad in order to learn about successful experiences that can be `transplanted` to awarded cities |
| Source | http://inovando.fgvsp.br | https://webp.caixa.gov.br/urbanizacao/melhores_praticas/ | www.prefeitoempreendedor.org.br |

Table 2.B.2: Statistics for the “Public Management and Citizenship” (GPC) Award by Areas and Sub-Areas (1996 a 2003)

| Areas | Muni- cípios** | % Sample | % POP * | Population * | Per capita Income ** | Gini ** | Number of Submitted Projects **** |
|--|-------------------|-------------|------------|--------------|-------------------------------|---------|--|
| 1. ADMINISTRATION AND GOVERNMENT | 173 | 21.73% | 59.66% | 329,440 | 315 | 0.57 | 24.54 |
| Not Defined | 4 | 0.50% | 1.92% | 457,947 | 453 | 0.59 | 94.00 |
| 1.1 Forms of Management and Planning | 92 | 11.56% | 49.62% | 515,183 | 342 | 0.57 | 35.78 |
| 1.10 Development and Administration of Personnel | 29 | 3.64% | 32.38% | 1,066,633 | 394 | 0.57 | 57.97 |
| 1.2 Intergovernmental Relations | 4 | 0.50% | 1.55% | 369,598 | 248 | 0.58 | 29.00 |
| 1.3 Intragovernmental Relations | 6 | 0.75% | 2.71% | 432,225 | 398 | 0.55 | 58.83 |
| 1.4 Public Heritage | 10 | 1.26% | 17.18% | 1,640,862 | 432 | 0.58 | 60.50 |
| 1.5 Public Finances and Budget | 21 | 2.64% | 17.85% | 811,822 | 371 | 0.59 | 58.57 |
| 1.6 Control Systems | 18 | 2.26% | 19.99% | 1,061,067 | 400 | 0.58 | 72.83 |
| 1.7 Information Systems | 32 | 4.02% | 33.72% | 1,006,503 | 403 | 0.57 | 65.81 |
| 1.8 Intermunicipal Consortia | 13 | 1.63% | 14.06% | 1,033,367 | 354 | 0.57 | 57.38 |
| 1.9 Popular Participation | 82 | 10.30% | 45.94% | 535,126 | 331 | 0.58 | 37.29 |
| 2. INFRASTRUCTURE AND ENVIRONMENT | 186 | 23.37% | 60.81% | 312,295 | 318 | 0.56 | 22.74 |
| Not Defined | 27 | 3.39% | 30.97% | 1,095,588 | 435 | 0.58 | 61.63 |
| 2.1 Sanitation (water and sewer) | 50 | 6.28% | 37.46% | 715,695 | 350 | 0.57 | 42.18 |
| 2.10 Ecosystem Preservation and Reforestation | 57 | 7.16% | 29.77% | 498,820 | 344 | 0.56 | 33.81 |
| 2.2 Energy and Mineral Resources | 10 | 1.26% | 19.52% | 1,865,031 | 409 | 0.59 | 92.10 |
| 2.3 Transit and Public Thoroughfares | 23 | 2.89% | 11.24% | 466,658 | 417 | 0.54 | 53.78 |
| 2.4 Telecommunications | 1 | 0.13% | 1.44% | 1,372,827 | 710 | 0.61 | 279.00 |
| 2.5 Urban Planning. Use. and Occupation of Soil | 27 | 3.39% | 32.30% | 1,142,781 | 407 | 0.58 | 71.11 |
| 2.6 Accident Prevention in Risk Areas | 9 | 1.13% | 18.56% | 1,970,255 | 450 | 0.59 | 125.44 |
| 2.6 Accident prevention in risk areas | 5 | 0.63% | 2.02% | 386,506 | 404 | 0.60 | 60.40 |
| 2.7 Water Resources. Irrigation. and Drainage | 19 | 2.39% | 8.79% | 442,036 | 333 | 0.58 | 59.42 |
| 2.8 Control of Pollution | 18 | 2.26% | 6.52% | 346,250 | 359 | 0.55 | 43.44 |
| 2.9 Public Sanitation and Systems of Refuse Collection. Treatment and Final Disposal | 81 | 10.18% | 43.11% | 508,447 | 355 | 0.56 | 34.63 |
| 3. PUBLIC SERVICES | 503 | 63.19% | 85.60% | 162,571 | 275 | 0.56 | 11.51 |
| Not Defined | 36 | 4.52% | 31.32% | 831,160 | 373 | 0.57 | 48.92 |
| 3.1 Education | 300 | 37.69% | 71.26% | 226,886 | 290 | 0.56 | 17.06 |
| 3.10 Supply | 15 | 1.88% | 18.37% | 1,169,851 | 376 | 0.58 | 75.00 |
| 3.2 Health | 213 | 26.76% | 65.83% | 295,244 | 299 | 0.56 | 21.46 |
| 3.3 Housing | 58 | 7.29% | 31.26% | 514,759 | 334 | 0.57 | 40.48 |
| 3.4 Public Transportation | 15 | 1.88% | 19.47% | 1,239,889 | 450 | 0.58 | 90.67 |
| 3.5 Culture and Historical and Artistic Heritage | 93 | 11.68% | 43.26% | 444,382 | 362 | 0.56 | 34.24 |
| 3.6 Leisure and Sports | 33 | 4.15% | 29.69% | 859,387 | 391 | 0.57 | 54.79 |
| 3.6 Leisure and Sports | 64 | 8.04% | 37.47% | 559,191 | 356 | 0.57 | 43.44 |
| 3.7 Public Safety and Policing | 30 | 3.77% | 28.02% | 892,293 | 407 | 0.59 | 54.10 |
| 3.8 SOCIAL WELFARE | 148 | 18.59% | 48.79% | 314,875 | 302 | 0.56 | 25.59 |
| 3.9 Social Security | 2 | 0.25% | 0.19% | 91,219 | 241 | 0.57 | 4.00 |

Table 2.B.2 (continued)

| Subjects | Muni- cípios** | % Sample | % POP * | Population * | Per capita Income ** | Gini ** | Number of Submitted Projects **** |
|--|-------------------|-------------|------------|--------------|-------------------------------|---------|--|
| 4. CITIZENSHIP AND HUMAN RIGHTS | 369 | 46.36% | 77.85% | 201,535 | 287 | 0.56 | 14.38 |
| Not Defined | 70 | 8.79% | 37.49% | 511,539 | 341 | 0.58 | 41.17 |
| 4.1 Child and Adolescent | 284 | 35.68% | 72.18% | 242,776 | 297 | 0.56 | 17.58 |
| 4.2 Elder | 90 | 11.31% | 37.58% | 398,813 | 333 | 0.56 | 30.00 |
| 4.3 Black | 8 | 1.01% | 16.48% | 1,968,024 | 425 | 0.59 | 97.75 |
| 4.4 Women | 58 | 7.29% | 38.59% | 635,515 | 319 | 0.57 | 41.64 |
| 4.5 Handicapped Persons | 70 | 8.79% | 40.24% | 549,071 | 373 | 0.56 | 38.46 |
| 4.6 Consumers | 15 | 1.88% | 22.00% | 1,400,893 | 452 | 0.58 | 93.33 |
| 4.7 Minorities | 49 | 6.16% | 28.19% | 549,573 | 345 | 0.59 | 36.53 |
| 5. ECONOMIC AND SOCIAL DEVELOPMENT | 242 | 30.40% | 67.23% | 265,375 | 283 | 0.56 | 19.07 |
| Not Defined | 16 | 2.01% | 3.25% | 194,320 | 295 | 0.59 | 31.50 |
| 5.1 Science and Technology | 18 | 2.26% | 30.49% | 1,617,925 | 446 | 0.58 | 81.78 |
| 5.2 INDUSTRY. COMMERCE. SERVICES | 2 | 0.25% | 1.50% | 714,089 | 536 | 0.57 | 152.50 |
| 5.2 Industry. Commerce. Services | 17 | 2.14% | 6.17% | 346,429 | 386 | 0.55 | 27.06 |
| 5.3 AGRICULTURE AND FISHING | 58 | 7.29% | 26.43% | 435,299 | 314 | 0.57 | 30.02 |
| 5.4 Sustainable Regional and Local Development | 112 | 14.07% | 46.66% | 397,932 | 285 | 0.57 | 26.77 |
| 5.5 Agrarian Reform | 12 | 1.51% | 6.18% | 492,309 | 242 | 0.56 | 20.83 |
| 5.6 Formation of Manual Labor. and Generation of Employment and Income | 117 | 14.70% | 54.97% | 448,769 | 332 | 0.56 | 31.95 |
| 5.7 Improvement of Working Conditions Relationships | 19 | 2.39% | 25.10% | 1,262,131 | 437 | 0.60 | 83.11 |
| 6. LEGISLATIVE | 10 | 1.26% | 23.10% | 2,206,225 | 600 | 0.60 | 129.80 |
| 7. JUDICIARY | 16 | 2.01% | 20.90% | 1,247,589 | 365 | 0.59 | 81.81 |

Sources: *Gestão Pública e Cidadania* (<http://inovando.fgvsp.br/>); * *IBGE: Base de Informações Municipais – Gestão Pública (2001-5560 municipalities)*; ** *IPEADATA. (2000 - 5507 municipalities)*; *** *IPEADATA (1996 - 4921 municipalities)*.

Appendix 2.C: Regressions Results for Municipal Revenue Structure

The relationship between revenue and its main determinants was illustrated graphically in the chapter. However, we do not know the partial effect of each variable, i.e. what is the influence of municipal revenues after controlling for other factors. Let us assume that the specific revenue in municipality i (R_i) can be depicted by the following equation:

$$\ln(R_i) = \alpha \ln(y_i) + \beta \ln(s_i) \quad (2.C.1)$$

where y_i is the income per capita in municipality i , s_i the size of the municipality and α and β are parameters. We are interested in what would happen to municipal revenue if we change one of the variables, but keep all other variables unchanged. This is exactly what a partial derivative does. If we differentiate (2.C.1) with respect to y , we would obtain:

$$\frac{\partial R}{\partial y} \frac{1}{R} = \alpha \frac{1}{y} \quad (2.C.2)$$

In other words, α represents how much a percentage change in y would change the revenue in percentage terms keeping all other variables constant (*ceteris paribus*). We call this measure elasticity and this is exactly what we were looking for. On the other hand, the region surrounding the municipality may have a considerable influence on the municipal revenue. We can define four variables that are 1 if the municipality is in a region and zero otherwise, excluding one region (let us say the North). The revenue of a municipality located in region r and a municipality in the North with exactly the same income and size would be:

$$\ln(R_i) - \ln(R_j) = \gamma_r \Rightarrow \frac{R_i}{R_j} = e^{\gamma_r} \quad (2.C.3)$$

where the municipality i is located in region r (and r is not in the North), j is a (virtual) municipality located in the North with exactly the same income per capita and size as i and δ_r is the parameter for region r . So, the parameters give us exactly the partial analysis that we would like to perform. One way to estimate these parameters is running a regression with the following specification:

$$\ln(R_i) = \ln(y_i) + \ln(s_i) + \sum \delta_r r_i + \varepsilon_i \quad (2.C.4)$$

where ε_i is a “well behaved” error term capturing the non observable variables. Table 2.C.1 presents the results of three regressions using specification (2.C.4) for total revenue, tax revenue and federal and state grants revenue. The results of this analysis confirms the decisive role of state and federal grants in the progressivity of municipal tax revenue. If municipalities only depended on their tax revenue and municipality “A” had half the

income per capita of municipality “B”, municipality A would have 160% less resources than municipality A and not only 51%. Due to transfers, income and household size explain a much smaller share of total tax revenue as can be deduced by comparing the R-squared of the two regressions.

Table 2.C.1: Partial Analysis for Brazilian Municipalities Total Revenues per Capita (2000)

| Independent Variables | Dependent Variables | | | | | |
|-------------------------|---------------------|-----|-------------|-----|---------------|-----|
| | Total Revenue | | Tax Revenue | | Grant Revenue | |
| Income | 0.5162 | *** | 1.6060 | *** | 0.3808 | *** |
| Households | -0.2478 | *** | 0.1544 | *** | -0.2931 | *** |
| Northeast | 0.2555 | *** | 0.3426 | *** | 0.2301 | *** |
| Southeast | 0.2028 | *** | 0.9656 | *** | 0.1561 | *** |
| South | 0.0901 | *** | 0.7579 | *** | 0.0469 | |
| Midwest | 0.0597 | | 0.4517 | *** | 0.0762 | ** |
| Intercept | 6.2186 | *** | -7.6565 | *** | 7.2634 | *** |
| Observations | 4617 | | 4593 | | 4617 | |
| Adjusted R ² | 29% | | 58% | | 33% | |

*** significant at 99%; ** significant at 95%; * significant at 90%

Source: Authors' Calculations based on 2000 Census data (Ibge) and STN.

In addition, total revenue is decreasing in the number of households because of grants. Tax revenue is increasing in the number of households confirming that there might be gains of scale on tax receipts. When we look at grants we observe that grants actually increase with income and decrease with the number of households. When we breakdown grants into federal and state-funded categories, we can see that state grants increase much more with income than federal grants. On the other hand federal grants decrease faster with the number of households.

Table 2.C.2: Partial Analysis for Brazilian Municipal Revenue per Capita by revenue source (2000)

| Independent Variables | Dependent Variables | | | | | | | |
|-------------------------|---------------------|-----|----------------|-----|----------------|-----|--------------|-----|
| | Services Taxes | | Property Taxes | | Federal Grants | | State Grants | |
| Income | 1.7233 | *** | 2.5640 | *** | 0.0789 | *** | 0.8832 | *** |
| Households | 0.3830 | *** | 0.2013 | *** | -0.3679 | *** | -0.1933 | *** |
| Northeast | 0.7025 | *** | 0.7763 | *** | 0.1671 | *** | 0.1558 | *** |
| Southeast | -0.2048 | ** | 1.6480 | *** | -0.0542 | * | 0.5073 | *** |
| South | -0.3602 | *** | 1.6857 | *** | -0.0847 | *** | 0.3500 | *** |
| Midwest | -0.6195 | *** | 0.7764 | *** | -0.0106 | | 0.2692 | *** |
| Intercept | -11.1476 | *** | -16.3592 | *** | 9.3026 | *** | 2.0697 | *** |
| Observations | 4532 | | 4311 | | 4616 | | 4612 | |
| Adjusted R ² | 31% | | 62% | | 49% | | 39% | |

The municipalities of the Northeast present the greatest difference in revenues relative to the North, followed by the Southeast, South, and Midwest (with differences relative to the North that are insignificant). Per capita tax revenue in the Northeast presents the least difference with respect to the North, while the Southeast has tax revenue rates significantly above the North. The difference in total revenue in the Northeast is entirely due to grants.

In addition, the difference in per capita tax revenue across regions is quite significant. A municipality in the Southeast with the same income and size as a municipality in the North should have approximately twice the per capita tax revenue.

IPTU collection is much more sensitive to income as compared to the size of the municipality. These two variables have similar magnitudes for ISS. Service taxes are more sensitive to the number of households but both taxes are increasing in the number of households reinforcing the gains of scale observation.

Chapter 3

Employment, Income and Poverty: Evidence from Brazilian Municipalities 1991-2000

Introduction

Local economies within a country differ substantially in their economic performance and such differences might persist over long periods of time. Although differences in local development performance have always been a familiar feature of the economic landscape, increasing concern with regional disparities and poverty levels have prompted a growing interest in the factors giving some places better conditions for enhancing performance and overcoming development challenges. Moreover, researchers and policy makers have been trying to further understand the related role of public policy at local level. Here, the key question relates to the capability of local governments in significantly impacting their realities despite their historic, economic, social and geographical constraints. The central aim of this chapter is to empirically investigate the factors influencing local development across Brazilian municipalities, emphasizing the role of local public policy. To do that we adopt spatial econometric models inspired by the neoclassical growth theory and by some recent development of spatial economics.

As we showed in the previous chapter, observed correlations between the proportion of expenditure in education, health or infrastructure expenditures and municipal performance cannot be presumed to be correlated with other initial characteristics. There is enough variance in the sample that gives us a good opportunity to estimate the trade-offs between two classes of expenditures at the local level—education and health spending and infrastructure (energy, transportation, housing, and regional development) spending. However, to measure the implicit trade-offs, we need a measure of the goal of these programs. We believe that a program of LED should have as a basic purpose the improvement of well-being of its residents. While the fundamental concern is with equity and development, the empirical investigation utilizes the population below the poverty line as a proxy for inequality and per capita income as a measure of growth.

Program goals often appear among the objectives that should be means and not final objectives. In particular, it is common to find employment, income generation, firm recruitment or the support for local companies among program objectives. This would be a justifiable objective if there were some production scale gains. Thus, the increase of the scale of the municipality would generate productivity gains and consequently increase the well-being of its residents. For that reason, to measure the performance of a local public policy we will look at employment variation as well.

The way we are analyzing public policy at the local level parallels empirical analysis on convergence across municipalities. We want to know which combination of policies leads a municipality converge towards the average level of income, poverty or employment generation at the fastest rate. The empirical analysis of income convergence departs from the classical theory of economic growth. The main idea is that in regions with a smaller

stock of capital this factor should be more productive than in regions with a larger stock of capital. So, the argument goes, capital would flow from over-capitalized regions to under-capitalized ones and income would converge within regions. This hypothesis is called “absolute convergence”. One variation of the hypothesis, known as “conditional convergence” states that given differences in preferences or initial conditions, regions may converge to a different level of income. The main findings in Brazil and in many other places is that while conditional convergence is very close, absolute convergence will take a very long time to happen.

In this report we are not worried about whether absolute or conditional convergence occurs, but rather, whether local policies affect the rate of growth. However, given the high pace of conditional convergence, if we did not control for initial conditions we may be neglecting a highly significant variable. Actually, the convergence component is one of the highest determinants for any goal (growth, poverty reduction or employment generation). For income per capita, we confirm the conventional wisdom that we are very close to convergence (less than 2 years) and we find some indirect evidence of convergence clubs, i.e., some municipalities are converging to a lower level and others converging to a (relatively) higher level. Convergence in employment captures the congestion costs (firms leaving very concentrated regions). Convergence in population below the poverty line means that poor migrants are leaving the municipalities with a (relative) high proportion of poor to regions with a lower proportion. We test our results using different statistical methodologies and the results are very robust to any methodology adopted.

Our results contribute to the identification of the determinants of local economic development measured by three variables, namely employment change, income per capita change and the change in the population below the poverty line. From the empirical estimates evidence is provided regarding the factors suggested by the recent literature on growth, development and spatial economics. The remaining of this chapter is structured as follows. The next section provides the analytical framework guiding our empirical analysis. Section 3 describes the data and variables used in the estimations. We then present the results and conclude contrasting our findings with potential policy implications. The analysis carried out on this chapter is very technical. To keep the audience broad we will skip all the technicalities in the text. In the *technical appendix* we formally derive the convergence model. Then we specify the model that we will be running and explain the methodological aspects connected to the use of spatial interactions. Another appendix presents detailed regression results. We include these sections in the appendices for the more technical reader who is interested in following the formal arguments and checking the main technical hypothesis underlying the reported simulations.

Analytical Framework

Our concern with public policy at local level relates to the so-called ‘convergence theory’ put forward by the early neoclassical growth models. In other words we aim to understand what are the factors contributing to the movement of a particular locality towards the national average. The *per capita* income convergence hypothesis can be summarized as the tendency of a continuous reduction in the differences between more or less advanced

economies. The presence of convergence is perhaps the main result coming from the models developed by Solow (1956) and Swan (1956). This is due to the existence of decreasing returns to scale of production inputs. Recent studies however point out that different regions might converge to equally different *steady-state* income levels and alert for the importance of studying the determinants of *steady-state* growth rates across different economic realities.

Subsequent studies have pointed out that regions will not necessarily converge towards the same *steady-state* income level. In other words, smaller regions with initial *per capita* income may grow at higher rates, which do not imply that the equilibrium growth rate (*steady-state* rate) will be equal to that of regions with greater initial levels of *per capita* income. Some authors state that the Solow model implies identical growth rates for all regions. However, there is a consensus today that this result is fully compatible with the resulting hypothesis of the Solow model as this model was not developed to examine growth rates between regions, but rather within a single region.

This controversy led to the need to examine the conditional determinants of the *steady state* growth rates of each region and how such factors affected this growth. These studies remained known as *conditional convergence* studies (Barro and Sala-i-Martin 1995), while previous studies are often characterized as *absolute convergence* studies. It should be noted that these studies help explain the non-occurrence of absolute convergence between regions. This is because regions differ in their conditioning growth factors and, thus, factors that can be crucial for economic growth may be much more present in developed regions with higher initial levels of *per capita* income than in regions that, in the initial period, had lower *per capita* income levels. However, it should be emphasized that the dimension of high *per capita* income or low *per capita* income is defined according to the regions that comprise the selected sample.

Also it should be emphasized that empirical studies have examined how institutional factors have conditioned *per capita* income growth (or of the convergence/divergence of income). Gallup, *et. al.* (1999) try to relate political and geographical factors to economic performance in developing countries. In general, regions localized close to the coast or close to major navigable rivers presented higher growth rates than others over time. In addition, countries with greater political instability (greater rates of inflation, smaller participation of the population in the decision-making processes, etc.) also presented lower growth rates. For Brazil, in general, the factors that are most frequently cited in the literature pertain to human capital, local infrastructure, the degree of specialization of economic activity (Azzoni, 1998; Azzoni, *et. al.* (2000); Andrade and Sierra 1998; Chagas and Toneto Jr., 2002).

There are several studies that address convergence patterns in Brazil. The majority of these studies aim to test the existence of convergence rates among Brazilian states, mainly with respect to per capita income, but do not achieve a consensus with to the speed of convergence. Ferreira and Diniz (1995), Schwartzman (1996) and Zini Jr. do not reject the hypothesis of absolute convergence in *per capita* income for Brazilian states for the period between 1970 and 1985. Azzoni (1997)(2001), using a longer series (1939-1996), also finds

indications of absolute convergence of income, but at a much smaller rate.²⁷ In response to Azzoni (1997), Ferreira (1998) estimates Markov transition matrices for state GDP data between 1970 and 1995 and finds convergence evidence. Porto Jr. and Ribeiro (2000) find convergence evidence across states in the period between 1985 and 1998 and in municipal growth in the South between 1970 and 1991.

All of the studies cited in the previous paragraph utilize states as the unit of analysis. Other studies have tried to find convergence evidence at a smaller scale. Azzoni *et. al.* (2000) find conditional convergence in income between metropolitan regions in Brazil, while Andrade and Sierra (1998) suggest the existence of convergence among average municipalities in Brazil between 1970 and 1991. Chagas and Toneto Jr. (2002) report the existence of conditional convergence for Brazilian municipalities between 1980 and 1991. Andrade, Laurini and Pereira (2005) analyzing the evolution of the relative distribution of *per capita* income for Brazilian municipalities in the period from 1970 to 1996, utilizing a Markov transition matrix, detect the formation of two convergence clubs, a low-income group formed by municipalities in the Northern and Northeastern regions, and another high-income group formed by municipalities in the Midwest, Southeast, and South regions.

In contrast to Neo-Classical growth models of the Solow variety, which emphasized capital investment and exogenous technological change to explain differences in growth across nations, regions and cities, the more recent research on growth focuses on externalities as the ‘engine of growth’ and in particular on the role of local knowledge externalities as sources of increasing returns. This approach has its origins in the work by Romer (1986), and his revival of the early work by Arrow (1962) on learning by doing, extending the latter to include investment in knowledge. Lucas (1988), adopting a somewhat different approach reaches a similar conclusion. For instance, the so-called Marshall-Arrow Romer (MAR) externalities relate to knowledge spillovers between firms in an industry and this view applied to cities implies that urban concentrations of firms facilitates such spillovers (Glaeser, Kallal, Scheinkman, and Shleifer 1992). Porter (1990) likewise emphasizes the importance of intra-industry knowledge spillovers. On this view, industry specialization favors city growth. By contrast, for Jacobs (1969) it is inter-industry knowledge spillovers that matter most and it is urban industrial diversity that is important for growth.

As discussed in chapter 1, NEG Models provide further insights into the dynamics of urban growth. Krugman (1991) for example, working within the framework of the NEG has emphasized the importance of dynamic externalities for our understanding of spatial patterns of growth but has downplayed their importance except in the case of localities dominated by high-technology industries. Krugman’s (1991) Core-Periphery (CP) model focuses therefore on increasing returns, pecuniary externalities and transport costs. The mechanics of the model are driven by three effects: market access, cost of living, and market crowding. As summarized by Baldwin *et al* (2003), the ‘market access effect’ describes the tendency of monopolistic firms to locate their production in the big market and export to small markets; the ‘cost of living effect’ concerns the impact of firms’

²⁷ Some of these works (Azzoni 2001; Schwartzman, 1996; Zini Jr., 1998) utilize the same methodology of Mankiw, Gregory. 1982. estimating a series of regressions in order to identify the determinants of growth differentials among countries.

location on the local cost of living (goods tend to be cheaper in regions or cities with more industrial firms since consumers will import a narrower range of products and thus avoid more of the trade costs); the 'market crowding effect' reflects the fact that imperfectly competitive firms have a tendency to locate where there are relatively few competitors.

The first two effects encourage spatial concentration while the third discourages it. Combining the market-access effect and the cost-of-living effect with interregional migration creates the potential for 'circular causality' – also known as 'cumulative causation'. The natural question is therefore what determines the relative strength of these forces. Trade costs play the key role in balancing centripetal and centrifugal forces. As trade costs decline both dispersion and agglomeration forces diminish. Competition from firms outside the locality becomes approximately as important as competition from locally based firms and there will be very little spatial difference in prices between the two areas.

Building on the NEG approach, Baldwin et al (2003) propose an endogenous growth model, in which long run accumulation of knowledge capital is supported by learning effects from an innovation sector that has a public good component. In the local spillovers version it is assumed that knowledge spillovers dissipate with distance. These models of growth and agglomeration provide analytical underpinning for empirical models using a variety of spatial econometric methods (Abreu, Groot, and Florax 2004; Fingleton 2003).

The recent literature on spatial economics has emphasized the role of agglomeration and clustering of economic activities as fundamental causes of an enhanced level of local economic performance, creating externalities that cause firms to grow faster and larger than they otherwise would do. One important consideration in spatial economics is that the positive externalities generated by agglomerations could be offset to some degree by negative externalities due to congestion effects. Congestion is most likely in the densest agglomerations, so that it is an interesting empirical question to examine whether the balance of positive and negative externalities swings in favor of congestion effects at the higher levels of agglomeration. A second fundamental idea lies on the relevance of transport costs for generating unequal patterns of distribution of economic activity. Here, proximity to markets for both inputs and outputs are central to explain growth and development of cities.

Although our approach is clearly related to the literature outlined above we have objectives that go beyond issues related to convergence or GDP growth. Firstly we are not interested in finding whether there is absolute or conditional convergence between the municipalities. Our primary question looks at the influence of local policy in economic development. In addition we aim to examine the dynamics of other variables regarding local welfare such as poverty levels and employment. The great difficulty is in expanding this approach to the study of objectives other than growth rates, such as poverty reduction. The objectives of local policy do not merely seek to increase productivity, income, or employment. Some local policies are concerned with poverty reduction. In this study it is assumed that the results are simply a measure of convergence and accept that we can also use the same measure to study the impact of policy on poverty reduction. The coefficient of the lagged dependent variable indicates whether convergence is occurring. The coefficient of public

policies indicates if these variables are increasing or decreasing the rate of convergence. These are the equations we seek to test.

Nevertheless, there are two means by which a municipality can increase income and employment or reduce poverty. It can implement policies that increase its productivity or policies that “steal” firms or “expel” its poor households to other municipalities. In other words, the interaction between neighbors is fundamental for the characterization of development policies at the local level. In order to incorporate neighborhood effects we expand the empirical models along the lines suggested by spatial econometrics.

Data and Variables

The first difficulty in the construction of the database is to define the unit of analysis. For our ends, we would ideally want to work at the scale of the municipality, the only effectively “local” scale. However, between 1991 and 2000 the number of municipalities in Brazil increased from 4,491 to 5,507. In order to obtain a consistent panel of districts for this period, we utilize the IPEA definition of “Minimum Comparable Areas” (AMC) as our unit of analysis. Given the increase of 1,106 municipalities in the period, IPEA’s effort is remarkable since it succeeded in creating 4,267 comparable areas between in both periods. This is the most detailed scale that is possible for Brazil in the 1990s decade. Actually as can be observed in Table 1, 85% of AMCs only had one municipality while 10% had 2 municipalities. In other words, the quantity of AMC with 3 or more municipalities is very low.

Table 1. Number of Municipalities in each AMC

| <i>Number of Municipalities</i> | <i>Percentage</i> |
|---|-------------------|
| 1 | 84,71% |
| 2 | 10,27% |
| 3 | 2,30% |
| 4 | 1,24% |
| 5 | 0,56% |
| More than 5 | 0,91% |

Source: IPEA

This type of analysis by AMC, to our knowledge, has not been carried out in any other study. Some studies have worked on the municipal scale as Laurini, Andrade, and Pereira (2003). The authors, however, did not utilize AMC and, therefore, simply eliminated the municipalities that altered their composition during the period.²⁸ As we are controlling for spatial correlation, the elimination of municipalities would substantially alter the analysis. Lall and Shalizi (2003) also work with municipalities, but remain restricted the

²⁸ It is not clear if the authors controlled for changes in municipalities that maintained the name but lost part of their area to other municipalities.

municipalities of the Northeast.²⁹ Thus, we believe that this is one of the new developments of this study and, therefore, one of the contributions for the literature.

For our survey objective, working at the municipal scale is fundamental. In addition, research limited to one given region can also distort the results. This is because the interaction among municipalities, say, of the Northeast, is not necessarily restricted to the region. It is clear that it could be said that upon limiting our analysis to Brazil we lose, for example, the interaction with municipalities in Argentina. Nevertheless, there are much greater barriers in international than in national relations. Moreover, there are reasons to believe that given Brazil's low share of international trade in general and in particular with Latin American countries (except for Argentina), the size of these distortions is relatively small in comparison to those that would result from isolating a given region.

The data for this analysis is from a number of sources. Firm and employment data were obtained from the the *Relação Anual de Informações Sociais* (RAIS), compulsory information collected annually by the Ministry of Labor and Employment (MTE) at the firm level. Have access to micro-data from the RAIS, i.e. the information at the company level thanks to an agreement with the department of statistics of the MTE. It was possible to calculate, for example, the number of firms created and closed during the period. Data at the municipal scale or, when available at the AMC level, were obtained from UNDP/IPEA, IBGE and IPEA (for public finance accounts data was obtained from the Secretaria do Tesouro Nacional – STN). When the data were only available at the municipal scale, they were re-aggregated by AMC guaranteeing comparison across time.

Three different dependent variables were tested to explain the change in local development between 1991 and 2000 measured as the difference in the log value of the selected variable in the final year, 2000, subtracted from its log value initial year, 1991. We choose growth rates rather than levels to avoid spurious correlations. The three dependent variables are growth in per capita income, growth in the total number of workers employed in the formal market labor force, the percentage of households earning income less than R\$ 75.50 per capita. Each of these dependent variables was selected to capture an important component of local economic development guided by the literature review conducted for this study.

Depending on which of the three dependent variables was selected for the specification, we include the lagged log value of the dependent variable in 1991 as an independent variable. For example, if the growth in formal employment between 2000 and 1991 is the dependent variable, we utilize the log of employment in 1991 (EMPREGO_91). We include the lagged dependent variable to control for convergence between districts. In particular, we seek to control for whether the correlation between initial employment levels and employment growth (convergence) occurs or whether agglomeration forces may cause advanced cities to grow at faster rates.

It is important to emphasize that the selection of employment data for Brazil included in our specification captures formal labor market participation. In our view, this measure is

²⁹ Also in this case it is not very clear as the authors struggled with the new municipalities created in the period.

more adequate than a measure that also includes informal employment. As the primary goal of employment generation is the inclusion of workers in the formal economy, we believe this measure is more adequate. One problem with using formal employment data based on RAIS is that this variable is based on the location of employment and not the worker's AMC of residence. In agglomerations, such as São Paulo, we suspect that there are considerable differences between the location of firms and worker's residencies, a feature that may be particularly important to capture in our model. In future iterations, we hope to further test these specifications with data that examine whether there are considerable differences when alternative data sources that permit to control for employment levels based on worker's residence are available.

In order to control for similarities between AMC districts, we include variables to capture the initial conditions in each district. We have selected a set of control variables that could have direct or indirect impact on municipal development. In selecting the control variables, we seek to control for both initial socio-economic and geographic conditions in Brazilian localities. Individual significance, global likelihood, and correlation between the explanatory variables of several alternative combinations oriented the variable selection for the final model.

The first set of variables control for socio-economic conditions. The vector of initial conditions, X , includes the log of the population in 1991 (linear and squared) to control for district population size (POP_91). To control for the level of human capital, we include the log of the mean educational level of adults 25 years or older in the regressions (ANOS_ESTUDO_91). To control for the level of social inclusion, we include a measure of the percentage of households earnings incomes less than R\$ 75.50 per capita (POBREZA_91) as calculated by UNDP. In relative terms, R\$ 75.50 was equivalent to earning half the level of a minimum wage salary in August 2000.

As we suspect that spatially specific characteristics such as access to markets, we include a second set of variables seeks to capture geographic conditions. We include the log area of the AMC to control for district size (AREA_91). In addition, a dummy variable to capture costal district status (COSTEIRA) and measures of the distances to São Paulo (DIST_SP_100) and the state capital (DIST_CAP_100) were included to capture transport costs and market access. Dummies for each of Brazil's 25 states were included in the specifications with São Paulo dropped from the sample.

Since the primary objective of the study is to examine the impact of local economic development initiatives, we test to see the association between Brazilian municipal government expenditures in human and physical capital have an impact on levels of regional development after controlling for initial and geographic conditions. All data on municipal expenditures are for 1994. We did not use data for earlier years due to problems in the data collection in earlier years, which lead us to believe that the data are less reliable. As measures of local government policies that emphasize human capital investments, we include both the share of expenditures on health (P_SAUDE) and education (P_EDUC) as a percentage of total spending. To measure the share of investments in physical capital as a share of total spending, we combine four types of infrastructure: energy, transportation, housing and regional development (P_INFRA). As state transfers compromise a significant

share of spending for some municipalities, we also include a measure to examine whether there are differences in AMC growth performance in those districts that depend primarily on state transfers (P_TRANSF). We believe that this is an important measure to capture and explore as most state transfers are pre-targeted to specific expenditure categories and therefore give local governments less discretion in spending.

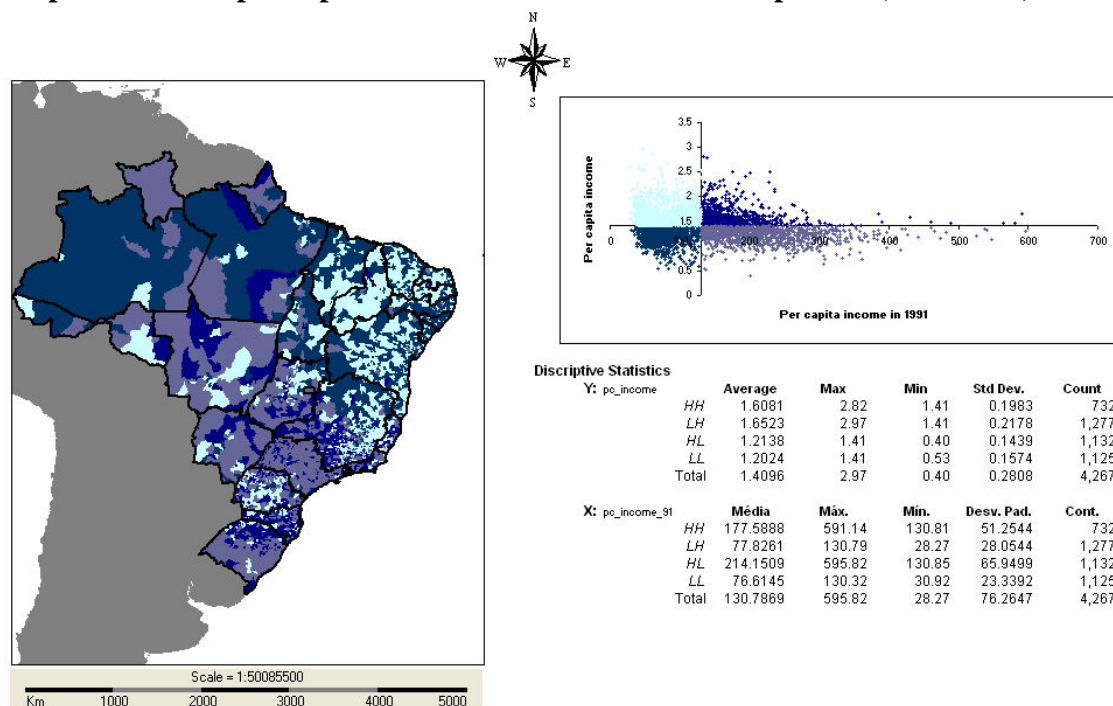
Results

We have estimated spatial models aiming to provide evidence of the determinants of change in development performance (employment, income and poverty) for Brazilian municipalities between 1991 and 2000 with emphasis on the role of local public policy. The estimated coefficients in the seven models (ordinary least squares and six spatial models as discussed in the appendix) for each of our dependent variables are robust as they are generally similar in value and significance. The spatial lags for the dependent variable and the error term are highly significant in all specifications, indicating that controlling for spatial autocorrelation is important in this empirical methodology. Given the similarities across the estimated models and provided that both of the spatial coefficients (for the error term and for the spatial lag) are simultaneously significant, we would base the following discussion on the results for the general spatial model (SAC). The tables in appendix 3.D present the estimates for all the models.

As discussed above, our specifications correspond to a test for convergence across AMCs. Maps 3.1 to 3.3 present the spatial distribution of the 3 dependent variables together with the scatter diagrams between the variation of employment, income *per capita* and population below the poverty line between 1991 and 2000 and their respective levels in 1991.

During the 1990s aggregate income *per capita* in Brazil was growing slowly, repeating the bad performance of the 1980s. In this context, a modest growth may be considerable in relative terms. However, the average growth of Brazilian municipalities was reasonable, around 3.8% per year. This apparent contradiction is due to the fact that the most populated municipalities have grown slower than the less populated ones.

Map 3.1 shows that there were actually signs of absolute convergence for some groups (or clubs). The Map split the municipalities in four groups: Municipalities that had above average income per capita on 1991 and that grown at a faster than average pace between 1991 and 2000 (HH); Municipalities that had below average income per capita on 1991 and had grown at a faster than average pace between 1991 and 2000 (LH); Municipalities that had above average income per capita on 1991 and had grown at a slower than average pace between 1991 and 2000 (HL); and Municipalities that had below average income per capita on 1991 and had grown at a slower than average pace between 1991 and 2000 (LL).

Map 3.1: Income per capita Variation in Brazilian Municipalities (1991-2000)

Source: Elaborated by Cepesp using data from Ibge and Ipea.

The geographical distribution of income *per capita* variation with groups defined as above provides a clear picture of absolute convergence. The LH group represents the group catching up and the HL group represents the rich municipalities adjusting for fast growth in the past and a (relative) over stock of capital. The HH and LL group are diverging but the two groups are rather different. We might expect some municipalities on the HH group since we have economies to scale and a fast growing region might continue to grow for some decades. The LL group might be in what we call a “poverty trap”. That is, the LH and HL groups are the convergent municipalities and the HH and LL are the divergent ones.

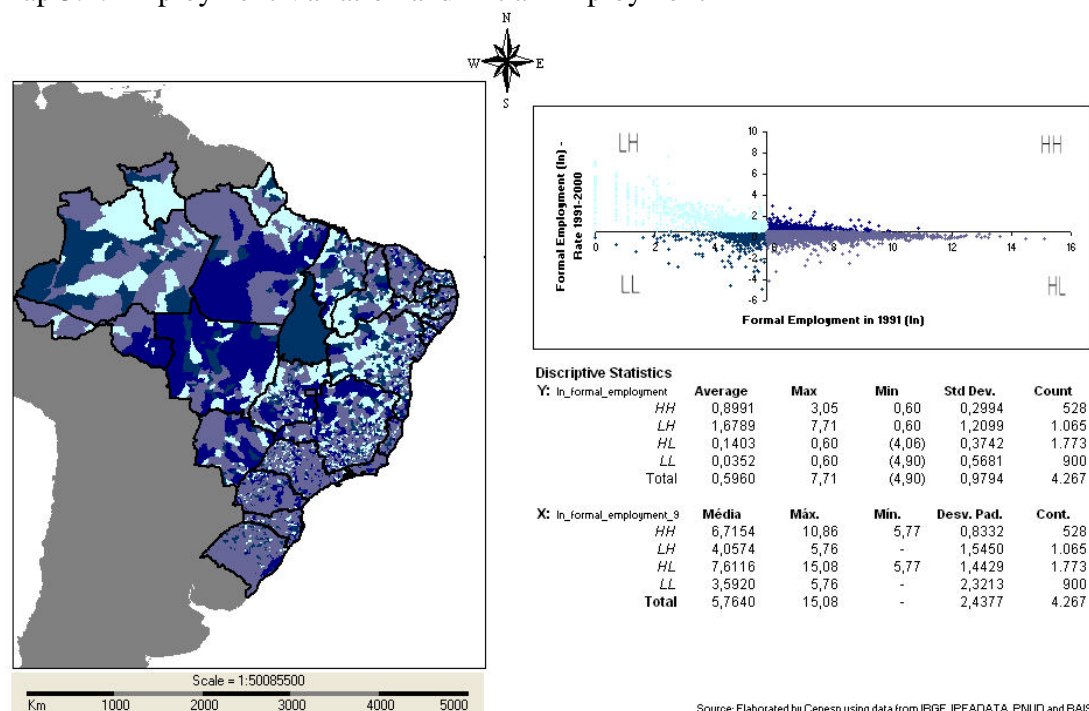
The good news is that the LH group is the largest. There were more municipalities catching up during the 1990s in Brazil than anything else. Unfortunately the smallest group is the HH. Actually, the difference between the number of municipalities in the HH group and the LL group is much higher than the difference between the LH and the HL group. These counts are showing that part of the convergence observed in Brazil during the 1990s is due to the modest performance of some relatively rich municipalities. In particular, most of the municipalities in the State of São Paulo were in the HL group.

On the other hand, most of the municipalities in the LH group were in the northeast. However, we cannot be so optimistic about this result. First, most of the municipalities with income per capita below the average were in the northeast on 1991. Second, most of the municipalities in the LL group were also in the northeast. For instance, almost all municipalities in Alagoas and Sergipe and a considerable share of municipalities in Pernambuco and Maranhão were in the “poverty trap” group. Third, we can see that the municipalities on the LH group in the northeast are normally in the countryside rather than

close to the coast. Since income in the countryside of northeast is lower than in the coast, those are good news, however, combined with the high incidence of municipalities in the LL group in the northeastern coast, the municipalities in the northeast may be converging to a low income level. As a matter of fact, Andrade et al. (2004) found evidence of “club convergence” in Brazil during the 1990s.

A similar picture is depicted with respect to employment, as there is strong evidence of absolute convergence. The municipalities are actually concentrated in the northwestern and southeastern quadrants indicating that the majority of municipalities above the mean reduced employment while the municipalities below the mean created jobs. It is interesting to observe again that municipalities along the coast are reducing employment while those municipalities in the interior are increasing. The question of how much of this non-conditional convergence is desirable is a complicated issue since losses may be wasting agglomeration gains. On the other hand, some congestion costs may be being avoided.

Map 3.2: Employment Variation and Initial Employment



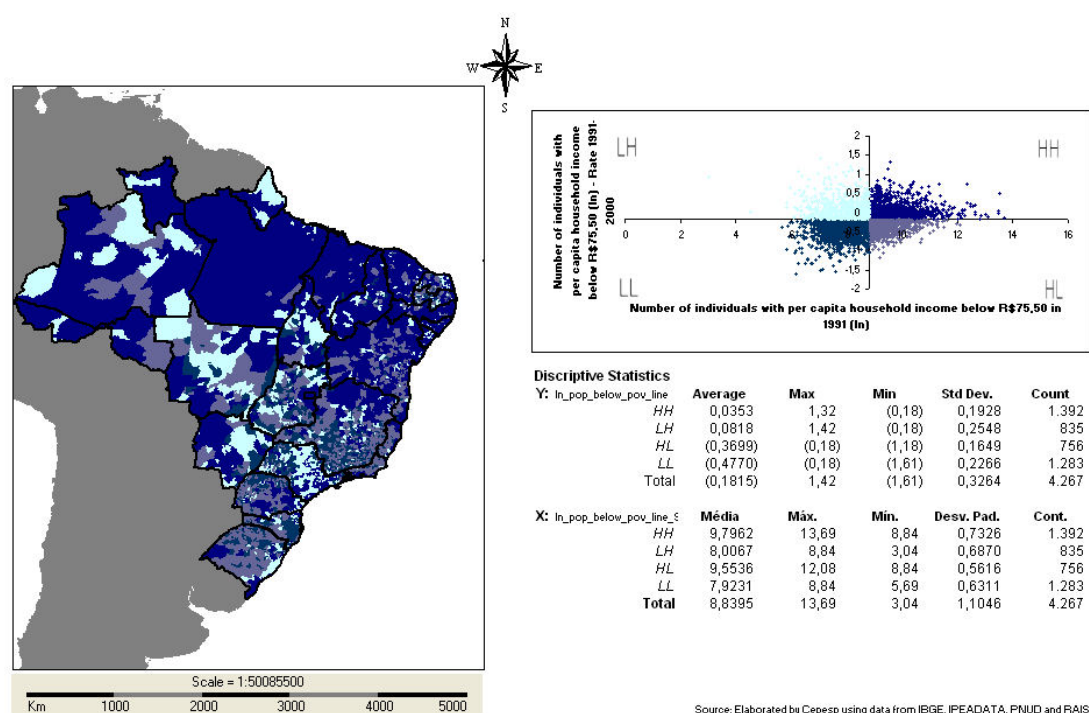
The degree of poverty of municipalities measured by the population below the poverty line does not show signs of absolute convergence. In fact, we have evidence to the contrary. A greater number of municipalities that were above the mean of population below the poverty line experienced an increase in their share of this population than municipalities who reduced this index. The number of municipalities that increased the degree of poverty is similar to those who reduced among the municipalities who were below the mean of population below the poverty line.

The conditional convergence hypothesis is also evidenced by the econometric estimations since the coefficient of the lagged variable is always negative and significant at 1% of

statistical significance. Moreover, the estimated convergence term have one the highest magnitude among the control variables for the 3 dependent variables. It is interesting to note that, controlling for a number of socio-economic and geographical characteristics, positive (employment and income) but also negative (poverty) changes are suggesting the existence of a less concentrated process in terms of local development. The case of poverty is particularly interesting as convergence is evidenced when controls are introduced.

As suggested by the literature on spatial economics the estimates for population, controlled for area size, are significant. These results provide evidence that on one hand agglomeration intensity is relevant for local economic development and, on the other, that congestion costs played a significant role during the 1990s. Our specifications do not allow us to identify what kinds of agglomerations effects are working in the case of Brazilian municipalities and distinguish potential impacts of microeconomic characteristics such as market size, public facilities sharing, better matching between firms and workers or knowledge spillovers (see Duranton and Puga [2004] for a discussion about micro foundations of agglomeration economies). Possibly we would find most of these factors in a greater or lesser extent depending on the local conditions.

Map 3.3: Variation in the Population below the Poverty Line and Initial Population



Spatial economics suggest that the relationship between initial population densities and subsequent development is non-linear. We should expect significance for both the linear and quadratic terms, with positive coefficient for the linear variable and negative for the quadratic one. For low levels of agglomeration larger population contributes to economic performance but perhaps would also enhance the attractiveness for poor people. However, at higher levels of agglomeration congestion effects start to 'quick in' producing negative

externalities, reducing growth and development. Curiously we found evidence of this pattern only in the poverty regression. In the employment and income *per capita* regressions only the quadratic term is significant and positive.

These results reveal that for most of the municipalities congestion is not a problem if we control for all other variables. On the contrary municipalities with same initial characteristics are still benefiting considerably from agglomeration economies. Given the number of variables included in the analysis we cannot say anything about the constant term. In any case, the fact that only the quadratic term is positive at least indicates a more than proportional increase in the performance both in income as in employment as the population increases. This result contrasts with the employment convergence observed and discussed before. In the case of poverty it is possible to observe an inverted U-shaped relationship showing that poor populations firstly increase with overall population but after a point start to reduce. The underlying reasons for the contrast between the size of local economies and the subsequent changes in positive and negative development outcomes are still to be examined and deserve further investigation.

Transport costs to São Paulo, which is a proxy for access to national markets, have negative and significant impact for the employment and income, and positive and significant impact in the poverty regression. The results are in line with the theory showing that closer proximity to large markets is likely to contribute to economic activity. However, we have the opposite result for transport costs to the nearest state capital with the exception of the employment regression where this variable is not significant. Although this is a surprising result it has been found in empirical studies for the Brazilian Amazon, which have used the same variables (see Andersen et al 2002 and Igliori 2005). Again, the underlying reasons for this remain to be explained. One tentative explanation would be that the municipalities in Brazil are mainly trading with São Paulo and the proximity to the state capital would increase competition for the same markets.

To capture the inflow of jobs we used the number of firms created in the municipality between 1991 and 1996 and the number of firms that migrate from other municipality between 1991 and 1996. The number of firms created in the municipality is positively correlated with the growth in income per capita and employment. This result suggests that policies oriented toward entrepreneurship or toward attracting new firms to the municipality are likely to positively impact the subsequent local performance. In the case of employment the number of firms that have in migrated to the municipality reinforces this result, as its coefficient is also positive and significant. However, it is not significant for income per capita growth. Both variables are not significant in the poverty regression. Actually, the number of firms migrating in the period is very low as discussed in Chapter 2. So we would expect small impact of such a variable.

As suggested by the recent growth theory large initial levels of human capital (measured by the number of years of schooling) positively impact the subsequent income growth and negatively impact the growth of population below the poverty line. However, the same is not found in the employment regression illustrating perhaps that the local employment dynamics is still disconnected to the demand for skilled labor. A tentative explanation may be connected to the opening of the economy in the 1990s that favored low skill

manufacturing. This is coherent with comparative advantages that forecasts that when the economy opens the countries should concentrate in their abundant factors.

However, as we discussed, employment may not be a goal but a mean. Based on these results one could argue in favor of policies fostering education at local level. However, the regressions show that increasing the proportion of local investment in education is not significant for the income growth performance. On the other hand this policy is positive and significant for the regression on employment and on poverty. Explaining these results further is again beyond the scope of this report. Nevertheless the complexity is clearly evidenced. Local investment in education may be attracting both firms and poor households. The impact on income is insignificant but there might be an indirect effect through employment growth.

The most efficient policy for increasing per capita income in this time horizon is reallocating resources towards infrastructure. According to our estimation this type of expenditure also contributes to poverty reduction. However, the variable is not significant for employment.

The two other considered policies have counterintuitive results. Firstly, increasing the proportion of spending in health would actually decrease growth of income per capita and contribute to the increase of population below the poverty line. Second, transfers from the federal government are negatively correlated with the 3 measures of local development but not significant for poverty. As we discussed in chapter 2, most of the municipalities rely mainly on Federal or State grants. Also, we have some evidence that small municipalities are less likely to implement any development program. Greater amounts for grants may be a way to reverse this trend. Our findings show that municipalities who relied on grants as a greater proportion of total spending from 1994 to 1996 experimented a slower growth both in income as in employment during the 1990s. The result suggests some serious problems in the interregional grants system in Brazil.

These results with respect to policy variables deserve some qualification. We suspect that in these cases expenditure might not be the best way of capturing the impact of the respective policy initiatives, being the qualitative aspects of them more important. Moreover, these variables might capture only the fact that the localities with higher expenditures with health or higher transfers from central governments are actually the ones with worse social and economic conditions. Although we are considering rates of growth, those municipalities may be trapped in a very bad initial position.

Our results strongly support the existence of spatial externalities across municipalities. For the three dependent variables both spatial lags (for the dependent variable and for the error term) are highly significant. Moreover they are simultaneously significant. The spatial lag for the dependent variable suggests some sort of 'competition' between the municipalities as we found negative coefficients for the employment and income per capita equations and positive coefficient for the poverty estimates. These results suggest that the performance of a municipality measured in terms of income per capita, employment or population below the poverty line is highly dependent on the characteristics of its neighborhood. These

findings therefore call for the attention with respect to coordination problems in non-cooperative LED programs.

Finally we would like to highlight some specific results with potential policy implications. Firstly we found that population below the poverty line is negatively correlated with the growth of income per capita. Secondly, violence is negatively correlated with income per capita and positively correlated to poverty incidence. Finally, the growth of poor population is correlated with location along the coast side.

Conclusion

This study proposed a methodology for assessing public policy at the local scale. As policy variables, we work with municipal public finance data and employ a method, which in our view, is superior for evaluating such policies. In addition, we test for the possibility of spatial dependence in the models. The results confirm findings of the importance of the initial conditions on municipal performance in accordance with theoretical and empirical results found in previous studies. However, the policy responses offer a new vision of what would be the most adequate policy at the local scale. Since we are analyzing all Brazilian municipalities, we can observe the relative (to the country) behavior of a municipality that would be much more difficult in a case study.

As discussed in the previous section, the econometric analysis adopted in this study sheds some light on the role of local public policies in impacting subsequent development. However, fully explaining the underlining mechanisms connecting local policy with development is beyond the analytical capability of the proposed methodology. Moreover, as mentioned our variables might not have conveyed all the relevant information for a dully policy evaluation. In order to accomplish a more comprehensive assessment it would be necessary more information on the qualitative features of LED programs. We aim to start facing this challenge in the next chapter by developing a methodology for selecting case studies, which are not properly explained by the econometric results.

Appendix 3.A: The Neoclassical Growth Model

The neo-classical growth model,³⁰ developed in tandem by Solow (1956) and Swan (1956), simplified in part, departs from the premise that there the variation of capital stock over time is given by:

$$\dot{K} = I - \delta K = sY - \delta K \quad (1)$$

where K is the stock of capital, I is total investment, δ is the rate of capital depreciation, s is the savings rate, Y is the total economic production and the variation in stock is

³⁰ For further details, see Barro and Sala-i-Martin (1995).

considered investment.³¹ The notation of a point (°) above the variable represents its change with respect to time. If we assume that the production function has constant returns to scale, we can write the production function in terms of the per capita ratio between capital and labor: $y = f(k)$, where the lowercase variables denote that the particular variable is in “per capita” terms³², in other words, $y \equiv Y/L$ and $k \equiv K/L$. Based on the definition of k and y , it is easy to verify that:

$$\dot{k} = \frac{d(K/L)}{dt} = \frac{\dot{K}}{L} - nk \quad (2)$$

If we divide equation (1) by L and substitute it into equation (2), we have that:

$$\dot{k} = sf(k) - (n + \delta)k \quad (3)$$

The stationary state can be defined as the point in time in which the change in capital stock is constant. In particular, the stationary state in the Solow-Swan model occurs when the change in capital stock is zero, in other words:

$$sf(k^*) = (n + \delta)k^* \quad (4)$$

where the variables denoted with asterisks denote that are the values in the steady-state. We are interested in the percentage variation in capital. Dividing both sides of equation (3) by k we have that:

$$\gamma_k \equiv \dot{k}/k = sf(k)/k - (n + \delta) \quad (5)$$

where γ_k is the percentage variation in capital stock across time. If we substitute the savings rate implicit in equation (4) into equation (5) we have that:

$$\gamma_k = (n + \delta) \left(\frac{f(k)/k}{f(k^*)/k^*} - 1 \right) \quad (6)$$

Equation (6) implies that γ_k will be zero when $k = k^*$, in other words, in the steady-state. If we assume a Cobb-Douglas³³ production function, $y = AK^\alpha$, the variation in capital stock can be written as:

³¹ As is well known, given this hypothesis, $I \equiv sY$ is simply an accounting identity.

³² To be more precise, the aggregate variables defined with respect to the labor force may be different to those in terms of population and this difference may not be constant across time depending on the demographic stage.

³³ This result is valid for any production function exhibiting constant returns to scale. Using a Cobb-Douglas production function gives us an analytic solution that facilitates the interpretation of results.

$$\gamma_k = (n + \delta) \left[\left(\frac{k}{k^*} \right)^{\alpha-1} - 1 \right] \quad (7)$$

Adopting a log-linear approximation of equation (7) given the stationary state we have that:

$$\gamma_k \cong -\beta \ln(k / k^*) \quad (8)$$

where $\beta = (1 - \alpha)(n + \delta)$. For the Cobb-Douglas function, we can estimate that $\ln(y/y^*) = \beta \ln(k/k^*)$. Afterwards, we can derive this same approximation for the percentage change in the product across time, γ_y :

$$\gamma_y \cong -\beta \ln(y / y^*) \quad (9)$$

Equation (9) is a differential equation³⁴ whose solution is:

$$\ln(y_t) = (1 - e^{-\beta t}) \ln(y^*) + e^{-\beta t} \ln(y_{t-1}) \quad (10)$$

From equation (10), it is possible to conclude that β is a good measure of the speed of convergence. If β is very high, the second term on the right hand side of equation (10) will tend towards zero and $y_t = y^*$. In reality, if $\beta < \infty$ convergence occurs only when t goes towards infinity. This is a result that is known as exponential decay. Given the impossibility of having sufficient time to find absolute convergence, a measure usually used is the “half-life”,³⁵ in other words, the time necessary to reach half of the trajectory for convergence. If we denominate τ as the half-life, we have that $e^{-\beta \tau} = 0.5 \Rightarrow \tau = \ln(2) / \beta$. If we subtract $\ln(y_{t-1})$ from both sides of equation (10), we can write (10) as:

$$\ln(y_t) - \ln(y_{t-1}) = (1 - e^{-\beta t}) [\ln(y^*) - \ln(y_{t-1})] \quad (11)$$

Equation (11) provides us with a good clue of what econometric specification will permit us to infer β and, as a result, the time required for convergence. Nevertheless, as has been mentioned before, we are not particularly interested in convergence, rather the impact that local public policies have on this rate. Thus, the next section discusses the specification used in our study building on the theoretical foundations described above.

³⁴ For the more technical reader, equation (10) approximates the solution to a differential equation for a differences equation.

³⁵ The term was borrowed from nuclear physics and is utilized for radioactive decay.

Appendix 3.B: Local Growth Model

Extending the neoclassical growth model outlined above we set out a model that seeks to explain the change in employment growth over the period 1981-2001. The basic equation can be written as

$$\ln(y_{i,t}) - \ln(y_{i,t-1}) = \alpha - \delta \ln(y_{i,t-1}) + \varepsilon_{i,t} \quad (12)$$

where $\alpha = (1 - e^{-\beta t}) \ln(y^*)$, $\delta = (1 - e^{-\beta t})$, the subscript i represents the region and $\varepsilon_{i,t}$ is the *i.i.d.* random error term with distribution $N(0, \sigma^2)$. Thus, we can estimate the parameter for the rate of convergence based on a regression utilizing equation (12) as the specification for a determined group of regions. This is the absolute convergence concept and variations of this specification have been used by a diverse number of studies since the 1980s, among others Baumol (1986). The results, nevertheless, from the neoclassical model do not necessarily imply absolute convergence as we have previously mentioned.

If regions have pre-existing preferences, different technologies or institutions for instance, the stationary state product of each economy will not necessarily be the same one. This is equivalent to estimating a fixed effects model based on equation (12), in other words, it allows for predicting a different intercept for each region in the sample. On the other hand, if education, public infrastructure, etc. influence the productivity of capital and/or labor entering exponentially in the production function, equation (12) can be modified to reflect this pattern. In particular, for our objectives, local public policies can alter the rate of convergence. This implies reformulating equation (12) as:

$$\ln(y_{i,t}) - \ln(y_{i,t-1}) = \alpha - \delta \ln(y_{i,t-1}) + \pi P_{i,t-1} + \gamma X_{i,t-1} + \varepsilon_{i,t} \quad (13)$$

The vector of parameters to be estimated, π , in equation (13) is associated with the vector of policies $P_{i,t-1}$ (implemented in the prior period) while the vector γ is associated with the control variables $X_{i,t-1}$, which are also measured in the prior period. We seek to test the hypothesis whether influence the convergence rate of the locality. One common problem with this approach is that the majority of previously cited articles usually utilize contemporary control variables in their specifications. This creates a classic problem of endogeneity. This is because the level of education of municipality i in t depends on its growth rate between $t-1$ and t . In this chapter, if we avoid this problem by using lagged control variables.

We extend this empirical model in two ways. On the one hand we adopt spatial econometric models to allow for neighborhood effects and spatial externalities. On the

other, following Henderson (2000) we envisage a non-linear relationship between agglomeration intensity and growth and this non-linearity reflects the presence not only of positive externalities but also negative externalities due to the effects of congestion³⁶.

Appendix C: Spatial Econometrics

In order to check for spatial autocorrelation and test the robustness of coefficients we extend equation 13 and estimate the three standard spatial econometric models (Anselin 1988; Anselin 2003) discussed anon.

A general homoskedastic spatial autoregressive model can be written as

$$y = \rho Wy + X\beta + e, \text{ where } e = \lambda We + u \quad [14]$$

This is the most general specification for the spatial autocorrelation model and is denominated as General Spatial Model (SAC). If we assume that $\rho = 0$ and $\lambda = 0$ we would return to equation 13. In this version of the report, we present the estimated results for three spatial models based on different hypotheses concerning spatial autocorrelation: *i.* $\rho \neq 0$ and $\lambda = 0$; *ii.* $\rho = 0$ and $\lambda \neq 0$, and *iii.* $\rho \neq 0$ and $\lambda \neq 0$. The first model assumes that spatial autocorrelation only occurs in the observations and is denominated as SAR (spatial autoregressive model). The second model assumes that spatial autocorrelation occurs only in the error and is denoted as SEM (spatial error model). The third model is the general spatial model testing the presence of spatial autocorrelation both in the dependent variable and in the residuals. The SAR model provides us with evidence of possible spatial autocorrelation, positive or negative, in observed variables, captured by the spatially lagged dependent variable. The SEM model gives us an indication if the spatial autocorrelation is present in unobserved variables, or in other words, structural determinants of performance variation. If the SAR and SEM regressions indicate that there are statistically significant spatial dynamics, we have a strong argument for using the complete model and testing whether how the interaction in spatial correlation in the observed variable functions after controlling for unobserved effects.

In order to understand the mechanics of the spatial lags we can examine their impacts on SAR and SEM. These two models control for global spatial autocorrelation where neighbours at closer proximity carry more weight (Anselin 2003). Simple manipulation of spatial lag and spatial error models yields the respective following reduced forms

$$y = (I - \rho W)^{-1} X\beta + (I - \rho W)^{-1} u \quad [15]$$

$$y = X\beta + (I - \lambda W)^{-1} u \quad [16]$$

³⁶ For a similar empirical application in the context of computing services see Fingleton, Bernard, Danilo Iglori, and B. Moore. 2005. Clusters Dynamics: New Evidence and Projections for Computing Services in Great Britain. *Journal of Regional Science* 45 (2):283-311.

In equation 15 we see that both explanatory variables and the disturbance are impacted by the same spatial multiplier $(I - \rho W)^{-1}$ in the spatial lag model. However, equation 16 shows that in the spatial error model the spatial multiplier $(I - \lambda W)^{-1}$ only operates in the autocorrelated disturbances.

To spatially associate the cities we construct a so-called Spatial Weight Matrix (W matrix henceforth), which is a square matrix of dimension 4267. The values in W reflect an *ad-hoc* hypothesis of spatial interaction between the cities. The diagonal contains zeros, and the off-diagonal elements reflect the spatial proximity between the cities.

More specifically, we construct a spatial contiguity matrix, $W_{ij} = \frac{1}{d_{ij}^2}$, where d_{ij} is the distance between units i and j . We follow fairly standard practice in assuming that interaction is a diminishing function of distance, with the effect decaying non-linearly as a power function. We raise distance to the power 2 to give an appropriate distance decay. As is standard procedure, W was row-normalized to sum one. Hence, the spatial weight matrix:

$$W_{ij}^* = \frac{1}{d_{ij}^2}$$

$$W_{ij} = \frac{W_{ij}^*}{\sum_j W_{ij}^*}$$

Standardizing helps with interpretation, since the value for area j of the spatial lag, defined as the j 'th cell of Wx , is then the weighted average of the values of the variable x in the areas that are 'neighbors' to j , and so its estimated coefficient can be compared directly to the coefficient for x . Also, using the standardized W matrix usefully identifies a parameter value below 1 as being consistent with a 'non-exploding' process while 1 and above leads to complex and little understood consequences for inference and estimation (the mathematical background to this and implications of spatial unit roots consistent with a parameter equal to 1 are discussed in (Fingleton 1999).

Defining matrix W , we can alter our initial specification to incorporate the interaction between municipalities through spatial models. In matrix notation

$$\ln(\mathbf{y}_t) - \ln(\mathbf{y}_{t-1}) = \alpha - \delta \ln(\mathbf{y}_{t-1}) + \pi \mathbf{P}_{t-1} + \lambda \mathbf{X}_{t-1} + \rho \mathbf{W}[\ln(\mathbf{y}_t) - \ln(\mathbf{y}_{t-1})] + \mathbf{u}$$

$$\mathbf{u} = \lambda \mathbf{W} \boldsymbol{\mu} + \boldsymbol{\varepsilon} \quad (17)$$

Models depicted by equations 17 are initially estimated using the method of maximum likelihood proposed by Anselin (1988). This method requires that u follow a normal distribution. In order to test whether the assumption about normality of residuals is significantly impacting the results we also estimate the spatial error model using the

Generalized Method of Moment estimator developed by Kelejian and Prucha (1999), which does not requires the normality assumption.³⁷

³⁷ All models are estimated using Matlab codes adapted from James Le Sage spatial econometrics toolbox (see www.spatial-econometrics.com).

Appendix 3.D. Detailed Regression Results

Table 3.D.1 - Estimates for per capita income – OLS

| Variable | OLS | |
|--------------------------|-------------|--------|
| | Coefficient | t |
| Const | 2.989 *** | 38.48 |
| ln_emprego_91 | -0.0028 | -1.557 |
| ln_sal_medio_91 | -0.0087 *** | -3.808 |
| ln_pop_pobr_91 | -0.0835 *** | -7.364 |
| ln_pop_91 | 0.056 *** | 4.902 |
| ln_anos_estudo_91 | 0.253 *** | 18.25 |
| ln_area_91 | -0.0061 ** | -2.054 |
| ln_renda_pc_91 | -0.5942 *** | -40.37 |
| ln_emp_Nascimentos_91_96 | 0.053 *** | 13.85 |
| ln_emp_Entr_91_96 | -0.0026 | -0.958 |
| struc_91 | 0.250 *** | 10.88 |
| costeira | -0.0176 * | -1.947 |
| dist_cap_100 | 0.000 *** | 3.529 |
| dist_sp_100 | -0.0001 *** | -8.418 |
| P_G_Educ_94_96 | -0.0603 | -1.619 |
| P_G_Infra_94_96 | 0.075 *** | 2.714 |
| P_G_Saude_94_96 | -0.0932 *** | -3.143 |
| P_Transf_94_96 | -0.1123 *** | -5.663 |
| P_Emprego_Ind_C_91 | -0.1465 *** | -4.749 |
| P_Emprego_Serv_C_91 | -0.0421 | -1.010 |
| ln_murder_91 | -0.0045 | -1.317 |
| rho | | |
| lambda | | |
| Observations | 4267 | |
| R-bar-squared | 50.44% | |
| Log-likelihood | | |

* significant at 10%

** significant at 5%

*** significant at 1%

Other control variables: State dummies

Table 3.D.2 - Estimates for per capita income – SAR

| Variable | SAR - ML | | SAR - GMM | |
|--------------------------|-------------|--------|-------------|--------|
| | Coefficient | t* | Coefficient | t* |
| Const | 2.885 *** | 38.57 | 2.953 *** | 37.29 |
| ln_emprego_91 | -0.0028 | -1.624 | -0.0028 | -1.562 |
| ln_sal_medio_91 | -0.0076 *** | -3.429 | -0.0083 *** | -3.683 |
| ln_pop_pobr_91 | -0.1037 *** | -9.546 | -0.0898 *** | -7.675 |
| ln_pop_91 | 0.075 *** | 6.953 | 0.062 *** | 5.278 |
| ln_anos_estudo_91 | 0.240 *** | 17.89 | 0.249 *** | 17.94 |
| ln_area_91 | -0.0039 | -1.336 | -0.0056 * | -1.891 |
| ln_renda_pc_91 | -0.5901 *** | -41.47 | -0.5930 *** | -40.53 |
| ln_emp_Nascimentos_91_96 | 0.051 *** | 13.94 | 0.052 *** | 13.79 |
| ln_emp_Entr_91_96 | -0.0015 | -0.576 | -0.0023 | -0.836 |
| struc_91 | 0.233 *** | 10.41 | 0.245 *** | 10.69 |
| Costeira | -0.0123 | -1.404 | -0.0162 * | -1.798 |
| dist_cap_100 | 0.000 *** | 2.909 | 0.000 *** | 3.207 |
| dist_sp_100 | -0.0001 *** | -17.08 | -0.0001 *** | -8.090 |
| P_G_Educ_94_96 | -0.0466 | -1.280 | -0.0563 | -1.518 |
| P_G_Infra_94_96 | 0.066 ** | 2.443 | 0.072 *** | 2.638 |
| P_G_Saude_94_96 | -0.0915 *** | -3.167 | -0.0925 *** | -3.142 |
| P_Transf_94_96 | -0.1108 *** | -5.858 | -0.1115 *** | -5.661 |
| P_Emprego_Ind_C_91 | -0.1382 *** | -4.585 | -0.1439 *** | -4.692 |
| P_Emprego_Serv_C_91 | -0.0223 | -0.552 | -0.0365 | -0.878 |
| ln_murder_91 | -0.0034 | -1.036 | -0.0042 | -1.220 |
| Rho | 0.328 *** | 9.500 | 0.105 ** | 1.986 |
| Lambda | | | | |
| Observations | 4267 | | 4267 | |
| R-bar-squared | 48.80% | | 51.12% | |
| log-likelihood | 3,861.1953 | | | |

* significant at 10%

** significant at 5%

*** significant at 1%

Other control variables: State dummies

Table 3.D.3 - Estimates for per capita income – SEM

| Variable | SEM - ML | | SEM - GMM | |
|--------------------------|-------------|--------|-------------|--------|
| | Coefficient | t* | Coefficient | t* |
| Const | 3.245 *** | 41.68 | 3.216 *** | 41.51 |
| ln_emprego_91 | -0.0013 | -0.751 | -0.0014 | -0.821 |
| ln_sal_medio_91 | -0.0071 *** | -3.265 | -0.0073 *** | -3.315 |
| ln_pop_pobr_91 | -0.1091 *** | -8.953 | -0.1065 *** | -8.764 |
| ln_pop_91 | 0.079 *** | 6.588 | 0.077 *** | 6.273 |
| ln_anos_estudo_91 | 0.274 *** | 18.09 | 0.272 *** | 17.98 |
| ln_area_91 | -0.0065 ** | -1.982 | -0.0063 * | -1.926 |
| ln_renda_pc_91 | -0.6575 *** | -45.28 | -0.6504 *** | -44.29 |
| ln_emp_Nascimentos_91_96 | 0.053 *** | 14.03 | 0.053 *** | 13.81 |
| ln_emp_Entr_91_96 | 0.000 | 0.099 | -0.0000 | -0.011 |
| struc_91 | 0.240 *** | 9.878 | 0.241 *** | 9.989 |
| Costeira | -0.0102 | -1.007 | -0.0111 | -1.102 |
| dist_cap_100 | 0.000 ** | 2.566 | 0.000 *** | 2.731 |
| dist_sp_100 | -0.0001 *** | -17.21 | -0.0001 *** | -7.620 |
| P_G_Educ_94_96 | -0.0578 | -1.628 | -0.0581 | -1.624 |
| P_G_Infra_94_96 | 0.061 ** | 2.341 | 0.062 ** | 2.362 |
| P_G_Saude_94_96 | -0.0999 *** | -3.588 | -0.0988 *** | -3.502 |
| P_Transf_94_96 | -0.1008 *** | -5.261 | -0.1022 *** | -5.239 |
| P_Emprego_Ind_C_91 | -0.1631 *** | -4.996 | -0.1614 *** | -4.958 |
| P_Emprego_Serv_C_91 | 0.041 | 0.973 | 0.032 | 0.749 |
| ln_murder_91 | -0.0036 | -1.073 | -0.0037 | -1.088 |
| Rho | | | | |
| Lambda | 0.632 *** | 136.4 | 0.558 *** | 24.90 |
| Observations | 4267 | | 4267 | |
| R-bar-squared | 55.03% | | 54.29% | |
| log-likelihood | 3,953.9224 | | | |

* significant at 10%

** significant at 5%

*** significant at 1%

Other control variables: State dummies

Table 3.D.4 - Estimates for per capita income – SAC

| Variable | SAC - Linear | | SAC - Quadrático | |
|--------------------------|--------------|--------|------------------|--------|
| | Coefficient | t* | Coefficient | t* |
| Const | 3.316 *** | 42.66 | 3.694 *** | 37.25 |
| ln_emprego_91 | -0.0011 | -0.687 | -0.0012 | -0.730 |
| ln_sal_medio_91 | -0.0068 *** | -3.216 | -0.0067 *** | -3.155 |
| ln_pop_pobr_91 | -0.1028 *** | -8.255 | -0.0985 *** | -8.019 |
| ln_pop_91 | 0.074 *** | 6.062 | -0.0092 | -0.553 |
| ln_pop_91_quadrado | | | 0.004 *** | 5.401 |
| ln_anos_estudo_91 | 0.282 *** | 18.29 | 0.278 *** | 18.03 |
| ln_area_91 | -0.0075 ** | -2.256 | -0.0058 * | -1.705 |
| ln_renda_pc_91 | -0.6590 *** | -45.46 | -0.6597 *** | -45.36 |
| ln_emp_Nascimentos_91_96 | 0.052 *** | 13.98 | 0.052 *** | 13.78 |
| ln_emp_Entr_91_96 | 0.000 | 0.156 | -0.0004 | -0.163 |
| struc_91 | 0.236 *** | 9.651 | 0.239 *** | 9.760 |
| Costeira | -0.0092 | -0.882 | -0.0100 | -0.958 |
| dist_cap_100 | 0.000 ** | 2.276 | 0.000 ** | 2.338 |
| dist_sp_100 | -0.0001 *** | -16.32 | -0.0001 *** | -8.019 |
| P_G_Educ_94_96 | -0.0616 * | -1.771 | -0.0537 | -1.545 |
| P_G_Infra_94_96 | 0.059 ** | 2.296 | 0.059 ** | 2.305 |
| P_G_Saude_94_96 | -0.0968 *** | -3.559 | -0.1002 *** | -3.692 |
| P_Transf_94_96 | -0.0971 *** | -5.129 | -0.0983 *** | -5.187 |
| P_Emprego_Ind_C_91 | -0.1665 *** | -5.067 | -0.1471 *** | -4.482 |
| P_Emprego_Serv_C_91 | 0.048 | 1.139 | 0.062 | 1.456 |
| ln_murder_91 | -0.0037 | -1.125 | -0.0095 *** | -2.595 |
| Rho | -0.2776 *** | -7.584 | -0.2869 *** | -7.736 |
| Lambda | 0.797 *** | 234.5 | 0.806 *** | 215.7 |
| Observations | 4267 | | 4267 | |
| R-bar-squared | 56.47% | | 56.64% | |
| log-likelihood | 6,411.9365 | | 6,416.9753 | |

* significant at 10%

** significant at 5%

*** significant at 1%

Other control variables: State dummies

Table 3.D.5 - Estimates for formal employment – OLS

| Variable | OLS | |
|--------------------------|-------------|--------|
| | Coefficient | t |
| Const | -1.0290 *** | -2.809 |
| ln_emprego_91 | -0.4971 *** | -57.61 |
| ln_sal_medio_91 | 0.547 *** | 50.71 |
| ln_pop_pobr_91 | -0.1276 ** | -2.387 |
| ln_pop_91 | 0.324 *** | 5.976 |
| ln_anos_estudo_91 | -0.0010 | -0.016 |
| ln_area_91 | -0.0199 | -1.410 |
| ln_renda_pc_91 | -0.1156 * | -1.665 |
| ln_emp_Nascimentos_91_96 | 0.157 *** | 8.720 |
| ln_emp_Entr_91_96 | 0.042 *** | 3.255 |
| struc_91 | -0.3283 *** | -3.027 |
| costeira | 0.057 | 1.336 |
| dist_cap_100 | -0.0002 * | -1.920 |
| dist_sp_100 | -0.0002 *** | -4.094 |
| P_G_Educ_94_96 | 0.425 ** | 2.420 |
| P_G_Infra_94_96 | 0.171 | 1.315 |
| P_G_Saude_94_96 | 0.084 | 0.602 |
| P_Transf_94_96 | -0.2301 ** | -2.461 |
| P_Emprego_Ind_C_91 | 0.401 *** | 2.761 |
| P_Emprego_Serv_C_91 | 0.164 | 0.837 |
| ln_murder_91 | -0.0128 | -0.780 |
| rho | | |
| lambda | | |
| Observations | 4267 | |
| R-bar-squared | 53.92% | |
| log-likelihood | | |

* significant at 10%

** significant at 5%

*** significant at 1%

Other control variables: State dummies

Table 3.D.6 - Estimates for formal employment – SAR

| Variable | SAR - ML | | SAR - GMM | |
|--------------------------|-------------|--------|-------------|--------|
| | Coefficient | t* | Coefficient | t* |
| Const | -1.0445 *** | -2.904 | -1.0254 *** | -2.797 |
| ln_emprego_91 | -0.4953 *** | -57.95 | -0.4974 *** | -57.30 |
| ln_sal_medio_91 | 0.546 *** | 51.09 | 0.547 *** | 50.60 |
| ln_pop_pobr_91 | -0.1281 *** | -3.505 | -0.1276 ** | -2.385 |
| ln_pop_91 | 0.322 *** | 9.240 | 0.325 *** | 5.980 |
| ln_anos_estudo_91 | 0.001 | 0.015 | -0.0016 | -0.024 |
| ln_area_91 | -0.0216 | -1.540 | -0.0195 | -1.378 |
| ln_renda_pc_91 | -0.1162 * | -1.851 | -0.1154 * | -1.662 |
| ln_emp_Nascimentos_91_96 | 0.158 *** | 8.840 | 0.157 *** | 8.699 |
| ln_emp_Entr_91_96 | 0.043 *** | 3.327 | 0.042 *** | 3.242 |
| struc_91 | -0.3321 *** | -3.087 | -0.3278 *** | -3.021 |
| costeira | 0.050 | 1.178 | 0.058 | 1.365 |
| dist_cap_100 | -0.0002 ** | -2.149 | -0.0002 * | -1.865 |
| dist_sp_100 | -0.0002 *** | -5.914 | -0.0003 *** | -4.107 |
| P_G_Educ_94_96 | 0.420 ** | 2.408 | 0.426 ** | 2.425 |
| P_G_Infra_94_96 | 0.163 | 1.267 | 0.172 | 1.325 |
| P_G_Saude_94_96 | 0.081 | 0.587 | 0.084 | 0.605 |
| P_Transf_94_96 | -0.2223 ** | -2.396 | -0.2317 ** | -2.474 |
| P_Emprego_Ind_C_91 | 0.407 *** | 2.951 | 0.400 *** | 2.750 |
| P_Emprego_Serv_C_91 | 0.168 | 0.863 | 0.164 | 0.834 |
| ln_murder_91 | -0.0109 | -0.675 | -0.0132 | -0.801 |
| rho | 0.097 *** | 6.863 | -0.0193 | -0.384 |
| lambda | | | | |
| Observations | 4267 | | 4267 | |
| R-bar-squared | 53.71% | | 53.88% | |
| log-likelihood | -2,805.6662 | | | |

* significant at 10%

** significant at 5%

*** significant at 1%

Other control variables: State dummies

Table 3.D.7 - Estimates for formal employment – SEM

| Variable | SEM - ML | | SEM - GMM | |
|--------------------------|-------------|--------|-------------|--------|
| | Coefficient | t* | Coefficient | t* |
| Const | -1.0766 *** | -2.942 | -1.0749 *** | -2.908 |
| ln_emprego_91 | -0.5009 *** | -58.25 | -0.5007 *** | -58.16 |
| ln_sal_medio_91 | 0.554 *** | 51.82 | 0.554 *** | 51.63 |
| ln_pop_pobr_91 | -0.1192 *** | -2.913 | -0.1195 ** | -2.142 |
| ln_pop_91 | 0.314 *** | 7.827 | 0.314 *** | 5.548 |
| ln_anos_estudo_91 | -0.0015 | -0.022 | -0.0015 | -0.022 |
| ln_area_91 | -0.0152 | -1.020 | -0.0154 | -1.036 |
| ln_renda_pc_91 | -0.1105 * | -1.710 | -0.1107 | -1.578 |
| ln_emp_Nascimentos_91_96 | 0.158 *** | 8.679 | 0.158 *** | 8.682 |
| ln_emp_Entr_91_96 | 0.041 *** | 3.122 | 0.041 *** | 3.127 |
| struc_91 | -0.3389 *** | -3.017 | -0.3384 *** | -3.014 |
| costeira | 0.054 | 1.201 | 0.054 | 1.203 |
| dist_cap_100 | -0.0002 * | -1.757 | -0.0002 * | -1.750 |
| dist_sp_100 | -0.0003 *** | -5.420 | -0.0003 *** | -3.728 |
| P_G_Educ_94_96 | 0.393 ** | 2.254 | 0.394 ** | 2.260 |
| P_G_Infra_94_96 | 0.135 | 1.048 | 0.136 | 1.059 |
| P_G_Saude_94_96 | 0.117 | 0.848 | 0.115 | 0.837 |
| P_Transf_94_96 | -0.2097 ** | -2.234 | -0.2104 ** | -2.240 |
| P_Emprego_Ind_C_91 | 0.446 *** | 3.053 | 0.444 *** | 2.944 |
| P_Emprego_Serv_C_91 | 0.179 | 0.893 | 0.179 | 0.890 |
| ln_murder_91 | -0.0033 | -0.204 | -0.0037 | -0.226 |
| rho | | | | |
| lambda | 0.278 *** | 33.89 | 0.267 *** | 10.69 |
| Observations | 4267 | | 4267 | |
| R-bar-squared | 54.66% | | 54.66% | |
| log-likelihood | -2,786.1392 | | | |

* significant at 10%

** significant at 5%

*** significant at 1%

Other control variables: State dummies

Table 3.D.8 - Estimates for formal employment – SAC

| Variable | SAC - Linear | | SAC - Quadrático | |
|--------------------------|--------------|--------|------------------|--------|
| | Coefficient | t* | Coefficient | t* |
| Const | -1.0237 *** | -2.775 | 0.773 | 1.148 |
| ln_emprego_91 | -0.4995 *** | -58.39 | -0.4999 *** | -58.38 |
| ln_sal_medio_91 | 0.553 *** | 52.16 | 0.554 *** | 52.05 |
| ln_pop_pobr_91 | -0.1089 ** | -2.475 | -0.0885 | -1.533 |
| ln_pop_91 | 0.304 *** | 6.994 | -0.0979 | -0.699 |
| ln_pop_91_quadrado | | | 0.020 *** | 3.204 |
| ln_anos_estudo_91 | -0.0094 | -0.132 | -0.0313 | -0.435 |
| ln_area_91 | -0.0089 | -0.575 | -0.0012 | -0.078 |
| ln_renda_pc_91 | -0.1057 | -1.609 | -0.1074 | -1.526 |
| ln_emp_Nascimentos_91_96 | 0.156 *** | 8.480 | 0.155 *** | 8.446 |
| ln_emp_Entr_91_96 | 0.037 *** | 2.823 | 0.033 ** | 2.491 |
| struc_91 | -0.3386 *** | -2.941 | -0.3242 *** | -2.828 |
| costeira | 0.063 | 1.331 | 0.059 | 1.254 |
| dist_cap_100 | -0.0001 | -1.266 | -0.0001 | -1.153 |
| dist_sp_100 | -0.0003 *** | -5.312 | -0.0003 *** | -9.165 |
| P_G_Educ_94_96 | 0.370 ** | 2.142 | 0.409 ** | 2.362 |
| P_G_Infra_94_96 | 0.121 | 0.946 | 0.121 | 0.952 |
| P_G_Saude_94_96 | 0.135 | 0.992 | 0.117 | 0.860 |
| P_Transf_94_96 | -0.1973 ** | -2.102 | -0.2034 ** | -2.167 |
| P_Emprego_Ind_C_91 | 0.459 *** | 3.044 | 0.546 *** | 3.470 |
| P_Emprego_Serv_C_91 | 0.201 | 0.988 | 0.256 | 1.254 |
| ln_murder_91 | 0.000 | 0.021 | -0.0274 | -1.457 |
| rho | -0.2289 *** | -9.127 | -0.2268 *** | -12.83 |
| lambda | 0.476 *** | 94.19 | 0.479 *** | 149.4 |
| Observations | 4267 | | 4267 | |
| R-bar-squared | 55.45% | | 55.55% | |
| log-likelihood | -334.9605 | | -330.2104 | |

* significant at 10%

** significant at 5%

*** significant at 1%

Other control variables: State dummies

Table 3.D.9 - Estimates for population below the poverty line – OLS

| Variable | OLS | |
|--------------------------|-------------|--------|
| | Coefficient | t |
| Const | 0.054 | 0.465 |
| ln_emprego_91 | 0.000 | 0.022 |
| ln_sal_medio_91 | 0.010 *** | 2.942 |
| ln_pop_pobr_91 | -0.4124 *** | -24.17 |
| ln_pop_91 | 0.389 *** | 22.47 |
| ln_anos_estudo_91 | -0.1898 *** | -9.091 |
| ln_area_91 | 0.026 *** | 5.895 |
| ln_renda_pc_91 | -0.0391 * | -1.769 |
| ln_emp_Nascimentos_91_96 | -0.0064 | -1.127 |
| ln_emp_Entr_91_96 | -0.0033 | -0.807 |
| struc_91 | -0.6178 *** | -17.85 |
| costeira | 0.120 *** | 8.779 |
| dist_cap_100 | -0.0001 *** | -4.926 |
| dist_sp_100 | 0.000 | 1.468 |
| P_G_Educ_94_96 | 0.191 *** | 3.403 |
| P_G_Infra_94_96 | -0.0668 | -1.608 |
| P_G_Saude_94_96 | 0.087 ** | 1.964 |
| P_Transf_94_96 | -0.0630 ** | -2.113 |
| P_Emprego_Ind_C_91 | 0.388 *** | 8.363 |
| P_Emprego_Serv_C_91 | 0.884 *** | 14.08 |
| ln_murder_91 | 0.036 *** | 7.003 |
| rho | | |
| lambda | | |
| Observations | 4267 | |
| R-bar-squared | 57.74% | |
| log-likelihood | | |

* significant at 10%

** significant at 5%

*** significant at 1%

Other control variables: State dummies

Table 3.D.10 - Estimates for population below the poverty line – SAR

| Variable | SAR - ML | | SAR - GMM | |
|--------------------------|-------------|--------|-------------|--------|
| | Coefficient | t* | Coefficient | t* |
| Const | 0.035 | 0.355 | 0.046 | 0.442 |
| ln_emprego_91 | 0.002 | 0.933 | 0.002 | 0.827 |
| ln_sal_medio_91 | 0.005 * | 1.725 | 0.005 * | 1.846 |
| ln_pop_pobr_91 | -0.3048 *** | -19.41 | -0.3129 *** | -19.11 |
| ln_pop_91 | 0.270 *** | 17.16 | 0.278 *** | 16.55 |
| ln_anos_estudo_91 | -0.1437 *** | -7.679 | -0.1475 *** | -7.753 |
| ln_area_91 | 0.023 *** | 5.789 | 0.024 *** | 6.034 |
| ln_renda_pc_91 | -0.0102 | -0.514 | -0.0112 | -0.558 |
| ln_emp_Nascimentos_91_96 | 0.001 | 0.216 | 0.000 | 0.109 |
| ln_emp_Entr_91_96 | 0.000 | 0.009 | -0.0001 | -0.035 |
| struc_91 | -0.4483 *** | -14.54 | -0.4609 *** | -14.20 |
| costeira | 0.074 *** | 6.029 | 0.078 *** | 6.228 |
| dist_cap_100 | -0.0000 | -0.858 | -0.0000 | -0.895 |
| dist_sp_100 | 0.000 *** | 6.492 | 0.000 *** | 2.698 |
| P_G_Educ_94_96 | 0.124 ** | 2.480 | 0.129 ** | 2.543 |
| P_G_Infra_94_96 | -0.0468 | -1.256 | -0.0495 | -1.317 |
| P_G_Saude_94_96 | 0.072 * | 1.820 | 0.073 * | 1.828 |
| P_Transf_94_96 | -0.0265 | -0.991 | -0.0303 | -1.123 |
| P_Emprego_Ind_C_91 | 0.245 *** | 5.871 | 0.254 *** | 5.956 |
| P_Emprego_Serv_C_91 | 0.682 *** | 12.18 | 0.695 *** | 12.05 |
| ln_murder_91 | 0.026 *** | 5.592 | 0.026 *** | 5.587 |
| rho | 0.691 *** | 30.79 | 0.649 *** | 18.19 |
| lambda | | | | |
| Observations | 4267 | | 4267 | |
| R-bar-squared | 55.48% | | 65.46% | |
| log-likelihood | 2,426.7249 | | | |

* significant at 10%

** significant at 5%

*** significant at 1%

Other control variables: State dummies

Table 3.D.11 - Estimates for population below the poverty line – SEM

| Variable | SEM - ML | | SEM - GMM | |
|--------------------------|-------------|--------|-------------|--------|
| | Coefficient | t* | Coefficient | t* |
| Const | -0.0758 | -0.741 | -0.0872 | -0.778 |
| ln_emprego_91 | 0.001 | 0.702 | 0.001 | 0.607 |
| ln_sal_medio_91 | 0.004 | 1.498 | 0.004 | 1.600 |
| ln_pop_pobr_91 | -0.4312 *** | -24.36 | -0.4274 *** | -23.73 |
| ln_pop_91 | 0.374 *** | 21.00 | 0.373 *** | 20.55 |
| ln_anos_estudo_91 | -0.1796 *** | -8.140 | -0.1807 *** | -8.050 |
| ln_area_91 | 0.037 *** | 7.779 | 0.036 *** | 7.423 |
| ln_renda_pc_91 | 0.011 | 0.550 | 0.008 | 0.392 |
| ln_emp_Nascimentos_91_96 | 0.002 | 0.450 | 0.001 | 0.289 |
| ln_emp_Entr_91_96 | 0.000 | 0.162 | 0.000 | 0.099 |
| struc_91 | -0.4488 *** | -13.07 | -0.4661 *** | -13.15 |
| costeira | 0.094 *** | 6.273 | 0.097 *** | 6.368 |
| dist_cap_100 | -0.0001 *** | -2.684 | -0.0001 *** | -3.066 |
| dist_sp_100 | 0.000 *** | 13.30 | 0.000 *** | 4.851 |
| P_G_Educ_94_96 | 0.149 *** | 3.089 | 0.151 *** | 3.024 |
| P_G_Infra_94_96 | -0.0615 * | -1.713 | -0.0631 * | -1.702 |
| P_G_Saude_94_96 | 0.099 *** | 2.632 | 0.099 ** | 2.532 |
| P_Transf_94_96 | -0.0364 | -1.361 | -0.0378 | -1.375 |
| P_Emprego_Ind_C_91 | 0.353 *** | 7.619 | 0.357 *** | 7.525 |
| P_Emprego_Serv_C_91 | 0.586 *** | 9.846 | 0.614 *** | 9.980 |
| ln_murder_91 | 0.023 *** | 4.980 | 0.024 *** | 4.991 |
| rho | | | | |
| lambda | 0.906 *** | 313.0 | 0.831 *** | 40.65 |
| Observations | 4267 | | 4267 | |
| R-bar-squared | 67.96% | | 66.07% | |
| log-likelihood | 2,504.0327 | | | |

* significant at 10%

** significant at 5%

*** significant at 1%

Other control variables: State dummies

Table 3.D.12 - Estimates for population below the poverty line – SAC

| Variable | SAC - Linear | | SAC - Quadrático | |
|--------------------------|--------------|--------|------------------|--------|
| | Coefficient | t* | Coefficient | t* |
| Const | -0.0688 | -0.677 | -0.4305 *** | -3.783 |
| ln_emprego_91 | 0.001 | 0.699 | 0.001 | 0.727 |
| ln_sal_medio_91 | 0.004 | 1.540 | 0.004 | 1.511 |
| ln_pop_pobr_91 | -0.4207 *** | -23.88 | -0.4234 *** | -24.38 |
| ln_pop_91 | 0.366 *** | 20.75 | 0.447 *** | 23.50 |
| ln_pop_91_quadrado | | | -0.0040 *** | -5.417 |
| ln_anos_estudo_91 | -0.1771 *** | -8.095 | -0.1723 *** | -7.909 |
| ln_area_91 | 0.035 *** | 7.520 | 0.033 *** | 7.116 |
| ln_renda_pc_91 | 0.009 | 0.477 | 0.009 | 0.489 |
| ln_emp_Nascimentos_91_96 | 0.002 | 0.385 | 0.002 | 0.429 |
| ln_emp_Entr_91_96 | 0.000 | 0.116 | 0.001 | 0.336 |
| struc_91 | -0.4549 *** | -13.26 | -0.4583 *** | -13.27 |
| costeira | 0.091 *** | 6.149 | 0.092 *** | 6.217 |
| dist_cap_100 | -0.0001 *** | -2.678 | -0.0001 *** | -2.759 |
| dist_sp_100 | 0.000 *** | 10.39 | 0.000 *** | 5.075 |
| P_G_Educ_94_96 | 0.149 *** | 3.056 | 0.141 *** | 2.895 |
| P_G_Infra_94_96 | -0.0613 * | -1.693 | -0.0615 * | -1.697 |
| P_G_Saude_94_96 | 0.100 *** | 2.636 | 0.104 *** | 2.723 |
| P_Transf_94_96 | -0.0352 | -1.309 | -0.0336 | -1.250 |
| P_Emprego_Ind_C_91 | 0.345 *** | 7.452 | 0.325 *** | 7.087 |
| P_Emprego_Serv_C_91 | 0.601 *** | 10.08 | 0.590 *** | 9.883 |
| ln_murder_91 | 0.023 *** | 5.022 | 0.029 *** | 5.833 |
| rho | 0.18 *** | 5.249 | 0.198 *** | 9.280 |
| lambda | 0.821 *** | 371.9 | 0.81 *** | 226.4 |
| Observations | 4267 | | 4267 | |
| R-bar-squared | 67.56% | | 67.54% | |
| log-likelihood | 4,952.0700 | | 4,954.3368 | |

* significant at 10%

** significant at 5%

*** significant at 1%

Other control variables: State dummies

Chapter 4:

Methodological Considerations for Bridging the Gap in LED Research

The analysis in chapters 2 and 3 provided some general findings for local public policy. In particular they revealed important insights on the limits of local policies. Chapter 3 shed some light on the efficient allocation of resources by municipalities and the impact of higher level federal and state grants. However, these chapters did not contribute to understanding on the actual implementation process of LED programs. Furthermore, a LED program usually comprises a set of institutions, innovative programs and other characteristics that would be very difficult to capture with a general analysis such as the types of exercise conducted in earlier chapters. For this reason we attempt to discuss how it would be possible to analyze the specifics of a LED program in this chapter while noting the shortcomings of case study approaches.

Since we only use census and administrative records for sample selection that are available in several countries we believe that this methodology can be generalized to other developing countries. We believe that the methodology proposed can actually combine a more general analysis using regression techniques with a case study through the selection strategy. To the best of our knowledge this methodology was never implemented. In Chapter 1 we expressed our concern that there is a major gap in the literature where some studies are concentrated in analytical thought based on the theory developed by the New Economic Geography (NEG) and another group of studies are more focused on case studies. This chapter attempts to bridge this gap.

Our case studies are at the same time a pilot to a survey proposed and discussed with a panel of experts. We start the chapter discussing if a survey instrument would allow a detailed analysis of the LED programs that will be complementary to the approach taken in the former chapters. We then move to the methodology itself showing how the methodology can be applied in general and then moving to our specific application. We discuss the main lessons from a pilot with 4 municipalities. Section 6 presents the main findings of the case studied in the pilot and the final section makes some conclusions.

Survey Instrument

Chapter 2 demonstrated that the available data do not allow identifying if a municipality had undertaken a specific LED program or not. The evidence is very limited and quite cotemporaneous. Our attempt with GPC award data also failed since the award classification criteria is by sector (administration, infrastructure, etc.) and not by type of program (clusters, job training, etc.). Also the program is still too young for the data that is actually available (1991 to 2000). If we could identify specific programs we could be able to test if municipalities that implemented a specific program did perform better in one of the performance variable as we did on Chapter 3. In other words, we would need detailed

information on each municipality LED program (if any). The information should be standardized in order to construct a typology and check if any typology performed better in some of the performance variables defined before.

Our first idea was to create a survey instrument that would allow details on public policies implemented by Brazilian municipalities to be identified. The survey would also capture uniform information across municipalities. That is, we sought to accomplish two difficult tasks with the survey: retrieve detailed information on municipal spending, and keep this data uniform to permit comparability. Ideally the information would be reported for prior periods so we would be able to actually test the efficiency of each specific policy. To accomplish this task we organized a March 2005 workshop at Fundação Getulio Vargas, São Paulo with a panel of experts in the field motivated by the typology proposal (see Appendix 4.A).

The Brazilian Census Bureau (IBGE) participated in the workshop as the manager of MUNIC (the IBGE survey used in chapter 2) was one of the key participants in the meeting. Potentially, the IBGE could carry out the survey as a supplement to the MUNIC. The MUNIC information is collected through questionnaires handed out to several municipal secretariats simultaneously. The IBGE distributes the survey through its regional agencies and the rate of response is quite high. Furthermore, the IBGE has the legitimacy to collect this kind of data. In this report we present a pilot of the survey with 4 municipalities that was done without the same kind of support that IBGE has, that may be a handicap, but with graduate students as researchers that may be an advantage.

Almost all the panelists were skeptical about the feasibility of such a comprehensive survey. Some panelists also questioned the feasibility of standardizing LED. Each program may be so specific, the argument goes, that no program can be compared with others. As a matter of fact, there are potentially much more than four thousand combinations of possibilities in the survey. We believed that the municipalities would be clustered in combinations of policies. That is, we would be able to construct a typology that actually divides the municipalities by public policy adopted in a reasonable number of groups. The experts' arguments and our pilot experience made us also skeptical about this kind of survey (although for different reasons). We will come back to this question but let us first describe the typology and the derived survey effort.

In order to construct a typology of LED experiences, we identify some broad types of development strategies. Departing from the general objective (market failure, income distribution or both), we noted that there are some differences within the programs in scope, target, funding and (mainly) in policy instruments (investments, institutional or public management improvement, etc.). Each broad strategy or instrument is further specified. The extensive list of alternatives presented on Appendix 4.A might lead to so many multiple types that it would not improve our knowledge of LED initiatives. However, we believe that there may be some groups of policies that can be potentially clustered together. On the other hand, since there is a hierarchy in the classification proposed, we may adopt a typology that does not go through the most detailed classification.

On Appendix 4.A the hierarchy is defined by the indent of the line. For instance, investments in hard strategic infrastructure is in the first level for direct investments instruments, investment in transport at the second level and investment in inter-municipal roads at the third level. We could test if direct investment in hard strategic infrastructure is more efficient (in some sense) than, let us say, investment in the environment. Actually, if the survey was very successful and there were not so many combinations, we would be able to estimate the optimum investment in each item. The classification presented in Appendix 4.A is intended to provide an ordered framework of LED policies. So, we could compare the performance for municipalities that, for instance, implemented different direct investments instruments (infrastructure, environment, etc.) and, within the group that implemented investment in infrastructure, the specific focus (transport, telecommunication, etc.).

The survey has been designed to capture the hierarchical classification discussed above, including information on the duration and resource allocation for each initiative. The survey gathered data on both the specific public policies that have been implemented in municipalities (reductions in tax rates, donated territory, government specialized services for industrial districts, etc.), as well as the intended objectives of specific initiatives (e.g. employment and income generation, targeted programs at specific regions, sectors of the population and industries). This type of data will permit greater understanding of the extent to which specific programs have achieved their stated goals, a key component of the evaluation of LED. In addition, data on the sources of financing of these projects (loans and grants from multilateral institutions, development banks, higher-level government branches and the private sector), will permit cost-effective assessments of LED policies.

In theory the survey design also permits the gathering of data at the sufficient level of specificity that it is comparable with the information that has been gathered by GPC on innovative municipal public management award programs. With the additional information obtained from the survey, the data obtained by GPC may be utilized directly or weighted to analyze local public policies at the project level. In addition, the pooling of GPC data with survey information on the range of policies implemented in a specific municipality could potentially improve the use of control variables in the econometric analysis.

We piloted the survey in only four municipalities. In our pilot we had some problems both in finding the specific secretariat responsible for the program as well as issues related to legitimacy. We believe that IBGE would not have these kinds of problems we faced. One of the municipalities in the pilot clearly stated that “if you are going to say anything bad about this administration, we prefer you not to visit our municipality at all.” The pilot survey experience also highlighted that considerable simplification would be required if the survey were to be successfully conducted across the entire universe of Brazilian municipalities by IBGE. The piloted municipalities were also subjected to an in deep case study as discussed later in this chapter.

The main difficulty faced by the pilot was collecting historical information. The problem was more dramatic when we attempted to recover information from 1993-1996 to be consistent with the rest of the report. In fact, even collecting data for 2000-2004 was not straightforward. The lack of “institutional memory” had already been diagnosed in state-

level administrations by PNAGE (National Program for the Modernization of Management of State-Level Public Administrations), through the “General Assessment of the State-Level Public Administrations”. This assessment showed that 25% of administrations didn’t even have a department responsible for storing and systematizing the institutional memory. And those who had it, in most cases, only handled administrative acts, such as new municipal laws, the change of the structure of the administration (new Secretariats, changes in nomenclature etc.), and virtually none of them kept the memory of public policies, projects and programs. If this situation is found at the state level, it is certainly much more problematic at the local level. As a matter of fact, we were not able to recall any consistent information from 1993 to 1996. However, we were able to complete the survey for the period 2001-2004 for 3 out of 4 municipalities³⁸. After the March workshop we were also skeptical about the feasibility of such a survey. We may say that the answers obtained in such a short term surprised us. All answers are reproduced in Appendix 4.B.

The relative success of the survey may be connected to the fact that the researchers apply it as a case study meeting with secretariats of the municipality (see Appendix 4.C for a list of interviews). IBGE researchers may not have the time nor the skills to do such analysis for the entire universe of Brazilian municipalities, besides its “natural advantages” (on legitimacy and cadastre) mentioned before. The relative qualification of the successful implementation of the survey is related to the fact that we were not able to recover any information for the period 1993-1996 so we cannot directly connect this chapter with chapter 3. As discussed in the next section, the methodology for selecting these municipalities is based on the municipality performance on the 1990s. The municipalities may had not be chosen if the period of analysis was from 2000 to 2010 when we believe that policies adopted in the period 2001 to 2004 will be paying off.

There is another way to use the survey and the typology proposed in this report, however. The instrument could be considered as a “check list” for any case study focus on public policies at the local level. We still do not know if the experiences can be standardized or not given that we have very few cases. However, if we could make a network of researchers working on local development and connected fields that would apply such a survey in each case study conducted around the world, in a decade we may have a reasonable amount of comparable information about experiences around the world. For instance, we may make a sample of municipalities around the world that have programs directed to the empowerment of women like Recife or Olinda. As discussed below, we also propose standardization on the data collection based on the variables presented on chapters 2 and 3. If we have all these common elements in any case study, the power of the case studies would grow significantly. We believe that the BNPP program that has benefited this report is a good candidate to propose such a network. Of course some upgrades in the instrument would be necessary in order to satisfy other needs. That is, the network would at the same time provides standardized information on case studies and improves the instrument.

The pilot suggests some improvements on the questionnaire. One interesting aspect is that most of the participants in the workshop found question 5 useless. Their intuition was that

³⁸ We were not able to complete the survey for Jaboatão though we have inputted information on the programs undertaken by the municipality using its’ annual reports.

any municipality would answer that the objectives of their programs was to “address both market failures, economic efficiency, poverty and social exclusion”. However, that is not what we observed in the pilot. The municipalities identify the programs with a specific goal but not always the correct one. For instance, Recife separates the “Digital Port”, a “cluster oriented” policy as a market failure program and the remaining programs as poverty and social inclusion oriented (see Appendix 4.B). Although the classification makes sense for the “Digital Port”, micro-credit should have been classified at least as addressing both objectives. That is, the question may be useless not because municipalities will bias the result towards multiple objectives but because they may not be able to classify the program for a lack of comprehension of the difference. This kind of behavior in the answers is systematic what supports our proposal of making a survey that does not focus on goals. Given the answers the researcher would be able to input the objectives.

Question 9 should certainly be modified. The municipalities did not understand the meaning of the “sector” division. In particular, the “Personal Services” industry referred as “Personal” in the questionnaire was not clear. Recife mixed up the sector classification with “Personal Transfers” since it includes in this category all direct transfers to households. Olinda included as “Personal” teachers’ training program. Although it is reasonable to consider education as a Personal Service, this was not what we intended. It should be classified as a “Public Management” program focused on education. Recife classified micro-credit as a sector and Olinda classified the investment in security as in the public sector both at odds with the question goal. Again Olinda’s classification is not incorrect but we have specific questions regarding the improvement of the (local) public management. Given the results we believe once again that this question would be better addressed if we just leave a blank space on the sector to be filled by the municipality and classify it ourselves. Actually, it seems that an opener questionnaire, leaving the classification to the researcher, combined with some closed questions may be more appropriate as an instrument.

We can also notice that the municipalities were able to state the total amount for each program, what is a good sign, but they gave almost no additional information on the breakdowns of the values. The only exception is Jundiaí that informed the resources obtained from the State of São Paulo. However there are some qualitative information about the breakdown. Recife, for instance, informed that some programs were funded by BNB and IADB. It is worth noting that apparently the programs are relatively significant compared to the total spending of the municipality. Total investment in such programs by Recife and Olinda are around 5% of total spending of the municipality. In Jundiaí the investment is around 1.5% of the municipality total spending that is still not negligible. For Jaboatão, however, total investment that we were able to input is around 0.5% of total spending. Since we have inputted data on Jaboatão programs we are not sure if the values are complete. If the imputation is correct, the fact that Jaboatão was selected based on the poor performance³⁹, controlling for other characteristics, may indicate that investment in LED do pay off. However, this statement is very fragile. We are not sure about how many years were accumulated in the investment figures and it is also not totally clear how much comes from the municipality itself.

³⁹ However, it is worth noting that the poor performance of Jaboatão is not confirmed by all regressions.

Significant questions on the implementation of the survey remain. One difficulty is that the unit of analysis is the municipality, but an LED initiative is usually a project and one municipality may have several LED initiatives. This was the case in all municipalities in our pilot. The survey clusters together all initiatives attempting to get a general picture of the programs being undertaken at the municipal level. The questions request information on the number of programs in each category and the total expenditure in order to be subsequently utilized for evaluation purposes. We believed that proceeding in this manner will facilitate getting the type of information needed. However the pilot shows that this is not the case. Based on the pilot, it would be much more efficient asking questions 1 through 3 and then opening a questionnaire for each project.

The questionnaire is very comprehensive and too lengthy. This was also pointed out in the workshop. Excessive detail in the survey could increase both the cost of the survey and reduce the response rate. However the pilot did not give many hints on how to reduce the number of questions without dramatically changing the questionnaire. Although many answers were blank it so happened because the municipality did not have the specific program. Recife claimed that there was no room to explain their transport program. If we had a larger sample, we would be able to check if some programs are very unlikely to happen and pool them together in a general option but this is not the case. However, changing the unit of analysis to the project, as proposed in the previous paragraph, we could simplify the questionnaire *ex post*, i.e. after identifying the type of project we could have a subset of questions applicable to each type of project (that could be answered by different secretaries). Based on the pilot we would propose some room for open questions where the municipality could explain the project in details if needed.

As we said, the participants of the workshop including ourselves were skeptical about the possibility of standardizing LED experiences. However, the pilot did not reinforce that vision. 15 out of 16 programs declared by the municipalities⁴⁰ as undertaken between 2001 and 2004 can be classified in 5 large programs. There is just one program that we are not able to create a typology⁴¹. The typology can be further detailed generating indeed one typology for each program as one can see on Table 4.5. This fact may be interpreted as an impossibility in making such a typology. However, based on our literature review, it seems that the typology proposed based on survey response may apply for many cases. We will postpone the presentation of the typology because we want to first explain how the municipalities were selected and then move to the typology.

One alternative to narrow the survey's focus raised in the workshop was that the survey instrument focus on qualifying expenditures. The data on current municipal budget breakdown does not allow for a detailed analysis of municipal expenditures. For instance, education expenses does not specify how much is invested in wages, training and other expenditures connected to personnel and how much is invested in school construction and

⁴⁰ We are just considering the 4 programs in Jundiaí, 6 programs in Recife and 6 programs in Olinda. Jaboatão programs were not included since they were inputted. Actually, it is very difficult to classify 3 out of 5 programs with the information collected.

⁴¹ "Festival de Economia Popular e Solidária" a program currently running initiated by Recife on 2003.

other “hard” infrastructure investments. Nor is the expenditure data broken down by education level (childcare, primary school, high-school and university). That is, it was suggested that the survey concentrate on collecting a detailed breakdown for major expenditures items. Given our definition of LED as a process of local development with the participation of the public authority, any LED initiative must involve expenditures by the municipality or other government level in the municipality. Instead of asking the municipality to describe development strategies, we would try to obtain the typology from the break down of expenditure data.

Once again the pilot did not reinforce this suggestion. We were relatively successful in recovering the total amount invested by program. However the attempts to breakdown the total amount failed consistently in all municipalities. It will be probably easier attempting to change the 32 years old normative on municipal budget, law 4532 from 1964. If the law changes, the secretary of finance will change the way the data is collected. The main issue regarding this proposal is that most of municipalities are not able to use the current law, subcontracting accountants that work for several municipalities. Introducing a new, more detailed, account system will probably increase municipality costs especially for small towns that should probably be subsidized. So, it is a complex change but, based on the survey, we do believe that it is a better investment than attempting to collect the data with a survey if the change in the law is accompanied by a subsidized modernization program in budgeting for small and medium municipalities funded by higher government levels and international institutions.

A methodology for selecting case studies

One of the novelties in the case study analysis carried over in this chapter is the methodology proposed to select cases. Chapter 3 provided insights on the performance of municipalities by examining initial endowments and municipal investments across broad groups. However, if a municipality performed much better (worse) than it would be expected given its initial endowment and public investment, there might be something right (wrong) with that municipality that is not revealed by the observable data. If we can obtain detailed information on municipal policies we may be able to learn further from a specific experience at the local level. Ideally, the municipalities would reveal the missing information to justify the observed performance.

A case study is a research methodology used when an in-depth analysis is needed. Zonabend *apud* Tellis (1997a) states that case study is done by going deep in one observation, looking for completeness in reconstructing, analyzing and thoroughly understanding the case under study. Following the definitions of Yin (2003), Yin *apud* Tellis (1997a and 1997b), it is possible to identify three specific types of case studies: Exploratory, Descriptive and Explanatory. These three types are similar to broader research methods, which can be fitted into the same typology. This kind of typology is used, e.g., by Malhotra (1999) and by King (1994).

According to Yin (2003), and Tellis(1997a and 1997b) exploratory cases are typically used in earlier stages of a research project in order to get an initial understanding of a subject, raise questions, formulate hypothesis. Descriptive cases can be used when there is a descriptive theory to be tested on the cases. Explanatory cases might be used when there is an interest in causal investigations. Single-case design or multiple-case design can be used. Regarding this classification we can say that our case studies had a multiple purpose. The gathering of further data on LED is in an early stage and the pilot did give us some understanding of the subject; we do have a descriptive theory to be tested – the New Economic Geography (NEG); and we were interested in what has caused some municipalities to perform better (worse) than would be expected by the data we had.

Case studies share the usual threats to validity that research in general suffers: reliability or statistical conclusion validity, internal validity, construct validity and external validity (Cook, 1979 and Shadish, 2002). Experiments and quasi-experiments are usually strong on specific conclusions and on internal validity, while econometric studies are usually strong on statistical conclusion and on external validity. Case studies, however, usually lack statistical conclusion and certainly external validity, mainly for being usually comprised of few studies.

Box 4.1: statistical, internal, external and construct validity

We can identify 4 kinds of validity for a study: statistical conclusion validity, internal validity, construct validity and external validity. Statistical conclusion validity relates to the correct use of techniques and statistics to infer covariance relationships. Internal validity is intended to guarantee that effects observed were caused by the actions analyzed or initiated by the researcher. For internal validity, causal relationship is the key concept. Statistical conclusion and internal validity look inside the study, making sure all covariances and relationships are consistent and correctly inferred. Construct and External validity are about generalization. Construct validity is about whether the operational definition of concepts really captures what was under analysis. External validity questions if findings can be generalized over same population or even across different populations.

Source: Shaddish, Cook and Campbell (2002)

A case study however can help increase internal validity and construct validity. When single-case design is used, both are weakened, and so would be recommended for an initial exploratory stage of a research project. Multiple-case design can be more helpful for both purposes, exploratory multiple-case designs can improve construct validity, descriptive multiple-case design can also improve construct validity and explanatory multiple-case designs can improve both construct and internal validity. Multiple-case design will be a strengthener factor for different kinds of validity for the same reason observed with experimental methodology: replication. If for multiple times the same kind of relationship is observed, alternative explanations will lose force, and then the findings can gain increased reliability. This is also a way for improving external validity.

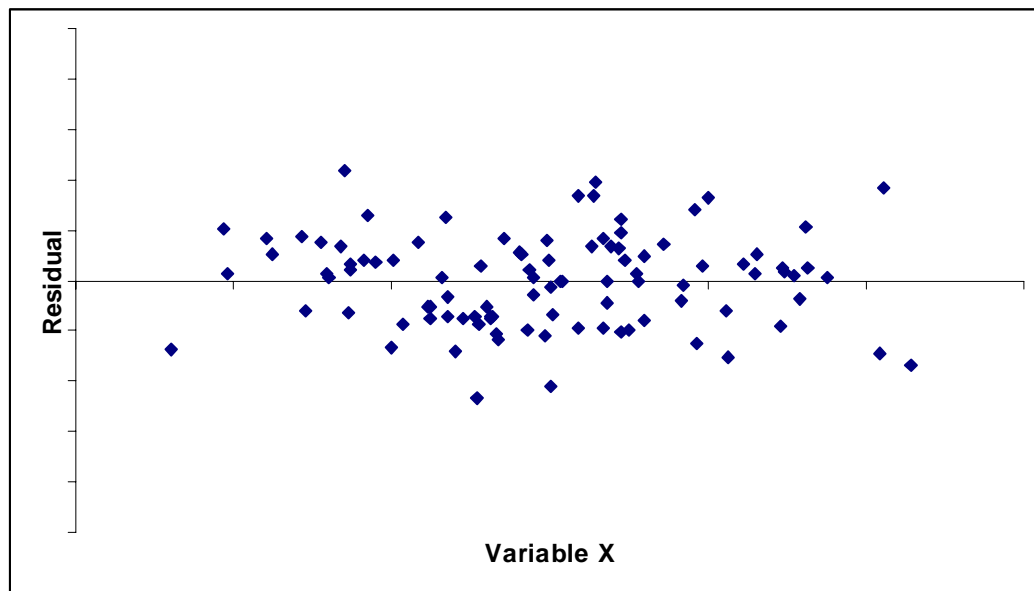
Box 4.2: Case Study and Sampling Research

Case study research is not a sampling research. While most economic and/or econometric studies are based on sampling a population and identifying some properties about the sample, like expectation and/or asymptotic properties, that is not the case for case studies. Case study is about selecting a specific case due to its particular characteristics and analyzing them in depth. That is the reason why selecting a case is so important for this methodology. Selecting cases is a difficult process, but the literature provides guidance in this area. The selection offers the opportunity to maximize what can be learned. While in a sampling research you want to have a good sample size, for example, to infer relationships about the population, in a case study research you try to find a good case where some specific connections can be analyzed. Knowing why a case was selected and its limitations are key aspects for this research methodology.

Sources: Yin (1989a), Stake (1995) and Tellis, 1997a.

From what has been stated so far, one could conclude that the strongest design in terms of validity would be an explanatory multiple-case design. In this design internal and construct validity would be strengthened, and a support for external validity could be started. To cover the other two types of validity, statistical conclusion and external validity, an econometric type of research, for example, should take place. Also, since explanatory case-study design investigates causal relationships, a strong evidence of such should exist beforehand.

Diagram 4.1 – Simulated data of a “well behaved” error



Source: authors' random selection based on a normal distribution

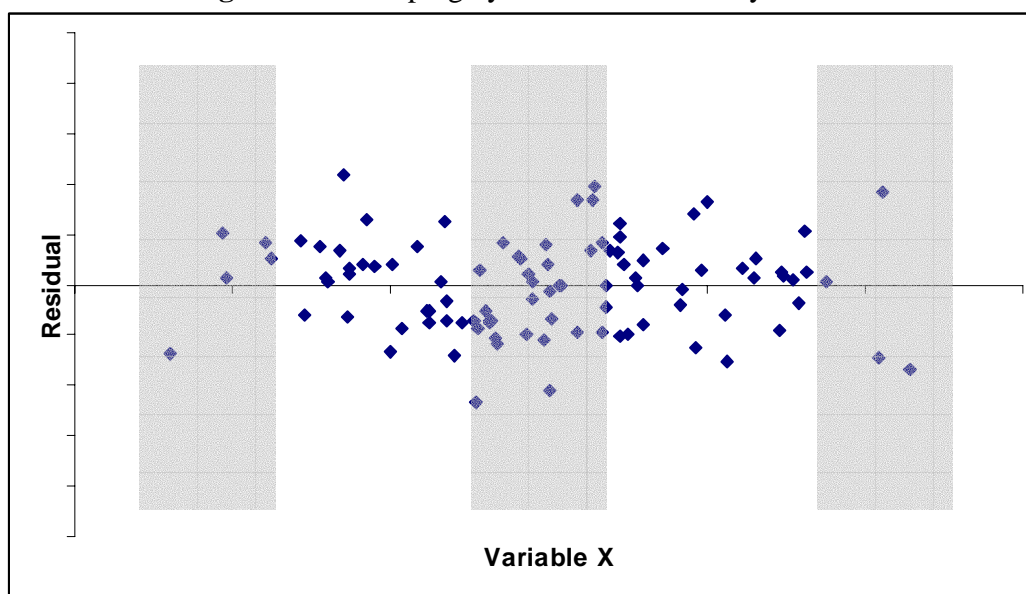
In order to maximize the benefits of both econometric research and explanatory case study design, we suggest a method of research that places an econometric study on a first stage, followed by a multiple-case design with multiples objectives with the selection based on the outcomes of the regression model. The key for this selection method will be the residuals from the regression. If we assume that the errors are “well behaved”, we should expect a residual plot similar to diagram 4.1, against any variable present in the regression:

Box 4.3: The “meaning” of regression residuals

Regression residuals represent how far an actual observation is from the expected value. When a regression analysis is made, the researcher tries to find a mathematical expression that relates the independent variables to the dependent variable, in a way that mostly capture the real value of the dependent one. The error is a measure of the difference of the observed value and the estimated by this mathematical relationship. By analyzing the error term, it is possible to understand what aspects not considered initially may be causing the variable under study to assume a value different from predicted. Therefore, the residual term encompasses other things not considered in the regression.

Choosing a variable of interest, for the research topic (policy variable - X), it is possible to divide the units under study into few groups, according to some criteria. For simplification and explanatory purposes, we will assume that there is just one policy variable having a (expected) positive correlation with the performance⁴². One initial criterion would be selecting the case studies based on the policy ranges. Under this criterion, cases with the highest, lowest or typical levels of the policy variable would be identified. Diagram 4.2 indicates then in a gray area:

Diagram 2 – Grouping by Values of the Policy Variable

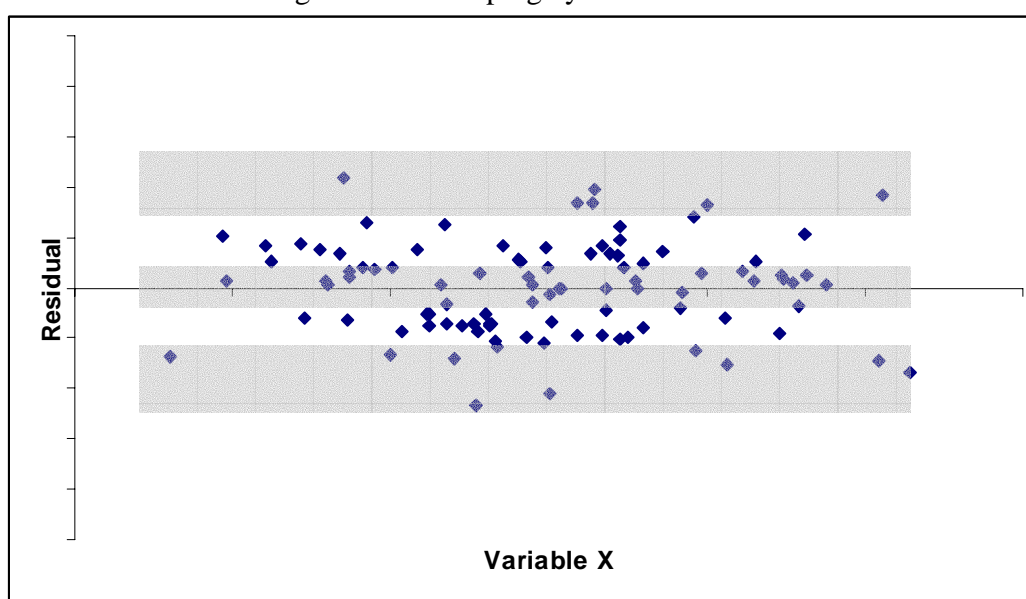


Source: authors' random selection based on a normal distribution

⁴² Of course the analysis would be reversed if the correlation was negative but the rationale remains the same.

The middle group represents the typical case for policy. The left and right groups represent extreme cases. This last grouping alone is a usual criterion in case study selection: looking for extreme cases or outliers⁴³. However it is incomplete. Looking only at points under the gray area we can pick up cases close to the horizontal axis and cases far away. An observed error close to zero means that the relationship among the performance and the policy were pretty close to expected, while extreme values for error means that this relation has some important aspects included in this error term. Taking cases with very high or very low value for policy and error close to 0 would be a bad choice to explain an exceptional high performance value, since it would be already expected. Another criterion would be grouping according to the residual as illustrated in Diagram 4.3.

Diagram 4.3: Grouping by Residuals

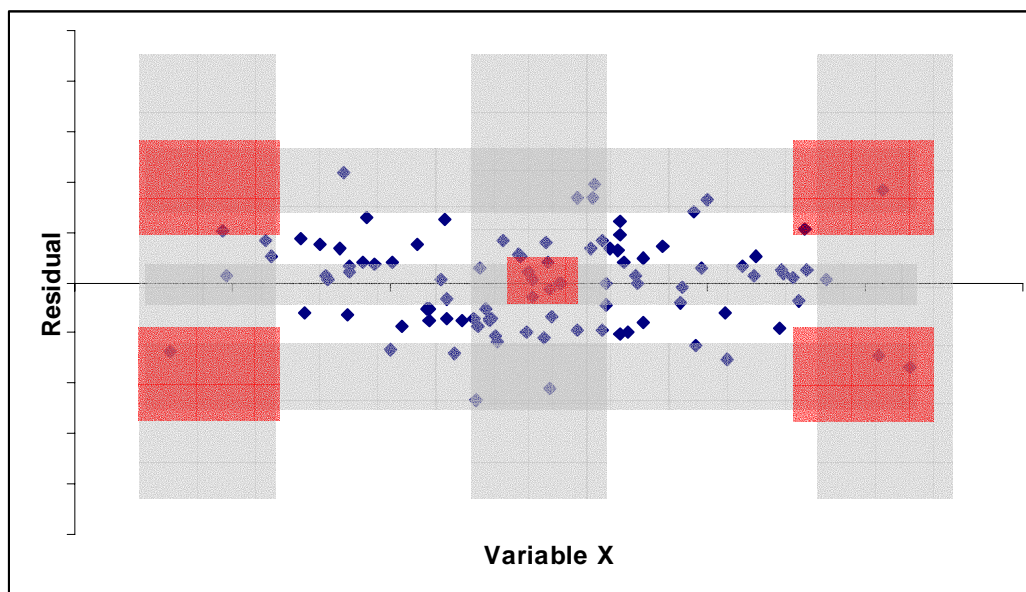


Source: authors' random selection based on a normal distribution

In this criterion the middle group represents cases expected: given initial conditions and the policy variable value the performance was already expected. The top and bottom groups indicate extreme cases: cases that over or under performed given initial conditions and the level of the policy variable. This criterion would be enough if we were just looking for cases that cannot be explained by initial conditions and the policy variable (since the policy variable is also included in the regression). However we are interested in analyzing public policies. Combining the two criteria presented above would enrich the selection of cases. An extreme policy will probably make it easier to isolate the impacts of the policy. Diagram 4.4 shows the 5 groups of interest, with necessary adjustments:

⁴³⁴³ See, inter alia, Markunsen (1996)

Diagram 4.4 – Grouping by Policy and. Residuals



Source: authors' random selection based on a normal distribution

With a few adjustments to include at least one observation in each red group, without sacrificing the initial groupings, we have 5 interesting sets of municipalities⁴⁴. So far we have been very generic about the size of the gray area. Actually, the rule for determining the initial gray areas can be controlled by the researcher according to sample variance and necessity to have a certain number of observations in each group. We will discuss this question in the application bellow. Of course, as in any statistical analysis, if there is not enough variance in the sample, there is not very much to analyze on the data. For our purposes, enough variance means that it is possible to construct some non empty sets representing municipalities with extreme values both in residuals and in public policy⁴⁵. As a rule of thumb we recommend that extreme groups include up to the 20th top and bottom percentiles, at most, or observations that are at least one standard deviation above or bellow the average.

The central group in Diagram 4.4 could be labeled a typical case. Mean value for policy and close to 0 error term, meaning that this group performed very much as expected with a an average policy level. For that reason, this set may be used as a “control group”, although the ideal control group will typically depend upon the research question. The other 4 groups represent units which the performance cannot be explained by observed endowments or policies. Considering only the 4 extreme red groups in Diagram 4.4, i.e. not considering the control group, it is possible to summarize the four groups into the following table:

⁴⁴ There is no problem in having empty sets as discussed in the following application. We adopted the adjustments just in the example.

⁴⁵ We do not want “too much” variance that we cannot construct the median group.

Table 4.1 – Grouping by Policy and. Residuals (extreme values)

| | | Policy Variable | |
|-----------|-------------|-----------------|-------------|
| | | Low Values | High Values |
| Residuals | High Values | 1:HL | 2:HH |
| | Low Values | 3:LL | 4:LH |

Groups 1 and 2 represent municipalities that have over performed (given initial conditions), i.e. the observed value was above the expected. Groups 3 and 4, on the other hand, represent municipalities that, given initial conditions, have under performed. The researcher could then investigate if there are other relevant factors that were not included in the regression analysis that could explain values above or below the expectation. Note that since we are controlling for the other factors, we are selecting cases that do not fit the prediction in relative terms.

Focusing on the “policy” variable, we can see that groups 1 and 4 have a performance disconnected to the policy variable (assuming a positive relationship). Both groups had a high (low) performance with low (high) values for the policy. Group 2 and 3 indicate the pure extreme cases. Situations where the variable value was extreme and the result may be connected to the policy variable. That is to say that groups 2 and 3 may be explained by the policy variable assuming some non linearity in the connection between the performance and the policy.

With these four groups it is possible to see one of the main advantages of this selection method. With this grouping the reason why a specific case is being selected is clear. The selection criterion may furnish a guide for what the researcher should question and look for. Selecting all cases in the same group would not be efficient for analyzing the performance under different circumstances. Not even looking at initial conditions, i.e. analyzing just the average performance, may lead to the selection of municipalities with a performance exactly equal to the expected value (given initial conditions). This is a bad selection if the study was attempting to select outstanding cases.

The methodology proposed furnishes a guide to select cases according to the research question. For instance, if the case study wants to make a deep analysis of over performance that may be connected to the policy variable, all cases could be selected from group 2. Pairwise comparisons are also possible with the map suggested by Table 4.1. By comparing groups 1 to 2 it is possible to identify common factors leading to high residuals connected and not connected to the policy variable (always assuming a positive correlation). By comparing groups 2 to 4 and 1 to 3 it is possible to check why cases with similar level of policy showed opposing level of performance and so on.

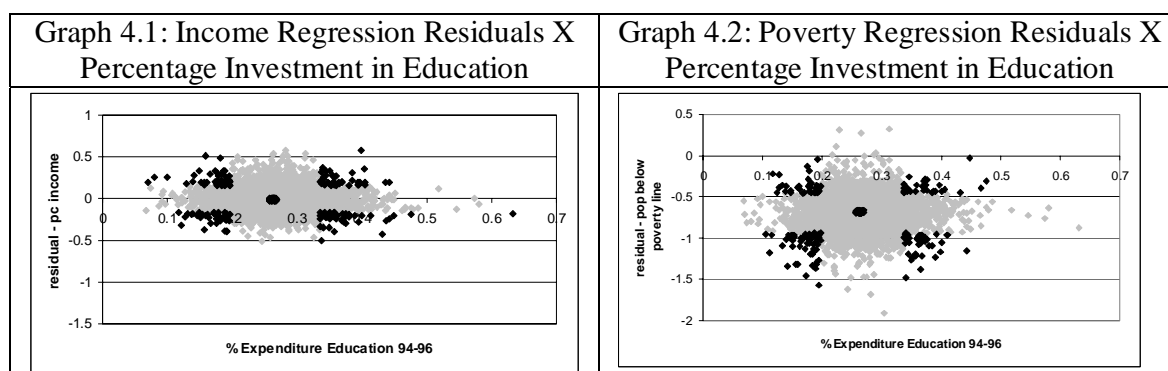
All in all, with this selection method it is possible to integrate an econometric analysis followed by an in-depth case-study with clear research topics, where one can identify either the micro mechanisms of the typical case or the reasons of the deviances. This could also feedback the regression model to improve its predictability e.g. suggesting new independent variables. In other words, we believe that the selection method proposed above

allows integrating the two different approaches to understanding a process: regression analysis and case studies.

Applying the methodology

In the regression analysis carried out on Chapter 3 we tested three policy variables (municipal expenses in education, infrastructure and health) and three performance variables (variation in income, poverty and employment). It is straightforward that the increase in performance measures or policy variables increases the number of groups exponentially⁴⁶. For each pair of policy and performance we will have 5 groups: four “outliers” as illustrated in Table 4.1 and the “average” group. Since we have 9 pairs (3 performances times 3 policies) we may have up to 45 groups including the “control” (average) group. The summary of those groups is presented on Appendix 4.D. In this appendix we name the municipalities in each category.

We considered a variable to be high (low) if its value was in the top (bottom) 10% group among all observations. That is, by construction we will have around 42 municipalities in each group. If you want to cover all groups, this method is not very useful. Potentially half of the municipalities in the sample ($45 \times 42 = 1890$) could be in one group. If you have a question that is specific for one group, the method is much more useful. For instance, if you are interested in analyzing education policies impact on income you would be interested in the municipalities listed on Table D.1 and you can find your control group on Table D.4. The graphs bellow shows the relation between residuals and policy variables using the more complete set of regressions⁴⁷ for education.



Source: Tabulated by CEPESP based on data from IBGE and RAIS.

The variance in the poverty regression is much higher than the variance in the income regression. For income change the residual range is around 1 unit while in poverty change it is around 2 units. Observing the average group in the income regression, we can note that there is more variance in the top group than in the bottom group. The opposite happens in the population below poverty regression. Since the performance desired direction is the

⁴⁶ Formally, if we have n performance and m policy variables, the number of groups would be $5(n+m)$.

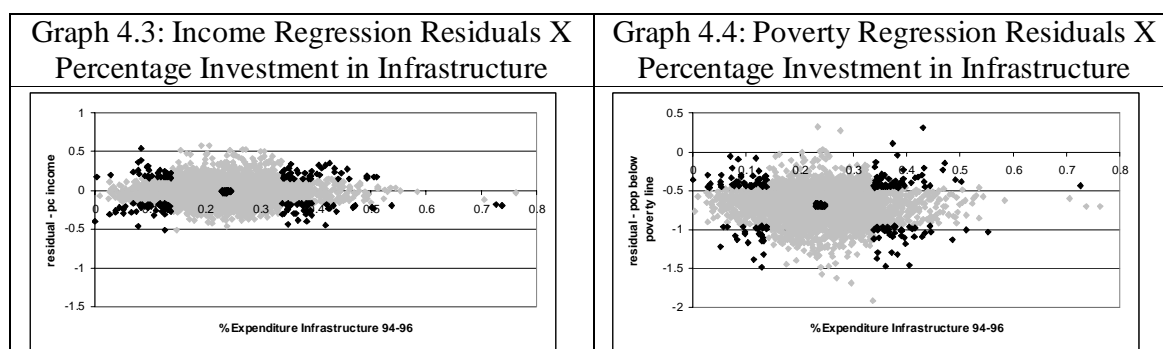
⁴⁷ We use SAC regressions estimated by GMM.

opposite in each variable, we can say that the regression analysis explain better lower than higher performances.

Groups coherent with Table 4.1 and the median group are highlighted in black. Notice that there are some municipalities that spent a very large proportion in education but performed as expected: all municipalities that are between the two extreme groups to the right of the average group. The municipalities that are highlighted in black in the upper portion of the graphs over performed given initial endowments and the proportion of education spending. If you select municipalities from the two top groups and find similarities in the (detailed) education policy it may even reinforce the effectiveness of the discretionary expenditure policy.

Another important point of concern is the average group that we claimed before to represent the “control group”. Actually, there might be other control groups depending upon the research question. For instance, if the focus is on municipalities that concentrate its effort on education the control group may be the municipalities in the last percentile of education expenditure but with average residuals. This group is not highlighted on the graphs above. Actually, we have considered just one average group out of 5 possibilities. If we keep the notation of Table 4.1 and use A to denominate average groups, the potential groups of interest (specially for control) might include: AL, AH, LA and HA. In the graphs above we are just considering the AA group. Depending upon the research question even an extreme group may be the best control for another extreme group.

All consideration in the last paragraph can be absorbed by the proposed methodology. What makes the methodology strong in our opinion is that it allows a “marginal” analysis of the problem or what economists call a comparative static analysis. For instance, I can fix the proportion in education investment and analyze the performance or vice versa (fix the performance and analyze the investment in education). This is exactly the same idea of the regression analysis. So, this methodology of case selection is totally consistent with the regression approach proposed in the previous chapter. The graphs bellow show the behavior of the groups for another policy variable – investment in infrastructure.



Source: Author's Tabulation based on data from IBGE and RAIS.

The proportion of investment in infrastructure is much more spread out than the proportion invested in education. This is expected since some municipalities may be undergoing a major infrastructure change that bit up most of the municipality resources. On the other

hand the municipality cannot invest anything in education nor is it possible to allocate an outstanding amount on this item. It is interesting to notice that not all of the 4 extreme outliers in infrastructure investment (with more than 70% expended in this item) are outliers in performance. Two of them under performed in income and just one of them under performed in poverty reduction⁴⁸. This observation illustrates the power of the method. If we select those four municipalities, all of them canalizing most of its resource to infrastructure, we would have one that under performed both in income as in poverty reduction; one that underperformed just income; one that underperformed just in poverty reduction; and one that had an average performance in both variables.

The analysis in the previous paragraph suggests two ways of narrowing the sample. First we could concentrate just on the very extreme cases. In other words, we could restrict the sample including, for instance, just the 1% top and bottom municipalities what would give us 8 selected municipalities. Another interesting way to narrowing the sample is mixing the performance or the policy variables. If we want to select, for instance, just the municipalities that over performed both in income as in poverty reduction, we would face a much smaller group.

The tables in Appendix 4.D denominate the municipalities contained in each extreme group and the “average-average” group. They are all pairwise, i.e. they analyze one performance measure and one policy variable. However, it is indicated in parenthesis if the municipality pertains to another extreme or average group (the diagram in the beginning of the appendix gives a map of the groups). The appendix furnishes information for applying the methodology for selecting municipalities in Brazil to undertake a case study addressing many different questions. Once the researcher defines the research question, he or she can just pick up the interest groups (the “experiment” and the “control” group). The list of the municipalities are in one of the quadrants of the tables. If the researcher wants to pick up groups that combine performances or policies, it is possible to construct the sample with the information furnished in the tables although it requires a more careful analysis. Table 4.2 lists all municipalities in extreme groups both in income as in poverty reduction.

Table 4.2: Extreme Groups for Income and Poverty Residuals Combined and Percentage of Investment in Public Education

| Policy Residuals | | Education | |
|------------------------------------|------|--|---|
| | | LOW | HIGH |
| Income and Poverty Residuals | HIGH | Bom Repouso(MG) (I9 I11 A2 A9 A11 I2) | Santana de Parnaíba(SP)(C2 C9 C12 G2 G9 G11G12), Oiapoque(AP)(B9 B12 C2 C12 G9 G11 G12). |
| | LOW | Rio Sono(TO) (A1 A3 A10 H1 H3 H10) | Chaves(PA)(B1 B10 B12 G1 G3 G10 G12). |

Source: Author's Tabulation based on data from IBGE and RAIS.

It is clear that if we combine both performance criteria, our sample drastically reduces. Just five municipalities can be classified as extreme in both criteria at the same time. Still we have to be careful with the combined classification. Santana do Parnaíba over performed in

⁴⁸ That is the reduction was bellow what was expected.

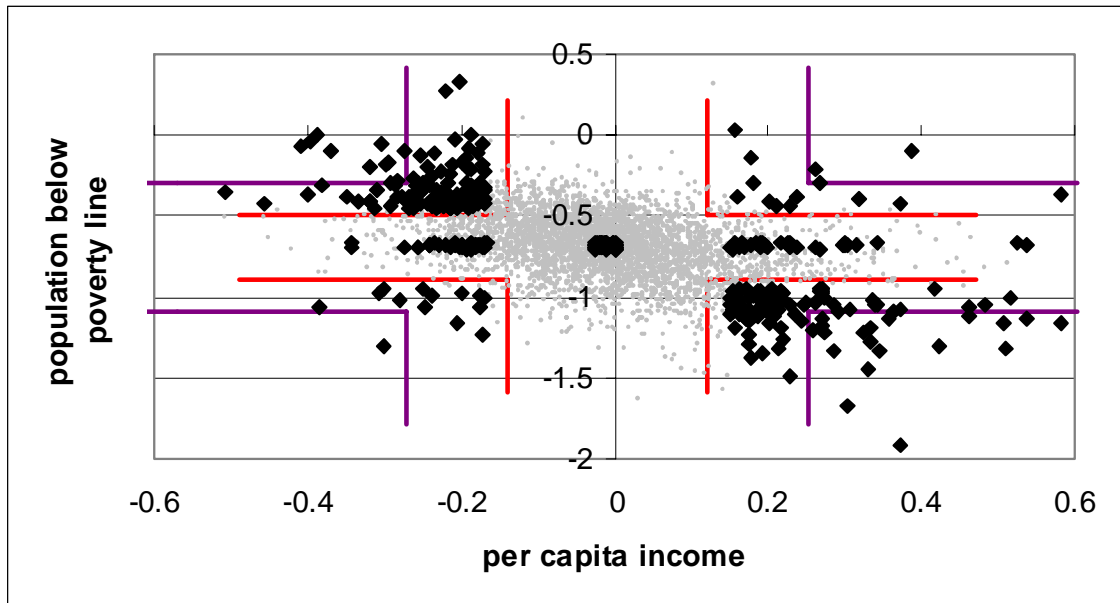
income and poverty but we would like to reduce poverty, not increase it. It is also interesting to emphasize that the municipalities that were in both extreme groups were in very many extreme groups as showed in parenthesis. All 5 municipalities above were in 6 or 7 extreme groups. The coincidence is expected since by definition they have to be at least in two groups.

Although the methodology proposed with many variables makes it more complex to select the cases it narrows significantly the universe of analysis. It also put names on the general findings of a regression analysis. For instance, it is interesting to notice that the municipalities in the ABC region, that usually perform very well on the GPC and were subject to very many studies in LED, under performed both in income as in poverty reduction during the 1990's. It would be interesting to study cases such as Santana do Parnaíba that under performed in Poverty reduction with a high investment in education or Palmas that also under performed in Poverty reduction but with a low investment in Health given that both municipalities over performed in employment.

All this information is recoverable from the tables in Appendix 4.D. We believe that this appendix will be very useful for researches interested in selecting municipalities based on their performance on income, poverty, employment and/or their expenditure pattern in education, health, infrastructure in the 1990s. We recognize that combining the groups is not so easy in the table. Ideally we would make a web software that would give the group needed for the researcher needs based on our methodology. We could even allow the user to choose which variables to be included in the regression and the software would return the municipalities for each group or any group combination. This is a project that we may pursue in the future.

Another alternative to the research question in this report would be focusing just on the performance variables for income and poverty. Since employment is a mean and not an end, we could get rid of it. In this case we would be back to our first (simplified) example and we would have just four extreme cases. Graph 4.5 shows this distribution that could be a good departure point for further investigation. In the graph we included all the questions raised for the pairwise comparison, i.e. we discuss all "average" groups, combined criteria and narrowing the sample by increasing the significance.

Graph 4.5: Income Regression Residuals X Poverty Regression Residuals



Source: Tabulated by CEPESP based on data from IBGE and RAIS.

The first important thing to notice in the performance by performance graph is that there are more municipalities in the HL or LH category than in the LL and HH category. This is interesting since the “mixed” group will represent municipalities that increased income and reduced poverty and vice versa. That is, those are the cases where there is no trade off between growth and equity. Income increase and poverty reduction are walking together. The lines in red and violet represent the cutoff point if, instead of using percentiles, we would use standard deviations as our threshold. The red line cuts off municipalities that are below the average plus or minus one standard deviation while the violet line cuts off municipalities that are below the average plus or minus two standard deviations.

If we adopt the 2 standard deviation cutoff, we would have just one municipality in the LL case and 2 or 3 municipalities in the HH case. That is, Santana do Parnaíba case is much more an exception than a rule. The mixed cases are also reduced for around 12 cases in the HL case and around 20 cases in the LH case. The two mixed cases are potentially very interesting cases. The HL represent the municipality that increased the population below poverty line and decreased the income much more than expected and the opposite will happen to the LH group. That is, if we consider that income and equity are the main variables that any policy should address, the municipalities in these groups will represent the municipalities that did the worst and the best in the decade controlling for initial endowments and expenditure composition in the beginning of the decade.

One important comment is that we do not believe that we could keep refining the sample asking for more significance (let us say, define the cutoff at 3 standard deviations). Proceeding in this way would mean not considering the Type II error. The municipalities may be in the extreme group by accident. Or, in other words, one cannot say that the very extreme are really different from the extreme. Our suggestion would be taking the whole

group with 30 municipalities or so, check what kind of municipalities we are talking about, eliminate some cases that may not make sense and select the case studies randomly from the remaining sample⁴⁹.

Selection

Our selection did use the methodology but with a lot of discretion. First we considered just the municipalities awarded⁵⁰ by GPC at least once as candidates for further investigation. This further selection was done to help increase the amount of easily available information about the municipality. If you are more concerned about over performance, the decision to concentrate on municipalities that were awarded is not a problem. Every group that has overperformed has at least one municipality awarded by the GPC. In most of the groups there are at least one municipality within the 20 finalists. Even in the cases of low performance we have more than 10 municipalities that were within the 100 finalists of GPC at least once. There are however 9 groups with low performance with no municipality awarded. This result was expected since GPC attempts to select the best practices in public management. We sent the survey to several municipalities, but only followed up with interviews and site visits in four of those. We did not receive any answer from the municipalities that we did not follow up.

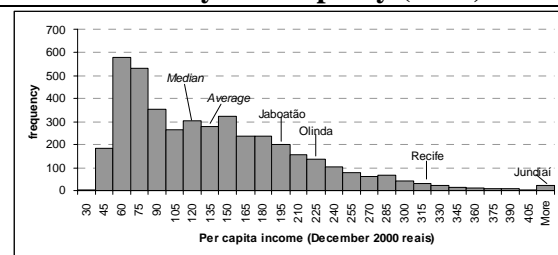
Given our restrictions in time and other resources, we have proposed to study four cases. If we were in the simple case illustrated above (one policy and one performance variable), we could just pick one municipality in each “extreme” case since there would be just four extreme cases. In our case the decision of which cases to pick up was very much pragmatic. The 4 municipalities selected for follow-up were Jundiaí (São Paulo), Recife (Pernambuco), Olinda (Pernambuco) and Jaboatão dos Guararapes (Pernambuco). We concentrate first on municipalities that gave us some feedback. Second we took profit from the opportunity of three cases in neighborhood areas: Recife, Olinda and Jaboatão.

In all these cases, initial endowment variables were not able to explain at least one performance variable. Furthermore, they have allocated a (relative) high or low amount in one of the major policy measures (education, health or infrastructure). Jundiaí, over-performed in income per capita and allocated substantial resources in health. Also, the city is in an interesting geographical position, between the main economic centers of São Paulo State, namely, São Paulo and Campinas Metropolitan Areas. Recife allocated relatively low levels of resources both in education and in health, but over-performed both in income per capita and in poverty reduction. Jaboatão dos Guararapes has also allocated lower levels of resources in education and it has under-performed in employment growth. Olinda has also allocated lower resources in education and infrastructure, but over-performed in poverty reduction.

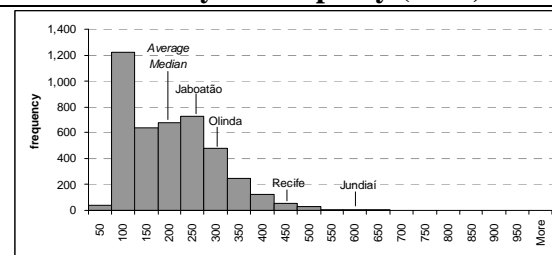
⁴⁹ We could test actually test if this proposal is more efficient than increasing the significance using Monte Carlo simulation.

⁵⁰ That is, municipalities that were classified at least within the 100 finalists.

Graph 4.6: Spatial Income distribution in Brazil by municipality (1991)



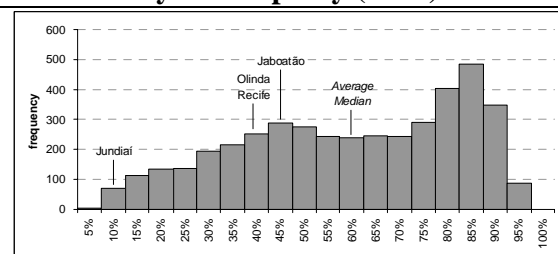
Graph 4.7: Spatial Income distribution in Brazil by municipality (2000)



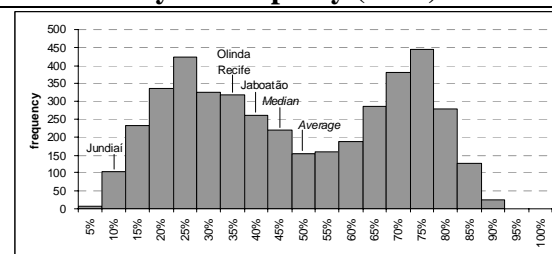
Source: IBGE demographic census (1991 and 2000).

The graphs above show the spatial distribution of income in Brazil by municipality for 1991 and for 2000. The 4 selected cases are located in the figure. During the decade their position has not changed at all. Jundiá is in the very end of the distribution among the 5% richest municipalities in Brazil. Recife is the second in income but still very far from the median. Jabotão is closer to the median although it is still richer. It would be in the median or below if we have controlled for city size. Olinda is just in between Jabotão and Recife. We can say that our pilot municipalities covered a large income range of the above median income municipalities in the country. As we discussed in Chapter 2, it is very unlikely that below median income municipalities would be undertaking any program.

Graph 4.8: % of Population Bellow Poverty Line (R\$75.50/month) in Brazil by municipality (1991)



Graph 4.9: % of Population Bellow Poverty Line (R\$75.50/month) in Brazil by municipality (2000)

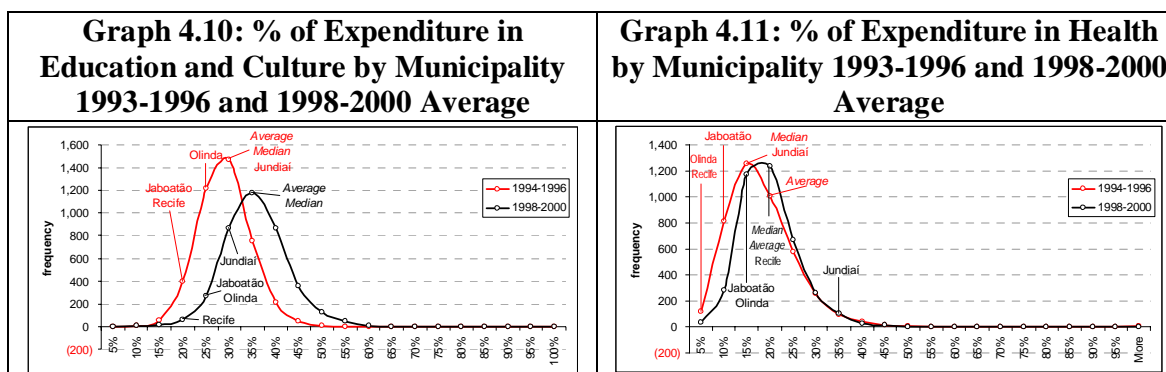


Source: IBGE demographic census (1991 and 2000).

Again for poverty measures (in this case the percentage of population below poverty line) the four selected municipalities are all in better position in the distribution if we compare them with the rest of the country. For poverty the same rule applies as for income (with the opposite direction): municipalities that could actually undertake a program in local economic development are all below median. In this case, however, we do not have a good coverage of the distribution. Olinda is in the same range of Recife and very close to Jabotão while Jundiá is in the very beginning of the distribution. There are a lot of ranges between Jundiá and Recife that are not covered by our selection.

It is interesting to notice that the distribution of population below poverty has changed in Brazil in the decade. In 1991, the distribution looks much more like an (inverted) log normal distribution while in 2000 it seems more like a double normal. This shape is consistent with some findings in the literature reviewed in Chapter 1 showing that in the

decade we can see two “clubs” of convergence. As is well know Brazil has two different countries in terms of well being inside it. If the double normal hypothesis is correct we would have the first distribution bellow the median and other after. If we assume that all municipalities falling in the second distribution cannot undertake a LED program, it is even more clear as our selected municipalities are not well distributed in terms of the proportion of population bellow poverty line. Jundiaí is in the very beginning of the distribution and all other municipalities are above the “median” of the first distribution.



Source: STN

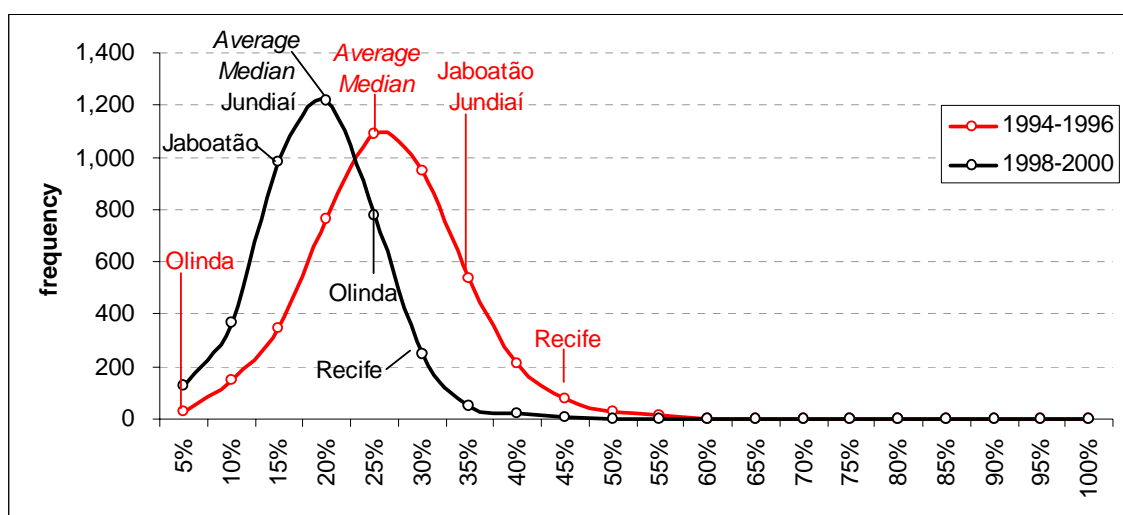
In terms of the distribution of expenditure the behavior of the municipalities vary a lot in the period and there is not a clear pattern as we observed for the structural variables. The distribution of expenditure in education and culture has moved considerably in the decade from a 30% average to more than 35%. However, Recife, Jundiaí and Olinda did not increase the percentage of expenditure on these items. So, those municipalities move to the left inside the distribution, that is, they are spending relatively (to the rest of the country) less. Again it is reasonable that small municipalities spend most of their resources on education (mostly in kindergarten and primary school). Large municipalities can spend in many different items. However, the proportion is really low, even bellow constitutional⁵¹ law for all municipalities but Jundiaí. Jaboatão increased the proportion of expenditure in the decade managing to stay pretty much in the same position in the distribution. Recife proportion of expenditure in education from 1998 to 2000 is surprisingly low and this is one of the reasons that it was selected.

As for education, the distribution of expenditure in health has moved to the right in the decade showing that the constitutional law did effectively increase the proportion of expenditure in both education and health. All selected municipalities increased the proportion of expenditure in health even in relative terms during the period. Recife and Olinda started with a very low proportion (around 5%) and increased to around 20% and 15% respectively. Jaboatão also increased from 10% to 15%. The movement is probably connected with adapting to the constitutional law. However, for Jundiaí we can observe a more dramatic dynamics. Jundiaí was spending in health from 1993 to 1996 around 15% of its total expenses. From 1998 to 2000 the city has spent around 35% of its total expenses in health. This is one of the reasons why we selected Jundiaí. As discussed bellow this is not a

⁵¹ The municipalities probably complied with the law because there are many details in the accounting system that we may not have taken into consideration.

strategy of the city. The increase in health expenditure is probably connected to the fact that the municipality has to service all neighborhood municipalities with an incomplete hospital system that free ride on Jundiaí very complete system.

Graph 4.12: % of Expenditure in Infrastructure by Municipality 1993-1996 and 1998-2000 Average



Source: STN

As expected large municipalities especially capital cities expend much more in infrastructure than the others. This is the reason why Recife is in the very end of the distribution of expenditure in infrastructure. It was not expected that Jaboatão and Jundiaí would expend so much in the 1994-1996 period as they actually did. Again, when we analyze the distribution of expenditure in infrastructure we can notice again the effect of the constitutional constraints on sub-national expenditures. The distribution has moved to the left. Since the main goal of the constitutional constraint was actually transferring expenditures from infrastructure to education and health we may say that the law was successful. We are not so sure if this is desirable from the efficiency or equity point of view. Anyway, it is still a challenge to large capital cities like Recife how to manage the demand for infrastructure investment and save resources for education and health. The expenditures in infrastructure bit up almost half of Recife's total expenditure.

Pilot Survey: What did we Learn?

Based on the information given by the municipalities we can quantify and classify each program that was active during the previous administration (2001 to 2004). We will not consider Jaboatão because we could not get the data directly from the survey although we were able to find five programs in the city's annual reports as described bellow. Jundiaí had 4 on going programs in 2005. Two of them have initiated on 2000 and the other two on 2002. The total amount invested was around 2 millions of reais representing a 1.44% of total spending of the municipality.

Table 4.2: Programs Active in Jundiaí (2001-2004)

| Program | Start | End | Value (R\$) | Value per year * | % Spending |
|------------------------------|-------|----------|---------------------|-------------------|--------------|
| People of Sao Paulo's Bank | 2000 | On going | 500,000.00 | 100,000.00 | 0.26% |
| PAT - Worker Feeding Program | 2000 | On going | 520,000.00 | 104,000.00 | 0.27% |
| Firm Incubator | 2002 | On going | 897,000.00 | 299,000.00 | 0.79% |
| Fruits Circuit | 2002 | On going | 130,000.00 | 43,333.33 | 0.11% |
| Total | | | 2,047,000.00 | 546,333.33 | 1.44% |

** To calculate the value per year we assume that the amount informed corresponded to the entire period.*

Source: Cepsesp - Pilot Survey on LED in Brazil.

Recife declared seven programs but gave details just on six programs. The proportion of Recife spending on LED programs was the double of Jundiaí's. Considering that Recife is also the largest municipality in our sample, the amount invested by Recife is considerable, around R\$ 26 millions per year. The largest program is a direct household transfer program, "Bolsa Escola Municipal" a program where the transfer is conditional on school attending by the children in the family. This is a long on going program at Recife (since 1997) and it survived different administrations. The city of Recife spends around R\$ 12 million per year on this program. Recife spend proportionally more than Jundiaí on LED programs. Furthermore Jundiaí is more focus on fostering growth while Recife is more concentrated on reducing poverty.

Table 4.3: Programs Active in Recife (2001-2004)

| Program | Start | End | Value (R\$) | Value per year * | % Spend |
|---|-------|----------|-----------------------|----------------------|--------------|
| Housing Aid | 2001 | on going | 25,291,800.00 | 6,322,950.00 | 0.74% |
| Festival of Popular and Solidary Economy | 2003 | on going | 300,000.00 | 150,000.00 | 0.02% |
| Transfer conditional on school attendance | 1997 | on going | 99,155,040.00 | 12,394,380.00 | 1.45% |
| Micro credit | 2002 | on going | 10,269,000.00 | 3,423,000.00 | 0.40% |
| Digital Port | 2004 | on going | 1,800,000.00 | 1,800,000.00 | 0.21% |
| Direct transfer (Federal) | 2003 | on going | 3,840,000.00 | 1,920,000.00 | 0.22% |
| Total | | | 140,655,840.00 | 26,010,330.00 | 3.04% |

** To calculate the value per year we assume that the amount informed corresponded to the entire period.*

Source: Cepsesp - Pilot Survey on LED in Brazil.

According to our pilot Olinda is the municipality with the largest proportion of investment in LED programs. It spends more than 5% of its total spending on those special programs. It is interesting to note that most of Olinda's programs are oriented toward reducing poverty. We will not present a summary the table for Jaboatão since it was totally imputed by ourselves based on annual reports. However, if the information presented in Appendix 4.B is correct, the proportion of Jaboatão investment is less than half the proportion invested by Jundiaí that was already much richer on 1991. Jaboatão was selected given its underperformance in income.

Table 4.4: Programs Active in Olinda (2001-2004)

| Program | Start | End | Value (R\$) | Value per year * | % Spending |
|----------------------------------|--------|----------|---------------------|---------------------|--------------|
| Housing Aid | jul/03 | dez/04 | 1,400,000.00 | 933,333.33 | 1.64% |
| Municipal Police – Restructuring | 2001 | on going | 452,000.00 | 113,000.00 | 0.20% |
| Housing Project | 2003 | on going | 1,500,000.00 | 750,000.00 | 1.32% |
| Olinda Young Guides Training | 2001 | on going | 200,000.00 | 50,000.00 | 0.09% |
| Education Investment | 2001 | 2004 | 2,526,559.00 | 631,639.75 | 1.11% |
| Teachers Training | 2001 | 2004 | 2,744,734.00 | 686,183.50 | 1.20% |
| Total | | | 8,823,293.00 | 3,164,156.58 | 5.55% |

** To calculate the value per year we assume that the amount informed corresponded to the entire period.*

Source: Cepesp - Pilot Survey on LED in Brazil.

Although the number of observations does not allow us to make any general comment we could tell a nice story about our cases. Jundiaí concentrated its efforts in addressing market failure problems such as credit constraints, coordination, etc. The only exception is the feeding program (PAT). Jundiaí was chosen because of its over performance in income variation. Recife spread its investment both in programs addressing market failures problems and programs addressing inequality problems, although the investment in market failure programs received a smaller share of the investment. Recife over performed in both income and poverty variation. Olinda invested mainly on poverty reduction and over performed exactly on this category. It may be a coincidence given the sample size but it worked for every case selected. Jaboatão do not deny the statement that municipalities that are doing LED programs are performing better in the LED focus. Even if we assume that Jaboatão did not furnish enough information because the programs were not very clear for the municipality itself again the positive impact of a well defined LED programs would be confirmed in our sample. This is not obvious as it may appear for LED enthusiasts. To the best of our knowledge there is no robust evidence that LED programs (even in a broad sense) were actually able to affect the trend of a municipality in Brazil.

The result however, given the size of the sample, could be a coincidence. As discussed above, case studies are not able to make any generalization. Also, we could find more similarities than disparities among the programs surveyed. Keeping apart Jaboatão, that is not very easy to classify, it is possible to classify 15 out of 16 programs depicted by the other three municipalities. Table 4.5 shows a typology based on the programs identified on our case studies. The only program we were not able to classify was the “Festival of Popular and Solidarity Economy”. The typology proposed start at the program more focused on addressing market failure and move to programs more concentrated in income distribution and poverty alleviation. This may be a starting point to improve the survey as proposed in the first section of this chapter and also on defining a useful typology.

Table 4.5: A Typology Based on Case Studies

| Type | Group | Example |
|-------------------|---------------------------------|---|
| Industrial Policy | Clusters | Jundiaí (Fruit circuit), Recife (Digital port) |
| | SMEs | Jundiaí (firm incubator) |
| | Micro-credit | Jundiaí, Recife |
| Public Management | Sectorial | Olinda (security) |
| | General | None |
| Housing | Credit | Recife (Housing Aid), Olinda ("Morar bem") |
| | Project | Olinda (Housing Project) |
| Education | Technical/Professional | Olinda (youth guides) |
| | Formal | Olinda (investment in education and teacher training program) |
| Direct Transfers | Cash unconditional | None |
| | Merit goods | Jundiaí (PAT) |
| | Cash conditional on merit goods | Recife Transfer conditional on school attendance |
| | | ("Bolsa Escola") |

Source: Cepesp - Pilot Survey on LED in Brazil.

There are two programs that seem standard in our case studies: micro-credit and direct (conditional) transfers. Programs on fostering clusters or supporting small and medium enterprises are less standardized because these programs should focus on the specificities of the local. We also notice a lot of specificity on education programs. As presented bellow, the education programs are very creative and there are very many specific initiatives. Housing programs are usually standard but it is debatable whether they are an LED program or not. For instance, a housing program associated with firm attraction would be more clearly identified with an LED strategy. We did not find any housing program with such focus.

The micro credit programs in Jundiaí and Recife are quite similar as one can see on Table 4.6. The credit limit, loan term and collateral are almost the same for both programs. The only relevant difference is in the interests charged. Jundiaí clearly subsidizes the loans given the current rates in Brazil while Recife interest rates are even higher than Brazilian average loan rates. This is probably due to different views on the micro credit program. A program with non subsidized interest rate implicitly assumes that there is just an information problem in the market for loans⁵². Subsidizing the interests add a transfer element to the program. Our (non-structured) interview with the official responsible for the program reveals this vision from the management perspective.

⁵² Actually, there is a special line of credit in the Recife program called "Citizenship Credit" with 2.5% interests rate for the first-timers and 3.5% for active borrowers.

Table 4.6: Micro-credit programs in Jundiaí and Recife

| Characteristic | Jundiaí | Recife |
|---------------------|--|---|
| Credit limit (R\$)* | 5,000.00 | 5,000.00 |
| Loan term | Floating capital: 1 to 6 months Investment: 1 to 18 months | PROGER (mixed capital): 36 months Caixa Econômica Federal: 24 months Citizenship Credit: 8 months |
| Interest (monthly) | 1% | 6% plus TJLP |
| Collateral | Guarantor and fiduciary alienation of 100% of the financed assets. The Credit Committee can ask for more guarantees. | Alienates the financed asset or presents guarantor with verified income |

* In Jundiaí, cooperatives or unions with more than 5 members could borrow up to R\$ 25 thousand.

Source: Cepesp - Pilot Survey on LED in Brazil.

Regarding direct transfers it is interesting to notice that Recife included as an LED program the federal transfer program “Bolsa Família”. As is well known this is the leading federal program on reducing poverty. Initially Lula’s government emphasized the “no starvation” program (“Fome Zero”). The food distribution program was implemented and there are more than 7 million households currently receiving food from the federal government. However, it turned out that the distribution of food end up being a much smaller program than the direct transfer program (conditional on school attendance). That is, during Lula’s administration the priority merit good moved from food to education.

Bolsa Escola was a demand-driven education program that provided cash transfers to mothers of poor children throughout Brazil, conditional on their children's continued attendance in school. Initiated in 1995 as a municipal program in Campinas and the outskirts of Brasília, Bolsa Escola became a nationwide federal program in 2001, during the mandate of president Fernando Henrique Cardoso. By the end of 2001, it had been implemented in 98 percent of the 5,561 Brazilian municipalities. In 2003, during the mandate of president Luis Inacio Lula da Silva, Bolsa Escola and three other federal cash transfer programs were unified into a single program called Bolsa Família, an old demand from Brazilian scholars and practitioners.

The Bolsa Família Program has expanded very rapidly – both integrating existing beneficiaries from the pre-reform programs (including Bolsa Escola) and incorporating new beneficiaries. As of October 2005, Bolsa Família had expanded to reach over 8 million households throughout Brazil⁵³, targeting in particular two groups: households with a monthly per capita income of less than R\$50 (*extreme poor*) and households with a monthly per capita income between R\$50 and R\$100 (*moderately poor*). These household receive monthly payments ranging from R\$15-R\$95. Unlike the Bolsa Escola program which placed requirements on the individual children, the conditionality emphasis of the Bolsa Família program is at the family level.

⁵³ BRIÈRE, FINAN, JANVRY, LANJOUW *et alli.* (2005).

Box 4.4: “Bolsa Família” - Federal Program on Income Transfer

| | |
|---------------------------------------|---|
| <i>Scheme of distribution*</i> | The amount is given according to the number of children, typically (dependent upon family income) R\$15.00 per child enrolled at school and attending classes regularly |
| <i>Number of beneficiaries</i> | 6.5 million families (~ 11m children) in 2004 (nationwide) |
| <i>Total budget</i> | R\$ 5.7 billion (~ US\$ 2.6 billion) in 2004 |
| <i>Conditionality*</i> | Requires a minimum school attendance of the children in the family of 85%, and a maximum of 3 children (maximum benefit: R\$45.00) |
| <i>Type of merit good**</i> | Education, Health and Nutrition |
| <i>Target population*</i> | Families with per capita income of up to R\$100, with pregnant woman or with children in between 0 and 15 years old enrolled at school and attending classes regularly |

* Families with income per capita up to R\$50 are automatically enrolled in the program without conditionality, and receive a minimum of R\$50 from the program, plus the equivalent to the number of children.

** As of the end of 2004, there are now three basic conditionality rules, school attendance being the main one:

- 1) School attendance: every child in schooling age must be enrolled and attending school.
- 2) Health: accompaniment of health and nutritional state of the members of the family.
- 3) Nutritional education: every beneficiary family must participate in nutritional education activities offered by the Federal, state or municipal level, when available.

Source: Ministry of Social Development

The current conditionality requires all relevant family members to comply with a set of key human development requirements that include: (i) children ages 6-15 years old be enrolled and attend at least 85 percent of their classes; (ii) children under the age of seven visit health clinics to have their growth monitored and immunizations updated; and (iii) pregnant women conduct prenatal care. Bolsa Familia recently recentralized beneficiary selection decisions to the federal government, though many other aspects of program implementation remain decentralized, such as registration of potential beneficiaries into the unified registry (the "Cadastro Unico"), monitoring of conditionalities (coordinated by the Ministries of Health and Education), and social controls.

To our ends, it is worth discussing why Recife considered it as a local program while others did not. Our suspicion, confirmed by some informal conversations, is that Recife does have a leading role in the federal program. Recall that the program was originally created at the municipal level and, from the very beginning it was jointly managed by the municipality although most of the funds come from the federal authority. Recife has its own program running since 1997 that is very similar to the federal program (see below). In theory it is more efficient to have transfers programs funded by the federal government to avoid attraction of poor (instead of reduction, a race to the bottom effect on expenditures) to the

local offering the support. However, the local government is probably better suited for managing the program. If we agree with Brière et alli (2005) that the “Bolsa Família” is a LED program with federal funds it would be the largest LED program ever in Brazil and maybe in the world. However we have no evidence about the optimal level of decentralization of the program.

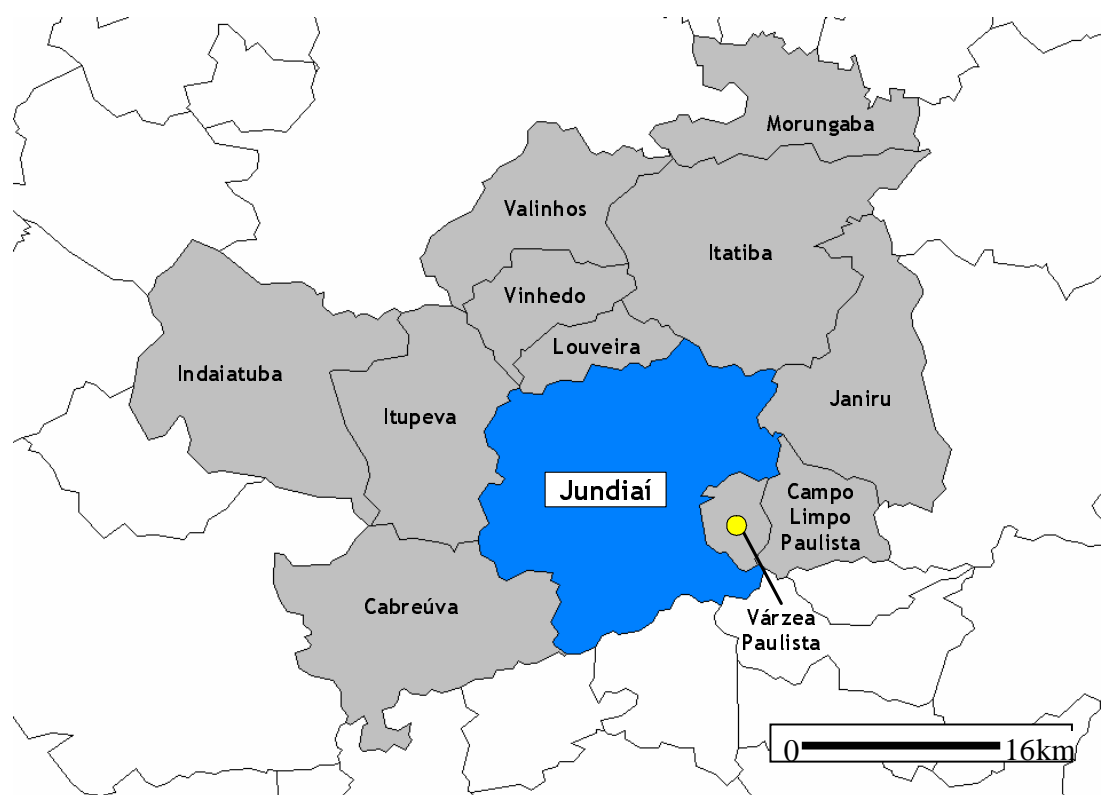
Case studies

We believe that the pilot survey did its job showing limitations on the instrument and proposing improvements. We did learn something from the pilot and we were able to compare the policies in 3 of the 4 selected cases. It also works as a check list on a case study analysis that would allow case studies to be more comparable. However, it is important to emphasize that the survey is not a substitute to case studies but rather a complement. Bellow we describe each case with details that the survey cannot capture. In particular there are very many small programs (in terms of total investment) that would never show up neither in a survey like this nor in the performance measures. Appendix 4.C lists all innovative programs run by the municipalities. Recife and Jundiaí have currently tens of projects and were within the 100 finalists in GPC award for 6 times. Olinda has 4 small initiatives and was in the GPC just once. We could not identify any small program for Jaboatão but it was once within the 100 finalists in GPC.

Jundiaí

Founded in 1665, the city of Jundiaí has a total area of 433 km², being 112 km² of urban area and 320 km² of rural area, and it is situated in the Micro-Region of Jundiaí and Meso-Region Macro-Metropolitan Paulista approximately 50 km from Great Sao Paulo and 40 km from the city of Campinas, both considered the biggest consumer centers of the state. Up north, Jundiaí has borders with the cities of Itatiba and Louveira, east with Campo Limpo Paulista, Jarinú and Várzea Paulista, west with Cabreúva and Itupeva and, finally, south with Cajamar, Franco da Rocha and Pirapora do Bom Jesus, as can be seen below.

Map 4.1: Jundiaí and surroundings.



Source: IBGE.

The city has in its highway network two of the most important roads of the state of São Paulo, and not deteriorated as most of the highways in the country: Anhangüera and Bandeirantes – both of them privatized. Beyond these above-mentioned ones, Jundiaí is also served by the secondary road Dom Gabriel Paulino Bueno Couto, which begins in the city and gives access to the city of Itu and to the Highway Castelo Branco, and also with the road Constâncio Cintra, which gives access to the Highway Dom Pedro II and then Dutra Highway and Fernão Dias and to the Water Circuit road, that allow the communication with many small cities in the region. The Mario Covas Ring, whose first of the four stretches is already in operation, also consolidates the strategic importance of Jundiaí's location, with access to the city through the roads Anhangüera and Bandeirantes.

Besides its roads, the city is served by the railroad network of the Companhia Paulista de Trens Metropolitanos – CPTM (Metropolitan Railroad Company of São Paulo) and by the FERROBAN. Jundiaí is also connected, through railroads, to the harbor of Santos, located 110 km from the city. The relevance of the railroads to the load (and passenger) transportation, however, has faced a big decrease throughout the last decades because of low public investments joined with a transport national policy that, for a long time, has privileged the automobile industry and the road transportation. After the privatization of the

federal and state-administered railroads between 1996 and 1998, the 30,000 km of rail have received new private investments, which have resulted in the gradual recovery of the freight fees. All of these may bring benefits to Jundiaí probably in the medium and long runs. The city is approximately 30 minutes from the Viracopos Airport, in the city of Campinas, and there is a state airport of Jundiaí that operates with executive aviation.

The city has a “dry port” (countryside customs). It has begun to operate in 2000, with built area of more than 12,000 m² and place for containers/operations of more than 21,000 m² that is operated by a private company specialized in logistics and foreign commerce (load storage, movement, transport and distribution).

As the city belongs to an *Área de Proteção Ambiental* – APA (Environmental Protection Area), the municipality’s legislation prevents enterprises considered as having polluting activities from having plants within its limits. This legislation is pointed as one of the negative factors that turn Jundiaí in a restrictive city in terms of investments.

Jundiaí is an emblematic case of continuity of policies. The city has been under PSDB’s administrations since 1993. Furthermore the former mayors Andres Benassi (1993-1996), Miguel Haddad (1997-2004) are members of the same political group inside the party as Ary Fossen, the current mayor. In addition Ary Fossen was also the Secretary of Administration and the Secretary of Finances of the city between 1989 and 1992. That is, political continuity is very strong in Jundiaí.

The continuity in politics implies some continuity in policies that is evident in Education. During the previous administration, Jundiaí has developed more than 20 programs in the Education area (see Appendix 4.C). Among those projects the current administration is not running only four of them. Even then, some of them are just temporarily out to be reformulated and adjusted before resuming. Therefore, the Education policy in Jundiaí has been very stable for a considerable period of time.

Besides the many programs mainly directed to fundamental education, Jundiaí has 6 technical schools, 2 of which belong to the state government and 4 private, 6 colleges, 2 of which belong to the municipality and 4 are private. The technical education of Jundiaí covers a variety of areas of the knowledge, such as Vehicular Electronics, Computer Programming, Data Processing, Labor Safety, Management, Mechanical Design, Nursing, Packing, Sanitation, Auto Mechanics, Logistics, Industrial Hydraulics, Accounting, Land Surveying, Chemistry etc. It is noteworthy that most of the technical education areas offered relates to some of the activities of the industries already established in Jundiaí. Furthermore, the short distances to Campinas and Sao Paulo allow students to live in Jundiaí and attend courses at one of those two cities.

The city counts on three hospitals for the assistance through *Sistema Único de Saúde* – SUS (National Health System). Besides that, polyclinics installed in the neighborhoods give support to urgency and emergency attendance. For the basic assistance there are 29 *Unidades Básicas de Saúde* (Basic Health Units) installed in strategic points of the city that offer assistance in Pediatrics, Gynecology and Obstetrics, Medical Clinic and in some of them, Odontology.

Jundiaí figures in the category of *Gestão Plena* (Full Service) in the SUS. This means that beyond the basic assistance it also provides high and average complexity services.

Nevertheless, many cities around Jundiaí have not reached this level in assistance yet: Itupeva, Louveira, Itatiba, Morungaba, Jarinu, Cabreúva, Campo Limpo and Várzea Paulista. Therefore, such cities "export" patients to Jundiaí for high and average complexity treatments, whose procedures are more expensive (almost 85% of the amount of SUS for Jundiaí go to high and average complexity procedures, according to 2004 data of the Municipal Secretary of Health), having a high impact on the public budget of Jundiaí.

Union refund for high and average complexity treatments is far away from ideal. As a consequence, Jundiaí does not have conditions to assist the entire demand for health services. As the municipality cannot refuse treatment to patients, such situation provokes queues for those seeking for assistance. It is likely that the relative high amount of Health expenses in Jundiaí in 1994 was a consequence of this "free-ride" from neighborhood municipalities. Therefore, the possible inferences between this high ratio of expenses in Health and economic development of Jundiaí seem to be limited by a circular logic: a high investment in Health may have guaranteed to Jundiaí a good assistance network and the position of Full Management in SUS, but this same success of the Health policies may have induced an increase in the demand for Health services in the city and consequently pressuring the public budget for more expenses in this area.

The existence of the *Agência de Desenvolvimento de Jundiaí e Região* – ADEJ (Jundiaí and Region's Development Agency), a non-profit organization ran by the civil society, plays a relevant role in the municipality. ADEJ was inspired in the concept of local and regional development agencies proposed by SECTD (Science, Technology and Economic Development Secretariat) of Sao Paulo State in the early 1990s. It was object of study and diffusion by *Ação Pró-Jundiaí* – APJ (Action for Jundiaí). Another source of inspiration for its *modus operandi* was *Desenvolvimento Local Integrado Sustentável* – DLIS (Local Integrated Sustainable Development) developed by *Comunidade Solidária* – a program of the former Federal Government in the late 1990s. Formally the agency is an OSCIP (Civil Society Organizations of Public Interest). It started its operation in 2003 by an initiative of big businessmen, with the support of their companies and its representative institutions as well as the municipality of Jundiaí and SEBRAE.

Box 4.5: Main Local Policies Adopted by Jundiaí (2001-2004)

People of Sao Paulo's Bank (“*Banco do Povo Paulista*”)

Micro credit program funded by the state government and jointly managed with the municipality. In Jundiaí the total assets of the bank were around 1.6 million reais and, according to our survey, half a million *reais* come from the municipality. Small formal and informal entrepreneurs can get loans between 200 R\$ and R\$ 5.000 with less requirements than a regular loan, with interests rates of 1% per month that is below the market price around 4.5%. According to Guaraci Fontes Monteiro, the executive director of the program, it is the largest micro-credit program in the nation with assets around R\$ 270 millions and operating in 347 cities in the state managing more than 100 thousand contracts. The program is always operated in partnership between the municipality and the state government.

Source: <http://www.jundiai.sp.gov.br/secretarias/smde/index.html> and interview with Guaraci Fontes Monteiro.

Worker Service Center Program (“*PAT – Programa de Atendimento ao Trabalhador*”)

A State government program ran by the Employment Secretariat of the State in a partnership with the municipality. Currently 153 municipalities have already joined the program. It issues the working permit; works as a job search agency; pays unemployment benefits; gives job market orientation; and furnish handicap care.

Business Incubator (“*Incubadora de empresas*”)

The Industry Incubator of Jundiaí is maintained by a partnership between CIESP, Sebrae and the municipality of Jundiaí. It is directed to assure creation and expansion of small companies. The companies share a common basic administrative structure solving scale problems. In 2003 it had 12 companies and sheltered diverse industrial initiatives, from the manufacture of cases for musical instruments to the manufacture of power factor correctors.

Fruits Circuit (“*Circuito das Frutas*”)

Created by the state government in 2002, as part of a program based on the identification of regional vocations and their incentive, it congregates the municipalities of Jundiaí, Indaiatuba, Itupeva, Valinhos, Vinhedo, Louveira, Morungaba, Itatiba and Jarinu that constitute a consortium with the objective to create work opportunities, stimulating producers and commerce, attracting tourists and promoting joint actions. The Circuit is composed by many options either in gastronomy (farm food, Italian canteens and international level restaurants), culture (music, theater, expositions and dance performances, local handicraft and events), ecological tourism (preservation areas, mountain ranges, waterfalls and tracks in the field) and historical sightseeing (farms, antique houses, museums and monuments that feature the cycles of coffee, immigration, railroad, etc.). The Circuit has also a calendar of harvests of many fruits produced in the region that can be harvested and consumed immediately (when available).

Source: Cepesp/World Bank - Pilot Survey on LED in Brazil.

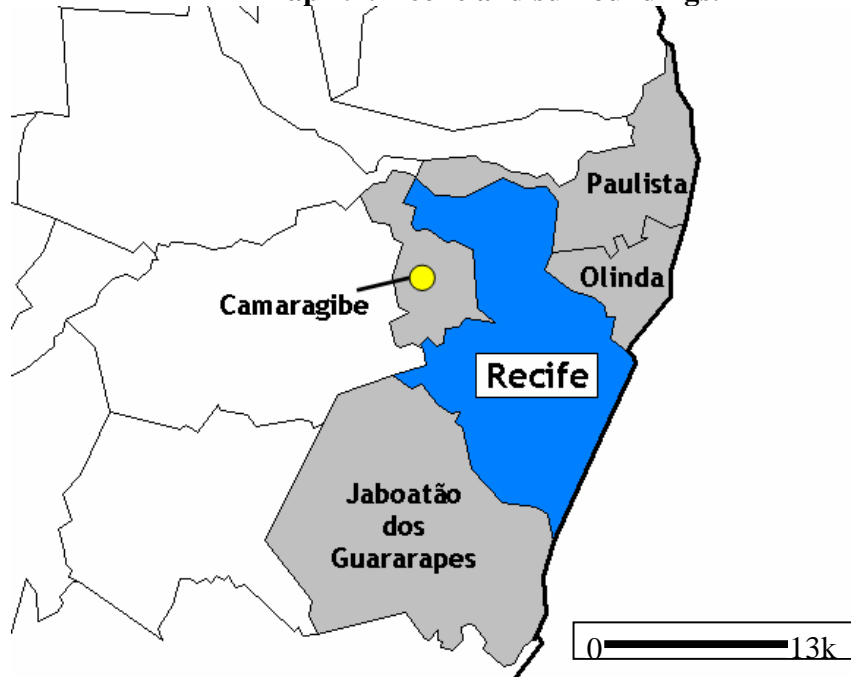
Jundiaí calls our attention to state funded programs. It is interesting that the city managers consider those programs as a municipality initiative but they do not consider the “Bolsa Escola” as a local program. If we consider that the mayor of Recife is from the same party as the president (PT) and the mayor of Jundiaí is from the same party as the governor (PSDB) there might be a bias in answering the survey: the municipality will more likely to consider as its program a higher level funded program if the higher level government is from the same party as the municipality. This identification may also reflect that there might be some bias in the higher level budget allocation.

In any case it shows us qualitatively some forms of state funded LED that we were not able to quantify in the survey as discussed before. Even with a very small budget, municipalities potentially can manage a large amount of resources in LED (in a broad sense). All programs listed by Jundiaí were in partnership with the state government or with multi-regional institutions such as Sebrae. There might be some more study on the state and federal programs managed jointly with the municipalities. It is worth understanding the political economy behind the decentralization issue. Due to the race to the bottom argument, it may be optimal to fund LED initiative by higher level of government.

Recife (PE)

Capital of Pernambuco, Recife is part of an agglomeration of 24 cities that integrate the Metropolitan Region of Recife, which is responsible for approximately 68% of the state's GDP, of which tourism constitutes a significant share. In the 1990s, according to the Company of Tourism of Pernambuco, the number of hotels have raised by 10,3% per year and during the period 1990-1997 there was a 12% increase on the numbers of tourists in Pernambuco.

Map 4.1: Recife and surroundings.



Source: IBGE.

Recent research carried out by the World Bank and the International Labor Organization – ILO analyzes the impacts of minimum income programs in Brazil and makes some inferences about the case of Recife. The report concludes that a very small number of families in extreme poverty have been reached by the program. But, as we saw, Recife spends 1.5% of its total spending on this program. Besides, it has performed (relatively) very well on reducing the population below the poverty line.

Other two important actions for the municipality that could lead to economic development have been identified: the *Plano de Regularização das Zonas Especiais de Interesse Social* – PREZEIS (Regularization Plan for Special Zones of Social Interest) and the *Orçamento Participativo* (Participatory Budget), having the former been cited by the municipality in the survey. There was no space in the survey for those fields related to decision making or special housing programs although other housing initiatives (like projects) were possible to record. Housing is one of the main policies in medium and large cities.

The *Plano de Regularização das Zonas Especiais de Interesse Social* – PREZEIS⁵⁴ deals with the housing deficit problem and has become reference to other municipalities in Brazil as we learn in the interviews. The municipality emphasizes that this plan emerged after an intense debate held by organized civil society, in 1980s, and was object of deep debate and reevaluation in the 1990s. The information on PREZEIS was not fully recovered by the survey. This observation calls our attention to the fact that the survey does not have enough room for institutional aspects of the municipalities. Although it is disputable whether the

⁵⁴ The special interests zones are those that need special cares (e.g.: slums).

PREZEIS may be considered as a LED initiative, we are convinced that there may be more room for institutional aspects in the survey.

Box 4.6: Main Local Policies Adopted by Recife (2001-2004)

Housing Aid

This is a program aimed to people who were transferred from dangerous areas, interdicted by Civil Defense, to safer ones. An example are the people who used to live under the Limoeiro bridge, at Vila do Morcego, and were removed to an area close to Santo Amaro. They agreed to move only after a long time of negotiation with the Recife City Hall and were selected to receive the benefit.

Festival of Popular Economy and Solidarity

The Popular Economy and Solidarity Forum of Pernambuco was established in 2003, from a initiative of various civil society organizations, solidarity enterprises, social movements, non-governmental organizations, municipal governments, co-operative incubators representing different areas of the State, from the sertão (inland and arid areas) to the coast.

In these 3 years, many events were carried out, such as local and regional meetings, regional festivals, street markets, involvement in the arrangement of events such as the World Social Forum (in its various editions), involvement in the arrangement of the Northeast Social Forum in 2004 and other national events that increases the Forum visibility. It is noteworthy the importance of the Solidarity Economy Festivals, which happens in an annual basis at the end of each year. It is an event that gathers up mobilizing actions, commerce and exchange of products with training courses in solidarity economy issues.

Transfer conditional on school attendance

In this survey, the municipality presented 6 projects and one of them is noteworthy because it has been running since 1997, meaning that it remains working even with changes in the City Hall. This is the Municipal “Bolsa Escola” Program that continue to exist with its own budget, having received, since its creation, the amount of R\$99.155.040 and is aimed to attend families whose per capita income is less than US\$24, and who lives in the towns for more than five years.

Micro credit

The objective of this program is to develop technologies, services and innovative systems to offer micro credit as an alternative to the traditional banking system; it is driven to micro and small enterprises, as well as autonomous workers, agriculturists, fishers, craftsmen, and low income population who wants to expand, modernize or start a small business.

The Micro Credit and Solidarity Economy Programs were identified by the City Hall as one of the most significant in the promotion of local economic development and that benefits low income class, with a total (accumulated) loans of R\$ 137.550,000,00

Box 4.6 (continued)

Digital Port

The digital port is a project created together with the renewal “Recife Antigo”, a historic neighborhood where Jewish immigrants used to live during the Netherlands’ domination period in Pernambuco. The city was able to attract many IT firms using tax exemptions and funds for refurbishing the historical buildings. The most current project involves the Government of Pernambuco, the Recife City Hall, the IT Center of the Pernambuco Federal University, the Center for Advanced Systems Studies (CESAR), as well as various IT enterprises (Motorola, Oracle, and Microsoft among others). The main objective is to integrate slum residents and teach them computer programming, so that they will be qualified to work for enterprises at the Digital Port.

Direct transfer (Federal)

The National “Bolsa Escola” Program was created in 2001 in Recife. The money is paid directly to the benefited population, through the use of magnetic cards, in the “Caixa Econômica Federal” agencies (a Federal Bank) called “Caixa Aqui” or in lottery stores. (see box 4.4).

Source: Cepesp/World Bank - Pilot Survey on LED in Brazil.

Olinda (PE)

Founded in 1537, the city of Olinda is located only 5 km from the capital of the state, Recife and belongs to the Metropolitan Area of Recife. Its territory has 35.1 km², from which 98% are urban, and its demographic density is of 9,675.7 inhabitants per km². Olinda features amongst the cities with low ratio of investment in Health and Education, and overperformed in Poverty reduction.

Among the 9 projects listed by the city in the survey, one of them draws attention for being run since 1983. The mentioned project is called *Área Rural*, which aims to diminish housing speculation and to guarantee the ownership of the land its citizens. Olinda is one of a few cases in Brazil that has run a project aiming to reverse the “urbanization” process and attracting people to the rural area. The space destined to “ruralization” has 900 hectares where 450 households produce fruits and vegetables, create exotic animals, work in caprines and fish farms, production of candies, pulp of fruits, manufacture of cheeses, processed and smoked food. Although the program may seem charming, it is insignificant in a city with 400 thousand inhabitants.

As a city with a clear vocation to tourism, most of Olinda’s public spending on infrastructure is closely related to the preservation and restoration of its historical sites, cultural heritage etc. However, in terms of hotels, Olinda is poorly served. The main hotel chains can be found in Recife and Jaboatão dos Guararapes, but not in Olinda. Thus, the city receives tourists that stay mostly in the other two cities and whose primary objective is to visit Recife (in this sense, Olinda is perceived as being a “plus” on the visit to Recife, seldom being the tourist’s primary destination). One of the obstacles that hinder Olinda’s

ambition to attract tourists directly into the city is that, in opposition to the big hotel chains that offer hundreds of beds per building, Olinda counts on small pensions and hostels with few rooms each, making it hard for travel agencies to handle the booking of the beds in dozens of different places. The historical preservation of the city do not allow for a big hotel to settle in the area.

Box 4.8: Main Local Policies Adopted by Olinda (2001-2004)

Programa Morar Bem (Well Living Program)

This program was developed by a partnership of the Federal Government, State Government and Dweller's Association of new housing estates, and is under the responsibility of the Social Politics and Housing Secretariat, particularly its Housing and Citizenship Defense Department and the Work and Social Promotion Department.

The program had started on July 2003 and finished on December 2004 with a total investment around \$ 1.400.000,00. Its objective was to support and consolidate local communities in residential areas. The priority action of the City Hall was to issue ownership certificates in the name of the housewives, changing a national tradition that used to confer the right to the men.

In accordance with the City Hall of Olinda, all the deliberation were conducted jointly by municipality technicians and the granted community, through assemblies and specific working meetings

Municipal Police – Restructuring

The continuous improvement of local security is one of the priorities of the municipal government of Olinda. In order to achieve this goal the following actions are taken: to increase the number of municipal guards, to build new communitarian security centers, to implement a surveillance system based on cameras in order to reduce violence and predatory actions against public buildings, and to increase street policing. Those actions are of great importance considering that Olinda has a valuable patrimony and centennial churches that are tourist sites.

Olinda Young Guides Training

This project has been developed by the Secretariat of Patrimony, Science, Culture and Tourism since 2001. The main objective is to prepare young boys in between 13 to 17 as tourism guides. The project provides students with skills in the areas of arts, city architecture, city history, human relationship, and English language. The young guides help national and foreigner tourists without any charge.

The project has the support of private enterprises, including a local language school which offers English classes to the young boys. According to the Secretariat of Economic Development of the municipality, once the young guides leave the project, they are hired by hotels and tourism enterprises from the Recife metropolitan area.

Box 4.8 (continued)

Investment in Education

According to the Secretariat of Education, the total amount of R\$2.526.559,00 was invested in education during the period 2001-2004, which express the priority given to the development of the city. Nonetheless, some actions of that period are now being restructured by the following actions: educational material update, new hires of teachers who are expert in the issues of local reality, curricula and internal rules update, and the main challenge is to introduce in the curriculum issues related to the history of the city, the preservation of local historic patrimony, the maintenance of local culture, the valorization of regional songs, the respect to gender and ethnics, among others.

Teachers Training

The Teachers Training program has its own objectives and budget to accomplish them, and thus is one of the investments in education. This program received the total amount of R\$ 2.744.734,00 during the period 2001-2004, which express the government concern about education.

Source: Cepesp/World Bank - Pilot Survey on LED in Brazil.

In the interviews and in the parallel research we did about the municipalities, we were able to find out that the Recife Metropolitan Area (RMA) has a relevant cluster of medical companies in the border of Recife and Olinda. It is important to bear in mind that the Medical Cluster in the RMA described in details in Box 4.7 was created without great articulation with the state. This is a typical case denominated in the literature as a “spontaneous cluster” meaning that it was not induced by a public policy. In fact, it was not the result of a planned action, but of independent actions of physicians who brought their clinics to Ilha do Leite given the proximity to the Hospital D. Pedro II and the Medical School of UFPE (Federal University of Pernambuco). This observation calls our attention to the fact that “spontaneous clusters” are very difficult to identify in a survey with the municipality secretariat despite the existence of investments by the municipality.

Box 4.7: The Medical Cluster of Recife Metropolitan Area

The medical cluster at Recife Metropolitan Area (RMA) is the second medical cluster in Brazil, just after Sao Paulo. The cluster grew up in the neighborhood of the hospital of the Federal University of Pernambuco and now concentrates an expressive number of hospitals, laboratories, clinics, pharmacies, and other health care related services.

The cluster has an importance from a social and economic point of view, employing around 120 thousand people. The 320 hospitals in the cluster area are the second biggest services tax payer (ISS) in the RMA, representing around 13% of its share. Between 1993 and 1997, there was an increase of 96.6% in tax revenue from health services. The Brazilian Clinic Analysis Society estimates that investments in the pharmacy sector were about R\$ 12 million in the last 10 years. It is worth emphasizing that although the Medical Cluster is a private initiative, it has received incentives during the 1990s from the state government and also from the municipalities of Recife and Olinda. Nevertheless, the absence of a clear investment policy has led to an oversupply of services, with many activities running below capacity.

There are other problems in the cluster which deserves attention and should be corrected. Among them it is noteworthy the low quality of workers, the lack of communication with local institutions and also among the enterprises (with almost no cooperation), and the weak endogenous technology innovation (which, in part, is due to the absence of technology development policies).

Those characteristics have been responsible for the decrease in the cluster expansion in recent years. Thus, public institutions and also health care enterprises should give attention to the problem and develop policies to resume sector expansion.

Source: Cepesp/World Bank - Pilot Survey on LED in Brazil.

Jaboatão dos Guararapes (PE)

The municipality of Jaboatão, established in 1873, was selected for a deeper analysis because it features amongst the cities with low proportion of investments in Education and under performed in Employment. Besides, Jaboatão represents an interesting case to be analyzed given that it is part of a conurbation with the capital of the state, Recife, as Olinda, but followed different a trend of the capital.

With population of 581.556 inhabitants, the city has been facing a 10.62% growth in the Urbanization ratio in the period 1991-2000, and has practically 100% of its territory urbanized (98%). This trend follows the logic of the cities of Olinda and Recife that have practically no rural areas.

The city is well served in terms of highways, having the two main roads of Pernambuco cutting through the city: the BR-101 and BR-232, both run by the federal government.

Jaboatão is also served by the International Airport of Guararapes, as well as benefits from the proximity with the Porto de Sauípe, the most important one in the Northeast coast. Just like Jundiaí, the municipality emphasizes its position as a strategic advantage in terms of logistics.

Jaboatão also tries to establish itself as an alternative route to tourists coming from Recife. It counts on better hotel brands (such as Blue Tree, Novotel and Golden Tulip) than the ones found on Boa Viagem beach of Recife (which concentrates most of the hotels in Recife), and its proximity to the International Airport of Guararapes, to attract both business or leisure tourists.

Box 4.9: Main Local Policies Adopted by Jaboatão dos Guararapes (2001-2004)

Olho d'Água Bay –

The Olho d'Água Lagoon, at Jaboatão dos Guararapes, is the most important lagoon in the State of Pernambuco. It is polluted by domestic and industrial sewage, and has become a local source of disease. The goal of this Project is to revitalize the lagoon and turn it into an environmentally sustainable area. This will be accomplished through legislation for environmental protection, treatment of sewage and drainage of the basin, urbanization, garbage collection and an environmental education campaign. This initiative has the participation of civil society actors, such as the Federal University of Pernambuco.

The revitalization plan was started in 1996 and references to this action can be found in various ways in the document that describes the municipality budget execution. The project is a challenge for the municipality of Jaboatão dos Guararapes which has invested R\$ 494.534.000,00 since 2001. Undoubtedly, once the system sustainability is achieved it will contribute to the local economic development.

Communitarian Urbanization

The objective of this project is to deal with the urbanization issue in a broader and more participative way. The municipal government defined the following actions: to elaborate an environmental diagnosis, to mobilize social actors, to elaborate a databank using existing documents, to update cartographic maps on a scale 1:1000, to conduct field researches, to promote communitarian participation, and to define directions for the implementation of projects defined by the actors. The communitarian urbanization takes as fundamental the participation of the actors in the process of urban spaces construction.

Center for Commerce and Micro-entrepreneur Care

The Center for Commerce and Micro-entrepreneur Care was created with the following objectives: to give technical support to micro-entrepreneurs in the task of regularization of industrial, commercial and service enterprises, to offer technical and management training, to promote and encourage associations and cooperation among micro-entrepreneurs, to promote researches and socio-economics studies that could help them.

Box 4.9 (continued)

Tourism promotion

This main objective of this action is to make the best of the tourist potentiality of the municipality of Jaboatao. The Secretariat of the Development of the Industry, Commerce, and Tourism defined as the key actions: to implement and give dynamism to specific areas for artistic performances that were developed by enterprises, to support and organizes events related to tourism, to stage and perform the play “Batalha dos Guararapes”, to encourage low income communities to develop activities that promote local tourism, to elaborate and implement a sustainable tourism development plan, and to take part in the elaboration of a eco-tourism plan for the Olho d’Água Lagoon Metropolitan Park.

Source: Cepesp/World Bank - Pilot Survey on LED in Brazil and City Hall Reports.

The city attracts some of the industries that prospect installing their plants in the region of Recife, for having lower taxes and cheaper and more available land. All these elements contrasts with the fact that Jaboatão has under performed in employment. One possible reason is womrg policy decisions relative to the other municipalities studied in this chapter. Another possible explanation is that the proximity to Recife may be an advantage or a handicap. In the case of Olinda the proximity to Recife facilitated the creation of the medical cluster. However, being very close to a large center may induce the firms to establish themselves in the capital making the city just a place for living.

Conclusion

In this Chapter we propose a new methodology for case selection and analysis that, to the best of our knowledge, was never implemented before. The methodology, we believe, may connect a statistically oriented research with a case studies approach. The main idea is very appealing: we want to study the cases not explainable by the regression analysis. There might be something not captured in the regression that we could find out in a case study approach. Actually this chapter is all concerned with the details not captured by the regression in the previous analysis. First we recognize that part of the data that we would need for the analysis is just not collected. We proposed a survey and attempt to test its feasibility. Second we also know that it is impossible to collect all the details for each municipality and if it was possible it would not be useful as a map that is the size of the city is useless.

The survey proposed is probably too detailed. We admit that it is pretentious assuming that the municipality officials have a deep knowledge on growth concepts. It is clear that there will always have some political bias since it is not good for the city to have “bad things” spread out. A municipality that just refuses to answer this kind of questionnaire will not be considered as not doing its job but a municipality that answer negatively will probably be misjudged. This very fact will bias the survey towards getting answers just from the municipalities that did implement some initiatives. However, it would be too strong to assume that a municipality that did not inform a specific policy did not undertake it. So, it may be difficult to create a “control” group.

The pilot showed that there are not so many policies currently in place. We are able to classify the policies in 5 broader groups that are divided in 12 groups. We believe that there are a reasonable number of programs making it possible to directly ask if the program exists or not and then attempt to collect further information on the programs. The challenge is making a small questionnaire for each program. For instance, for micro-credit, we would like to know total assets, average mature date, years of operation, interest rates, default rates, etc. We could proceed in the same way, for all pre defined programs asking how many firms were in the incubator, how many houses were built, etc. For some programs it will be much more difficult to define quantitative measures of the program.

The survey might leave an open question for each pre defined program asking the municipality to give any further detail it wants and also include an open question: “describe any LED program you have that is not contemplated in this survey. Use as many pages as you wish”. These questions would be very important in the pilot to redefine the questionnaire for each program and add new programs that we did not visualize before. They will also be important for improving the survey in the following years, assuming that the survey will take place, let us say, every four years. The very open questions will also be useful for case study analysis. In this very different approach to applying the survey we are on one hand closing the possibilities of programs and, on the other hand, allowing for totally open questions. Also the approach is not from the concept of the program but from the very initiative.

The actual goal of a survey like this is to reveal some municipalities that adopt a program and the ones that did not adopt the same program. Ideally this information would give us a group to be “experimented” (the municipalities that adopt the program) and a control group (the municipalities that do not). That is the survey would allow a “natural experiment” testing whether the municipalities that adopt the program performed better than the ones that did not. However, a basic variable is missing to pursue a natural experiment approach in assessing LED initiatives: timing. Our pilot confirmed the general findings of the PNAGE for states regarding the lack of institutional memory in the public administration. The current administration will know at the best the programs implemented by its administration. So, we believe that a feasible survey would ask the municipalities about programs undertaken in the current administration. The analysis would be actually feasible at least four to six years after the information was collected but we have to start at some point.

The natural experiment approach is feasible (in the medium run) if it does not depend upon information regarding monetary values. That is the performance measures should be independent from municipality information. Our pilot show that the municipality cannot actually break down the investment in the programs. It is not clear the share of the municipality in a program in partnership with a higher government level or another institution. It is difficult to identify how many years of expenses are being taken into account. It may be possible to compare different procedures in the same programs like the ones suggested above for micro credit initiatives (comparing municipalities that did implement the program). However we are very skeptical about using the values furnished in the survey as a performance variable in general.

We have to keep in mind that any LED program has different angles to be studied. There is a very general question that we attempt to answer in Chapter 3 about the optimal division of expenditure in broad categories. This is very important since focusing in the program inherently ignore the municipal budget constraint. This is not telling anything about a specific program but it puts limits on the program size. Another different question is which program is better suited for a given goal (improving efficiency, increasing equality or both). We believe that the natural experiment approach proposed above may be able to shed some lights on this question. We may also be interested in the implementation, that is, how to implement a program maximizing its benefits. The different questions need different data and different methodologies. Any public policy has at least three aspects: design, implementation and assessment. Each aspect requires a different research framework. The survey may contribute to most of the questions but it will usually be insufficient for the analysis and it will not contribute very much for some questions.

In any case, the general scientific approach to study any aspect of a (local) public policy is attempting to control all other variables to isolate the question you are trying to answer. Case studies are sometimes criticized because they do not replicate this controlled environment when implementing the research. We believe that our methodology partially overcome this critique. Notice that we depart from the opposite hypothesis implicit in any regression analysis. Any regression analysis assumes that you have enough information to control to all variables influencing your dependent variable. If you do not observe all the variables you have to use econometric techniques to overcome the problem of non observables. In our methodology we assume that we do not have all the information and we will never have it for all municipalities. We select the municipalities with the worse fit to study because those are the municipalities most likely to have some special characteristics. We follow most of the econometric studies dealing with non observable variables that understand that the residuals do carry a lot of information.

We must keep in mind the potential contribution of a case study. First the description of a theory may help in validating the theory. Probably one of the most convincing evidence on the NGE results is in Saxenian (1994) case study. On the other hand we may be neglecting a variable that is observable (by the econometrician) just because the theory is too generic to indicate all controlled variables needed. A case study may suggest new variables to be included in the regression analysis. We will know that the added variable did its job if the outlier is not an outlier anymore when this variable is added. The regression furnishes information to the case selection that feed back the regression specification. Finally, since the methodology clearly identify extreme and average groups if we can study a reasonable number of cases, we may be able to find similarities in the detailed analysis between the extreme groups in the “positive” extreme group that are not observable in the average and “negative” group or vice versa. These details may be the determinants of success or fail if the analysis is done the other way around (i.e. observing similarities in the “negative” group that were found neither in the average nor in the “positive” group). For all those reasons we believe that the method proposed maximize the possible benefits of a case study and, at the same time, connect the inductive analysis with a more deductive one.

Our selection did use the method but not as much as we would like. The problem is that the methodology was developed at the same time of the case study. We regret for instance not

using the performance X performance approach proposed in this chapter. We did use the methodology (the multiple objectives version) to define which municipalities would be acceptable to study but we use a lot of discretion in deciding which specific municipality we would be studying. Although the discretion was mainly for pragmatic reasons we do think that this methodology should be used with discretion. To be robust regarding this statement we should estimate the trade off between type I error (choosing a municipality that should not have been chosen) and type II error (not choosing a municipality that should have been chosen). However, we believe that we need to give room for the researcher to decide which cases to follow using less systematic information including research cost.

We do believe that we learn something from the case studied besides improving the survey. That is, in this report, the case studies respond for two different goals: working as a pilot for a survey and furnishing information about LED implementation. The cases do not deny the idea that special programs may contribute to the performance of the municipality. However the findings are far from robust given the very small sample and the inherent endogeneity problem (better municipalities in every aspect may be more likely to implement special programs).

One very interesting result of the survey is that we realize that some municipalities consider higher level programs as a local program. Furthermore Recife that considered the federal program “Bolsa Familia” as a local program is controlled by a mayor from the same party as the president while Jundiaí that considered the state government program in micro credit as local is controlled by a mayor from the same party as the governor. This connection may not be problematic if it is just a matter of “identification”: the municipalities from the same party have similar goals so they identify themselves more easily. This finding will represent an institutional failure however if the municipalities from the same party have more influence on the higher level policy.

In any case, we do think that both programs brought in the case study funded by higher level may be indeed analyzed as local economic development programs. It makes a lot of sense funding a program like the “Bolsa Familia” by the federal government. A program like that funded by the municipality may just move poor households from other municipalities. The question, if we attempt to analyze the program from a local perspective, is how the decentralization of the program affects its (local) impact. Regarding this issue we have a good opportunity to test this question since the federal government re-centralized the program recently. The same kind of question can be done to the micro credit program of São Paulo State. Also in this case it may make sense for the state (or federal) government to fund the credit since there are probably increasing returns in the credit market. The difficulty in the micro credit analysis will be finding any impact given the small size of the program: 270 millions reais for 347 municipalities. This is definitely not the case for the “Bolsa Familia” that is currently spending more than 3 billion dollars on the program nationwide. Anyway the case studied revealed two very interesting cases for further research. The more in deep study of those programs will contribute to a better understanding of LED funded by higher government levels. Given our evidence that small and poor municipalities are not able to implement any program we believe that studying these two cases is a must for understanding the possibilities and limitations of an effective

LED program lead by the state or the federal government. This is another contribution of the case studies conducted in this research and analyzed in this chapter.

Appendix 4.A: Hierarchical Classification of Local Public Policy

- General Objective
 - Address market failures and economic efficiency: interventions designed to address the obstacles that undermine an efficient local economic system in order to help fulfilling the economic potentials, generating economy of scale, increasing productivity, improving quality of local products and services, enabling investment, accessing markets, labor, information, technology and capital;
 - Address poverty and social exclusion: interventions designed to generate income, create better job condition, and improve the welfare of the poor;
 - Address both market failures, economic efficiency, poverty and social exclusion;
 - Other:
- Territorial Scope
 - National
 - Regional
 - State level
 - Inter-municipal
 - Municipal wide
 - Neighborhood level
 - Areas under risk
 - Other
- Industry scope
 - No specific sector
 - Agriculture
 - Construction
 - Manufacturing
 - Trade
 - Transportation
 - Finance
 - Personal
 - Public
 - Specialized
- Institutional target
 - No specific institution
 - Informal economy
 - Cooperatives
 - SME
 - Large corporations
 - Public companies
 - Unions
- Population target
 - No specific population group
 - Low income

- Black
- Women
- Risk groups/minorities
- Teenagers and youth
- Homeless
- Ethnic/Indigenous
- Old
- Direct Investment Instruments:
 - Hard Strategic Infrastructure
 - Transport
 - Inter-municipal Roads
 - Public Transportation
 - Urban road system
 - Logistic
 - Telecommunication
 - Water resources and irrigation
 - energy supply and mineral resources
 - Sewage
 - Police and security
 - Environment
 - Garbage collection and public cleaning
 - Ecosystems conservation and reforestation
 - Pollution control
 - Water conservation
 - Availability of land and sites
 - Business development
 - Agricultural development
 - Housing
 - Soft Infrastructure
 - skills training
 - business-focus education
 - Formal Education
 - basic
 - high school
 - university
 - research and development
 - City marketing and advertising
 - Urban Regeneration
 - Cultural and historic sites
 - Housing
 - Slum/squatter settler improvement
 - Affordable housing projects
 - Parks and trees
 - Income transfer
 - Negative income schedule
 - Scholarship

- Negative income contingent on school attendance
- Indirect investment instruments
 - Fiscal incentives
 - ISS
 - IPTU/ITBI
 - ICMS
 - IPI
 - Land donation
 - Credit subsidizing/supporting
 - Micro-credit
 - Agriculture
 - Housing
 - Business in general
- Institutional instruments
 - Industrial district creation
 - Change in local law/regulation
 - Zoning
 - Health/Sanitation
 - Crime
 - Land use
 - Process and procedures for business
 - Firm incubator
 - Job search agency creation
 - Land redistribution
 - Participatory budget
- Public management improvement instruments
 - Planning improvement
 - Government human resources improvement
 - Inter and intra-government relations
 - Finance and budget
 - Control
 - Information systems
- Funding
 - Revenues
 - Union
 - State
 - Municipality own resources
 - Other municipalities resources
 - Special funds
 - FAT
 - Sudan/Sudene
 - FUNDEF
 - Donations
 - National private sector donation
 - For profit enterprises
 - Not for profit enterprises/NGOs

- Persons
 - International private sector donation
- Loans
 - Private Bank
 - Government owned banks
 - BNDES
 - BNB
 - State Banks
 - International Institution
 - World Bank
 - IADB

Appendix 4.B: Answers to the Questionnaire

Jundiaí, SP

1. Were one or more specific programs to promote local economic development adopted in this municipality?

☒ Yes

☐ No

☐ Not sure

If no, close module.

2. Approximately, how many local economic development programs were implemented between 2000 e 2004? 4 programs, at the Municipal Secretary of Economic Development.
3. What was the total expenditure allocated for those local economic development programs implemented between 2000 and 2004? R\$2.047.000,00
4. For each local economic development program that was implemented, please indicate provide a name, an estimate of the total program expenditures, the start and end date (if program is still in execution, please indicate “in process”; utilize as many sheets as necessary):

| Program | Start Date | End Date | Value (R\$) |
|--|------------|-------------|-------------|
| <i>Banco do Povo Paulista</i> (People of Sao Paulo's Bank) | 2000 | in progress | 500.000,00 |
| <i>PAT – Programa de Alimentação do Trabalhador</i> (Worker Feeding Program) | 2000 | in progress | 520.000,00 |
| <i>Incubadora de Empresas</i> (Business Incubator) | 2002 | in progress | 897.000,00 |
| <i>Circuito das Frutas</i> (Fruits Circuit) | 2002 | in progress | 130.000,00 |

5. What was the primary objective of the programs?

☐ Address market failures and economic efficiency: interventions designed to address the obstacles that undermine an efficient local economic system in order to help fulfill economic potentials, generating economies of scale, increasing productivity, improving the quality of local products and services, enabling investment, accessing markets, labor, information, technology and capital.

☐ Address poverty and social exclusion: interventions designed to generate income, create better job conditions, and improve the welfare of the poor.

☒ Address both market failures, economic efficiency, poverty and social exclusion.

☐ Other:

6. What was the territorial scope for the programs?

☐ National

☐ Regional

☐ State level

☒ Inter-municipal

☒ Municipality

☐ Neighborhood level

☐ At risk areas

☐ Other

☐ Not sure

7. Was at least one of these programs focused on a specific sector?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question #10)

8. Which sectors? Tourism - *Circuito das Frutas* (Fruits Circuit)

9. Please indicate the number of programs and the total value of these programs directed at each industrial sector. If no programs were directed at a specific industrial sector, please classify as "0". If the sector of a specific program is not known, please classify as "X".

| | Programs | Value |
|---|----------------------------|---------------|
| <input type="checkbox"/> Agriculture | | |
| <input type="checkbox"/> Construction | | |
| <input type="checkbox"/> Manufacturing | | |
| <input type="checkbox"/> Retail | | |
| <input type="checkbox"/> Transportation | | |
| <input type="checkbox"/> Finance | | |
| <input type="checkbox"/> Human resources | | |
| <input type="checkbox"/> Public sector | | |
| <input type="checkbox"/> Specialized Services | | |
| <input type="checkbox"/> Other: Turismo | <i>Circuito das Frutas</i> | R\$130.000,00 |
| <input type="checkbox"/> Not able to answer or not sure | | |

10. Were these programs focused on specific institutions (see list below)?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 13)

11. Which institutions? See answer 12.

12. Please indicate the programs and the total value of these programs directed at each of the following types of institutions.

| | Programs | Total value |
|--|------------------------|---------------|
| <input checked="" type="checkbox"/> Informal economy | Banco do Povo Paulista | R\$500.000,00 |
| <input type="checkbox"/> Cooperatives | | |
| <input checked="" type="checkbox"/> Small and medium enterprises | Incubadora de Empresas | R\$897.000,00 |
| <input type="checkbox"/> Large corporations | | |
| <input type="checkbox"/> Public enterprises | | |
| <input type="checkbox"/> Unions | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

13. Were the programs focused on specific sectors of the population?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 16)

14. Which sectors of the population?

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15. Please specify the programs and the total investment targeted for each specific population.

| | Programs | Value |
|-------------------------------------|--------------------------------|-------|
| <input type="checkbox"/> | Low income | |
| <input type="checkbox"/> | Black | |
| <input type="checkbox"/> | Women | |
| <input type="checkbox"/> | "At risk groups"/minorities | |
| <input type="checkbox"/> | Teenagers and youth | |
| <input type="checkbox"/> | Homeless | |
| <input type="checkbox"/> | Ethnic/Indigenous | |
| <input type="checkbox"/> | Elderly | |
| <input type="checkbox"/> | Other: | |
| <input checked="" type="checkbox"/> | Not able to answer or not sure | |

16. Did at least one of the programs undertake investments in transportation infrastructure?

☐ Yes
 ☒ No
 ☐ Not sure

(If no or not sure, please go to question 19)

17. What was the approximate total value invested in transportation infrastructure?

R\$
☐ Not sure

18. Please indicate the programs and investment that was targeted for each of the following types of transportation.

| | Programs | Value |
|--------------------------|--------------------------------|-------|
| <input type="checkbox"/> | Inter-municipal Roads | |
| <input type="checkbox"/> | Public transportation | |
| <input type="checkbox"/> | Urban road system | |
| <input type="checkbox"/> | Logistics | |
| <input type="checkbox"/> | Other: | |
| <input type="checkbox"/> | Not able to answer or not sure | |

19. Did at least one of the programs undertake investments in telecommunications infrastructure?

☐ Yes
 ☒ No
 ☐ Not sure

(If no or not sure, please go to question 21)

20. What was the approximate total value invested in telecommunications infrastructure

R\$
☐ Not sure

21. Did at least one of the programs undertake investments in water supply (including treatment) or irrigation?

☐ Yes
 ☒ No
 ☐ Not sure

(If no or not sure, please go to question 23)

22. What was the approximate total value invested in water supply (including water treatment) or irrigation?

R\$
☐ Not sure

23. Did at least one of the programs undertake investments in energy or mineral resources?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 25)

24. What was the approximate total value invested in energy or mineral resources?

R\$ ☐ Not sure

25. Did at least one of the programs undertake investments in sanitation?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 27)

26. What was the approximate total value invested in sanitation?

R\$ ☐ Not sure

27. Did at least one of the programs undertake investments in security?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 29)

28. What was the approximate total value invested in security?

R\$ ☐ Not sure

29. Did at least one of the programs undertake investments in the environment?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 32)

30. What was the approximate total value invested in the environment?

R\$ ☐ Not sure

31. Please specify the programs targeted at the following environmental areas and the total investment targeted for each type.

| | Programs | Value |
|--------------------------|---|-------|
| <input type="checkbox"/> | Garbage collection and sanitation | |
| <input type="checkbox"/> | Ecosystems conservation and reforestation | |
| <input type="checkbox"/> | Pollution control | |
| <input type="checkbox"/> | Water conservation | |
| <input type="checkbox"/> | Other: | |
| <input type="checkbox"/> | Not able to answer or not sure | |

32. Did at least one of the programs undertake investments in increasing the availability of land for productive or housing uses?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 34)

33. What was the approximate total value invested in increasing the availability of land for productive or housing uses?

R\$ ☐ Not sure

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34. Did at least one of the programs undertake investments in training to increase the technical skills of the labor force?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 36)

35. What was the approximate total value invested in training to increase the technical skills of the labor force?

R\$ ☐ Not sure

36. Did at least one of the programs undertake investments in business-oriented education?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 38)

37. What was the approximate total value invested in business-oriented education?

R\$ ☒ Not sure

38. Did at least one of the programs undertake investments in formal education (do not consider the usual expenditures spent by the municipal secretary)?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 41)

39. What was the approximate total value invested in formal education (do not consider the usual expenditures spent by the municipal secretary)?

R\$ ☐ Not sure

40. Please specify the programs targeted at the following educational areas and the total investment targeted for each type.

| | Programs | Value |
|--------------------------|--------------------------------|-------|
| <input type="checkbox"/> | Kindergarten | |
| <input type="checkbox"/> | Basic Education | |
| <input type="checkbox"/> | High School | |
| <input type="checkbox"/> | Technical Education | |
| <input type="checkbox"/> | Higher Education | |
| <input type="checkbox"/> | Other: | |
| <input type="checkbox"/> | Not able to answer or not sure | |

41. Did at least one of the programs undertake investments in research and development?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 43)

42. What was the approximate total value invested in research and development?

R\$ ☐ Not sure

43. Did at least one of the programs undertake investments in publicity and marketing on behalf of the municipality?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 45)

44. What was the approximate total value invested in publicity and marketing on behalf of the municipality?

R\$ ☐ Not sure

45. Did at least one of the programs undertake investments in urban regeneration?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 48)

46. What was the approximate total value invested in urban regeneration?

R\$ ☐ Not sure

47. Please specify the number of programs targeted at the following urban regeneration areas and the total investment targeted for each type.

| | Programs | Value |
|---|----------|-------|
| <input type="checkbox"/> Cultural and historic sites | | |
| <input type="checkbox"/> Slum/squatter improvement | | |
| <input type="checkbox"/> Affordable housing Projects | | |
| <input type="checkbox"/> Parks and trees | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

48. Did at least one of the programs undertake investments in income transfers?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 51)

49. What was the approximate total value invested in income transfers?

R\$ ☐ Not sure

50. Please specify the programs targeted at the following income transfer initiatives and the total investment targeted for each type.

| | Programs | Value |
|---|----------|-------|
| <input type="checkbox"/> Negative income schedule | | |
| <input type="checkbox"/> Scholarship | | |
| <input type="checkbox"/> Negative income contingent on school attendance | | |
| <input type="checkbox"/> Other: | | |
| <input checked="" type="checkbox"/> Not able to answer or not sure | | |

51. Did at least one of the programs undertake investments in increasing the availability of productive credits?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 55)

52. What was the approximate total value invested to make productive credits available?

R\$ 500.000,00 ☐ Not sure

53. What is the average interest rate of these programs? 1% / mo

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54. Please specify the credit mechanism targeted at the following sectors, the total investment targeted for each type and the average interest rate charged.

| | Programs | Value | Interest (%) |
|---|------------------------|---------------|--------------|
| <input checked="" type="checkbox"/> Micro-credit | Banco do Povo Paulista | R\$500.000,00 | 1% / mo |
| <input type="checkbox"/> Agriculture | | | |
| <input type="checkbox"/> Housing | | | |
| <input type="checkbox"/> Business in general | | | |
| <input type="checkbox"/> Other: | | | |
| <input type="checkbox"/> Not able to answer or not sure | | | |

55. Did at least one of the programs result in changes in municipal laws or regulations?

- ☐ Yes ☒ No ☐ Not sure
(If no or not sure, please go to question 57)

56. What are the programs that changed each type of law or regulation?

| | Programs | Value |
|--|----------|-------|
| <input type="checkbox"/> Zoning | | |
| <input type="checkbox"/> Health/Sanitation | | |
| <input type="checkbox"/> Crime | | |
| <input type="checkbox"/> Land use | | |
| <input type="checkbox"/> Process and procedures for business | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

57. Did at least one of the programs seek to create business incubators?

- ☒ Yes ☐ No ☐ Not sure

58. Did at least one of the programs create an agency for job creation?

- ☒ Yes ☐ No ☐ Not sure

59. Did at least one of the programs redistribute land?

- ☐ Yes ☒ No ☐ Not sure

60. Does the municipality practice participatory budgeting?

- ☐ Yes ☒ No ☐ Not sure

61. Did at least one of the programs undertake investments to improve public sector management?

- ☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 65)

62. What was the approximate total value invested in public sector management improvement?

- R\$ ☐ Not sure

63. Please specify the programs targeted at improving public sector management and the total investment targeted for each type.

| | Programs | Value |
|--------------------------|---|-------|
| <input type="checkbox"/> | Planning improvement | |
| <input type="checkbox"/> | Public sector human resources improvement | |
| <input type="checkbox"/> | Inter and intra-government relations | |
| <input type="checkbox"/> | Finance and budget | |
| <input type="checkbox"/> | Control | |
| <input type="checkbox"/> | Information systems | |
| <input type="checkbox"/> | Other: | |
| <input type="checkbox"/> | Not able to answer or not sure | |

64. What was the approximate total value invested by the municipality in local economic development?
R\$ 1.022.000,00 ☐ Not sure

65. What was the approximate total value invested by the state in local economic development?
R\$ 450.000,00 ☐ Not sure

66. What was the approximate total value invested by the federal government in local economic development?
R\$ 0 ☐ Not sure

67. What was the approximate total value invested with resources from other municipalities in local economic development?
R\$ 0 ☐ Not sure

68. What was the approximate total value of resources invested by FAT in local economic development?
R\$ ☒ Not sure

69. What was the approximate total value of resources invested by SUDAN or SUDENE in local economic development?
R\$ 0 ☐ Not sure

70. What was the approximate total value of resources invested by FUNDEF in local economic development?
R\$ ☒ Not sure

71. Did at least one of the programs receive donations or grants?
☐ Yes ☒ No ☐ Not sure
(If no or not sure, please go to question 76)

72. What is the total approximate value of the resources received for these programs in the form of donations/grants?
R\$ ☐ Not sure

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73. Please specify the donations/grants and the total investment targeted for each type.

Programs

Value

- ☐ National private sector donation
- ☐ International private sector donation
- ☐ Other:
- ☐ Not able to answer or not sure

74. Did at least one of the programs borrow funds to execute the project?

- ☐ Yes
- ☐ No
- ☒ Not sure

(If no or not sure is selected, close module)

75. What is the total approximate amount of resources received in loans?

R\$

- ☐ Not sure

76. Please specify the number of loans and the total investment targeted for each type.

Programs

Value

- ☐ Private Banks
- ☐ BNDES
- ☐ BNB
- ☐ Other government-owned banks
- ☐ World Bank
- ☐ IADB
- ☐ Other International Institution
- ☐ Other:
- ☐ Not able to answer or not sure

Recife, PE

1. Were one or more specific programs to promote local economic development adopted in this municipality?
☒ Yes ☐ No ☐ Not sure
 If no, close module.
2. Approximately, how many local economic development programs were implemented between 2000 e 2004? 7
3. What was the total expenditure allocated for those local economic development programs implemented between 2000 and 2004? 175,215,840

4. For each local economic development program that was implemented, please indicate provide a name, an estimate of the total program expenditures, the start and end date (if program is still in execution, please indicate “in process”; utilize as many sheets as necessary):

| Program | Start Date | End Date | Value (R\$) |
|--|------------|----------|-------------|
| <i>Auxílio Moradia</i> (Housing Voucher) | 2001 | Present | 25,291,800 |
| <i>Festival de Economia Popular e Solidária</i> (Festival of Popular and Solidary Economy) | 2003 | Present | 300,000 |
| <i>Bolsa-Escola Municipal</i> (Municipal School Voucher) | 1997 | Present | 99,155,040 |
| <i>Microcrédito</i> (Microcredit) | 2002 | Present | 10,269,000 |
| <i>Estímulo Financeiro ao APL Porto Digital</i> (Financial Support to the Porto Digital cluster) | 2004 | Present | 1,800,000 |
| <i>Bolsa-Escola / Bolsa-Família Federal</i> (Federal School voucher / Family fund) | 2003 | Present | 3,840,000 |

5. What was the primary objective of the programs?
 - ☐ Address market failures and economic efficiency: interventions designed to address the obstacles that undermine an efficient local economic system in order to help fulfill economic potentials, generating economies of scale, increasing productivity, improving the quality of local products and services, enabling investment, accessing markets, labor, information, technology and capital.
 - ☐ Address poverty and social exclusion: interventions designed to generate income, create better job conditions, and improve the welfare of the poor.
 - ☒ Address both market failures, economic efficiency, poverty and social exclusion.
 - ☐ Other:
6. What was the territorial scope for the programs?

| | | | |
|--|---|--|---|
| <input checked="" type="checkbox"/> National | 1 | <input checked="" type="checkbox"/> Neighborhood level | 1 |
| <input type="checkbox"/> Regional | | <input checked="" type="checkbox"/> At risk areas | 1 |
| <input type="checkbox"/> State level | | <input type="checkbox"/> Other | |
| <input type="checkbox"/> Inter-municipal | | <input type="checkbox"/> Not sure | |
| <input checked="" type="checkbox"/> Municipality | 2 | | |

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7. Was at least one of these programs focused on a specific sector?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question #10)

8. Which sectors? Information Technology

9. Please indicate the number of programs and the total value of these programs directed at each industrial sector. If no programs were directed at a specific industrial sector, please classify as "0". If the sector of a specific program is not known, please classify as "X".

| | Programs | Value |
|--|----------|-------------|
| <input type="checkbox"/> Agriculture | | |
| <input type="checkbox"/> Construction | | |
| <input type="checkbox"/> Manufacturing | | |
| <input type="checkbox"/> Retail | | |
| <input checked="" type="checkbox"/> Transportation | 1 | |
| <input type="checkbox"/> Finance | | |
| <input checked="" type="checkbox"/> Human resources | 3 | 162,284,000 |
| <input type="checkbox"/> Public sector | | |
| <input checked="" type="checkbox"/> Specialized Services | 1 | 1,800,000 |
| <input checked="" type="checkbox"/> Other: Microcredit, popular/solidary economy | 2 | 10,600 |
| <input type="checkbox"/> Not able to answer or not sure | | |

10. Were these programs focused on specific institutions (see list below)?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 13)

11. Which institutions?

12. Please indicate the programs and the total value of these programs directed at each of the following types of institutions.

| | Programs | Total value |
|---|----------|-------------|
| <input type="checkbox"/> Informal economy | | |
| <input type="checkbox"/> Cooperatives | | |
| <input type="checkbox"/> Small and medium enterprises | | |
| <input type="checkbox"/> Large corporations | | |
| <input type="checkbox"/> Public enterprises | | |
| <input type="checkbox"/> Unions | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

13. Were the programs focused on specific sectors of the population?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 16)

14. Which sectors of the population? Families with per capita income below 1/3 of minimum wage that have children enrolled at the municipal educational system, live in the city for at least 5 years and age between 6 and 15

15. Please specify the programs and the total investment targeted for each specific population.

| | Programs | Value |
|---|----------|-------------|
| <input checked="" type="checkbox"/> Low income | 2 | 137,550,000 |
| <input type="checkbox"/> Black | | |
| <input checked="" type="checkbox"/> Women | 1 | 3,240,000 |
| <input type="checkbox"/> "At risk groups"/minorities | | |
| <input type="checkbox"/> Teenagers and youth | | |
| <input type="checkbox"/> Homeless | | |
| <input type="checkbox"/> Ethnic/Indigenous | | |
| <input type="checkbox"/> Elderly | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

16. Did at least one of the programs undertake investments in transportation infrastructure?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 19)

17. What was the approximate total value invested in transportation infrastructure?

R\$ 7,000,000 ☐ Not sure

18. Please indicate the programs and investment that was targeted for each of the following types of transportation.

| | Programs | Value |
|---|----------|-----------|
| <input type="checkbox"/> Inter-municipal Roads | | |
| <input checked="" type="checkbox"/> Public transportation | 1 | 7,000,000 |
| <input type="checkbox"/> Urban road system | | |
| <input type="checkbox"/> Logistics | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

19. Did at least one of the programs undertake investments in telecommunications infrastructure?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 21)

20. What was the approximate total value invested in telecommunications infrastructure

R\$ ☐ Not sure

21. Did at least one of the programs undertake investments in water supply (including treatment) or irrigation?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 23)

22. What was the approximate total value invested in water supply (including water treatment) or irrigation?

R\$ ☐ Not sure

23. Did at least one of the programs undertake investments in energy or mineral resources?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 25)

24. What was the approximate total value invested in energy or mineral resources?
R\$ ☐ Not sure

25. Did at least one of the programs undertake investments in sanitation?
☒ Yes ☐ No ☐ Not sure
(If no or not sure, please go to question 27)

26. What was the approximate total value invested in sanitation?
R\$ ☒ Not sure

27. Did at least one of the programs undertake investments in security?
☐ Yes ☒ No ☐ Not sure
(If no or not sure, please go to question 29)

28. What was the approximate total value invested in security?
R\$ ☐ Not sure

29. Did at least one of the programs undertake investments in the environment?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 32)

30. What was the approximate total value invested in the environment?
R\$ ☐ Not sure

31. Please specify the programs targeted at the following environmental areas and the total investment targeted for each type.

| | Programs | Value |
|--------------------------|---|-------|
| <input type="checkbox"/> | Garbage collection and sanitation | |
| <input type="checkbox"/> | Ecosystems conservation and reforestation | |
| <input type="checkbox"/> | Pollution control | |
| <input type="checkbox"/> | Water conservation | |
| <input type="checkbox"/> | Other: | |
| <input type="checkbox"/> | Not able to answer or not sure | |

32. Did at least one of the programs undertake investments in increasing the availability of land for productive or housing uses?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 34)

33. What was the approximate total value invested in increasing the availability of land for productive or housing uses?
R\$ ☐ Not sure

34. Did at least one of the programs undertake investments in training to increase the technical skills of the labor force?
☒ Yes ☐ No ☐ Not sure
(If no or not sure, please go to question 36)

35. What was the approximate total value invested in training to increase the technical skills of the labor force?
R\$ ☒ Not sure

36. Did at least one of the programs undertake investments in business-oriented education?
☒ Yes ☐ No ☐ Not sure
(If no or not sure, please go to question 38)

37. What was the approximate total value invested in business-oriented education?
R\$ ☒ Not sure

38. Did at least one of the programs undertake investments in formal education (do not consider the usual expenditures spent by the municipal secretary)?
☒ Yes ☐ No ☐ Not sure
(If no or not sure, please go to question 41)

39. What was the approximate total value invested in formal education (do not consider the usual expenditures spent by the municipal secretary)?
R\$ ☒ Not sure

40. Please specify the programs targeted at the following educational areas and the total investment targeted for each type.

| | Programs | Value |
|---|----------|-------|
| <input type="checkbox"/> Kindergarten | | |
| <input checked="" type="checkbox"/> Basic Education | 2 | |
| <input type="checkbox"/> High School | | |
| <input checked="" type="checkbox"/> Technical Education | | |
| <input type="checkbox"/> Higher Education | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

41. Did at least one of the programs undertake investments in research and development?
☐ Yes ☒ No ☐ Not sure
(If no or not sure, please go to question 43)

42. What was the approximate total value invested in research and development?
R\$ ☐ Not sure

43. Did at least one of the programs undertake investments in publicity and marketing on behalf of the municipality?
☐ Yes ☒ No ☐ Not sure
(If no or not sure, please go to question 45)

44. What was the approximate total value invested in publicity and marketing on behalf of the municipality?
R\$ ☐ Not sure

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45. Did at least one of the programs undertake investments in urban regeneration?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 48)

46. What was the approximate total value invested in urban regeneration?

R\$ ☐ Not sure

47. Please specify the number of programs targeted at the following urban regeneration areas and the total investment targeted for each type.

| | Programs | Value |
|---|----------|-------|
| <input type="checkbox"/> Cultural and historic sites | | |
| <input type="checkbox"/> Slum/squatter improvement | | |
| <input type="checkbox"/> Affordable housing Projects | | |
| <input type="checkbox"/> Parks and trees | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

48. Did at least one of the programs undertake investments in income transfers?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 51)

49. What was the approximate total value invested in income transfers?

R\$ 164,646,000 ☐ Not sure

50. Please specify the programs targeted at the following income transfer initiatives and the total investment targeted for each type.

| | Programs | Value |
|---|----------|------------|
| <input checked="" type="checkbox"/> Negative income schedule | 1 | 38,000,000 |
| <input type="checkbox"/> Scholarship | | |
| <input checked="" type="checkbox"/> Negative income contingent on school attendance | 1 | 99,155,000 |
| <input checked="" type="checkbox"/> Other: Exit from areas of risk | 1 | 25,000,000 |
| <input type="checkbox"/> Not able to answer or not sure | | |

51. Did at least one of the programs undertake investments in increasing the availability of productive credits?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 55)

52. What was the approximate total value invested to make productive credits available?

R\$ 10,269,000 ☐ Not sure

53. What is the average interest rate of these programs?

54. Please specify the credit mechanism targeted at the following sectors, the total investment targeted for each type and the average interest rate charged.

| | Programs | Value | Interest (%) |
|--|----------|------------|--------------|
| <input checked="" type="checkbox"/> Micro-credit | 1 | 10,269,000 | |
| <input type="checkbox"/> Agriculture | | | |

- ☐ Housing
- ☐ Business in general
- ☐ Other:
- ☐ Not able to answer or not sure

55. Did at least one of the programs result in changes in municipal laws or regulations?

- ☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 57)

56. What are the programs that changed each type of law or regulation?

Programs

Value

- ☐ Zoning
- ☐ Health/Sanitation
- ☐ Crime
- ☐ Land use
- ☐ Process and procedures for business
- ☒ Other: Microcredit; financial support to Porto Digital
- ☐ Not able to answer or not sure

57. Did at least one of the programs seek to create business incubators?

- ☐ Yes ☒ No ☐ Not sure

58. Did at least one of the programs create an agency for job creation?

- ☐ Yes ☒ No ☐ Not sure

59. Did at least one of the programs redistribute land?

- ☐ Yes ☒ No ☐ Not sure

60. Does the municipality practice participatory budgeting?

- ☒ Yes ☐ No ☐ Not sure

61. Did at least one of the programs undertake investments to improve public sector management?

- ☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 65)

62. What was the approximate total value invested in public sector management improvement?

- R\$ ☐ Not sure

63. Please specify the programs targeted at improving public sector management and the total investment targeted for each type.

Programs

Value

- ☐ Planning improvement
- ☐ Public sector human resources improvement
- ☐ Inter and intra-government relations
- ☐ Finance and budget
- ☐ Control
- ☐ Information systems
- ☐ Other:
- ☐ Not able to answer or not sure

64. What was the approximate total value invested by the municipality in local economic development?
R\$ ☒ Not sure
65. What was the approximate total value invested by the state in local economic development?
R\$ ☒ Not sure
66. What was the approximate total value invested by the federal government in local economic development?
R\$ ☒ Not sure
67. What was the approximate total value invested with resources from other municipalities in local economic development?
R\$ ☒ Not sure
68. What was the approximate total value of resources invested by FAT in local economic development?
R\$ ☒ Not sure
69. What was the approximate total value of resources invested by SUDAN or SUDENE in local economic development?
R\$ ☒ Not sure
70. What was the approximate total value of resources invested by FUNDEF in local economic development?
R\$ ☒ Not sure
71. Did at least one of the programs receive donations or grants?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 76)
72. What is the total approximate value of the resources received for these programs in the form of donations/grants?
R\$ ☐ Not sure
73. Please specify the donations/grants and the total investment targeted for each type.
- | | Programs | Value |
|--|----------|-------|
| <input type="checkbox"/> National private sector donation | | |
| <input type="checkbox"/> International private sector donation | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |
74. Did at least one of the programs borrow funds to execute the project?
☐ Yes ☐ No ☐ Not sure
(If no or not sure is selected, close module)
75. What is the total approximate amount of resources received in loans?
R\$ ☐ Not sure

76. Please specify the number of loans and the total investment targeted for each type.

| | Programs | Value |
|--|----------|-------|
| <input type="checkbox"/> Private Banks | | |
| <input type="checkbox"/> BNDES | | |
| <input checked="" type="checkbox"/> BNB | | |
| <input type="checkbox"/> Other government-owned banks | | |
| <input checked="" type="checkbox"/> World Bank | | |
| <input checked="" type="checkbox"/> IADB | | |
| <input type="checkbox"/> Other International Institution | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

Olinda, PE

1. Were one or more specific programs to promote local economic development adopted in this municipality?
☒ Yes ☐ No ☐ Not sure
 If no, close module.
2. Approximately, how many local economic development programs were implemented between 2000 e 2004?
3. What was the total expenditure allocated for those local economic development programs implemented between 2000 and 2004?

4. For each local economic development program that was implemented, please indicate provide a name, an estimate of the total program expenditures, the start and end date (if program is still in execution, please indicate “in process”; utilize as many sheets as necessary):

| Program | Start Date | End Date | Value (R\$) |
|--|------------|----------|--------------|
| Área Rural (Rural Area) | 1983 | Present | Not informed |
| Pólo Médico (Medical Cluster) | 1995 | Present | Not informed |
| Pólos Comerciais (Commercial Clusters) | 1998 | Present | Not informed |
| Guarda Municipal - Reestruturação (Metropolitan Police – Restructuring) | 2001 | Present | 452,000 |
| Guias Mirins de Olinda (Youth Guides from Olinda) | 2001 | Present | 200,000 |
| Investimento na Educação (Investment on Education) | 2001 | Present | 2,526,559 |
| Capacitação Profissional dos Professores (Professional Training of the Teachers) | 2001 | Present | 2,744,734 |
| Programa Morar Bem (Program Good Living) | 2003 | Present | 1,400,000 |
| Projeto Habitacional (Housing Project) | 2003 | Present | 1,500,000 |

5. What was the primary objective of the programs?
☐ Address market failures and economic efficiency: interventions designed to address the obstacles that undermine an efficient local economic system in order to help fulfill economic potentials, generating economies of scale, increasing productivity, improving the quality of local products and services, enabling investment, accessing markets, labor, information, technology and capital.
☒ Address poverty and social exclusion: interventions designed to generate income, create better job conditions, and improve the welfare of the poor.
☐ Address both market failures, economic efficiency, poverty and social exclusion.
☐ Other:
6. What was the territorial scope for the programs?

☐ National
☐ Regional
☐ State level
☐ Inter-municipal

☒ Municipality
☐ Neighborhood level
☒ At risk areas
☐ Other

☐ Not sure

7. Was at least one of these programs focused on a specific sector?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question #10)

8. Which sectors? Housing

9. Please indicate the number of programs and the total value of these programs directed at each industrial sector. If no programs were directed at a specific industrial sector, please classify as "0". If the sector of a specific program is not known, please classify as "X".

| | Programs | Value |
|---|----------|--------------|
| <input type="checkbox"/> Agriculture | | |
| <input checked="" type="checkbox"/> Construction | 2 | 2.900.000,00 |
| <input type="checkbox"/> Manufacturing | | |
| <input type="checkbox"/> Retail | | |
| <input type="checkbox"/> Transportation | | |
| <input type="checkbox"/> Finance | | |
| <input checked="" type="checkbox"/> Human resources | 1 | 2.744.734,00 |
| <input checked="" type="checkbox"/> Public sector | 1 | 452.000,00 |
| <input type="checkbox"/> Specialized Services | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

10. Were these programs focused on specific institutions (see list below)?

☐ Yes ☒ No ☐ Not sure

(If no or not sure, please go to question 13)

11. Which institutions?

12. Please indicate the programs and the total value of these programs directed at each of the following types of institutions.

| | Programs | Total value |
|--|----------|-------------|
| <input type="checkbox"/> Informal economy | | |
| <input type="checkbox"/> Cooperatives | | |
| <input type="checkbox"/> Small and medium enterprises | | |
| <input type="checkbox"/> Large corporations | | |
| <input type="checkbox"/> Public enterprises | | |
| <input type="checkbox"/> Unions | | |
| <input type="checkbox"/> Other: | | |
| <input checked="" type="checkbox"/> Not able to answer or not sure | | |

13. Were the programs focused on specific sectors of the population?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 16)

14. Which sectors of the population? Associations of Dwellers

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15. Please specify the programs and the total investment targeted for each specific population.

| | Programs | Value |
|---|----------|---------|
| <input checked="" type="checkbox"/> Low income | 1 | 400,000 |
| <input type="checkbox"/> Black | | |
| <input checked="" type="checkbox"/> Women | 1 | 5,000 |
| <input type="checkbox"/> "At risk groups"/minorities | | |
| <input checked="" type="checkbox"/> Teenagers and youth | 2 | 205,000 |
| <input type="checkbox"/> Homeless | | |
| <input type="checkbox"/> Ethnic/Indigenous | | |
| <input type="checkbox"/> Elderly | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

16. Did at least one of the programs undertake investments in transportation infrastructure?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 19)

17. What was the approximate total value invested in transportation infrastructure?

R\$ ☐ Not sure

18. Please indicate the programs and investment that was targeted for each of the following types of transportation.

| | Programs | Value |
|---|----------|-------|
| <input type="checkbox"/> Inter-municipal Roads | | |
| <input type="checkbox"/> Public transportation | | |
| <input type="checkbox"/> Urban road system | | |
| <input type="checkbox"/> Logistics | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

19. Did at least one of the programs undertake investments in telecommunications infrastructure?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 21)

20. What was the approximate total value invested in telecommunications infrastructure?

R\$ ☐ Not sure

21. Did at least one of the programs undertake investments in water supply (including treatment) or irrigation?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 23)

22. What was the approximate total value invested in water supply (including water treatment) or irrigation?

R\$ ☐ Not sure

23. Did at least one of the programs undertake investments in energy or mineral resources?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 25)

24. What was the approximate total value invested in energy or mineral resources?
R\$ ☐ Not sure

25. Did at least one of the programs undertake investments in sanitation?
☒ Yes ☐ No ☐ Not sure
(If no or not sure, please go to question 27)

26. What was the approximate total value invested in sanitation?
R\$ 800,000 ☐ Not sure

27. Did at least one of the programs undertake investments in security?
☒ Yes ☐ No ☐ Not sure
(If no or not sure, please go to question 29)

28. What was the approximate total value invested in security?
R\$ 452,000 ☐ Not sure

29. Did at least one of the programs undertake investments in the environment?
☒ Yes ☐ No ☐ Not sure
(If no or not sure, please go to question 32)

30. What was the approximate total value invested in the environment?
R\$ 500,000 ☐ Not sure

31. Please specify the programs targeted at the following environmental areas and the total investment targeted for each type.

| | Programs | Value |
|---|----------|---------|
| <input checked="" type="checkbox"/> Garbage collection and sanitation | 1 | 500,000 |
| <input type="checkbox"/> Ecosystems conservation and reforestation | | |
| <input type="checkbox"/> Pollution control | | |
| <input type="checkbox"/> Water conservation | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

32. Did at least one of the programs undertake investments in increasing the availability of land for productive or housing uses?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 34)

33. What was the approximate total value invested in increasing the availability of land for productive or housing uses?
R\$ ☐ Not sure

34. Did at least one of the programs undertake investments in training to increase the technical skills of the labor force?
☒ Yes ☐ No ☐ Not sure
(If no or not sure, please go to question 36)

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35. What was the approximate total value invested in training to increase the technical skills of the labor force?

R\$ 10,000 ☐ Not sure

36. Did at least one of the programs undertake investments in business-oriented education?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 38)

37. What was the approximate total value invested in business-oriented education?

R\$ ☐ Not sure

38. Did at least one of the programs undertake investments in formal education (do not consider the usual expenditures spent by the municipal secretary)?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 41)

39. What was the approximate total value invested in formal education (do not consider the usual expenditures spent by the municipal secretary)?

R\$ ☒ Not sure

40. Please specify the programs targeted at the following educational areas and the total investment targeted for each type.

| | Programs | Value |
|-------------------------------------|--------------------------------|-------|
| <input checked="" type="checkbox"/> | Kindergarten | |
| <input checked="" type="checkbox"/> | Basic Education | |
| <input type="checkbox"/> | High School | |
| <input type="checkbox"/> | Technical Education | |
| <input type="checkbox"/> | Higher Education | |
| <input type="checkbox"/> | Other: | |
| <input type="checkbox"/> | Not able to answer or not sure | |

41. Did at least one of the programs undertake investments in research and development?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 43)

42. What was the approximate total value invested in research and development?

R\$ ☐ Not sure

43. Did at least one of the programs undertake investments in publicity and marketing on behalf of the municipality?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 45)

44. What was the approximate total value invested in publicity and marketing on behalf of the municipality?

R\$ 900,000 ☐ Not sure

45. Did at least one of the programs undertake investments in urban regeneration?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 48)

46. What was the approximate total value invested in urban regeneration?

R\$ ☒ Not sure

47. Please specify the number of programs targeted at the following urban regeneration areas and the total investment targeted for each type.

| | Programs | Value |
|---|----------|-------|
| <input checked="" type="checkbox"/> Cultural and historic sites | | |
| <input type="checkbox"/> Slum/squatter improvement | | |
| <input checked="" type="checkbox"/> Affordable housing Projects | | |
| <input type="checkbox"/> Parks and trees | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

48. Did at least one of the programs undertake investments in income transfers?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 51)

49. What was the approximate total value invested in income transfers?

R\$ 72,000 ☐ Not sure

50. Please specify the programs targeted at the following income transfer initiatives and the total investment targeted for each type.

| | Programs | Value |
|--|----------|--------|
| <input type="checkbox"/> Negative income schedule | | |
| <input type="checkbox"/> Scholarship | | |
| <input type="checkbox"/> Negative income contingent on school attendance | | |
| <input checked="" type="checkbox"/> Other: Bolsa Familia (Family Fund) | 1 | 72,000 |
| <input type="checkbox"/> Not able to answer or not sure | | |

51. Did at least one of the programs undertake investments in increasing the availability of productive credits?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 55)

52. What was the approximate total value invested to make productive credits available?

R\$ ☐ Not sure

53. What is the average interest rate of these programs?

54. Please specify the credit mechanism targeted at the following sectors, the total investment targeted for each type and the average interest rate charged.

| | Programs | Value | Interest (%) |
|---------------------------------------|----------|-------|--------------|
| <input type="checkbox"/> Micro-credit | | | |
| <input type="checkbox"/> Agriculture | | | |

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- ☐ Housing
- ☐ Business in general
- ☐ Other:
- ☐ Not able to answer or not sure

55. Did at least one of the programs result in changes in municipal laws or regulations?

- ☐ Yes
- ☐ No
- ☒ Not sure

(If no or not sure, please go to question 57)

56. What are the programs that changed each type of law or regulation?

Programs

Value

- ☐ Zoning
- ☐ Health/Sanitation
- ☐ Crime
- ☐ Land use
- ☐ Process and procedures for business
- ☐ Other:
- ☐ Not able to answer or not sure

57. Did at least one of the programs seek to create business incubators?

- ☐ Yes
- ☐ No
- ☒ Not sure

58. Did at least one of the programs create an agency for job creation?

- ☐ Yes
- ☐ No
- ☒ Not sure

59. Did at least one of the programs redistribute land?

- ☐ Yes
- ☐ No
- ☒ Not sure

60. Does the municipality practice participatory budgeting?

- ☒ Yes
- ☐ No
- ☐ Not sure

61. Did at least one of the programs undertake investments to improve public sector management?

- ☒ Yes
- ☐ No
- ☐ Not sure

(If no or not sure, please go to question 65)

62. What was the approximate total value invested in public sector management improvement?

- R\$ 452,000
- ☐ Not sure

63. Please specify the programs targeted at improving public sector management and the total investment targeted for each type.

Programs

Value

- ☐ Planning improvement
- ☐ Public sector human resources improvement
- ☐ Inter and intra-government relations
- ☐ Finance and budget
- ☐ Control
- ☐ Information systems
- ☐ Other:
- ☒ Not able to answer or not sure

64. What was the approximate total value invested by the municipality in local economic development?
R\$ ☒ Not sure
65. What was the approximate total value invested by the state in local economic development?
R\$ ☒ Not sure
66. What was the approximate total value invested by the federal government in local economic development?
R\$ ☒ Not sure
67. What was the approximate total value invested with resources from other municipalities in local economic development?
R\$ ☒ Not sure
68. What was the approximate total value of resources invested by FAT in local economic development?
R\$ ☒ Not sure
69. What was the approximate total value of resources invested by SUDAN or SUDENE in local economic development?
R\$ ☒ Not sure
70. What was the approximate total value of resources invested by FUNDEF in local economic development?
R\$ ☒ Not sure
71. Did at least one of the programs receive donations or grants?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 76)
72. What is the total approximate value of the resources received for these programs in the form of donations/grants?
R\$ ☐ Not sure
73. Please specify the donations/grants and the total investment targeted for each type.
- | | Programs | Value |
|--|----------|-------|
| <input type="checkbox"/> National private sector donation | | |
| <input type="checkbox"/> International private sector donation | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |
74. Did at least one of the programs borrow funds to execute the project?
☐ Yes ☐ No ☐ Not sure
(If no or not sure is selected, close module)
75. What is the total approximate amount of resources received in loans?
R\$ ☐ Not sure

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76. Please specify the number of loans and the total investment targeted for each type.

| | Programs | Value |
|--|----------|-------|
| <input type="checkbox"/> Private Banks | | |
| <input type="checkbox"/> BNDES | | |
| <input type="checkbox"/> BNB | | |
| <input type="checkbox"/> Other government-owned banks | | |
| <input type="checkbox"/> World Bank | | |
| <input type="checkbox"/> IADB | | |
| <input type="checkbox"/> Other International Institution | | |
| <input type="checkbox"/> Other: | | |
| <input checked="" type="checkbox"/> Not able to answer or not sure | | |

Jaboatão dos Guararapes, PE

1. Were one or more specific programs to promote local economic development adopted in this municipality?
☒ Yes ☐ No ☐ Not sure
 If no, close module.
2. Approximately, how many local economic development programs were implemented between 2000 e 2004? 5
3. What was the total expenditure allocated for those local economic development programs implemented between 2000 and 2004? 857,685

4. For each local economic development program that was implemented, please indicate provide a name, an estimate of the total program expenditures, the start and end date (if program is still in execution, please indicate “in process”; utilize as many sheets as necessary):

| Program | Start Date | End Date | Value (R\$) |
|--|------------|----------|-------------|
| <i>Bacia Olho d'Água</i> (Olho d'Água Basin) | 2001 | Present | 494,534 |
| <i>Urbanização Comunitária</i> (Community Urbanization) | 2001 | Present | 24,800 |
| <i>Espaços verdes municipais</i> (Municipal green spaces) | 2001 | Present | 194,785 |
| <i>COMAME – Centro de Comercialização e Atendimento ao Microempresário</i> (Center for Commerce and Micro-entrepreneur Care) | 2001 | Present | 50,839 |
| <i>Promoção da Indústria do Turismo</i> (Promotion of Tourism Industry) | 2001 | Present | 92,727 |

5. What was the primary objective of the programs?
 - ☐ Address market failures and economic efficiency: interventions designed to address the obstacles that undermine an efficient local economic system in order to help fulfill economic potentials, generating economies of scale, increasing productivity, improving the quality of local products and services, enabling investment, accessing markets, labor, information, technology and capital.
 - ☐ Address poverty and social exclusion: interventions designed to generate income, create better job conditions, and improve the welfare of the poor.
 - ☐ Address both market failures, economic efficiency, poverty and social exclusion.
 - ☐ Other:
6. What was the territorial scope for the programs?
 - ☐ National ☒ Not sure
 - ☐ Regional
 - ☐ State level
 - ☐ Inter-municipal
 - ☐ Municipality
 - ☐ Neighborhood level
 - ☐ At risk areas
 - ☐ Other

7. Was at least one of these programs focused on a specific sector?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question #10)

8. Which sectors?

9. Please indicate the number of programs and the total value of these programs directed at each industrial sector. If no programs were directed at a specific industrial sector, please classify as "0". If the sector of a specific program is not known, please classify as "X".

| | Programs | Value |
|---|----------|-------|
| <input type="checkbox"/> Agriculture | | |
| <input type="checkbox"/> Construction | | |
| <input type="checkbox"/> Manufacturing | | |
| <input type="checkbox"/> Retail | | |
| <input type="checkbox"/> Transportation | | |
| <input type="checkbox"/> Finance | | |
| <input type="checkbox"/> Human resources | | |
| <input type="checkbox"/> Public sector | | |
| <input type="checkbox"/> Specialized Services | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

10. Were these programs focused on specific institutions (see list below)?

☒ Yes ☐ No ☐ Not sure

(If no or not sure, please go to question 13)

11. Which institutions?

12. Please indicate the programs and the total value of these programs directed at each of the following types of institutions.

| | Programs | Total |
|--|----------|--------|
| value | | |
| <input type="checkbox"/> Informal economy | | |
| <input type="checkbox"/> Cooperatives | | |
| <input checked="" type="checkbox"/> Small and medium enterprises | COMAME | 50,839 |
| <input type="checkbox"/> Large corporations | | |
| <input type="checkbox"/> Public enterprises | | |
| <input type="checkbox"/> Unions | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

13. Were the programs focused on specific sectors of the population?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 16)

14. Which sectors of the population?

15. Please specify the programs and the total investment targeted for each specific population.

| | Programs | Value |
|--------------------------|--------------------------------|-------|
| <input type="checkbox"/> | Low income | |
| <input type="checkbox"/> | Black | |
| <input type="checkbox"/> | Women | |
| <input type="checkbox"/> | “At risk groups”/minorities | |
| <input type="checkbox"/> | Teenagers and youth | |
| <input type="checkbox"/> | Homeless | |
| <input type="checkbox"/> | Ethnic/Indigenous | |
| <input type="checkbox"/> | Elderly | |
| <input type="checkbox"/> | Other: | |
| <input type="checkbox"/> | Not able to answer or not sure | |

16. Did at least one of the programs undertake investments in transportation infrastructure?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 19)

17. What was the approximate total value invested in transportation infrastructure?

R\$ ☐ Not sure

18. Please indicate the programs and investment that was targeted for each of the following types of transportation.

| | Programs | Value |
|--------------------------|--------------------------------|-------|
| <input type="checkbox"/> | Inter-municipal Roads | |
| <input type="checkbox"/> | Public transportation | |
| <input type="checkbox"/> | Urban road system | |
| <input type="checkbox"/> | Logistics | |
| <input type="checkbox"/> | Other: | |
| <input type="checkbox"/> | Not able to answer or not sure | |

19. Did at least one of the programs undertake investments in telecommunications infrastructure?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 21)

20. What was the approximate total value invested in telecommunications infrastructure

R\$ ☐ Not sure

21. Did at least one of the programs undertake investments in water supply (including treatment) or irrigation?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 23)

22. What was the approximate total value invested in water supply (including water treatment) or irrigation?
R\$ ☐ Not sure
23. Did at least one of the programs undertake investments in energy or mineral resources?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 25)
24. What was the approximate total value invested in energy or mineral resources?
R\$ ☐ Not sure
25. Did at least one of the programs undertake investments in sanitation?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 27)
26. What was the approximate total value invested in sanitation?
R\$ ☐ Not sure
27. Did at least one of the programs undertake investments in security?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 29)
28. What was the approximate total value invested in security?
R\$ ☐ Not sure
29. Did at least one of the programs undertake investments in the environment?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 32)
30. What was the approximate total value invested in the environment?
R\$ ☐ Not sure
31. Please specify the programs targeted at the following environmental areas and the total investment targeted for each type.
- | | Programs | Value |
|--------------------------|---|-------|
| <input type="checkbox"/> | Garbage collection and sanitation | |
| <input type="checkbox"/> | Ecosystems conservation and reforestation | |
| <input type="checkbox"/> | Pollution control | |
| <input type="checkbox"/> | Water conservation | |
| <input type="checkbox"/> | Other: | |
| <input type="checkbox"/> | Not able to answer or not sure | |
32. Did at least one of the programs undertake investments in increasing the availability of land for productive or housing uses?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 34)

33. What was the approximate total value invested in increasing the availability of land for productive or housing uses?

R\$ ☐ Not sure

34. Did at least one of the programs undertake investments in training to increase the technical skills of the labor force?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 36)

35. What was the approximate total value invested in training to increase the technical skills of the labor force?

R\$ ☐ Not sure

36. Did at least one of the programs undertake investments in business-oriented education?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 38)

37. What was the approximate total value invested in business-oriented education?

R\$ ☐ Not sure

38. Did at least one of the programs undertake investments in formal education (do not consider the usual expenditures spent by the municipal secretary)?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 41)

39. What was the approximate total value invested in formal education (do not consider the usual expenditures spent by the municipal secretary)?

R\$ ☐ Not sure

40. Please specify the programs targeted at the following educational areas and the total investment targeted for each type.

| | Programs | Value |
|--------------------------|--------------------------------|-------|
| <input type="checkbox"/> | Kindergarten | |
| <input type="checkbox"/> | Basic Education | |
| <input type="checkbox"/> | High School | |
| <input type="checkbox"/> | Technical Education | |
| <input type="checkbox"/> | Higher Education | |
| <input type="checkbox"/> | Other: | |
| <input type="checkbox"/> | Not able to answer or not sure | |

41. Did at least one of the programs undertake investments in research and development?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 43)

42. What was the approximate total value invested in research and development?
R\$ ☐ Not sure
43. Did at least one of the programs undertake investments in publicity and marketing on behalf of the municipality?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 45)
44. What was the approximate total value invested in publicity and marketing on behalf of the municipality?
R\$ ☐ Not sure
45. Did at least one of the programs undertake investments in urban regeneration?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 48)
46. What was the approximate total value invested in urban regeneration?
R\$ ☐ Not sure
47. Please specify the number of programs targeted at the following urban regeneration areas and the total investment targeted for each type.
- | | Programs | Value |
|---|----------|-------|
| <input type="checkbox"/> Cultural and historic sites | | |
| <input type="checkbox"/> Slum/squatter improvement | | |
| <input type="checkbox"/> Affordable housing Projects | | |
| <input type="checkbox"/> Parks and trees | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |
48. Did at least one of the programs undertake investments in income transfers?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 51)
49. What was the approximate total value invested in income transfers?
R\$ ☐ Not sure
50. Please specify the programs targeted at the following income transfer initiatives and the total investment targeted for each type.
- | | Programs | Value |
|--|----------|-------|
| <input type="checkbox"/> Negative income schedule | | |
| <input type="checkbox"/> Scholarship | | |
| <input type="checkbox"/> Negative income contingent on school attendance | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

51. Did at least one of the programs undertake investments in increasing the availability of productive credits?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 55)

52. What was the approximate total value invested to make productive credits available?
R\$ ☐ Not sure

53. What is the average interest rate of these programs?

54. Please specify the credit mechanism targeted at the following sectors, the total investment targeted for each type and the average interest rate charged.

| | Programs Interest (%) | Value |
|---|--------------------------|-------|
| <input type="checkbox"/> Micro-credit | | |
| <input type="checkbox"/> Agriculture | | |
| <input type="checkbox"/> Housing | | |
| <input type="checkbox"/> Business in general | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

55. Did at least one of the programs result in changes in municipal laws or regulations?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 57)

56. What are the programs that changed each type of law or regulation?

| | Programs | Value |
|--|----------|-------|
| <input type="checkbox"/> Zoning | | |
| <input type="checkbox"/> Health/Sanitation | | |
| <input type="checkbox"/> Crime | | |
| <input type="checkbox"/> Land use | | |
| <input type="checkbox"/> Process and procedures for business | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

57. Did at least one of the programs seek to create business incubators?

☐ Yes ☐ No ☒ Not sure

58. Did at least one of the programs create an agency for job creation?

☐ Yes ☐ No ☒ Not sure

59. Did at least one of the programs redistribute land?

☐ Yes ☐ No ☒ Not sure

60. Does the municipality practice participatory budgeting?

☐ Yes ☐ No ☒ Not sure

61. Did at least one of the programs undertake investments to improve public sector management?

☐ Yes ☐ No ☒ Not sure

(If no or not sure, please go to question 65)

62. What was the approximate total value invested in public sector management improvement?

R\$ ☐ Not sure

63. Please specify the programs targeted at improving public sector management and the total investment targeted for each type.

| | Programs | Value |
|--|----------|-------|
| <input type="checkbox"/> Planning improvement | | |
| <input type="checkbox"/> Public sector human resources improvement | | |
| <input type="checkbox"/> Inter and intra-government relations | | |
| <input type="checkbox"/> Finance and budget | | |
| <input type="checkbox"/> Control | | |
| <input type="checkbox"/> Information systems | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

64. What was the approximate total value invested by the municipality in local economic development?

R\$ ☒ Not sure

65. What was the approximate total value invested by the state in local economic development?

R\$ ☒ Not sure

66. What was the approximate total value invested by the federal government in local economic development?

R\$ ☒ Not sure

67. What was the approximate total value invested with resources from other municipalities in local economic development?

R\$ ☒ Not sure

68. What was the approximate total value of resources invested by FAT in local economic development?

R\$ ☒ Not sure

69. What was the approximate total value of resources invested by SUDAN or SUDENE in local economic development?

R\$ ☒ Not sure

70. What was the approximate total value of resources invested by FUNDEF in local economic development?
R\$ ☒ Not sure
71. Did at least one of the programs receive donations or grants?
☐ Yes ☐ No ☒ Not sure
(If no or not sure, please go to question 76)
72. What is the total approximate value of the resources received for these programs in the form of donations/grants?
R\$ ☐ Not sure
73. Please specify the donations/grants and the total investment targeted for each type.
- | | Programs | Value |
|--|----------|-------|
| <input type="checkbox"/> National private sector donation | | |
| <input type="checkbox"/> International private sector donation | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |
74. Did at least one of the programs borrow funds to execute the project?
☐ Yes ☐ No ☒ Not sure
(If no or not sure is selected, close module)
75. What is the total approximate amount of resources received in loans?
R\$ ☐ Not sure
76. Please specify the number of loans and the total investment targeted for each type.
- | | Programs | Value |
|--|----------|-------|
| <input type="checkbox"/> Private Banks | | |
| <input type="checkbox"/> BNDES | | |
| <input type="checkbox"/> BNB | | |
| <input type="checkbox"/> Other government-owned banks | | |
| <input type="checkbox"/> World Bank | | |
| <input type="checkbox"/> IADB | | |
| <input type="checkbox"/> Other International Institution | | |
| <input type="checkbox"/> Other: | | |
| <input type="checkbox"/> Not able to answer or not sure | | |

Appendix 4.C: Details of the Case Study

Jundiaí

Interviews Conducted in the Field Research

- Municipal Secretary of Economic Development
Roberto Pelizzer, Technical Assistant
- Municipal Secretary of Education
Prof.^a. Solange Maria Miguel Almeida de Souza, Director of Administrative Assistance
- Municipal Secretary of Health
Dr^a Cristina P. S. Moraes, Physician/Auditor
- Municipal Secretary of Finance
José Antonio Parimoschi, Secretary
- Municipal Secretary of Finance
José Antonio Parimoschi, Secretary

Small Active Programs

AMIGOS DO TRÂNSITO (*FRIENDS OF THE TRAFFIC*)

Education

The objective is to create awareness among citizens of their role in society as pedestrians, drivers and multiplying agents of traffic education. It takes place in schools through theatre plays and live audience shows and involves the preparation of teachers and students, stressing the dissemination of values amongst children and adolescents.

Scope: Municipal

Responsible: Municipal Prefecture of Jundiaí

APRENDA NADANDO (*LEARN SWIMMING*)

Education

Offers low income children aquatic activities once a week; the classes are conducted by volunteer monitors, undergrads of Physical Education; they develop social and affective qualities such as cooperation, discipline, self control, self esteem and self confidence.

Scope: Municipal

Responsible: Escola Superior de Educação Física de Jundiaí

EXECUÇÃO DO PLANO PLURIANUAL ASSOCIADO AO ORÇAMENTO ANUAL (*EXECUTION OF THE MULTI-ANNUAL PLAN ASSOCIATED WITH THE ANNUAL BUDGET*)

Management and Planning

Facilitates the access to technical data relative to public expenditure; compliance with the planning and budgeting laws in the processing of expenditure; allows the effective control of the accomplishment of the established goals and the transparency of the execution phase of the budget.

Scope: Municipal

Responsible: Municipal Prefecture of Jundiaí

SISTEMA DE INFORMAÇÕES MUNICIPAIS – SIM
(*MUNICIPAL INFORMATION SYSTEM*)

Management and Planning

EIS (Executive Information System) of municipal information that provides to the mayor, assistants and collaborators a trustworthy database for decision-making support, allowing transparent and effective public management; aiming at maximizing public resources.

Scope: Municipal

Responsible: Municipal Prefecture of Jundiaí

COMPRA ABERTA: O SITE DE COMPRAS DA PREFEITURA DO MUNICÍPIO DE JUNDIAÍ
(*OPEN PROCUREMENT: THE PROCUREMENT WEBSITE OF THE PREFECTURE OF JUNDIAÍ*)

Management and Planning

A procurement website that allows for the purchase of goods and services by the City throughout three modalities of procurement (electronic auction, invitation and direct purchase), making the process efficient and fostering competition, allowing for the reduction of the amount spent and the time consumed in the procurement process.

Scope: Municipal

Responsible: Municipal Prefecture of Jundiaí

SORRISO CONTENTE – ADOTE UM ADOLESCENTE
(*HAPPY SMILE – ADOPT AN ADOLESCENT*)

Social Integration

Offers to adolescents in social risk situation a course of professional training at Senai and Senac, and subsequent employment by businessmen for a better training; they are also followed-up by the network of partners in work, in school and in family with periodical orientation.

Scope: Municipal

PROJETO IR E VIR - UM DIREITO DE TODOS
(*COME AND GO – A RIGHT FOR EVERYONE*)

People with Disabilities

Eliminate architectonical barriers so that people with mobility impairments can access public equipments; created a test template of ramps, visit to the works and increase in the number of buses adapted for accessibility.

Scope: Municipal

Responsible: Núcleo de Assistência à Pessoa com Deficiência - NAPD

CICLOTURISMO PARA PESSOAS COM DEFICIÊNCIAS

(CYCLETURISM FOR PEOPLE WITH DISABILITIES)

People with Disabilities

Aims at improving the physical condition and social interaction of people with mental or visual disabilities throughout leisure trips with bicycles; promotes autonomy, interaction with the environment and tourism.

Scope: Municipal

Responsible: Municipal Prefecture of Jundiaí

ASSISTÊNCIA AMBULATORIAL E DOMICILIÁRIA À PESSOA COM OSTOMIA

(CLINIC AND HOME-CARE ASSISTANCE TO PEOPLE WITH OSTOMY)

People with Disabilities

Home-care assistance to people with ostomy and their family; they learn to live with the stoma and use, clean and change the collecting bags; promotes their social reintegration, their autonomy and guarantees technical support.

Scope: Municipal

Responsible: Department of Health – Municipal Prefecture of Jundiaí

PROJETO DE INTEGRAÇÃO ENTRE A REABILITAÇÃO FÍSICA CONVENCIONAL E A ATIVIDADE FÍSICA ADAPTADA PARA O INDIVÍDUO PORTADOR DE DEFICIÊNCIA FÍSICA DO MUNICÍPIO DE JUNDIAÍ

(INTEGRATION BETWEEN CONVENTIONAL PHYSICAL REHABILITATION AND ADAPTED PHYSICAL ACTIVITY FOR PEOPLE WITH PHYSICAL DISABILITY)

People with Disabilities

Integrates the practice of a physical activity adapted to the process of rehabilitation of people with disabilities; they perform an activity directed to complete the physiotherapy procedure accompanied by a technical team; aims at the improvement of physical conditions.

Scope: Municipal

Responsible: Department of Health – Municipal Prefecture of Jundiaí

PROGRAMA DE GERENCIAMENTO DE RESÍDUOS SÓLIDOS DE JUNDIAÍ

(JUNDIAÍ'S SOLID WASTE MANAGEMENT PROGRAM)

Waste Management

Series of programs that reuse and recycle several materials gathered; each activity has a determined date and time disclosed to the population; in the program “Delícia de Reciclagem” (Tasty Recycling) the gathering is made in nucleus of housing where people can exchange recyclable materials for vegetables.

Scope: Municipal

Responsible: Department of Public Works – Municipal Prefecture of Jundiaí

Detailed List of Education Programs

| Program name – Original (Translated) | | | |
|--|-------------------------|--|--------------------|
| Nenhum analfabeto em Jundiá até o ano 2000 | | (No illiterate in Jundiá until year 2000) | |
| Centro Municipal de Exposição Permanente | | (Permanent Exposition Municipal Center) | |
| Escola Municipal de Educação Ambiental | | (Environmental Education Municipal School) | |
| Base de Estudo de Ecologia e Educação | | (Ecology and Education Study Base) | |
| Formação e Capacitação Permanentes | | (Permanent Formation and Qualification) | |
| Um computador em cada sala de aula | | (One computer in each classroom) | |
| Inglês no currículo do 1º ao 4º ano | | (English in the curriculum of 1st to 4th grades) | |
| Socialização de Experiências | | (Socialization of Experiences) | |
| Ambiental da Serra do Japi | | (Environment of the Japi Mountain Range) | |
| Despertando para a leitura | | (Awakening for reading) | |
| Juventude em Ação – J.A. | | (Youth in Action) | |
| Educação do Movimento | | (Education of Movement) | |
| Família vai à Escola | (Family goes to School) | Brasil Itinerante | (Itinerant Brazil) |
| Merenda de Férias | (Vacations Snack) | Férias Quentes | (Hot Vacations) |
| Circolando Escola | (Clowning School) | Hora do Conto | (Time of the Tale) |
| Plantão Gramatical | (Grammar Support) | Horta Escolar | (School Garden) |
| Centro de Línguas | (Language Center) | Self Service | (Self-Service) |
| TVE na Educação | (TVE in Education) | Vale Verde | (Green Valley) |
| Ciclo das Águas | (Water Cycle) | Água Viva | (Jelly Fish) |
| Biblioteca Móvel | (Mobile Library) | | |

Projects awarded by GPC

Project name: Programa de Produção Associada com Garantia de Renda Mínima – PAGRM
(Program of Production Associated with Guarantee of Minimal Income)

Project area: Social Work **Year:** 1997 **Ranking:** Finalist

Responsible: Department of Social Integration – Municipal Prefecture of Jundiá

Project name: Projeto Criança (Child Project)

Project area: Social Work **Year:** 1998 **Ranking:** Semi-Finalist

Responsible: Department of Social Integration – Municipal Prefecture of Jundiá

Project name: Projeto Ir e Vir - Um Direito de Todos

(Come and Go – a Right for Everyone)

Project area: Transportation **Year:** 2003 **Ranking:** Semi-Finalist

Responsible: Municipal Council for People with Disabilities, with partnership with
Department of Transportation – Municipal Prefecture of Jundiá

Project name: Reabilitação Simplificada do Portador de Lesão Medular

(Simplified Rehabilitation for the Medullary Lesion Patient)

Project area: Health **Year:** 1997 **Ranking:** Semi-Finalist
Responsible: Department of Health – Municipal Prefecture of Jundiaí

Project name: Série Memórias Volume 1 – O Centro da Cidade
(*Series Memories Volume 1 – Downtown*)

Project area: Culture **Year:** 1998 **Ranking:** Semi-Finalist
Responsible: Municipal Coordination of Planning and Environment –
Municipal Prefecture of Jundiaí

Project name: Sistema de Informações Municipais – SIM (*Municipal Information System*)

Project area: Public Management **Year:** 2002 **Ranking:** Semi-Finalist
Responsible: Computing Company of Jundiaí

Recife

Interviews Conducted in the Field Research

- Municipal Secretary of Administration and Human Resources Management
José Carlos Neves de Andrade, Executive Assistant
- Municipal Secretary of Strategic Management and International Relations
Hercílio Maciel, Strategic Management Coordinator

Small Active Programs

+ VIDA – PROGRAMA DE REDUÇÃO DE DANOS NO CONSUMO DE ÁLCOOL,
FUMO E OUTRAS DROGAS

(+ *LIFE – PROGRAM FOR THE REDUCTION OF DAMAGE CAUSED BY ALCOHOL
CONSUMPTION, SMOKING AND OTHER DRUGS*)

Health

A network of actions in health for protection, treatment and rehabilitation of people who make harmful use or are addicted to alcohol, tobacco or other drugs; promotes communication campaigns and advocacy actions, training of professionals as multipliers of information about the risks of drug abuse, approaches in leisure venues; act in the treatment and rehabilitation, throughout the Center for Psychosocial Attention, Therapeutic Shelters and Rehabilitation Units..

Scope: Municipal

Responsible: Department of Health – Municipal Prefecture of Recife

IMPLANTAÇÃO DA POLÍTICA NACIONAL DE ATENÇÃO INTEGRAL À SAÚDE
DO TRABALHADOR ATRAVÉS DOS CENTROS DE REFERÊNCIA EM SAÚDE DO
TRABALHADOR

(*IMPLEMENTATION OF THE NATIONAL POLICY OF INTEGRAL ATTENTION TO
WORKERS' HEALTH THROUGHOUT THE REFERENCE CENTERS ON WORKERS'
HEALTH*)

Health

Aims at implementing the National Network of Attention to Workers' Health, offering technical support for that the service network of SUS (National Health System) can perform complete service to the cases of work-related illnesses; make inspection to workplaces; route the cases to the responsible agencies; promotes actions for the promotion of workers' health; trains professionals; advises both formal and informal workers.

Scope: State

Responsible: Department of Health – Municipal Prefecture of Recife

PROGRAMA ACADEMIA DA CIDADE

(CITY GYM PROGRAM)

Health

Carries on physical activities, nutritional orientation, physical and medical evaluations; promotes healthy way of life, throughout nine poles of activities in the urban area.

Scope: Municipal

Responsible: Municipal Prefecture of Recife

PROJETO DOULA COMUNITÁRIA/VOLUNTÁRIA

(DOULA COMMUNITARIAN/VOLUNTEER)

Women and Gender; Health

Provides emotional support and physical comfort to women during labor, after-delivery and puerperium; constitution of local coordination units, in the three municipal maternities; promotes monthly meetings for discussions; counts on the work of volunteer women.

Scope: Municipal

Responsible: Department of Health – Municipal Prefecture of Recife

PROGRAMA DE SAÚDE AMBIENTAL – PSA

(ENVIRONMENTAL HEALTH)

Health

Implements a policy that involves the planning, execution and evaluation of services and actions directed at environment; promotes and protects the health of population from the identification, elimination and/or reduction of situations or factors related to fauna, water, soil and housing that leads to diseases and harm.

Scope: Municipal

Responsible: Department of Health – Municipal Prefecture of Recife

SERVIÇO DE ASSISTÊNCIA MÉDICA DE URGÊNCIA - ATENDIMENTO

GRATUITO EM VIA PÚBLICA E DOMICÍLIO - SAMU RECIFE

(URGENT MEDICAL ASSISTANCE SERVICE – FREE CARE ON THOROUGHFARE AND AT HOME)

Health

System of pre-hospital care that constitutes of patient rescue and in the articulation between urgent care assistance and the development of a central medical regulator; serves all the population in the city.

Scope: Municipal

Responsible: Department of Health – Municipal Prefecture of Recife

RESPEITANDO AS DIFERENÇAS
(*RESPECTING THE DIFFERENCES*)
Health

Promotes weekly interventions at night (from 9:00 pm to 2:00 am) in the prostitution spots, providing preservatives and lubricating gel, besides the promotion of discussion groups on these venues about STD/AIDS prevention, birth control methods and the reduction of damages caused by alcohol and drug abuse.

Scope: Municipal

Responsible: Department of Health – Municipal Prefecture of Recife

PROGRAMA DE ANIMAÇÃO CULTURAL – PAC
(*PROGRAM OF CULTURAL CHEERING*)
Child and Adolescent

Develops cultural activities aiming at strengthening the bonds of partnership, cultivate cultural identity and strengthen the sense of citizenship amongst the participants; organizes groups of cultural cheers, excursions and cultural expositions; around six hundred children and youngsters take part in the project.

Scope: Municipal

Responsible: Department of Education – Municipal Prefecture of Recife

PROJETO BRINQUEDOTECA PARTICIPATIVA
(*PARTICIPATORY TOY-LIBRARY*)
Education

Attend to children up to 11 years of age in a space of artistic creation, plays etc.; while mothers take part in sessions of participatory budget and other meetings where they discuss the challenges and the potentialities of the city.

MECANISMO DE GESTÃO COLEGIADA DO SISTEMA MUNICIPAL DE ENSINO DO RECIFE
(*MECHANISM OF SHARED MANAGEMENT OF THE MUNICIPAL SYSTEM OF EDUCATION OF RECIFE*)
Education

The beneficiary public (professors, civil servants, parents and students) take part in discussions referent to their school by several mechanisms: school councils, regional commissions, municipal conference and municipal council; aims at democratizing the management of the education policy, assuring the quality of education at the municipal level.

Scope: Municipal

Responsible: Municipal Prefecture of Recife

ORÇAMENTO PARTICIPATIVO DA CRIANÇA
(*PARTICIPATORY BUDGET OF THE CHILD*)

Education

Promotes the participation of children and adolescents in the political-administrative decisions of the city; the debates start in the schools, which elect delegates to participate in the general assembly; the students then discuss about the problems and the potentialities of the city.

Scope: Municipal

Responsible: Municipal Prefecture of Recife

PROJETO ARTESANEAR: A ARTE COMO UM INSTRUMENTO EDUCATIVO
(*ARTESANEAR: ART AS AN EDUCATIONAL INSTRUMENT*)

Water and sewage management

Aims at giving to children and adolescents an instrument with environmental content, contributing to the appropriation of the reality in which they live, having art as the facilitating element in the comprehension of the proper use of systems implemented and/or recovered in their communities.

Scope: Municipal

Responsible: Municipal Prefecture of Recife

TV MATRACA
(*TV CHATTER*)

Information System

Take culture, education, entertainment and information about the programs and services of the prefecture to the neighborhoods, discussing daily themes; the programming is presented in public venues and counts on the interaction with the audience, organized with the support of communitarian agents.

PROGRAMA BANCO DO POVO DO RECIFE
(*PEOPLE OF RECIFE'S BANK PROGRAM*)

Local and Regional Sustainable Development

Guide and train entrepreneurs aiming technical-managerial improvement and sustainability of the entrepreneurship; develops a policy of credit for the Popular Economy of Solidarity (Economia Popular e Solidária) as an instrument of social and economic development, democratizes the access to oriented credit and contributes to the strengthening and the sustainability of small entrepreneurship.

Scope: Municipal

Responsible: Municipal Prefecture of Recife

PROJETO OFICINA ESCOLA PARA A RESTAURAÇÃO DE BENS IMÓVEIS DOS
SÍTIOS DO RECIFE
(*PROJECT ATELIER-SCHOOL FOR THE RESTORATION OF REALTY OF THE SITES
OF RECIFE*)

Workforce training and generation of jobs and income

Trains youngsters of low income communities to act as specialists of Restoration of Historical Sites; promotes, thus, social inclusiveness and sustainable local development.

Scope: Municipal

Responsible: Municipal Prefecture of Recife

JOVEM PAI

(YOUNG DAD)

Child and Adolescent

Supports young males in the exercise of fatherhood, aiming at stimulating their involvement as a father in the gestation, labor and child care, reconstructing their space in the family in a role apart from being the chief provider and discussing the importance of masculine participation in reproductive life.

Scope: State

Responsible: Department of Health – State of Recife

PROGRAMA DE COMBATE AOS MAUS-TRATOS NA INFÂNCIA E ADOLESCÊNCIA

(PROGRAM OF COMBAT AGAINST MALTREATMENTS DURING CHILDHOOD AND ADOLESCENCE)

Child and Adolescent

Identifies, accompany and reports suspect cases of maltreatment of children and adolescents from 0 to 17 years old, requiring protection measures; its actuation occurs in every hospital unit, specially in pediatric nursery, pediatric urgent care, ER and burn unit.

Scope: Municipal

Responsible: Hospital da Restauração - SUS/PE

CENTRO DE JUVENTUDE

(YOUTH CENTER)

Social Work

They are venues of social acquaintanceship, mobilization, participation and support for several youth segments; counts on social and educational workshops in the exercise of citizenship, offering computers connected to the Internet, cultural activities, and social, political and pedagogic programming for the construction of youth public policies.

Scope: Municipal

Responsible: Municipal Prefecture of Recife

PROJETO MANGUERÊ

(PROJECT MANGUERÊ)

Child and Adolescent

It's a band formed by low income youngsters with broken family ties that compose their own music, besides using percussion instruments gathered in the mangrove.

PROGRAMA CÍRCULOS POPULARES DE ESPORTE E LAZER
(*PROGRAM POPULAR CIRCLES OF LEISURE AND SPORT*)
Leisure and Sports

Promotes sport and leisure activities and within all age ranges; tries to development the self-organization and collective work supporting initiatives from the community in the promotion of sportive events; encompass since the realization of sportive workshops to the revitalization of public venues.

Scope: Municipal

Responsible: Department of Tourism and Sports – Municipal Prefecture of Recife

PROGRAMA PARCERIA NOS MORROS
(*PROGRAM PARTNERSHIP IN THE SLUMS*)
Accident prevention in risk areas; Urbanization

Contributes to the eradication of landslide of the sides of the slums of Recife in partnership with the communities, in a integrated perspective.

Scope: Municipal

Responsible: Municipal Prefecture of Recife

PROGRAMA RECIFE SEM PALAFITA
(*PROGRAM RECIFE WITHOUT HOUSES ON STILTS*)
Urbanism; Soil use and occupation

Reconfigures the use and occupation of the land and resettles dwellers of houses on stilts to promote housing and social inclusiveness and rescue the environment; accompany families since the registration and demolition to the realization of integrated actions of economic training and inclusiveness and preparation for the new way of living, minimizing the risks of property transfer after the occupation.

Scope: Municipal

Responsible: Municipal Prefecture of Recife

PROGRAMA VIVA O MORRO
(*PROGRAM HAIL TO THE SLUM*)
Accident prevention in risk areas

Aims at finding articulated solutions to the problem of landslide and disasters during rainy season in the communities dwelling on the slums; it is a multi-sector approach involving several public instances, besides providing more specific measures, like the creation of a manual with technical information on construction and management and the training of municipal technicians for the elaboration of a Municipal Plan for Risk Reduction.

Scope: State

Responsible: Pernambuco State Agency of Planning and Research - CONDEPE/FIDEM
Órgão Responsável: Agência Estadual de Planejamento e Pesquisas de Pernambuco -

PROGRAMA GUARDA-CHUVA

(PROGRAM UMBRELLA)

Accident prevention in risk areas

It's a public management effort for the reduction of the risk in the slums of Recife and comprises an action that integrates several agencies of the municipal body and the planning occurs locally; its differential in terms of management is its holistic, permanent, systemic, decentralized approach.

1ª CONFERÊNCIA MUNICIPAL DE SANEAMENTO DO RECIFE

(1st MUNICIPAL CONFERENCE ON SANITATION OF RECIFE)

Infra-structure and Environment

Decides on the policy of sanitation of the municipality in terms of water supply and waste management services and their main guidelines, as well as constitutes its public instrument of control and management.

Scope: Municipal

Responsible: Municipal Prefecture of Recife

PROGRAMA SANEAMENTO INTEGRADO DOS BAIRROS DE MUSTARDINHA E MANGUEIRA

(PROGRAM INTEGRATED SANITATION OF THE MUSTARDINHA AND MANGUEIRA BOROUGHES)

Infra-structure and environment

Assures to the resident population the benefits of environmental salubrity and public health, by the universal access of sanitation services; it has as a principle social control, from the planning to the daily functioning of the services.

Scope: Municipal

Responsible: Municipal Prefecture of Recife

PORTAL DA CPRH

(CPRH INTERNET PORTAL)

Pollution control

Offers the citizens access to information relative to the environment, monitoring of the quality of air and of the beaches; common agenda of environmental education; is also a channel for reporting of aggressions to nature, promoting environmental awareness of the population.

DEMOCRATIZANDO O CONHECIMENTO SOBRE AS CONTAS PÚBLICAS

(DEMOCRATIZING THE UNDERSTANDING OF THE PUBLIC ACCOUNTS)

Popular participation

Publishes handbooks, books and leaflets that simplify the technical and bureaucratic language used by public administration, aiming to foster public interest by the management of their government (in all levels); promotes transparency of the management, making available trustworthy and comprehensible information.

Scope: State

Responsible: School of Public Accounts Professor Barreto Guimarães

A CIDADE MAIS IGUAL: AS MULHERES E O ORÇAMENTO PARTICIPATIVO
(*THE CITY MORE EQUAL: WOMEN AND THE PARTICIPATORY BUDGET*)

Citizen participation

Encourage women to participate and construct representation in the Participatory Budget, making it a space of political decision regarding gender in the Prefecture, and of social control by the female citizens of the city; stimulates the candidacy of women in the elections.

Scope: Municipal

Responsible: Municipal Prefecture of Recife

OPERAÇÃO ELEIÇÕES 2000
(*OPERATION 2000 ELECTIONS*)

Management and Planning

Activity constituted by the realization of weekly auditing of all the municipalities, during the period of the 2000 elections, aiming at verifying the compliance with the law regarding the use of public money, preventing harm to the public interest, be it by the practice of detouring resources or by the use of the public body in benefic of specific candidates.

Scope: State

Responsible: Court of Auditors of the State of Pernambuco – TCU

Projects awarded by GPC

Project name: Assistência Mãe Canguru (Assistance Kangaroo Mother)

Project area: Health **Year:** 1997 **Ranking:** Finalist

Responsible: Instituto Materno Infantil de Pernambuco – IMIP
(Maternal Infantile Institute of Pernambuco)

Project name: Atenção ao Aborto Previsto em Lei no Estado de Pernambuco
(Assistance to Legal Abortion in the State of Pernambuco)

Project area: Health **Year:** 1997 **Ranking:** Semi-Finalist

Responsible: Department of Health – Government of the State of Pernambuco

Project name: Democratizando o Conhecimento sobre as Contas Públicas
(Democratizing the Understanding of the Public Accounts)

Project area: Finance **Year:** 2003 **Ranking:** Finalist

Responsible: School of Public Accounts Professor Barreto Guimarães

Project name: Informatização do SOS Recife (Computerization of SOS Recife)

Project area: Public Management **Year:** 1997 **Ranking:** Semi-Finalist

Responsible: Municipal Computing Company – EMPREL

Project name: Justiça Cidadã: Descentralizando a Assistência Judiciária Municipal
(Citizen Justice: Decentralizing the Municipal Judicial Assistance)

Project area: Judiciary

Year: 2003

Ranking: Highlight

Responsible: Municipal Prefecture of Recife

Olinda

Interviews Conducted in the Field Research

- Municipal Secretary of Economic Development
Samy Paiva, Secretary
Manoel Chaves, Deputy Secretary
Carlos Fraga, Technical Assistant
- Municipal Secretary of Education and Sports
Ana Cristina Fonseca, Technical Assistant
- Municipal Secretary of Heritage, Science, Culture and Tourism
Juliana Rezende, Technical Assistant
- Municipal Secretary of Maintenance and Public Services
Antonio Cavalcante and Gildete Fonseca, Technical Assistants
- Municipal Secretary of Planning and Strategic Management
Eduardo Wanderley, Technical Assistant

Small Active Programs

COMISSÃO DE PROFESSORES INDÍGENAS DE PERNAMBUCO – COPIPE
(COMMISSION OF INDIGENOUS PROFESSORS OF PERNAMBUCO)

Education

Aims at the mobilization of indigenous communities for the more effective participation in the indigenous educational policy; furthermore, it intends to represent the communities before public bodies over complaints and reclamation of rural land; meeting are realized in the villages and there is also articulation of partnerships with several organizations.

Scope: Indigenous territory

Responsible: Commission of Indigenous Professors of Pernambuco – COPIPE

PROJETO MEIO AMBIENTE E CIDADANIA
(PROJECT ENVIRONMENT AND CITIZENSHIP)

Child and Adolescent

Has as its main goal contribute to the improvement of the quality of life of children and adolescents that had for a living pick up trash at Aguazinha Landfill, throughout formal education and actions complementary to schooling; there are 475 children and adolescents from 0 to 18 years old benefited from this project.

ORÇAMENTO PARTICIPATIVO DE OLINDA
(PARTICIPATORY BUDGET OF OLINDA)

Public Finance and Budget

Aims at supporting the management level of the municipal Executive branch in the definitions and interventions of public entities and promoting citizen participation in public management, mainly in what refers to public budget and the development of a citizenship conscience.

Scope: Municipal

Responsible: Municipal Prefecture of Olinda

CENTRO DA JUVENTUDE - PROGRAMA DE ATENDIMENTO AO ADOLESCENTE EM CONFLITO COM A LEI

(YOUTH CENTER – PROGRAM OF ASSISTANCE TO THE YOUNG OFFENDER)

Child and Adolescent

A technical and multidisciplinary team receives the adolescents and their parents referred from the Child and Youth Court; realizes social and psychic follow-up and provides a backing structure for the enforcement of the semi-opened measures like without the imprisonment of the young offenders.

Scope: Municipal

Responsible: Department of Social Policy and Housing – Municipal Prefecture of Olinda

Projects awarded by GPC

Project name: Centro da Juventude - Programa de Atendimento ao Adolescente em Conflito com a Lei
(Youth Center – Program of Assistance to the Young Offender)

Project area: Social Work **Year:** 2002 **Ranking:** Semi-Finalist

Responsible: Department of Social Policies and Housing –
Municipal Prefecture of Olinda

Jaboatão dos Guararapes

Interviews Conducted in the Field Research

- Municipal Secretary of Economic Development and Tourism
Carlos Pereira, Secretary
Francisco Canindé Furtado, Deputy Secretary
José Marques, Director of Industrial Development
- Municipal Secretary of Infra-structure
Silvano, Technical Assistant
- Municipal Secretary of Planning
Fátima, Deputy Secretary

Projects awarded by GPC

Project name: Plano de Revitalização da Bacia da Lagoa Olho d'Água

(Plan for the revitalization of the Lagoa Olho d'Água Bay)
Project area: Infra-structure **Year:** 1996 **Ranking:** Semi-Finalist
Responsible: Special Department of Municipal Articulation –
Municipal Prefecture of Jaboatão dos Guararapes

Appendix 4.D: Comprehensive List of Extreme and Control Groups

Classification Map of the Groups

| <div> <div></div> <div>Policy</div> <div>Residuals</div> </div> | | | LOW | | | AVERAGE | | | HIGH | | |
|---|------------------|----|-----------|--------|-----------------|-----------|--------|-----------------|-----------|--------|-----------------|
| | | | Education | Health | Infra-structure | Education | Health | Infra-structure | Education | Health | Infra-structure |
| | | | A | B | C | D | E | F | G | H | I |
| LOW | Income | 1 | A1 | B1 | C1 | D1 | E1 | F1 | G1 | H1 | I1 |
| | Poverty | 2 | A2 | B2 | C2 | D2 | E2 | F2 | G2 | H2 | I2 |
| | Income & Poverty | 3 | A3 | B3 | C3 | D3 | E3 | F3 | G3 | H3 | I3 |
| | Employment | 4 | A4 | B4 | C4 | D4 | E4 | F4 | G4 | H4 | I4 |
| AVERAGE | Income | 5 | A5 | B5 | C5 | D5 | E5 | F5 | G5 | H5 | I5 |
| | Poverty | 6 | A6 | B6 | C6 | D6 | E6 | F6 | G6 | H6 | I6 |
| | Income & Poverty | 7 | A7 | B7 | C7 | D7 | E7 | F7 | G7 | H7 | I7 |
| | Employment | 8 | A8 | B8 | C8 | D8 | E8 | F8 | G8 | H8 | I8 |
| HIGH | Income | 9 | A9 | B9 | C9 | D9 | E9 | F9 | G9 | H9 | I9 |
| | Poverty | 10 | A10 | B10 | C10 | D10 | E10 | F10 | G10 | H10 | I10 |
| | Income & Poverty | 11 | A11 | B11 | C11 | D11 | E11 | F11 | G11 | H11 | I11 |
| | Employment | 12 | A12 | B12 | C12 | D12 | E12 | F12 | G12 | H12 | I12 |

Table 4.D.1: Extreme Groups for Income Residuals and Percentage of Education Expenses

| Policy | | Education | |
|------------------|------|--|--|
| Residuals | | LOW | HIGH |
| | | | |
| Income Residuals | HIGH | <p>'Pedro Avelino(RN)(A4 A9A10I4 I9I10), Americano do Brasil(GO)(A4 A9I4 I9), Quiterianópolis(CE)(A4 A9 B4 B9), Itaguaçu da Bahia(BA)(A9A10I4 I9I10), Bonópolis(GO)(A9 C9 H9), Taguatinga(TO)(A9I9), Portelândia(GO)(A9A10), Protásio Alves(RS)(A9A10 B9B10 C9C10), Araguaçu(TO)(A9A10 C9C10), Caiana(MG)(A9A10I9I10), Guabiju(RS)(A9A10), Dois Lajeados(RS)(A9A10 C9C10), Montauri(RS)(A9A10 F9F10 H9H10), Hidrolina(GO)(A9A10), Montividiu(GO)(A9 B9 C9), Bertioga(SP)(A9A10 B9B10 F9F10), Araçatuba(SP)(A9), Tamboara(PR)(A9A10I9I10), Assis Chateaubriand(PR)(A9I9), Recife(PE)(A9 C9 H9), Serra Azul de Minas(MG)(A9), Niterói(RJ)(A8A9A10), Belo Horizonte(MG)(A8A9), Araçariguama(SP)(A8A9A10), Catingueira(PB)(A8A9I8I9), Sarapuí(SP)(A8A9), Japira(PR)(A8A9), Serra Negra(SP)(A8A9A10), Porto Xavier(RS)(A9), Caputira(MG)(A9 E9I9), Gastão Vidigal(SP)(A9A10), Taquaral de Goiás(GO)(A9 E9I9), Castelândia(GO)(A9 H9), Cachoeira do Arari(PA)(A6 A9), Moema(MG)(A9A10I9I10), Bom Repouso(MG)(A9 I2I9), Luiz Alves(SC)(A9A10 F9F10), Buritis(MG)(A9I9), Botelhos(MG)(A9A10 H9H10), Frei Paulo(SE)(A9), Itaguaru</p> | <p>Umburanas(BA)(E4 E9 G4 G9), Cândido Sales(BA)(G9), Santa Helena(MA)(G9), São José de Ribamar(MA)(G9I9), Miranda do Norte(MA)(B9 G9I9), Fortuna(MA)(B9 G9), Horizonte(CE)(B9 G9), Victor Graeff(RS)(G9G10), Morro Redondo(RS)(G9G10), Riachuelo(RN)(F9 G9), Nova Olinda(TO)(B9 G9), Itainópolis(PI)(E9 G9), Caculé(BA)(E9 G9), Tremedal(BA)(G9G10), Chapadão do Sul(MS)(C9C10 G9G10), Pedra Mole(SE)(G8G9 H8H9), Uauá(BA)(G8G9I8I9), Morrinhos(GO)(C8C9 G8G9), Sítio do Quinto(BA)(B9 F9 G9), Prado(BA)(C9 G9), Campestre do Maranhão(MA)(G9), Ingazeira(PE)(G6 G9), Barreiras(BA)(G9), Rio do Pires(BA)(G9G10), Tibau do Sul(RN)(G9), Dom Pedro(MA)(B9 F9 G9), Alto Alegre do Pindaré(MA)(G9), Iconha(ES)(E9 G9), Santo Antônio do Monte(MG)(B9B10 G9G10), Jucuruçu(BA)(G9G10), Monte Sião(MG)(F9F10 G9G10), Heliópolis(BA)(G9), Ibatiba(ES)(G9), Toledo(MG)(G9 G12), Tabatinga(AM)(G9 G12), Capela do Alto Alegre(BA)(G9 G12), Santana de Parnaíba(SP)(C2 C9 C12 G2 G9 G11G12), Floresta do Piauí(PI)(B9 B12 G9 G12I9 I12), Tabocas do Brejo Velho(BA)(G9 G12), Oiapoque(AP)(B9 B12 C2 C12 G9 G12), Icatu(MA)(G9</p> |
| | LOW | <p>Capistrano(CE)(A1 A4 B1 B4), Sambaíba(MA)(A1 A4 F1 F4 H1 H4), Angical do Piauí(PI)(A1 A4 B1 B4 I1I4), Dobrada(SP)(A1A2 A4), Aurilândia(GO)(A1), Japi(RN)(A1 I1), Matupá(MT)(A1 I1), Lizarda(TO)(A1 I1), Belmiro Braga(MG)(A1 A6 E1 E6), Rio Sono(TO)(A1 A10 H1 H3 H10), Major Isidoro(AL)(A1 H1), Bias Fortes(MG)(A1), Carrapateira(PB)(A1A2), Itatuba(PB)(A1 I1), Itaquaquecetuba(SP)(A1A2), Itanhaém(SP)(A1A2 C1C2 H1H2), Lagoa do Ouro(PE)(A1 H1), Rafael Fernandes(RN)(A1A2 I1I2), Rio Grande da Serra(SP)(A1 F1), Juruti(PA)(A1 I1), Santa Terezinha de Goiás(GO)(A1), Engenheiro Navarro(MG)(A1 A8 I1I8), São Benedito do Sul(PE)(A1 A8 H1 H8), Santa Isabel(GO)(A1 C1), Raposos(MG)(A1 I1), Ipameri(GO)(A1 H1), Francisco Morato(SP)(A1A2 H1H2), Itapirapuã(GO)(A1 F1), Aparecida de Goiânia(GO)(A1A2 H1H2), Gentio do Ouro(BA)(A1), Araçu(GO)(A1 H1), São Carlos do Ivaí(PR)(A1), Pacatuba(SE)(A1 H1), Tavares(PB)(A1 A12), Cristal(RS)(A1 A12 E1 E12F1 F12)</p> | <p>Aveiro(PA)(B1B2 B4 C1C2 C4 G1G2 G4), Altamira do Maranhão(MA)(G1 G4), Água Doce do Maranhão(MA)(G1 G4), Primeira Cruz(MA)(G1 G4), Barreiros(PE)(B1 B4 G1 G4), Monte Alegre do Piauí(PI)(G1 G4), Fonte Boa(AM)(B1B2 B4 G1G2 G4), Itinga(MG)(G1), Poção de Pedras(MA)(B1 G1), Mataraca(PB)(F1 G1), Bom Jesus da Serra(BA)(G1), Chapadinha(MA)(F1 G1), Maracanã(PA)(G1 G6), Santa Isabel do Pará(PA)(C1 E1 G1), Buíque(PE)(G1), Riacho dos Machados(MG)(G1 G8), Quixeramobim(CE)(B1 B6 B8 F1 F6 F8 G1 G6 G8), Ruy Barbosa(BA)(C1 C8 G1 G8), Presidente Juscelino(MA)(G1G2), Tomar do Geru(SE)(G1), Bela Cruz(CE)(B1 G1), Silves(AM)(B1 C1 G1), Gonçalves Dias(MA)(G1), Maracás(BA)(F1 G1), Alexandria(RN)(F1 G1 H1), Cachoeira de Pajeú(MG)(G1), Mucurici(ES)(C1 E1 G1), Botumirim(MG)(G1 G6), Caatiba(BA)(E1E2 F1F2 G1G2), Barra do Choça(BA)(F1F2 G1G2), Bacabeira(MA)(C1 C6 G1 G6), Piranhas(AL)(G1G2), Aurora do Pará(PA)(G1G2), Limoeiro do Ajuru(PA)(G1), Carnaíba(PE)(G1), Paracuru(CE)(G1), Belém de Maria(PE)(B1 B6 G1 G6), Teolândia(BA)(G1 G12), Chaves(PA)(B1 B10 B12 G1 G10 G12), Concórdia do Pará</p> |

Source: Elaborated by Cepesp with data from 1991 and 2000 Census (IBGE) and RAIS (1991 and 2000).

Table 4.D.2: Extreme Groups for Population Bellow Poverty Residuals and Percentage of Education Expenses

| Policy | | Education | |
|-------------------------------------|------|--|--|
| Residuals | | LOW | HIGH |
| Population Bellow Poverty Residuals | HIGH | <p>Urucurituba(AM)(A4 A10 C4 C10), Alto Alegre(SP)(A4 A10I4 I10), Coronel Pacheco(MG)(A4 A10I4 I10), Novo Brasil(GO)(A4 A10 H4 H10), Palestina de Goiás(GO)(A10I10), Axixá do Tocantins(TO)(A5 A10 E5 E10), André da Rocha(RS)(A10 F10), Amaral Ferrador(RS)(A10), Dois Irmãos do Tocantins(TO)(A10 E10 F10), Vista Alegre do Prata(RS)(A10 H10), Campos Verdes(GO)(A10 C10 H10), Aruanã(GO)(A5 A10 B5 B10), Calçoene(AP)(A10 F10), Itambé(PR)(A10I10), Novo Horizonte(SP)(A10 B10 F10), Pavão(MG)(A8 A10), Nova Friburgo(RJ)(A8 A10), Moiporá(GO)(A8 A10), Américo de Campos(SP)(A8 A10), Braúna(SP)(A10), Guzolândia(SP)(A5 A10), Matutina(MG)(A10 H10), Arraial do Cabo(RJ)(A10I10), Batatais(SP)(A10I10), Araputanga(MT)(A10 C10), Paraíso do Norte(PR)(A10 E10I10), Paulo Lopes(SC)(A10), Novo Planalto(GO)(A10I10), Crixás(GO)(A10), Baliza(GO)(A10 E10), Jaraguá(GO)(A5 A10 H5 H10), Areado(MG)(A10I10), Salmourão(SP)(A10 F10), Iacanga(SP)(A10I10), Nova Crixás(GO)(A10), Juína(MT)(A10), Itarumã(GO)(A10 H10), Cachoeira Alta(GO)(A10), Monte Alegre de Goiás(GO)(A10 A12I10 I12), Juquitiba(SP)(A10 A12), Campinaçu(GO)(A10 A12 H12), Tesouro(MT)(A5 A10 A12 E5 E10 E12), Rio Sono(TO)(A1 A10 H1 H3 H10),</p> | <p>Licínio de Almeida(BA)(G4 G10I4 I10), Santa Teresa(ES)(G4 G10), Nova Ibiá(BA)(G5 G10), Jaborandi(BA)(G10), Nova Redenção(BA)(G10I10), Vicentina(MS)(E10 G10), Baixo Guandu(ES)(C5 C10 G5 G10), Vereda(BA)(C10 G10), Arame(MA)(G10), Barrolândia(TO)(F10 G10), Chapada de Areia(TO)(E10 G10), São Desidério(BA)(G10), Pomerode(SC)(C10 G10), Goianorte(TO)(C10 G10), Presidente Getúlio(SC)(C8 C10 E8 E10 G8 G10), Águas de Lindóia(SP)(G8 G10 H8 H10), Planaltino(BA)(G8 G10), Pindaí(BA)(G8 G10), Piritiba(BA)(G10), Pirapemas(MA)(G10), Rio do Oeste(SC)(C10 G10), Ibirapuã(BA)(C5 C10 G5 G10), Hidrolândia(GO)(G10), Anagé(BA)(F10 G10), Corguinho(MS)(F10 G10), Baianópolis(BA)(F10 G10), Jateí(MS)(E10 F10 G10), Boninal(BA)(E10 G10), Boracéia(SP)(G10), Muaná(PA)(B10 B12 G10 G12), Chaves(PA)(B1 B10 B12 G1 G10 G12), Victor Graeff(RS)(G9G10), Morro Redondo(RS)(G9G10), Tremedal(BA)(G9G10), Chapadão do Sul(MS)(C9C10 G9G10), Rio do Pires(BA)(G9G10), Santo Antônio do Monte(MG)(B9B10 G9G10), Jucuruçu(BA)(G9G10), Monte Sião(MG)(F9F10 G9G10), Capela do Alto Alegre(BA)(G9 G10 G12).</p> |
| | LOW | <p>Bom Jesus(PB)(A2 A4), Nova Olinda(PB)(A2 A4 B2 B4 I2I4), Camaçari(BA)(A2 A4 B2 B4 C2 C4), Paulista(PE)(A2 C2), Ariquemes(RO)(A2 F2), Pedra Dourada(MG)(A2 E2 I2), São José do Herval(RS)(A2 B2 I2), Major Vieira(SC)(A2 H2), Pirapora(MG)(A2 B2), Canela(RS)(A2 A5 I2I5), Guarulhos(SP)(A2), Branquinha(AL)(A2), Caldas Novas(GO)(A2 A8 C2 C8 H2 H8), Galvão(SC)(A2 A8), Turvelândia(GO)(A2 F2), Amajari(RR)(A2 C2 H2), Campestre de Goiás(GO)(A2 H2 I2), Cajamar(SP)(A2 F2), Iraí de Minas(MG)(A2 H2), Goianira(GO)(A2 H2), Peruíbe(SP)(A2 H2), São Bento(PB)(A2), Mombuca(SP)(A2 B2), Biritiba-Mirim(SP)(A2), Bonfinópolis(GO)(A2 E2), Martinópole(CE)(A2 I2), Galinhos(RN)(A2 A12), Madre de Deus de Minas(MG)(A2 A12 H2 H12), Goianópolis(GO)(A2 A12 E2 E12), Água Azul do Norte(PA)(A2 A12), Imbé(RS)(A2 A12), Dobrada(SP)(A1A2 A4), Carrapateira(PB)(A1A2), Itaquaquecetuba(SP)(A1A2), Itanhaém(SP)(A1A2 C1C2 H1H2), Rafael Fernandes(RN)(A1A2 I1I2), Francisco Morato(SP)(A1A2 H1H2), Aparecida de Goiânia(GO)(A1A2 H1H2), Bom Repouso(MG)(A9 I2I9), Feliz Natal(MT)(C2 C12), Santana de Parnaíba(SP)(C2 C9 C12 G2 G9 G12),</p> | <p>Campo Bonito(PR)(G2 G4), Lagoa da Canoa(AL)(G2), Pedrinhas(SE)(F2 G2), Barra do Quaraí(RS)(C2 G2), Pão de Açúcar(AL)(G2), Barbalha(CE)(B2 G2), Paço do Lumiar(MA)(B2 G2), Santa Rita(PB)(G2), Gravataí(RS)(C2 G2), Almirante Tamandaré(PR)(G2 G8), Santa Maria(RN)(F2 G2), Caieiras(SP)(G2 G5), Pinhais(PR)(E2 G2), Marechal Deodoro(AL)(G2), Pirambu(SE)(G2), Salvaterra(PA)(B2 G2), Nova Alvorada do Sul(MS)(G2), Serra do Salitre(MG)(G2), Pitimbu(PB)(G2), Inhapi(AL)(G2 G12), Aveiro(PA)(B1B2 B4 C1C2 C4 G1G2 G4), Fonte Boa(AM)(B1B2 B4 G1G2 G4), Presidente Juscelino(MA)(G1G2), Caatiba(BA)(E1E2 F1F2 G1G2), Barra do Choça(BA)(F1F2 G1G2), Piranhas(AL)(G1G2), Aurora do Pará(PA)(G1G2), Senador Rui Palmeira(AL)(G1G2 G12), Santana de Parnaíba(SP)(C2 C9 C12 G2 G9 G11G12), Oiapoque(AP)(B9 B12 C2 C12 G2 G9 G12).</p> |

Source: Elaborated by Cepesp with data from 1991 and 2000 Census (IBGE) and RAIS (1991 and 2000).

Table 4.D.3: Extreme Groups for Employment Residuals and Percentage of Education Expenses

| Policy | | Education | |
|----------------------|------|---|--|
| Residuals | | LOW | HIGH |
| Employment Residuals | HIGH | <p>Santa Ernestina(SP)(A12), Mãe d'Água(PB)(A12 E12I12), Lunardelli(PR)(A12I12), Monte Alegre de Goiás(GO)(A10 A12I10 I12), Monteiro(PB)(A12), Galinhos(RN)(A2 A12), Toritama(PE)(A12 F12), Madre de Deus de Minas(MG)(A2 A12 H2 H12), Senador Firmino(MG)(A12 H12), Poço Verde(SE)(A5 A12), Ibema(PR)(A12), Craibás(AL)(A12 H12), Santa Teresinha(BA)(A5 A12 H5 H12), Goianópolis(GO)(A2 A12 E2 E12), Gouvelândia(GO)(A12), Laranjal do Jari(AP)(A12), Sardoá(MG)(A12 B12), Chalé(MG)(A12I12), Juquitiba(SP)(A10 A12), Campinaçu(GO)(A10 A12 H12), Flores do Piauí(PI)(A12 E12I12), Silveira Martins(RS)(A12 E12), Brasnorte(MT)(A12 E12), Adelândia(GO)(A5 A12I12), Água Azul do Norte(PA)(A2 A12), Bacurituba(MA)(A12I12), Sagres(SP)(A12I12), Tesouro(MT)(A5 A10 A12 E5 E10 E12), Frei Gaspar(MG)(A12), Granjeiro(CE)(A12I12), Imbé(RS)(A2 A12), Saldanha Marinho(RS)(A12), Tavares(PB)(A1 A12), Cristal(RS)(A12), Lauro de Freitas(BA)(A9 A12 B9 B12 F9 F12), Valentim Gentil(SP)(A9 A12I9 I12), Frei Lagonegro(MG)(A9 A12), Cocalinho(MT)(A9 A12 F9F10 F12), Ibatiguara(AL)(A9 A12), Nordestina(BA)(I9 I12 A9 A12)</p> | <p>Inhapi(AL)(G2 G12), Itabaianinha(SE)(G12), Muaná(PA)(B10 B12 G10 G12), Conceição do Canindé(PI)(G12), Mauriti(CE)(B12 G12), Lajeado Novo(MA)(C12 E12 G12), Guarani d'Oeste(SP)(C12 G12), Vitorino Freire(MA)(G12 H12), Jaguaré(ES)(G12), Bela Vista do Maranhão(MA)(F12 G12), Nioaque(MS)(C12 G12), Paraibano(MA)(G12), Igrapiúna(BA)(G12), Formosa do Rio Preto(BA)(F12 G12), Douradina(MS)(B12 G12), Amapá do Maranhão(MA)(F5 F12 G5 G12), Canudos(BA)(E12 G12), Goianinha(RN)(F6 F12 G6 G12), Botuporã(BA)(G12), Umirim(CE)(B12 G12), Cedral(MA)(E6 E12 G6 G12), Monte Alegre(RN)(G12), Duque Bacelar(MA)(B12 G12), Bequimão(MA)(G12), Jandaíra(BA)(G6 G12I12), Candeal(BA)(G6 G12), João Dourado(BA)(E12 F12 G12), Oeiras do Pará(PA)(B12 C12 G12), Graça Aranha(MA)(B12 G12), Sítio d'Abadia(GO)(G12I12), Campo Alegre de Lourdes(BA)(C12 G12), Axixá(MA)(G12), João Neiva(ES)(G12), Teolândia(BA)(G1 G12), Chaves(PA)(B1 B10 B12 G1 G10 G12), Concórdia do Pará(PA)(C1 C12 G1 G12), Igaci(AL)(G1 G12), Dias d'Ávila(BA)(B1 B12 G1 G12), Paratinga(BA)(G1 G12), Araguaína(MT)(G1 G12), João Dias</p> |
| | LOW | <p>Vista Senhana(PB)(A4 B4I4), Gracuituba(AL)(A4 A10 G4 G10), Colinas do Sul(GO)(A4 C4), Alto Alegre(SP)(A4 A10I4 I10), Barão de Grajaú(MA)(A4I4), Nazaré do Piauí(PI)(A4 A6I4 I6), Garrafão do Norte(PA)(A4I4), Santa Bárbara de Goiás(GO)(A4 A6 H4 H6I4 I6), Senador Sá(CE)(A4 E4I4), Independência(CE)(A4 A6), São Francisco do Piauí(PI)(A4I4), Bom Jesus(PB)(A2 A4), Coronel Pacheco(MG)(A4 A10I4 I10), Santa Rosa de Goiás(GO)(A4I4), Pilão Arcado(BA)(A4 F4), Maranguape(CE)(A4A5A6A7 B4B5B6B7I4I5I6I7), Ouidor(GO)(A4A5A6A7), Nova Olinda(PB)(A2 A4 B2 B4 I2I4), Pedro Teixeira(MG)(A4 F4), Reriutaba(CE)(A4 B4I4), Piancó(PB)(A4 A6 B4 B6I4 I6), Senador José Bento(MG)(A4), Camaçari(BA)(A2 A4 B2 B4 C2 C4), Carbonita(MG)(A4), Caiçara(PB)(A4I4), Itaporanga(PB)(A4A5I4I5), Gaurama(RS)(A4 A6), Alto Alegre(RS)(A4), Ipiranga do Sul(RS)(A4 H4), São Francisco do Pará(PA)(A4I4), Francisco Dantas(RN)(A4I4), Piaçabuçu(AL)(A4A5 F4F5 H4H5), Novo Brasil(GO)(A4 A10 H4 H10), Solonópole(CE)(A4 A6 B4 B6I6), Capistrano(CE)(A1 A4 B1 B4), Sambaíba(MA)(A1 A4 F1 F4 H1 H4), Angical do Piauí(PI)(A1 A4 B1 B4 I1I4), Pedra (SP)(A1A2 A4), Pedra</p> | <p>Monção(MA)(F4 G4), Ares(RN)(E4 G4), Onçopolis(BA)(G4), Baixo(CE)(B4 C4 G4), Lavras da Mangabeira(CE)(B4 G4), Igaporã(BA)(G4), Aliança(PE)(B4 G4), Coronel Ezequiel(RN)(F4 G4), Escada(PE)(E4 G4), Benedito Leite(MA)(G4), Candeias(BA)(G4), Pio XII(MA)(G4), Goiana(PE)(G4), Serrinha(RN)(F4 G4 H4), Meruoca(CE)(B4 G4I4), Várzea Alegre(CE)(G4), Murici(AL)(G4G5), Pombos(PE)(B4 B6 G4 G6), Joaquim Gomes(AL)(G4), Palmeirândia(MA)(G4), Alcântaras(CE)(G4I4), Feira Grande(AL)(G4), Prata(MG)(G4), Rio do Antônio(BA)(G4), Acaraú(CE)(B4 G4), Paraú(RN)(G4), Vargem Alta(ES)(F4 G4), Vicência(PE)(G4), Licínio de Almeida(BA)(G4 G10I4 I10), Palmares(PE)(B4 B6 C4 C6 G4 G6), Ituberá(BA)(C4 G4 H4), Campo Bonito(PR)(G2 G4), Fortaleza dos Nogueiras(MA)(G4), Rio Real(BA)(E4 F4 G4), Miguel Leão(PI)(G4 H4), Santa Teresa(ES)(G4 G10), Queimadas(PB)(G4G5), Aveiro(PA)(B1B2 B4 C1C2 C4 G1G2 G4), Altamira do Maranhão(MA)(G1 G4), Água Doce do Maranhão(MA)(G1 G4), Primeira Cruz(MA)(G1 G4), Barreiros(PE)(B1 B4 G1 G4), Monte Alegre do Piauí(PI)(G1 G4), Fonte Boa(AM)(B1B2 B4 G1G2 G4), Umburanas(BA)(F4 F6 G4 G6), Cão</p> |

Source: Elaborated by Cepesp with data from 1991 and 2000 Census (IBGE) and RAIS (1991 and 2000).

Table 4.D.4: Average (Control) Groups for Education Expenses

| | |
|--------------------------|---|
| Income | Rio do Campo(SC)(D8 E8), Erval Velho(SC)(D8), Lins(SP)(C8 D8), Pedra Preta(RN)(B6 B8 D8), Guataporá(SP)(D8), Salto Grande(SP)(D8), Ararendá(CE)(D8), Itapemirim(ES)(D8), Campinas(SP)(D8 E8), Capim(PB)(D8 E8), Conselheiro Pena(MG)(D8), Marília(SP)(D8 F8), Tupanatinga(PE)(D8), Amélia Rodrigues(BA)(D8 H8), Natividade(RJ)(C8 D8), Milagres(CE)(B2 B8 D2 D8), Abaeté(MG)(D8), Missal(PR)(D8), Machados(PE)(D8I8), Redenção do Gurguéia(PI)(D8I8), Bodó(RN)(D8I8), Caconde(SP)(D8), Praia Grande(SC)(D8), Carmo do Cajuru(MG)(D8 F8), Tupi Paulista(SP)(D8 F8), Ribeirãopolis(SE)(D8), Pilar do Sul(SP)(D8), General Sampaio(CE)(D8), Poté(MG)(D8), Rio Negro(MS)(D8 D10), Nova Fátima(PR)(D8 E8), Governador Eugênio Barros(MA)(D8), Tarumirim(MG)(D8), São Brás do Suaçuí(MG)(D8), Cambuí(MG)(D8 E8), Parobé(RS)(C8 D8), Alenquer(PA)(D1 D8), Estrela do Sul(MG)(D1 D8 E1 E8), Colorado(RS)(D1D2 D8 E1E2 E8), Santópolis do Aguapeí(SP)(D1 D8), Salinas da Margarida(BA)(D1D2 D8 I1I2I8), Óbidos(PA)(D1 D8 D10), Ponta de Pedras(PA)(C1 D1 D8 E1), Selbach(RS)(D8D9 F8F9), Mutum(MG)(D8D9), Parnamirim(RN)(D2 D8D9 F2 F8F9), Ipanema(MG)(D5 D8), |
| Population Below Poverty | Rio do Campo(SC)(D8 E8), Erval Velho(SC)(D8), Lins(SP)(C8 D8), Pedra Preta(RN)(B6 B8 D8), Guataporá(SP)(D8), Salto Grande(SP)(D8), Ararendá(CE)(D8), Itapemirim(ES)(D8), Campinas(SP)(D8 E8), Capim(PB)(D8 E8), Conselheiro Pena(MG)(D8), Marília(SP)(D8 F8), Tupanatinga(PE)(D8), Amélia Rodrigues(BA)(D8 H8), Natividade(RJ)(C8 D8), Milagres(CE)(B2 B8 D2 D8), Abaeté(MG)(D8), Missal(PR)(D8), Machados(PE)(D8I8), Redenção do Gurguéia(PI)(D8I8), Bodó(RN)(D8I8), Caconde(SP)(D8), Praia Grande(SC)(D8), Carmo do Cajuru(MG)(D8 F8), Tupi Paulista(SP)(D8 F8), Ribeirãopolis(SE)(D8), Pilar do Sul(SP)(D8), General Sampaio(CE)(D8), Poté(MG)(D8), Rio Negro(MS)(D8 D10), Nova Fátima(PR)(D8 E8), Governador Eugênio Barros(MA)(D8), Tarumirim(MG)(D8), São Brás do Suaçuí(MG)(D8), Cambuí(MG)(D8 E8), Parobé(RS)(C8 D8), Alenquer(PA)(D1 D8), Estrela do Sul(MG)(D1 D8 E1 E8), Colorado(RS)(D1D2 D8 E1E2 E8), Santópolis do Aguapeí(SP)(D1 D8), Salinas da Margarida(BA)(D1D2 D8 I1I2I8), Óbidos(PA)(D1 D8 D10), Ponta de Pedras(PA)(C1 D1 D8 E1), Selbach(RS)(D8D9 F8F9), Mutum(MG)(D8D9), Parnamirim(RN)(D2 D8D9 F2 F8F9), Ipanema(MG)(D5 D8), Emilianópolis(SP)(D5 D8), São José do Rio Pardo(SP)(D5 D8), Pedra Grande(|
| Employment | Rio do Campo(SC)(D8 E8), Erval Velho(SC)(D8), Lins(SP)(C8 D8), Pedra Preta(RN)(B6 B8 D8), Guataporá(SP)(D8), Salto Grande(SP)(D8), Ararendá(CE)(D8), Itapemirim(ES)(D8), Campinas(SP)(D8 E8), Capim(PB)(D8 E8), Conselheiro Pena(MG)(D8), Marília(SP)(D8 F8), Tupanatinga(PE)(D8), Amélia Rodrigues(BA)(D8 H8), Natividade(RJ)(C8 D8), Milagres(CE)(B2 B8 D2 D8), Abaeté(MG)(D8), Missal(PR)(D8), Machados(PE)(D8I8), Redenção do Gurguéia(PI)(D8I8), Bodó(RN)(D8I8), Caconde(SP)(D8), Praia Grande(SC)(D8), Carmo do Cajuru(MG)(D8 F8), Tupi Paulista(SP)(D8 F8), Ribeirãopolis(SE)(D8), Pilar do Sul(SP)(D8), General Sampaio(CE)(D8), Poté(MG)(D8), Rio Negro(MS)(D8 D10), Nova Fátima(PR)(D8 E8), Governador Eugênio Barros(MA)(D8), Tarumirim(MG)(D8), São Brás do Suaçuí(MG)(D8), Cambuí(MG)(D8 E8), Parobé(RS)(C8 D8), Alenquer(PA)(D1 D8), Estrela do Sul(MG)(D1 D8 E1 E8), Colorado(RS)(D1D2 D8 E1E2 E8), Santópolis do Aguapeí(SP)(D1 D8), Salinas da Margarida(BA)(D1D2 D8 I1I2I8), Óbidos(PA)(D1 D8 D10), Ponta de Pedras(PA)(C1 D1 D8 E1), Selbach(RS)(D8D9 F8F9), Mutum(MG)(D8D9), Parnamirim(RN)(D2 D8D9 F2 F8F9), Ipanema(MG)(D5 D8), |

Source: Elaborated by Cepesp with data from 1991 and 2000 Census (IBGE) and RAIS (1991 and 2000).

Table 4.D.5: Extreme Groups for Income Residuals and Percentage of Health Expenses

| Policy | | Health | |
|------------------|------|--|--|
| Residuals | | LOW | HIGH |
| | | | |
| Income Residuals | HIGH | Porto (PA)(C4 C9), Macaú (BA)(C4 C9 E4 E9), Nova Mutum (MT)(C9), Bonópolis (GO)(A9 C9 H9), Palmitos (SC)(C9C10), Nova Canaã do Norte (MT)(C9C10), Protásio Alves (RS)(A9A10 B9B10 C9C10), Araguaçu (TO)(A9A10 C9C10), Chapada da Natividade (TO)(C9 H9), Monte Alegre do Sul (SP)(C9), Lajeado Grande (SC)(C9), Bernardo Sayão (TO)(C9C10), Dois Lajeados (RS)(A9A10 C9C10), São Lourenço (MG)(C9 D9 E9), Portão (RS)(B9 C9), Montividiu (GO)(A9 B9 C9), Miranda (MS)(C9 E9), Tucumã (PA)(C9C10 D9D10), Parapuã (SP)(C9), Niquelândia (GO)(C9), Vitória (ES)(C9), Palmas (TO)(B2 B9 B11 C2 C9 C11), Recife (PE)(A9 C9 H9), Chapadão do Sul (MS)(C9C10 G9G10), Carangola (MG)(C9 D9), Goiatuba (GO)(C8C9), Aracaju (SE)(C8C9), Morrinhos (GO)(C8C9 G8G9), Flores da Cunha (RS)(B8B9B10 C8C9C10), Rio Maria (PA)(C8C9C10), Carmo da Mata (MG)(C9C10), Guararema (SP)(C9 H9), Braço do Norte (SC)(C9), Prado (BA)(C9 G9), Humaitá (AM)(C9), Itapema (SC)(C2 C9 C11), Balneário Camboriú (SC)(C9), São Caetano do Sul (SP)(C9C10), Alto Garças (MT)(C9), Dolores do Rio Preto (ES)(C9 E9), Serra da Saudade (MG)(C9 C12), Santana de Parnaíba (SP)(C2 C9 C12 G2 G9 C14 C12), Várzea Nova (BA)(C9 C12) | Juru (PB)(I4 I9), Santa Albertina (SP)(E4 E9I4 I9), Pedro Avelino (RN)(A4 A9A10I4 I9I10), Brejo dos Santos (PB)(I4 I9), Iracema (CE)(I4 I9), Americano do Brasil (GO)(A4 A9I4 I9), Itaguaçu da Bahia (BA)(A9A10I4 I9I10), São Sebastião de Lagoa de Roça (PB)(B9I9), Barra do Corda (MA)(B9I9), São José de Ribamar (MA)(G9I9), Taguatinga (TO)(A9I9), Miranda do Norte (MA)(B9 G9I9), Ererê (CE)(B9I9), Caiana (MG)(A9A10I9I10), Pedra Branca (CE)(B9I9), Deputado Irapuan Pinheiro (CE)(B9 D9I9), São João da Paraúna (GO)(I9), Tamboara (PR)(A9A10I9I10), Assis Chateaubriand (PR)(A9I9), Valinhos (SP)(I9I10), Borá (SP)(H9I9), Catingueira (PB)(A8A9I8I9), Uauá (BA)(G8G9I8I9), Rodolfo Fernandes (RN)(I8I9), Caputira (MG)(A9 E9I9), Taquaral de Goiás (GO)(A9 E9I9), Conceição da Aparecida (MG)(I9I10), Moema (MG)(A9A10I9I10), Bom Repouso (MG)(A9 I2I9), Presidente Juscelino (RN)(I9), Buritis (MG)(A9I9), Natércia (MG)(I9I10), Governador Luiz Rocha (MA)(I9), Bom Jesus da Penha (MG)(I6 I9), Alegrete do Piauí (PI)(I9), Cruzeta (RN)(I9), Campo Alegre de Goiás (GO)(A9A10 E9E10I9I10), São Roque de Minas (MG)(I9), Paulista (PB)(E6 E9 E12I6 I9 I12), Várzea |
| | LOW | Aveiro (PA)(B1B2 B4 C1C2 C4 G1G2 G4), Borba (AM)(C1 C4), Nazaré (BA)(C1 C4), Amarante do Maranhão (MA)(C1 C4), Tartarugalzinho (AP)(B1 C1 D1), Entre-Ijuís (RS)(C1 C6), Cariacica (ES)(C1), Abaetetuba (PA)(C1), Fraiburgo (SC)(C1C2), Buerarema (BA)(C1 C6 D1), Coribe (BA)(C1 D1 E1), Feijó (AC)(B1B2 C1C2), Brumado (BA)(C1), Pindorama do Tocantins (TO)(C1), Itanhaém (SP)(A1A2 C1C2 H1H2), Riachão do Poço (PB)(C1C2 D1D2), Santa Isabel do Pará (PA)(C1 E1 G1), Cacequi (RS)(C1), Peritiba (SC)(C1C2 D1D2 H1H2), Nova Cruz (RN)(C1C2 C8), Governador Celso Ramos (SC)(C1 C8), Esplanada (BA)(C1 C8 H1 H8), Ruy Barbosa (BA)(C1 C8 G1 G8), Navegantes (SC)(C1C2 C8), Ponta de Pedras (PA)(C1 D1 D8 E1), Santa Isabel (GO)(A1 C1), Capela (SE)(C1), Silves (AM)(B1 C1 G1), Santa Helena de Goiás (GO)(C1 D1 H1), Uarini (AM)(C1C2 H1H2), Pinheiro Preto (SC)(C1C2), Batayporã (MS)(C1), Ibirité (MG)(C1C2), Mucurici (ES)(C1 E1 G1), Canápolis (MG)(C1 C3 C10 H1 H10), Xique-Xique (BA)(C1), Bacabeira (MA)(C1 C6 G1 G6), Careiro (AM)(C1 C10 E1 E10), Indiavaí (MT)(B1 B12C1 C12), Ipê (RS)(B1 B12C1 C12), Concórdia do Pará (PA)(C1 C12 G1 G12), Sento Sé (BA)(C1 C12 H1 H12), Barcelos (BA)(C1 C12 H1 H12) | São Benedito do Rio Preto (MA)(I1I4 I6), Livramento (PB)(I1I2I4), Maturéia (PB)(I1I2I4), Campinas do Piauí (PI)(I1I4), Angical do Piauí (PI)(A1 A4 B1 B4 I1I4), Lassance (MG)(I1I4), Mulungu do Morro (BA)(I1I4), Japi (RN)(A1 I1), Matupá (MT)(A1 I1), Catarina (CE)(B1B2 I1I2), Água Nova (RN)(B1B2 I1I2), Lizarda (TO)(A1 I1), Arara (PB)(E1E2 I1I2), Upanema (RN)(I1I2), Choró (CE)(B1 I1), Frecheirinha (CE)(I1), Itatuba (PB)(A1 I1), Encanto (RN)(I1), Cerro Corá (RN)(B1 I1), Rafael Fernandes (RN)(A1A2 I1I2), Janiópolis (PR)(I1), Juruti (PA)(A1 I1), Aratuba (CE)(B1B2 B8 I1I2I8), Engenheiro Navarro (MG)(A1 A8 I1I8), Salinas da Margarida (BA)(D1D2 D8 I1I2I8), Belágua (MA)(I1I8), Nossa Senhora das Graças (PR)(I1), Raposos (MG)(A1 I1), Cacimbas (PB)(B1B2 I1I2), Pirangi (SP)(I1I10), Cumaru (PE)(E1E2 I1I2), Jaqueira (PE)(I1I2), Datas (MG)(I1I2), Panamá (GO)(I1I2), Frutuoso Gomes (RN)(I1I2), São José da Bela Vista (SP)(E1E2 I1I2), Planura (MG)(I1I2), Severínia (SP)(E1E2 I1I2), Doutor Severiano (RN)(I1), São José da Safira (MG)(I1I12), Poço Redondo (SE)(I1I12), América Dourada (BA)(D12 I1I12), Águas Lindas de Goiás (GO)(E |

Source: Elaborated by Cepesp with data from 1991 and 2000 Census (IBGE) and RAIS (1991 and 2000).

Table 4.D.6: Extreme Groups for Population Bellow Poverty Residuals and Percentage of Health Investment

| Policy | | Health | |
|-------------------------------------|------|---|--|
| Residuals | | LOW | HIGH |
| Population Bellow Poverty Residuals | HIGH | <p>Urucurituba(AM)(A4 A10 C4 C10), Cambará do Sul(RS)(C4 C10), Ibiquera(BA)(C4 C10 D4 D10), Palmitos(SC)(C9C10), Nova Canaã do Norte(MT)(C9C10), Itaúna(MG)(C10 E10), Mãe do Rio(PA)(C10 D10 H10), Protásio Alves(RS)(A9A10 B9B10 C9C10), Minaçu(GO)(C10 H10), Araguaçu(TO)(A9A10 C9C10), Terra Roxa(PR)(C10 H10), Arraias(TO)(C10), Baixo Guandu(ES)(C5 C10 G5 G10), Vereda(BA)(C10 G10), Bernardo Sayão(TO)(C9C10), Siderópolis(SC)(C10 D10), Dois Lajeados(RS)(A9A10 C9C10), Imigrante(RS)(C10), Campos Verdes(GO)(A10 C10 H10), Fortaleza do Tabocão(TO)(C10 H10), Tucumã(PA)(C9C10 D9D10), Pomerode(SC)(C10 G10), Mundo Novo(BA)(B10 C10), Miranorte(TO)(C5 C10), Rodeio(SC)(C10), Teresópolis(RJ)(B10 C10), Goianorte(TO)(C10 G10), Jaú(SP)(C10), Chapadão do Sul(MS)(C9C10 G9G10), Presidente Getúlio(SC)(C8 C10 E8 E10 G8 G10), Corumbá(MS)(C8 C10), Adamantina(SP)(C8 C10), Flores da Cunha(RS)(B8B9B10 C8C9C10), Rio Maria(PA)(C8C9C10), Piraju(SP)(C10 D10), Carmo da Mata(MG)(C9C10), Orizona(GO)(C10 H10), Breves(PA)(C5 C10), Atibaia(SP)(C10 H10), Piracanjuba(GO)(C10 D10), Massaranduba(SC)(C5 C10), R</p> | <p>Alto Alegre(SP)(A4 A10I4 I10), Pedro Avelino(RN)(A4 A9A10I4 I9I10), Coronel Pacheco(MG)(A4 A10I4 I10), Licínio de Almeida(BA)(G4 G10I4 I10), Itaguaçu da Bahia(BA)(A9A10I4 I9I10), Quixabá(PB)(I4 I10), Novo Horizonte do Norte(MT)(I5 I10), Tanquinho(BA)(I10), Palestina de Goiás(GO)(A10I10), Nova Redenção(BA)(G10I10), Caiana(MG)(A9A10I9I10), Santa Tereza de Goiás(GO)(I10), Tamboara(PR)(A9A10I9I10), Oriente(SP)(I10), Itambé(PR)(A10I10), Valinhos(SP)(I9I10), Pirangi(SP)(I1I10), Arraial do Cabo(RJ)(A10I10), Batatais(SP)(A10I10), Conceição da Aparecida(MG)(I9I10), Paraíso do Norte(PR)(A10 E10I10), São Jorge do Ivaí(PR)(I10), Moema(MG)(A9A10I9I10), Nova Fátima(BA)(I10), Cacoal(RO)(I10), Novo Planalto(GO)(A10I10), Santo Antônio da Alegria(SP)(E10I10), Taquarussu(MS)(B10I10), Natércia(MG)(I9I10), Pedra do Indaiá(MG)(E10I10), Presidente Médici(RO)(D10I10), Areado(MG)(A10I10), Doutor Pedrinho(SC)(E10I10), Santa Luzia D'Oeste(RO)(B10I10), Iacanga(SP)(A10I10), Campo Alegre de Goiás(GO)(A9A10 E9E10I9I10), Rolim de Moura(RO)(B10I10), Monte Alegre de Goiás(GO)(A10 A12I10 I12</p> |
| | LOW | <p>Aveiro(PA)(B1B2 B4 C1C2 C4 G1G2 G4), Nazaré da Mata(PE)(C2 C4), Santa Brígida(BA)(C2 C4 H2 H4), Camaçari(BA)(A2 A4 B2 B4 C2 C4), Paulista(PE)(A2 C2), Campo Verde(MT)(C2 H2), Suzano(SP)(C2 C5 D2 D5 H2 H5), Fraiburgo(SC)(C1C2), Feijó(AC)(B1B2 C1C2), Barra do Quaraí(RS)(C2 G2), Itanhaém(SP)(A1A2 C1C2 H1H2), Riachão do Poço(PB)(C1C2 D1D2), Triunfo(RS)(C2), Maceió(AL)(C2), Vera Cruz(BA)(C2), Gravataí(RS)(C2 G2), Palmas(TO)(B2 B9 B11 C2 C9 C11), Peritiba(SC)(C1C2 D1D2 H1H2), Foz do Iguaçu(PR)(C2 C8 H2 H8), Nova Cruz(RN)(C1C2 C8), Caldas Novas(GO)(A2 A8 C2 C8 H2 H8), Ananindeua(PA)(C2 C8), Herval(RS)(B2 B8 C2 C8), Navegantes(SC)(C1C2 C8), Amajari(RR)(A2 C2 H2), Nova Prata(RS)(C2 C5), Uarini(AM)(C1C2 H1H2), Pinheiro Preto(SC)(C1C2), Mongaguá(SP)(C2 H2), Irani(SC)(C2 D2 H2), Ibirité(MG)(C1C2), Itapema(SC)(C2 C9 C11), São Joaquim do Monte(PE)(C2), Itápolis(SP)(C2 D2 H2), Piranga(MG)(C2), Agrestina(PE)(C2), Jatobá(PE)(C2), Porto Seguro(BA)(C2), Santa Filomena(PI)(C2 D2), Feliz Natal(MT)(C2 C12), Santana de Parnaíba(SP)(C2 C9 C12 G2 G9</p> | <p>Livramento(PB)(I1I2I4), Nova Olinda(PB)(A2 A4 B2 B4 I2I4), Maturéia(PB)(I1I2I4), Antonina do Norte(CE)(B2 B4B5 I2I4I5), Catarina(CE)(B1B2 I1I2), Água Nova(RN)(B1B2 I1I2), Pedra Dourada(MG)(A2 E2 I2), Arara(PB)(E1E2 I1I2), São José do Herval(RS)(A2 B2 I2), Aurelino Leal(BA)(E2 I2), Caetanópolis(MG)(I2I5), Upanema(RN)(I1I2), Canela(RS)(A2 A5 I2I5), Guapiara(SP)(I2), Rafael Fernandes(RN)(A1A2 I1I2), Calçado(PE)(I2), Imaculada(PB)(D2 I2), Aratuba(CE)(B1B2 B8 I1I2I8), Salinas da Margarida(BA)(D1D2 D8 I1I2I8), Campestre de Goiás(GO)(A2 H2 I2), Cacimbas(PB)(B1B2 I1I2), Cumaru(PE)(E1E2 I1I2), Jaqueira(PE)(I1I2), Datas(MG)(I1I2), Bom Repouso(MG)(A9 I2I9), Panamá(GO)(I1I2), Nova Floresta(PB)(I2), Frutuoso Gomes(RN)(I1I2), Olho d'Água das Flores(AL)(E2 I2), São José da Bela Vista(SP)(E1E2 I1I2), Planura(MG)(I1I2), Itacarambi(MG)(I2), Severínia(SP)(E1E2 I1I2), Telha(SE)(I2I5), Martinópole(CE)(A2 I2), Nova Mamoré(RO)(B2 B12 D2 D12 I2I12), Águas Lindas de Goiás(GO)(E1E2 E12 I1I2I12), Pilões(RN)(H2 H12 I2 I12).</p> |

Source: Elaborated by Cepesp with data from 1991 and 2000 Census (IBGE) and RAIS (1991 and 2000).

Table 4.D.7: Extreme Groups for Employment Residuals and Percentage of Health Investment

| Policy Residuals | | Health | |
|----------------------|------|--|--|
| | | LOW | HIGH |
| Employment Residuals | HIGH | <p>Indiavaí(MT)(B1 B12C1 C12), Itabirinha de Mantena(MG)(C12 D12), Montes Claros de Goiás(GO)(C10 C12 H10 H12), Vicentinópolis(GO)(C12 H12), Lajeado Novo(MA)(C12 E12 G12), Guarani d'Oeste(SP)(C12 G12), Correntina(BA)(C12), Nioaque(MS)(C12 G12), Ipê(RS)(B1 B12C1 C12), Concórdia do Pará(PA)(C1 C12 G1 G12), Feliz Natal(MT)(C2 C12), São Francisco de Sales(MG)(C12), Ibirataia(BA)(C12 E12), Serra da Saudade(MG)(C9 C12), Presidente Nereu(SC)(C12), Sento Sé(BA)(C1 C12 H1 H12), Agronômica(SC)(C12 D12 E12), Estreito(MA)(C12), Santana de Parnaíba(SP)(C2 C9 C12 G2 G9 G11G12), Barcelos(AM)(C1C2 C12D1D2 D12), Madre de Deus(BA)(C12), Várzea Nova(BA)(C9 C12), Santa Cruz do Arari(PA)(C1 C12), São José do Belmonte(PE)(C12 H12), Assis Brasil(AC)(B12 C12), Jurema(PE)(C9 C12 D9 D12), Santa Maria das Barreiras(PA)(C1 C12), Oiapoque(AP)(B9 B12 C2 C12 G9 G12), Oeiras do Pará(PA)(B12 C12 G12), Campo Alegre de Lourdes(BA)(C12 G12), Buritirama(BA)(C12 H12), Luiziana(PR)(C12)</p> | <p>Mãe d'Água(PB)(A12 E12I12), Lurardem(PR)(A12I12), Itiruçu(BA)(E12I12), Monte Alegre de Goiás(GO)(A10 A12I10 I12), Brazabrantes(GO)(H12I12), Paulista(PB)(E6 E9 E12I6 I9 I12), Alta Floresta D'Oeste(RO)(B12I12), Valentim Gentil(SP)(A9 A12I9 I12), Tanhaçu(BA)(I9 I12), Queiroz(SP)(I12), Aporé(GO)(I9 I12), Mucugê(BA)(I6 I12), Nova Olinda do Maranhão(MA)(I12), Lajedinho(BA)(I10 I12), Senador Elói de Souza(RN)(B12I12), Piedade dos Gerais(MG)(I12), Tasso Fragoso(MA)(D12I12), São José da Safira(MG)(I1I12), Carnaúba dos Dantas(RN)(D12I12), Paraná(RN)(I12), Nova América(GO)(I5 I10 I12), Chalé(MG)(A12I12), Flores do Piauí(PI)(A12 E12I12), Souto Soares(BA)(I9I10 I12), Floresta do Piauí(PI)(B9 B12 G9 G12I9 I12), Malta(PB)(B12I12), Hidrolândia(CE)(I12), Calumbi(PE)(B5 B12I5 I12), Gavião(BA)(I12), Poço Redondo(SE)(I1I12), América Dourada(BA)(D12 I1I12), Pavussu(PI)(B5 B12I5 I12), Itaquara(BA)(I12), Nova Mamoré(RO)(B2 B12 D2 D12 I2I12), Esperantinópolis(MA)(I6 I12), Adelândia(GO)(A5 A12I12), Jandaíra(BA)(G6 G12I12), Arari(MA)(B9 B12I9 I12),</p> |
| | LOW | <p>Aveiro(PA)(B1B2 B4 C1C2 C4 G1G2 G4), Urucurituba(AM)(A4 A10 C4 C10), Colinas do Sul(GO)(A4 C4), Maraã(AM)(C4), Arroio dos Ratos(RS)(B4B5 C4C5), Baixio(CE)(B4 C4 G4), Jussiapé(BA)(C4C5), Aldeias Altas(MA)(C4), Borba(AM)(C1 C4), Itororó(BA)(C4 C6 D4), Nazaré da Mata(PE)(C2 C4), Santa Brígida(BA)(C2 C4 H2 H4), Conceição da Barra(ES)(C4 C6), Reserva do Cabaçal(MT)(C4 H4), Camaçari(BA)(A2 A4 B2 B4 C2 C4), Água Doce do Norte(ES)(C4C5), Portel(PA)(C4 C9), Itaparica(BA)(C4 H4), Cambará do Sul(RS)(C4 C10), Faxinalzinho(RS)(C4), Ibicarai(BA)(C4), Augusto Corrêa(PA)(C4C5), Ipira(SC)(C4 H4), Correia Pinto(SC)(B4 C4), Mucuri(BA)(C4 C9 E4 E9), Palmares(PE)(B4 B6 C4 C6 G4 G6), Ibiquera(BA)(C4 C10 D4 D10), Nazaré(BA)(C1 C4), Ituberá(BA)(C4 G4 H4), Amarante do Maranhão(MA)(C1 C4), Alegre(ES)(C4 C6 H4 H6)</p> | <p>Vista Serrana(PB)(A4 B4I4), Itacanga(CE)(B4B5I4), Alto do Lins(CA)(A4 B4I4), Cavalos(PB)(I4), São José do Bonfim(PB)(B4I4), Alto Alegre(SP)(A4 A10I4 I10), Barão de Grajaú(MA)(A4I4), Nazaré do Piauí(PI)(A4 A6I4 I6), Garrafão do Norte(PA)(A4I4), Santa Bárbara de Goiás(GO)(A4 A6 H4 H6I4 I6), Irajuba(BA)(B4I4), Taboleiro Grande(RN)(I4I5I6I7), Senador Sá(CE)(A4 E4I4), Juru(PB)(I4 I9), Santa Albertina(SP)(E4 E9I4 I9), Abaiara(CE)(B4 B6I4 I6), Brás Pires(MG)(I4), Pedro Avelino(RN)(A4 A9A10I4 I9I10), São Benedito do Rio Preto(MA)(I1I4 I6), São Francisco do Piauí(PI)(A4I4), Brejo dos Santos(PB)(I4 I9), Coronel Pacheco(MG)(A4 A10I4 I10), Santa Rosa de Goiás(GO)(A4I4), Livramento(PB)(I1I2I4), Alvorada do Gurguéia(PI)(I4), Iracema(CE)(I4 I9), Alcântara(MA)(E4I4), Maranguape(CE)(A4A5A6A7 B4B5B6B7I4I5I6I7), Arneiroz(CE)(B4 B6I4 I6), Marcelino Vieira(RN)(I4 I6), Anguera(BA)(E4I4), Nova Olinda(PB)(A2 A4 B2 B4 I2I4), Mata Grande(AL)(I4 I6), Americano do Brasil(GO)(A4 A9I4 I9), Tenente Ananias(RN)(I4), Coluna(MG)(I4), Meruoca(CE)(B4 G4I4), Lagoa(PB)(I4), São Luís do Curu(CE)(B4I4), Pilõezinhos(PB)(I4),</p> |

Source: Elaborated by Cepesp with data from 1991 and 2000 Census (IBGE) and RAIS (1991 and 2000).

Table 4.D.8: Average (Control) Groups for Health Expenses

| | |
|--------------------------|--|
| Income | Coronel João Sá(BA)(F4F5), Propriá(SE)(D4D5 F4F5), São João da Urtiga(RS)(F4F5), Piaçabuçu(AL)(A4A5 F4F5 H4H5), Quartel Geral(MG)(F5 H5), Rosário do Catete(SE)(D5 F5), Monte Castelo(SC)(F5F6F7), Altamira do Paraná(PR)(F5 H5), Tapira(MG)(F5F6F7), Colina(SP)(A5 F5), Itacurubi(RS)(B5 D5 F5), Limoeiro do Norte(CE)(B5 F5), Agudos(SP)(F5), Mirandópolis(SP)(F5), Monte Santo de Minas(MG)(F5), Buenos Aires(PE)(F5), Mineiros do Tietê(SP)(F5), Nova Luzitânia(SP)(F5), Terra Nova(PE)(F5 H5), Passo de Camaragibe(AL)(F5F6F7), Dolcinópolis(SP)(F5), Catanduva(SP)(F5 F8), Gravatá(PE)(E5 E8 F5 F8), Antônio Gonçalves(BA)(E5 E8 E10 F5 F8 F10), Condor(RS)(F5 F8), Itumirim(MG)(A5 F5 H5 H8), Itaobim(MG)(D5D6D7 F5F6F7), Muniz Ferreira(BA)(F5 G5), Santa Mercedes(SP)(F5), Jardinópolis(SP)(F5F6F7), Chã Grande(PE)(D5 F5), Alfredo Marcondes(SP)(E5 F5), Campos Altos(MG)(F5), Nossa Senhora das Dores(SE)(A5 F5 H5), Nossa Senhora dos Remédios(PI)(B5 F5), Piquerobi(SP)(F5F6), Lagoa Formosa(MG)(F5 F10), Itamari(BA)(F5), Dona Eusébia(MG)(F2 F5 F12), Coimbra(MG)(D5 D12 F5 F12), Amapá do Maranhão(MA)(F5 F12 G5 G12) |
| Population Below Poverty | Santa Fé de Minas(MG)(E4 E6 F4 F6), Brejo do Cruz(PB)(F4 F6), Granja(CE)(F6), São Francisco do Conde(BA)(F6), Muçum(RS)(F6), Pedro do Rosário(MA)(F6 G6), Anajatuba(MA)(F6 G6), Monte Castelo(SC)(F5F6F7), Tapira(MG)(F5F6F7), Batalha(PI)(F6), São Sebastião do Passé(BA)(F6 G6), Biritinga(BA)(F6), Itamonte(MG)(F6 H6), Terra Nova(BA)(F6 G6), Fernandópolis(SP)(E6 F6), Passo de Camaragibe(AL)(F5F6F7), São Martinho(SC)(F6 F9), Guaramiranga(CE)(B6 F6), Itaberaba(BA)(F6), Riolândia(SP)(F6 F8), Quixeramobim(CE)(B1 B6 B8 F1 F6 F8 G1 G6 G8), Cândido Rodrigues(SP)(E6 F6), Itaobim(MG)(D5D6D7 F5F6F7), Cássia(MG)(F6 H6), Isaías Coelho(PI)(B6 F6 G6), Cunha(SP)(F6), Paraisópolis(MG)(F6), Corupá(SC)(F6), Jaguariáiva(PR)(F6), Timbaúba dos Batistas(RN)(F6 H6), Soledade de Minas(MG)(F6), Divisa Nova(MG)(F6), Jardinópolis(SP)(F5F6F7), Lourdes(SP)(F6), Apiúna(SC)(F6), Espera Feliz(MG)(F6), Ibiraçu(ES)(F6 F9), Santa Maria da Serra(SP)(F6), Piquerobi(SP)(F5F6), Marliéria(MG)(F6 F9 F12 H9 H12), Guajeru(BA)(F6 F9 F12), Amparo de São Francisco(SE)(B12 F6 F12), Goianinha(RN)(F6 F12 G6 G12), Piauí(MG)(F6 F12), Santa Cruz do Piauí(PI)(D9 D12 F6 F9 F12), Belém(AL)(F6 F12). |
| Employment | Itaberá(SP)(F1F2 F8), Catanduva(SP)(F5 F8), Durandé(MG)(F8), Piedade do Rio Grande(MG)(F1 F8), Murutinga do Sul(SP)(F8), Marília(SP)(D8 F8), Selbach(RS)(D8D9 F8F9), Santana da Ponte Pensa(SP)(B8 B10 F8 F10), Lagoa Seca(PB)(F2 F8), São Gonçalo do Amarante(RN)(F2 F8), Gravatá(PE)(E5 E8 F5 F8), Boa Nova(BA)(F2 F8), Feira Nova(PE)(F8F9), Uberlândia(MG)(F8), Santa Luzia(PB)(A8 F8), Salvador do Sul(RS)(F8), Carmo do Cajuru(MG)(D8 F8), Tupi Paulista(SP)(D8 F8), Olivença(AL)(F8 H8), Campina Verde(MG)(F8), Santa Maria Madalena(RJ)(A8 F8), Riolândia(SP)(F6 F8), Itutinga(MG)(F8), Santa Rita do Sapucaí(MG)(E8 F8), Quixeramobim(CE)(B1 B6 B8 F1 F6 F8 G1 G6 G8), Paranapanema(SP)(F8 H8), Antônio Gonçalves(BA)(E5 E8 E10 F5 F8 F10), Bueno Brandão(MG)(F8), Condor(RS)(F5 F8), Carandaí(MG)(F2 F8), Parnamirim(RN)(D2 D8D9 F2 F8F9), Sericita(MG)(F8F9), Joanópolis(SP)(F8), Itumirim(MG)(A5 F5 F8 H5 H8). |

Source: Elaborated by Cepesp with data from 1991 and 2000 Census (IBGE) and RAIS (1991 and 2000).

Table 4.D.9: Extreme Groups for Income Residuals and Percentage of Infrastructure Expenses

| Policy | | Infrastructure | |
|------------------|------|--|---|
| Residuals | | LOW | HIGH |
| | | | |
| Income Residuals | HIGH | <p>Quiterianópolis(CE)(A4 A9 B4 B9), São Sebastião de Lagoa de Roça(PB)(B9I9), Barra do Corda(MA)(B9I9), Protásio Alves(RS)(A9A10 B9B10 C9C10), Miranda do Norte(MA)(B9 G9I9), Ererê(CE)(B9I9), Fortuna(MA)(B9 G9), Horizonte(CE)(B9 G9), Campos Sales(CE)(B9), Pedra Branca(CE)(B9I9), Portão(RS)(B9 C9), Montividiu(GO)(A9 B9 C9), Deputado Irapuan Pinheiro(CE)(B9 D9I9), Putinga(RS)(B9B10 D9D10), Nova Olinda(TO)(B9 G9), Bertiooga(SP)(A9A10 B9B10 F9F10), Palmas(TO)(B2 B9 B11 C2 C9 C11), Conselheiro Mairinck(PR)(B6 B8B9), Flores da Cunha(RS)(B8B9B10 C8C9C10), Sítio do Quinto(BA)(B9 F9 G9), São Sebastião do Rio Verde(MG)(B6 B9), Nova Bassano(RS)(B9B10), Dom Pedro(MA)(B9 F9 G9), Santo Antônio do Monte(MG)(B9B10 G9G10), Itaúba(MT)(B9B10), Lauro de Freitas(BA)(A9 A12 B9 B12 F9 F12), Vera Cruz(RN)(B9 B12), Floresta do Piauí(PI)(B9 B12 G9 G12I9 I12), Arari(MA)(B9 B12I9 I12), Oiapoque(AP)(B9 B12 C2 C12 G9 G12), Rurópolis(PA)(B9 B12), Manaquiri(AM)(B9 B12), Brejo Grande do Araguaia(PA)(B9 B12)</p> | <p>Lamarão(BA)(D4 D9 H4 H9), Caninde de São Francisco(SE)(H4 H9), Bonópolis(GO)(A9 C9 H9), Patu(RN)(H6 H9), Campo Novo do Parecis(MT)(F9 H9), Pontal(SP)(H2 H9 H11), Chapada da Natividade(TO)(C9 H9), Tapurah(MT)(D9 H6 H9), Marianópolis do Tocantins(TO)(H9), Montauri(RS)(A9A10 F9F10 H9H10), Sananduva(RS)(H9), Coroaci(MG)(F9 H9), Capitão Leônidas Marques(PR)(D9 H9), Lacerdópolis(SC)(H9), Recife(PE)(A9 C9 H9), Borá(SP)(H9I9), Pedra Mole(SE)(G8G9 H8H9), São Francisco de Paula(MG)(H8H9), Guararema(SP)(C9 H9), Pompéia(SP)(D9D10 F9F10 H9H10), Castelândia(GO)(A9 H9), Piçarra(PA)(H9H10), Jaramataia(AL)(H9), Rianápolis(GO)(H9), Arapeí(SP)(D9 H9), Panorama(SP)(H9), Pedrinópolis(MG)(D9D10 H9H10), Botelhos(MG)(A9A10 H9H10), Fortaleza dos Valos(RS)(H9), Formoso(MG)(A9 H9), Lago da Pedra(MA)(D9 H9), Ibotirama(BA)(H9), Barueri(SP)(H2 H9), Batalha(AL)(H9), Muquém de São Francisco(BA)(F9 F12 H9 H12), Marliéria(MG)(F6 F9 F12 H9 H12), São João d'Aliança(GO)(H9 H12), Morro do Pilar(MG)(H9 H12), Dois Riachos(AL)(H9 H12), São Gabriel(BA)(D12 H9 H12I9 I12), Novo São Leopoldo(MT)(H1 H9)</p> |
| | LOW | <p>Aveiro(PA)(B1B2 B4 C1C2 C4 G1G2 G4), Capistrano(CE)(A1 A4 B1 B4), Barreiros(PE)(B1 B4 G1 G4), Angical do Piauí(PI)(A1 A4 B1 B4 I1I4), Maravilha(AL)(B1 B4), Prainha(PA)(B1 B4), Fonte Boa(AM)(B1B2 B4 G1G2 G4), Poção de Pedras(MA)(B1 G1), Tartarugalzinho(AP)(B1 C1 D1), Catarina(CE)(B1B2 I1I2), Itajuípe(BA)(B1), Ibirapuitã(RS)(B1 D1), Bayeux(PB)(B1 D1), Água Nova(RN)(B1B2 I1I2), Guajará-Mirim(RO)(B1 B3 B10), Feijó(AC)(B1B2 C1C2), Choró(CE)(B1 I1), Mata Roma(MA)(B1), Capão da Canoa(RS)(B1B2), Cerro Corá(RN)(B1 I1), Francisco Sá(MG)(B1), São José do Piauí(PI)(B1), Palmácia(CE)(B1 B6 B8), Aratuba(CE)(B1B2 B8 I1I2I8), Quixeramobim(CE)(B1 B6 B8 F1 F6 F8 G1 G6 G8), Cajari(MA)(B1), Castilho(SP)(B1), Bela Cruz(CE)(B1 G1), Cacimbas(PB)(B1B2 I1I2), Igarapé-Açu(PA)(B1), Silves(AM)(B1 C1 G1), Garuva(SC)(B1B2), Bastos(SP)(B1 B6), Humberto de Campos(MA)(B1), Santo Antônio do Tauá(PA)(B1 B6), Aurora(CE)(B1 D1), Belém de Maria(PE)(B1 B6 G1 G6), Indiavaí(MT)(B1 B12C1 C12), Barra de Guabiraba(PE)(B1 B12 F1 F12), Chaves(PA)(B1 B10 B12 G1 G10 G12), Jardim(CE)(B1B2 B12), Ipê(RS)(B1 B</p> | <p>Sambaíba(MA)(A1 A4 F1 F4 H1 H4), Aguiar(PB)(H1 H4 H6), Bananeiras(PB)(H1 H4), Serranos(MG)(H1H2), Iperó(SP)(H1H2), Tabira(PE)(H1H2), Buriti Alegre(GO)(H1), Rio Sono(TO)(A1 A10 H1 H3 H10), Major Isidoro(AL)(A1 H1), Conceição do Pará(MG)(H1H2), Itanhaém(SP)(A1A2 C1C2 H1H2), Lagoa do Ouro(PE)(A1 H1), Peritiba(SC)(C1C2 D1D2 H1H2), Miracema do Tocantins(TO)(H1 H3 H8 H10), São Benedito do Sul(PE)(A1 A8 H1 H8), Esplanada(BA)(C1 C8 H1 H8), Ipameri(GO)(A1 H1), Santa Helena de Goiás(GO)(C1 D1 H1), Uarini(AM)(C1C2 H1H2), São José dos Quatro Marcos(MT)(H1), Pederneiras(SP)(H1 H6), Ponte Alta(SC)(H1H2), Alexandria(RN)(F1 G1 H1), Nossa Senhora do Socorro(SE)(H1H2), Canápolis(MG)(C1 C3 C10 H1 H10), Francisco Morato(SP)(A1A2 H1H2), Aparecida de Goiânia(GO)(A1A2 H1H2), Cristina(MG)(F1F2 H1H2), Canguaretama(RN)(H1H2), Eldorado(SP)(H1), Cajobi(SP)(H1H2), Araçu(GO)(A1 H1), Xavantina(SC)(H1), Maravilhas(MG)(H1), Pacatuba(SE)(A1 H1), Cafelândia(PR)(H1H2), Restinga(SP)(H1), Jequeri(MG)(H1), Barra Longa(MG)(H1 H12), Lago Verde(MA)(F1 F12 H1</p> |

Source: Elaborated by Cepesp with data from 1991 and 2000 Census (IBGE) and RAIS (1991 and 2000).

Table 4.D.10: Extreme Groups for Population Bellow Poverty Residuals and Percentage of Infrastructure Expenses

| Policy | | Infrastructure | |
|-------------------------------------|------|--|--|
| Residuals | | LOW | HIGH |
| Population Bellow Poverty Residuals | HIGH | <p>Tupandi(RS)(B4 B10), Faro(PA)(B10 D10), Nova Roma do Sul(RS)(B10), Protásio Alves(RS)(A9A10 B9B10 C9C10), Guajará-Mirim(RO)(B1 B3 B10), Aruanã(GO)(A5 A10 B5 B10), Nova Esperança do Sul(RS)(B10 D10), Putinga(RS)(B9B10 D9D10), Bertioga(SP)(A9A10 B9B10 F9F10), Mundo Novo(BA)(B10 C10), Ivinhema(MS)(B10 D10), Teresópolis(RJ)(B10 C10), Novo Horizonte(SP)(A10 B10 F10), Santana da Ponte Pensa(SP)(B8 B10 F8 F10), Maracá(SP)(B8 B10), Flores da Cunha(RS)(B8B9B10 C8C9C10), Florai(PR)(B10), Nova América da Colina(PR)(B10 F10), Nova Bassano(RS)(B9B10), Taquarussu(MS)(B10I10), Santo Antônio do Monte(MG)(B9B10 G9G10), Santa Luzia D'Oeste(RO)(B10I10), Rolim de Moura(RO)(B10I10), Itaúba(MT)(B9B10), Muaná(PA)(B10 B12 G10 G12), Chaves(PA)(B1 B10 B12 G1 G10 G12), Barão de Melgaço(MT)(B10 B12 D10 D12), Itamarati(AM)(B10 B12)</p> | <p>Diamante do Norte(PR)(H4H5 H10), Novo Brasil(GO)(A4 A10 H4 H10), Novo Jardim(TO)(H10), Mãe do Rio(PA)(C10 D10 H10), Minaçu(GO)(C10 H10), Poço das Antas(RS)(H10), Terra Roxa(PR)(C10 H10), Vista Alegre do Prata(RS)(A10 H10), Rio Sono(TO)(A1 A10 H1 H3 H10), Montauri(RS)(A9A10 F9F10 H9H10), Itaporã do Tocantins(TO)(H10), Campos Verdes(GO)(A10 C10 H10), Fortaleza do Tabocão(TO)(C10 H10), Monte Aprazível(SP)(H10), Ibiam(SC)(H10), Garça(SP)(H10), Espírito Santo do Pinhal(SP)(H5 H10), Vera Cruz(SP)(H10), Águas de Lindóia(SP)(G8 G10 H8 H10), Miracema do Tocantins(TO)(H1 H3 H8 H10), Capitólio(MG)(H8 H10), Pedreira(SP)(H10), Orizona(GO)(C10 H10), Ouro Fino(MG)(D10 H10), Pompéia(SP)(D9D10 F9F10 H9H10), Matutina(MG)(A10 H10), Atibaia(SP)(C10 H10), Bilac(SP)(H10), Piçarra(PA)(H9H10), Canápolis(MG)(C1 C3 C10 H1 H10), Monsenhor Paulo(MG)(H5 H10), Pedrinópolis(MG)(D9D10 H9H10), Botelhos(MG)(A9A10 H9H10), Jaraguá(GO)(A5 A10 H5 H10), São Vendelino(RS)(H10), Meridiano(SP)(H5 H10), Doverlândia(GO)(H10), Itarumã(GO)(A10 H10), Montes Claros de Goiás(GO)(C10 C12 H10 H12), São Domingos(BA)(H10 H12), Campi</p> |
| | LOW | <p>Aveiro(PA)(B1B2 B4 C1C2 C4 G1G2 G4), Boa Ventura(PB)(B2 B4), Nova Olinda(PB)(A2 A4 B2 B4 I2I4), Camaçari(BA)(A2 A4 B2 B4 C2 C4), Antonina do Norte(CE)(B2 B4B5 I2I4I5), Amarante(PI)(B2 B4), Fonte Boa(AM)(B1B2 B4 G1G2 G4), Santana da Boa Vista(RS)(B2 B5), Catarina(CE)(B1B2 I1I2), Vicente Dutra(RS)(B2), Água Nova(RN)(B1B2 I1I2), São José do Herval(RS)(A2 B2 I2), Feijó(AC)(B1B2 C1C2), Brochier(RS)(B2), Eldorado do Sul(RS)(B2 D2), Muritiba(BA)(B2 D2 F2), Guarabira(PB)(B2), Barbalha(CE)(B2 G2), Pirapora(MG)(A2 B2), Paço do Lumiar(MA)(B2 G2), Capão da Canoa(RS)(B1B2), Armação dos Búzios(RJ)(B2), Palmas(TO)(B2 B9 B11 C2 C9 C11), Pinheiral(RJ)(B2), Aratuba(CE)(B1B2 B8 I1I2I8), Milagres(CE)(B2 B8 D2 D8), Tianguá(CE)(B2 B8), Herval(RS)(B2 B8 C2 C8), Betim(MG)(B2 B8), Juatuba(MG)(B2 B5 B8), Cacimbas(PB)(B1B2 I1I2), Garuva(SC)(B1B2), São José do Norte(RS)(B2), Salvaterra(PA)(B2 G2), Barrinha(SP)(B2), Mombuca(SP)(A2 B2), Costa Marques(RO)(B2), Guamiranga(PR)(B2 F2), Lagoa de Velhos(RN)(B2), Senador Canedo(GO)(B2), Jardim(CE)(B1B2 B12), Nova Mamoré(RO)(B2 B12 D2</p> | <p>Arroio do Sal(RS)(H2 H4), Santa Brígida(BA)(C2 C4 H2 H4), Ibertioga(MG)(H2 H4), Jiquiriçá(BA)(H2 H5), Serranos(MG)(H1H2), Campo Verde(MT)(C2 H2), Pontal(SP)(H2 H9 H11), Iperó(SP)(H1H2), Tabira(PE)(H1H2), Major Vieira(SC)(A2 H2), Marmelópolis(MG)(H2), Suzano(SP)(C2 C5 D2 D5 H2 H5), Sonora(MS)(H2), Carinhanha(BA)(H2), Cachoeira Dourada(GO)(H2), Conceição do Pará(MG)(H1H2), Itanhaém(SP)(A1A2 C1C2 H1H2), Herval d'Oeste(SC)(H2), Boa Esperança do Sul(SP)(F2 H2), Mariluz(PR)(H2), Peritiba(SC)(C1C2 D1D2 H1H2), Foz do Iguaçu(PR)(C2 C8 H2 H8), Capinzal(SC)(H2 H8), Espigão Alto do Iguaçu(PR)(H2 H8), Caldas Novas(GO)(A2 A8 C2 C8 H2 H8), Apuí(AM)(H2 H8), Amajari(RR)(A2 C2 H2), Campestre de Goiás(GO)(A2 H2 I2), Uarini(AM)(C1C2 H1H2), Ponte Alta(SC)(H1H2), Mongaguá(SP)(C2 H2), Tapiraí(SP)(H2), Irani(SC)(C2 D2 H2), Montanhas(RN)(H2), Pinhalzinho(SC)(H2), Guairaçá(PR)(H2), Nossa Senhora do Socorro(SE)(H1H2), Itápolis(SP)(C2 D2 H2), São Domingos do Sul(RS)(H2), Francisco Morato(SP)(A1A2 H1H2), Aparecida de Goiânia(GO)(A1A2 H1H2), Iraí de Minas(MG)(A2 H2), Pequi(MG)(H2),</p> |

Source: Elaborated by Cepesp with data from 1991 and 2000 Census (IBGE) and RAIS (1991 and 2000).

Table 4.D.11: Extreme Groups for Employment Residuals and Percentage of Infrastructure Expenses

| Policy | | Infrastructure | |
|----------------------|------|--|--|
| Residuals | | LOW | HIGH |
| Employment Residuals | HIGH | <p>Indiavaí(MT)(B1 B12C1 C12), Berilo(MG)(B12), Muaná(PA)(B10 B12 G10 G12), Lauro de Freitas(BA)(A9 A12 B9 B12 F9 F12), Mauriti(CE)(B12 G12), Barra de Guabiraba(PE)(B1 B12 F1 F12), Alta Floresta D'Oeste(RO)(B12I12), Amapá(AP)(B12), Chaves(PA)(B1 B10 B12 G1 G10 G12), Bonfinópolis de Minas(MG)(B12), Porto Esperidião(MT)(B6 B12 D12), Cruz do Espírito Santo(PB)(B12 D12), Jardim(CE)(B1B2 B12), Ipê(RS)(B1 B12C1 C12), Mazagão(AP)(B12), Brejão(PE)(B12), Senador Elói de Souza(RN)(B12I12), Vera Cruz(RN)(B9 B12), Barão de Melgaço(MT)(B10 B12 D10 D12), Sardoá(MG)(A12 B12), Dias d'Ávila(BA)(B1 B12 G1 G12), Amparo de São Francisco(SE)(B12 F6 F12), Douradina(MS)(B12 G12), Novo Aripuanã(AM)(B12), Floresta do Piauí(PI)(B9 B12 G9 G12I9 I12), Malta(PB)(B12I12), Umirim(CE)(B12 G12), Calumbi(PE)(B5 B12I5 I12), Tanque Novo(BA)(B12), Assis Brasil(AC)(B12 C12), Pavussu(PI)(B5 B12I5 I12), Nova Mamoré(RO)(B2 B12 D2 D12 I2I12), Duque Bacelar(MA)(B12 G12), Capela de Santana(RS)(B2 B12), Rio Preto da Eva(AM)(B1B2 B12), Manoel Urbano(AC)(B2 B12), Arari(MA)(B9 B12I9 I12), Rafael Jambeiro(BA)(B12), Oiapoque(AP)(B</p> | <p>Arataca(BA)(H12), Lagoa Salgada(RN)(D12 F12 H12), Aguanil(MG)(H12), Barra Longa(MG)(H1 H12), Brazabrantes(GO)(H12I12), Montes Claros de Goiás(GO)(C10 C12 H10 H12), Madre de Deus de Minas(MG)(A2 A12 H2 H12), Vicentinópolis(GO)(C12 H12), Japoatã(SE)(H6 H12), Muquém de São Francisco(BA)(F9 F12 H9 H12), Primavera(PE)(H12), Poá(SP)(D5D6D7 D12 H5H6 H12), Vitorino Freire(MA)(G12 H12), Senador Firmino(MG)(A12 H12), Marliéria(MG)(F6 F9 F12 H9 H12), Craibas(AL)(A12 H12), Lago Verde(MA)(F1 F12 H1 H12), Santa Teresinha(BA)(A5 A12 H5 H12), Carira(SE)(H12), São Domingos(BA)(H10 H12), São João d'Aliança(GO)(H9 H12), Muribeca(SE)(D12 H12), Abdon Batista(SC)(H12), Gracho Cardoso(SE)(D12 H12), Sento Sé(BA)(C1 C12 H1 H12), Campinaçu(GO)(A10 A12 H12), Piratuba(SC)(H12), Sítio do Mato(BA)(F1 F12 H1 H12), Morro do Pilar(MG)(H9 H12), São José do Belmonte(PE)(C12 H12), Chorrochó(BA)(H1 H12), Manaira(PB)(H12), Dois Riachos(AL)(H9 H12), Diogo de Vasconcelos(MG)(H1 H12), Pindoba(AL)(H12), São Gabriel(BA)(D12 H9 H12I9 I12), Pilões(RN)(H2 H12I12), Buritirama(BA)(C12 H12), B</p> |
| | LOW | <p>Vista Serrana(PB)(A4 B4I4), Aveiro(PA)(B1B2 B4 C1C2 C4 G1G2 G4), Capistrano(CE)(A1 A4 B1 B4), Potengi(CE)(B4B5I4I5), Arroio dos Ratos(RS)(B4B5 C4C5), São José do Bonfim(PB)(B4I4), Baixio(CE)(B4 C4 G4), Tamboril(CE)(B4), Boa Ventura(PB)(B2 B4), Lavras da Mangabeira(CE)(B4 G4), Irajuba(BA)(B4I4), Cafarnaum(BA)(B4 F4), Beruri(AM)(B4 D4), Santana dos Garrotes(PB)(B4), Aliança(PE)(B4 G4), Barreiros(PE)(B1 B4 G1 G4), Abaiara(CE)(B4 B6I4 I6), Assaré(CE)(B4), Igaracy(PB)(B4), São José da Lagoa Tapada(PB)(B4), Parambu(CE)(B4), Maranguape(CE)(A4A5A6A7 B4B5B6B7I4I5I6I7), Arneiroz(CE)(B4 B6I4 I6), Nova Olinda(PB)(A2 A4 B2 B4 I2I4), Meruoca(CE)(B4 G4I4), Nazarezinho(PB)(B4), Mari(PB)(B4 F4), São Luís do Curu(CE)(B4I4), Monte das Gameleiras(RN)(B4 D4), Aroeiras(PB)(B4 D4), Pombos(PE)(B4 B6 G4 G6), Reriutaba(CE)(A4 B4I4), Tupandi(RS)(B4 B10), Piancó(PB)(A4 A6 B4 B6I4 I6), Umari(CE)(B4 B6), Quiterianópolis(CE)(A4 A9 B4 B9), Tauá(CE)(B4 B6), Camaçari(BA)(A2 A4 B2 B4 C2 C4), Antonina do Norte(CE)(B2 B4B5 I2I4I5), Bernardo do Mearim(MA)(B4), Angical do Piauí(PI)(A1 A4 B1 B4 I1I4), Maravilha(AL)(B1 B4), Serra de São</p> | <p>Lamarão(BA)(D4 D9 H4 H9), Canindé de São Francisco(SE)(H4 H9), Cortês(PE)(H4), Lucrécia(RN)(H4), Santa Bárbara de Goiás(GO)(A4 A6 H4 H6I4 I6), Arroio do Sal(RS)(H2 H4), Santo Amaro das Brotas(SE)(D4 H4 H6), Flexeiras(AL)(H4 H6), Diamante do Norte(PR)(H4H5 H10), Roteiro(AL)(H4H5), Santa Brígida(BA)(C2 C4 H2 H4), Olho d'Água das Cunhãs(MA)(H4), Chã de Alegria(PE)(H4), Reserva do Cabaçal(MT)(C4 H4), Serrinha(RN)(F4 G4 H4), Caraúbas(RN)(H4), Sambaíba(MA)(A1 A4 F1 F4 H1 H4), Tanque d'Arca(AL)(H4), Ibertioga(MG)(H2 H4), Barra de São Miguel(PB)(H4 H6), Itaparica(BA)(C4 H4), Aguiar(PB)(H1 H4 H6), Lajes Pintadas(RN)(H4), Areia Branca(RN)(H4 H6), Ipira(SC)(C4 H4), Ipiranga do Sul(RS)(A4 H4), Bananeiras(PB)(H1 H4), Piaçabuçu(AL)(A4A5 F4F5 H4H5), Ituberá(BA)(C4 G4 H4), Ibarama(RS)(F4 H4), Novo Brasil(GO)(A4 A10 H4 H10), Miguel Leão(PI)(G4 H4), Caldas(MG)(D4 F4 H4), Alegre(ES)(C6 H4 H6).</p> |

Source: Elaborated by Cepesp with data from 1991 and 2000 Census (IBGE) and RAIS (1991 and 2000).

Table 4.D.12: Average (Control) Groups for Infrastructure Expenses

| | |
|--------------------------|---|
| Income | Sandovalina(SP)(D2 D5 E2 E4E5), Afonso Cunha(MA)(E5), Axixá do Tocantins(TO)(A5 A10 E5 E10), Edealina(GO)(E5 E10), Moreira Sales(PR)(E5), Ivaí(PR)(E5 G5), Itaguaçu(ES)(C5 E5), Salto de Pirapora(SP)(E5), General Carneiro(PR)(E5), São Mateus(ES)(C5 E5), Duartina(SP)(E5E6), Itapirapuã Paulista(SP)(E5I5), Sertânia(PE)(E5 G5), Pinhão(PR)(E5 G5), Rosário Oeste(MT)(E5 E8 E10), Gravatá(PE)(E5 E8 F5 F8), Paulo Jacinto(AL)(E5 E8), Lagoa Nova(RN)(E2 E5 E8), Antônio Gonçalves(BA)(E5 E8 E10 F5 F8 F10), Pacaembu(SP)(E5), Mogi Guaçu(SP)(D5 E5), Rio Doce(MG)(A5 E5), Delfinópolis(MG)(E5 E10), São José da Tapera(AL)(E5E6 G5), Itirapuã(SP)(E5), Águas de Santa Bárbara(SP)(E5), Bombinhas(SC)(E5), Alfredo Marcondes(SP)(E5 F5), Santa Inês(MA)(D5 E5), Elói Mendes(MG)(E5), Luiziana(SP)(E5), Santa Juliana(MG)(C5 E5 G5), Acauã(PI)(E5), Massaranduba(PB)(E5E6), Analândia(SP)(E5), Saúde(BA)(E5 E12), Água Fria(BA)(E5E6 E12), Tesouro(MT)(A5 A10 A12 E5 E10 E12), Mar Vermelho(AL)(E5 E12), Viçosa(RN)(E5 E12), Harmonia(RS)(E5 E12) |
| Population Below Poverty | Santa Fé de Minas(MG)(E4 E6 F4 F6), Floresta Azul(BA)(E4 E6), Conceição do Almeida(BA)(C6 E6), Domingos Martins(ES)(E6), Bom Progresso(RS)(E6), Belmiro Braga(MG)(A1 A6 E1 E6), Alvorada do Sul(PR)(E6), Ipiaú(BA)(E6), Duartina(SP)(E5E6), Uraí(PR)(E6), Fernandópolis(SP)(E6 F6), Jataúba(PE)(E6 E8), Japorã(MS)(C6 C8 E6 E8), Palmópolis(MG)(E6 E8), São Luís do Quitunde(AL)(C6 E6), Cândido Rodrigues(SP)(E6 F6), Varzedo(BA)(E6), Cruzália(SP)(E6), Silva Jardim(RJ)(E6), Astorga(PR)(E6), Laje(BA)(E6 G6), São José da Tapera(AL)(E5E6 G5), Campo Redondo(RN)(A6 E6I6), Aspásia(SP)(E6), Massaranduba(PB)(E5E6), Paulista(PB)(E6 E9 E12I6 I9 I12), Cedral(MA)(E6 E12 G6 G12), Água Fria(BA)(E5E6 E12), Lajedo do Tabocal(BA)(E6E9 E12) |
| Employment | Feira de Santana(BA)(C8 E8), Rio do Campo(SC)(D8 E8), Presidente Getúlio(SC)(C8 C10 E8 E10 G8 G10), Rosário Oeste(MT)(E5 E8 E10), Campinas(SP)(D8 E8), Capim(PB)(D8 E8), Medeiros Neto(BA)(E8), Estrela do Sul(MG)(D1 D8 E1 E8), Cedro do Abaeté(MG)(E8 E10), Augusto de Lima(MG)(E8), São Rafael(RN)(E8), Pendências(RN)(E8), Rebouças(PR)(A8 E8I8), Chapecó(SC)(C8 E8), Colorado(RS)(D1D2 D8 E1E2 E8), Jataúba(PE)(E6 E8), Itarantim(BA)(E8), Pau dos Ferros(RN)(E8), Gravatá(PE)(E5 E8 F5 F8), Paulo Jacinto(AL)(E5 E8), Baraúna(PB)(E8), Lagoa Nova(RN)(E2 E5 E8), Ituaçu(BA)(E8E9), São Pedro do Turvo(SP)(E8), Lavrinhas(SP)(E8), Paulicéia(SP)(E2 E8), Serafina Corrêa(RS)(E8), Coronel João Pessoa(RN)(E1 E8), Japorã(MS)(C6 C8 E6 E8), Ivaté(PR)(E8), Tombos(MG)(E8), Santa Rita do Sapucaí(MG)(E8 F8), São Miguel dos Campos(AL)(C8 E8), Mantena(MG)(E8E9), Nova Fátima(PR)(D8 E8), Ibiassucê(BA)(E8 G8), Serrinha(BA)(E1 E8), Antônio Gonçalves(BA)(E5 E8 E10 F5 F8 F10), Várzea Paulista(SP)(E2 E8), Santo Antônio de Jesus(BA)(E8), Cambuí(MG)(D8 E8), Cubati(PB)(E8), Palmópolis(MG)(E6 E8), Antônio Olinto(PR)(E8), Ponta de |

Source: Elaborated by Cepesp with data from 1991 and 2000 Census (IBGE) and RAIS (1991 and 2000).

Conclusion

In this report we attempt to contribute to the literature on 'Local Economic Development' (LED) in general focusing in Brazil. We believe that the contribution, if any, was in methods that were then applied to the Brazilian case. Since the data we have been using are often found in many countries, the report hopes to contribute to LED studies evaluation and implementation in other countries. We believe that it is feasible to replicate the same type of study in many countries and we hope that other scholars will actually do it.

The report begins noting that there is scant interchange between the literature on LED and the 'New Economic Geography' (NEG). We would expect more interaction if we consider that the NEG furnishes fundamentals for understanding regional and local development. Each field is largely advancing without much discourse with the questions posed by research in the other. The problem is especially profound for those concerned with the policy implications emanating from both research streams. As Henderson, Shalizi, and Venables (2001) argue, the problem is even more pronounced: limited attention has been directed at linking the theoretical implications of the new economic geography literature to most of the traditional arguments found in urban and regional economics.

On the other hand, studies directed at examining the most recent wave of local economic development initiatives which have emerged across many developing countries since the 1990s have limited their focus on examining how LED policy implementation contrasts with predicted theoretical outcomes and the possible insights that can be gleaned from such comparisons across time and space. One of the main hypothesis in this report was that the lack of connection between LED studies and the NEG was due to the difference in the methodology adopted by each branch.

We attempt to bridge this gap connecting case studies with regression analysis. The evidence regarding the NEG insights is still very poor. Usually the main results are supported by stylized facts or case studies. Recently a lot of studies attempted to furnish some robust evidence for the increasing return hypothesis and congestion costs explaining the current regional equilibrium. Although the NEG shows that we may expect divergence between regions, most of the studies (and this report is not an exception) depart from a specification very close to the (conditional) convergence theory, that is using the difference in logs of per capita income (or difference in difference) as the dependent variable and lagged variables as independent including the (lagged) log of per capita income. As is well know, the rate of income convergence for this economy can be calculated from this variable coefficient.

The econometric analysis conducted in this report uses essentially the conditional convergence specification but we extend the specification for two other (dependent) variables: employment and population bellow the poverty line. In our analysis the dependent variables measure performance in terms of efficiency (income per capita) and equality (population bellow poverty line). Employment is considered a mean (not an end) and we test if increasing the employment level of the municipality increases income or

reduce poverty. We were not especially interested in checking if there is convergence or not but the coefficient on the lagged variable is always highly significant (and negative).

The meaning of the rate of convergence is different according to the performance variable analyzed. When the performance variable is the level of employment, the negative coefficient is probably representing the more intense competition between firms. For poverty it is connected with increasing competition for public resources. The negative coefficient would be expected if municipalities with an initial high proportion of population bellow poverty line are able to attract more public resources or if the population bellow poverty line would migrate out of the municipality if there are “too much” poverty in the area. This is different from the usual interpretation that capital may flight to less capital intensive areas.

There are very many convergence analyses in Brazil. Most of them agree that the pace of absolute convergence is very slow. The fact that there might be conditional convergence in our view cannot be considered as “good news”. The regional disparity in Brazil is unparalleled – the richest state (São Paulo) has income per capita more than seven times higher than the poorest state (Piauí). The difference is much higher if we consider municipalities. For instance, in 2000 São Pedro, SP has income per capita 25 times higher than the income per capita of Guajará, AM. The Brazilian population is also distributed extremely asymmetrically with nearly 73% of the municipalities with population having less than 20,000 inhabitants. The majority of Northeastern municipalities are among the 20% poorest of the country. The Northeastern region is a great deal less educated than all other regions except the state of Amazonas. Conditional convergence means that this situation is already a steady state. That is, unless we change initial endowments we do not expect spatial disparities to change considerably.

The interpretation of the coefficient on the lagged variable of employment, as discussed above, is very connected to the NEG fundamentals for agglomeration. It captures the “congestion costs” associated with increased competition. By the same token total (lagged) population variable, controlling for initial employment, will represent the agglomeration gains associated with the access to the market. The employment regression attempts to empirically test the main forces driving the urban (labor market) equilibrium according to the NEG literature, although the (reduced form) specification is still very *ad hoc*. This is a major problem in the empirical literature attempting to apply the NEG insights in an empirical analysis that we were not able to solve either. There is an important gap in the literature to be filled by estimating a structural model (and not the reduced form) using the NEG fundamentals.

The main problem with the reduced form is that some variables do not have an expected sign. For instance, average wages may attract firms since there will be more productive workers in the area but, at the same time, it will repel firms looking for low wages to reduce cost. Higher per capita income may attract firms because the market will be larger (in monetary terms) but it will also imply in a higher house price. The coefficient on wages is significantly positive showing that it is likely that the positive effect (associated to the

access to skilled labor⁵⁵) dominates the negative effect (associated with costs). The infrastructure variable, represented by the percentage of houses with sewage and water connection, is another example: it may attract firms interested in access to a good infrastructure since this variable is highly connected to the level of urbanization but it also implies more congestion (in terms of commuting time) for this same reason. In this case it seems that the negative component dominated the positive one.

In short, the reduced form does not allow decomposing the agglomeration and de-agglomeration factors. Given this limitation, we have to be very careful in applying the insights of the NEG literature to our findings. In any case it is worth noticing that when we include the square of total population, the coefficient is positive and the linear term is not significant anymore. So, the results suggest that the gains from “urbanization”⁵⁶ (or the home market effect) in Brazil are still growing at an increasing rate. Combining with the negative coefficient on initial employment we can see that a municipality with a low level of employment but with a large population will be attracting firms (compared to a similar municipality with high level of employment and/or a low population). It would not be very precise to consider the employment variable as a measure of agglomeration (in contrast to urbanization – see footnote 2 below) because agglomeration should be connected to a specific sector, the result suggests that agglomeration gains are vanishing but not urbanization gains.

Another innovation in this report is using municipal public finance data. As proxies for local public policy we use the average expenditures from 1994 to 1996 in education, health and infrastructure as dependent variable. The 1988 Constitution considerably increased municipal spending discretion. However, municipalities are still very dependent on state and federal level grants. On average 88% of municipal total revenue comes from grants. This fact could imply that the autonomy in the legal text is not real. Furthermore the legal text also limited the municipal expending to be at least 20% in health and 30% in education. This fact may be a problem for our analysis since there might be not enough variance to analyze the impact of different proportions in expenditure on the performance of the municipality.

When we analyze the distribution of spending we find that there is clear margin for differentiation. The standard deviation is around 20%. Despite the major concentration of municipalities spending between 20% and 40% on education and between 0 and 20% in health, we still have nearly 40% of municipalities with other expenditure patterns. A series of municipalities exceed the minimum required by the Constitution (20% for health and 30% for education). Thus, using municipal expenditure data to analyze local public policy has the potential to shed important insights on the ideal distribution of expenditure between different types of programs.

⁵⁵ We also included the initial level of education (number of years of schooling) to control for the access to the skilled labor market but it was not significant. A tentative explanation may be connected to the opening of the economy in the 1990s that favored low skill manufacturing. This is coherent with comparative advantages theory forecasting that when the economy opens the countries should concentrate in their abundant factors.

⁵⁶ We use “urbanization” to represent returns to total population (or returns to scope) in contrast to agglomeration representing the returns to scale and represented by the concentration in the same sector.

Econometric analysis could provide important insights concerning the desirability of, let us say, a firm recruitment program. However, it offers limited insights into how to actually implement a program for maximizing its effectiveness. On the other hand, case studies do not tell very much about the (marginal) impact of the policy. Recognizing the limitation of each perspective, the two approaches are complimentary, rather than substitutes. In the example on firm recruitment described above, if we find out that firm recruitment is indeed a good policy, we could study some cases where the policy was implemented to verify what types of programs were implemented more successfully. Ideally the case study should include an assessment to help explain which processes were more successful.

In our analysis the most efficient municipal “policy” for increasing per capita income in this time horizon and with this scope of policies is reallocating resources towards infrastructure. According to our estimation this type of expenditure also contributes (but it is less significant) to poverty reduction. However, the variable is not significant for employment. This result is somehow counterintuitive since we would expect that infrastructure would be more important to firms while education and health would be more important to people. Actually the two other policies considered have much more counterintuitive results. First, increasing the proportion of spending in health would decrease the growth in income per capita and contribute to the increase of population below the poverty line. Furthermore increasing the proportion of local investment in education is not significant for the income growth performance. On the other hand, the proportion of investment in education is positive and significant for employment and poverty. Local investment in education may be attracting both firms and poor households.

The impact of education on income is not significant but there might be an indirect effect through employment growth. Given the evidence that the bad distribution in education attainment is one of the main reasons for Brazilian inequality in income, we suspect that the time frame of the analysis is not sufficient for municipal investment in education to pay off. This is reasonable if we consider that municipal spending in education is concentrated in kindergarten and primary school. It also makes sense for poor families and workers with kids to migrate to cities with a better school system.⁵⁷

These results with respect to policy variables deserve some qualification. We do suspect that expenditure might not be the best way of capturing the impact of the respective policy initiatives, being the qualitative aspects of them more important. Moreover, these variables might capture only the fact that the localities with higher expenditures with health or higher transfers from central governments are actually the ones with worse social and economic conditions. Although we are considering rates of growth, those municipalities may be trapped in a very bad initial position.

To capture the inflow of jobs we used the number of firms opened in the municipality between 1991 and 1996 and the number of firms that migrated in from other municipalities between 1991 and 1996. The number of firms opened in the municipality is positively correlated with the growth in income per capita and employment. This result suggests that policies oriented toward entrepreneurship or toward attracting new firms to the

⁵⁷ This argument implicitly assumes that job follows people.

municipality are likely to positively impact the subsequent employment growth. In the case of employment the number of firms that have in migrated to the municipality reinforces this result, as its coefficient is also positive and significant. However, it is not significant for income per capita growth. Actually, the number of firms migrating in or out is much lower than the number of firms created each year as discussed in Chapter 2. So we would expect small impact on the migration variable. Both variables are not significant in the poverty regression.

The life-cycle decomposition analysis carried over in chapter 2 shows that the increase in employment depends essentially on the creation of new companies in order to compensate for the reduction of employment among “surviving” firms. This result is comprehensible from the standpoint of the life cycle of companies. A company that enters the market is in the growing phase of worker contracting, while more mature companies tend to either maintain or reduce employment. In this regard, the dynamic factor of a region is the generation of employment in newly created companies. This result suggests that firm recruiting may make sense as a LED program attempting to foster employment growth.

Notice that the correlation between employment growth and firm creation is not tautological. Employment growth could be more connected with the increase in jobs on firms that already existed in the municipality. The life-cycle argument sketched above explains why this is not the case and the regression proves it empirically. Second, the (log of) the number of firms created is also significant and positively correlated to the growth in per capita income. That is, firm attraction seems to be playing a role in efficiency.

These results support strategies for firm recruiting. We do not know to what extent it is a zero sum process. Furthermore we do not know how to attract firms. For instance, Tandler (2000) found that recruitment policies which focus on generic qualities are sub-optimal because they focus on qualities which are not unique to those regions seeking to lure firms. It is very difficult to test such hypothesis and even to collect this information in a survey. However, it is a very important insight for municipalities implementing a firm recruitment program. This is the reason why we do need case studies to fully understand a local public policy strategy and actually contribute to the debate and to the policy itself.

To summarize, in terms of policy guidelines, the econometric analysis is important for two reasons. First it will check whether general policies are desirable or not. Sticking with our example, firm recruitment may not be a good policy even for employment growth. If this was the case, there would be no reason for further studying such policies. However, since we have some evidence that firm recruitment indeed increases employment and per capita income growth, there is a good reason for going deeper in analyzing municipalities that implemented some kind of firm recruitment policy. Second we can concentrate on municipalities that cannot be explained by initial variables or the general policy adopted.⁵⁸ It is possible to think about the approach adopted in this report as a two step assessment. In the first step we assess the impact of broad policies on some performance measures. In the second step, using the analysis undertaken in the first step, we check the municipalities that

⁵⁸ Recall that in this report our proxy for “general policies” is the relative distribution of expenditure between health, education and infra-structure.

do not perform as expected and attempt to find why they have over or under performed using a case study approach.

In Brazil case study analysis has been essentially descriptive, with few studies focusing on evaluations of LED programs per se. Finding LED experiences and assessing its return is a major challenge for those interested in public policy and administration. The problem with the case study approach is that it is very difficult to conduct a counterfactual analysis. By construction each case study is unique. If the analysis assessed the social return of the project and it is positive, it is not possible to know if there were better options and even if the same policy will pay off in a different municipality. Moreover, for Brazil, most case studies have not yet progressed towards even attempting to conduct preliminary evaluations, let alone contemplate policy alternatives.

Our attempt departs from econometrics and uses the model tested in these exercises to select the case studies. The modern study of municipal performance in the mainstream literature started with convergence hypothesis testing in the early 1980s. At the same time, studies of municipal efficiency attempted to find the efficient frontier of (municipal) “production”. Both types of studies have the appeal of using a model based on clear micro foundations. In addition, advances in estimation techniques have made convergence tests very powerful. Tests examining conditional convergence allow for verifying whether the impact of initial endowments or policy variables influence convergence speed. If we are interested in whether LED programs reduce spatial disparities, these techniques offer a path for analyzing outcomes based on policy inputs.

One difference in our econometric analysis is explicitly including space as an explanatory variable. Convergence studies have largely ignored space. Even convergence club tests do not take into account the distance between units. Since there are clusters of poverty and richness in space, clubs may end up concentrating in a region. But space is just not in the econometric model. Krugman (1995) argues that space remained out of mainstream for a long period of time because economists did not know how to deal with increasing returns to scale. Considering that convergence tests developed following Solow-Swan type models use a constant return to scale production function, one could argue that convergence theories did not include space because the model would not allow for such a construction.

Empirical work in the mainstream that uses some NEG insights, such as Ellison and Glaeser (1997), have undertaken analyses using a non-spatial model. Thus, space has been disregarded by the mainstream empirical literature even when it considered spatial models as their theoretical insights. The principles of spatial econometrics were already systematized in the textbook by Paelinck and Klaasen (1979). Paelinck himself coined the term “spatial econometrics” in the early 1970s “to designate a growing body of the regional science literature that dealt primarily with estimation and testing problems encountered in the implementation of multiregional econometric models” (Anselin 1988). Krugman’s “technical” argument, therefore, does not seem to hold for the empirical literature. It is curious to note that the advances in spatial econometrics were not adopted in most of the mainstream empirical analysis until very recently.

In recent years, models that incorporate both spatial dependence and spatial heterogeneity, allowing for specification testing, estimation, and prediction of spatial phenomena have advanced considerably (Goodchild, Anselin, Appelbaum, and Harthorn 2000). In particular, spatial regressions, spatially weighted regressions, and related methods of spatial statistics, methods to analyze the spatial character of economic development have advanced dramatically (Anselin 2001). Fingleton (2003) and Lall and Shalizi (2003), for instance, used spatial econometrics in a convergence style regression to account for spillovers or aggregation problems between municipalities. In this report we do control for spatial dependence utilizing spatial autoregressive models, an approach that is frequently utilized in the spatial econometric literature to adjust for spatial dependence (Anselin 2001; Anselin 2003; Fingleton 2003; McMillen 2003). Although the analysis is still very *ad hoc*, at least the basic of spatial dependence revealed by NEG models are taken into account. We understand that there is still an important gap in the literature to give more foundations to the uses of spatial matrix for these types of studies.

The inclusion of location, spatial interaction, and space-time dynamics, is central to studies focusing on the impact of local economic development initiatives on regional development. There are some features of economic development that do follow spatial distribution patterns. In the case of Brazil, spatial concentration is clearly an important feature. Agglomeration in central regions has tended to persist over several decades. Moreover, the formation of new agglomerations as a result of frontier expansion in less developed regions is a salient feature which has been underscored in the LED case study literature. Yet, evidence that positive externalities generated by agglomerations may be offset to some degree by negative externalities due to congestion effects for large metropolitan areas is also emerging. In order to account for these factors, local economic development patterns must be explored from a spatial perspective.

Our results confirm findings of the importance of the initial conditions on municipal performance in accordance with theoretical and empirical results found in previous studies. The policy responses offer a new vision of what would be the most adequate policy at the local scale. Since we are analyzing all Brazilian municipalities, we can observe the relative (to the country) behavior of a municipality that would be much more difficult in a case study. We cannot say that we found an “ideal portfolio” of expenditure for the municipalities. Basically we can say that the local public policies may not be efficient for reducing poverty. But they may have a relevant role in increasing income directly or indirectly through firms attraction. So, we do not neglect that there might be a role for LED programs.

When we identify the municipalities that have participated in a LED program (using very broad definitions) we observe that a richer and denser municipality is more likely to undertake such a program. For instance, participants of the GPC award represent less than 4% of the 20% poorest in the country, but they represent almost 40% of the richest municipalities (income per capita above R\$ 248). The difference in mean income among GPC participating and non-participating municipalities (1.6 times) is approximately similar to the difference in means between municipalities with and without fiscal incentives (1.3 times) and those with and without non-fiscal incentive programs (1.4 times). This indicates that a minimum income threshold is difficult to be traversed in any local public policy.

These stylized facts suggest again that LED programs may not contribute for reducing spatial inequalities across municipalities.

The only clear exceptions are job training programs. We suspect that those programs were partially funded by federal government through the FAT (Fundo de Assistência ao Trabalhador). This is a sign that a higher level transfers may improve the distribution of LED programs between richer and smaller municipalities. However, transfers from the federal government are negatively correlated with the 3 measures of local development but not significant for poverty. As we discussed before, most of the municipalities rely mainly on Federal or State grants. Also, we have some evidence that small and poor municipalities are less likely to implement any development program. Greater amounts for grants may be a way to reverse this trend. However, our findings show that municipalities who relied on grants as a greater proportion of total spending from 1994 to 1996 experimented a slower growth both in income as in employment during the 1990s. The result suggests some serious problems in the interregional grants system in Brazil.

In the pilot we realize that some municipalities may consider a higher level programs as a local program. Recife considered the federal program “Bolsa Familia” as a local program. The current administration in Recife is from the same party as the president while Jundiá that considered the state government program in micro credit as local is administrated by the same party as the governor. This connection may not be problematic if it is just a matter of “identification”: the municipalities from the same party have similar goals so they identify themselves more easily. This finding will represent an institutional failure however if the municipalities from the same party have more influence on the higher level policy than municipalities that are not from the same coalition of the higher level official.

It does make sense funding a program like the “Bolsa Familia” by the federal government. A program like that funded by the municipality may just move in poor households from other municipalities. One important question, if we attempt to analyze the program from a local perspective, is how the decentralization of the program affects its (local) impacts. Regarding this issue we have a good opportunity to test whether a more centralized program is more efficient for reducing regional disparities than a more decentralized one since the federal government re-centralized the program recently.

The same kind of question can be done to the micro credit program of São Paulo State, i.e. what is the best level of decentralization? Also in this case it may make sense for the state (or federal) government to fund the program since there may have increasing returns in financial services. The difficulty in the micro credit analysis will be finding any impact noticeable in the municipality given the small size of the program: 270 millions reais⁵⁹ for 347 municipalities. If there is a large multiplier effect we may find some impacts. This is definitely not the case for the “Bolsa Familia” that is currently spending more than 3 billion dollars on the program nationwide. Given our evidence that small and poor municipalities are not able to implement any program we believe that studying these two cases as a LED

⁵⁹ The value in dollars is highly sensitive to the period assumed to correspond to those figures. It may be between 90 and 130 million dollars. Even the highest figure would represent around 350 thousand dollar in average by municipality.

program will bring a lot of insights in understanding the possibilities and limitations of an effective LED program lead by the state or the federal government. The “Bolsa Família” is mainly concerned with reducing poverty while the micro-credit is mainly concerned with solving a market failure (imperfect information).

Actually, Soares (2006) shows “that income transfer programs such as Bolsa Família are responsible for close to ¼ of the fall of inequality from 1995 to 2004”. Of course we do not think that this is sustainable in the long run. The actual good news from Soares (2006) assessment is that 75% of the reduction in the Gini index was connected to changes in the labor market. On the other hand, there is no doubt that Brazil needs a short run solution for extreme poverty. If we can improve the quality of such a program we may actually solve the very problem. That is, an ideal program such as “Bolsa Família” would not be necessary to exist after some time. Considering it as a LED program may contribute for its improvement.

The econometric analysis adopted in this study sheds some light on the role of local public policies in impacting subsequent development. However, fully explaining the underlining mechanisms connecting local policy with development is beyond the analytical capability of the proposed methodology. Moreover, as mentioned, our variables might not have conveyed all the relevant information for a dully policy evaluation. In order to accomplish a more comprehensive assessment it would be necessary more information on the qualitative features of LED programs. We face this challenge by developing a methodology for selecting case studies, which are not properly explained by the econometric results.

We propose a new methodology for case selection and analysis that, to the best of our knowledge, was never implemented before. The methodology, we believe, may connect a statistically oriented research with a case studies approach. The main idea is very appealing: we want to study the cases not explainable by the regression analysis. There might be something not captured in the regression that we could find out in a case study approach. We recognize that part of the data that would be necessary for the analysis is just not collected. To correct this problem we proposed a survey and attempt to test its feasibility. Second we also know that it is impossible to collect all the details for each municipality and if it was possible it would not be useful as a map that is the size of the city is useless.

The survey proposed is probably too detailed. We admit that it is pretentious assuming that the municipality officials have a deep knowledge on growth concepts. It is clear that there will always have some political bias since it is not good for the city to have “bad things” spread out. A municipality that just refuses to answer this kind of questionnaire will not be considered as not doing its job but a municipality that answer negatively will probably be misjudged. This very fact will bias the survey towards getting answers just from the municipalities that did implement some initiatives. However, it would be too strong to assume that a municipality that did not inform a specific policy did not undertake it. So, it may be difficult to create a “control” group.

The pilot showed that there are not so many policies currently in place. We are able to classify the policies in 5 broader groups that are then divided in 12 groups. We believe that

there are a reasonable number of programs for which it would be possible to directly ask if the program exists or not and then attempt to collect further information on the programs. For instance, probably a lot of municipalities have a micro-credit institution. At least in the State of São Paulo, there are 347 cities with one. If the survey asked if the municipality have a micro-credit program and then opens a specific questionnaire asking about total assets, the share of the municipality in the assets, average mature date, years of operation, interest rates, collateral, default rates, etc. we could have a quantitative assessment of many micro credit programs in the country⁶⁰. With this data in theory we could test if a program supported by a higher level is more or less efficient, if the interest rate makes any difference in the impact of the program, and other aspects of the program.

We could proceed in the same way, for all pre defined programs asking how many firms were in the incubator, how many houses were built, etc. The survey might leave an open question for each pre defined program asking the municipality to give any further detail it wants and also include an open question: “describe any LED program you have that is not contemplated in this survey. Use as many pages as you wish”. The open questions are very important to redefine the questionnaire for each program and add new programs that we did not visualize before. They will also be important for improving the survey in the following years, assuming that the survey will take place, let us say, every four years. The very open questions will also be useful for a subsequent case study analysis. In this very different approach to applying the survey we are on one hand closing the possibilities of programs and, on the other hand, allowing for totally open questions. Also the approach is not from the concept of the program but from the very initiative.

The actual goal of a survey like this is to reveal some municipalities that adopt a program and the ones that did not adopt the same program. Ideally this information would give us a group to be “experimented” (the municipalities that adopt the program) and a control group (the municipalities that do not). That is the survey would allow a “natural experiment” testing whether the municipalities that adopt the program performed better than the ones that did not. However, a basic variable is missing to pursue a natural experiment approach in assessing LED initiatives: timing. Our pilot confirmed the general findings of the PNAGE for states regarding the lack of institutional memory in the public administration. The current administration will know at the best the programs implemented by its administration. We believe that a feasible survey would ask the municipalities about programs undertaken in the current administration. The survey might be run every four years in the third year of the administration⁶¹ attempting to collect all programs

⁶⁰ It is still not clear whether this information should be gathered from the municipalities or from the State Government in the case of São Paulo. Probably the only way to do such a research would be collecting data at all federal levels. For instance, São Paulo City has its own micro credit program. Besides, some municipalities may co-fund the state program directly or indirectly. Ideally we would like to have micro data on the recipients of the loans in all municipalities and attempt to connect the loans with the municipality performance.

⁶¹ We suggest using the third year not to survey a municipality in its election year. If we circulate the questionnaire before election, the administration would be cautious in furnishing information that could be possibly used for political ends. If we send the questionnaire after election and the current party did not win, it would also be difficult to get any information.

implemented by the administration. The analysis would be actually feasible at least four to six years after the information was collected but we have to start at some point.

The natural experiment approach is feasible (in the medium run) if it does not depend upon information regarding monetary values. In other words the performance measures should be independent from municipality information. Our pilot shows that the municipalities cannot actually break down the investment in the programs. It is not clear the share of the municipality in a program in partnership with a higher government level or another institution. It is difficult to identify how many years of expenses are being taken into account. It may be possible to compare different procedures in the same programs like the ones suggested above for micro credit initiatives (comparing municipalities that did implement the program). However we are very skeptical about using the values furnished in the survey as a performance variable in general.

We have to keep in mind that any LED program has different angles to be studied. There is a very general question that we attempt to answer in Chapter 3 about the optimal division of expenditure in broad categories and whether firm attraction is a reasonable policy to be pursued. This is very important since focusing in the program inherently ignore the municipal budget constraint. This is not telling anything about a specific program but it puts limits on the program size and may show that some programs are not desirable at all. Another different question is which program is better suited for a given goal (improving efficiency, increasing equality or both). We believe that the natural experiment approach proposed above may be able to assess some aspects of this question. We may also be interested in the implementation, that is, how to implement a program maximizing its benefits. The different questions need different data and different methodologies. Any public policy has at least three phases: design, implementation and evaluation. Each phase requires a different research framework to be analyzed. The survey may contribute to most of the questions but it will usually be insufficient for the quantitative evaluation needing additional data.

In any case, the approach to studying any aspect of a (local) public policy is attempting to control all other variables to isolate the question you are attempting to answer. Case studies are sometimes criticized because they do not replicate this controlled environment when implementing the research. We believe that our sampling methodology partially overcome this critique. Notice that the selection method proposed in this report departs from the opposite hypothesis implicit in any regression analysis. A regression analysis assumes that you have enough information to control to all variables influencing your dependent variable and disregard the residuals. If you do not observe relevant variables you have to use econometric techniques to overcome the problem of “non observables”. In our methodology we assume that we do not have all the information and we will never have it for all municipalities. We select the municipalities with the worse fit to study because those are the municipalities most likely to have some special characteristics. Somehow we are not far from the econometric studies dealing with non observable variables since we also recognize that the residuals do carry a lot of information.

We must keep in mind the potential contribution of a case study. First the description of a theory may help in validating the theory. Probably one of the most convincing evidence

regarding NGE models is in Saxenian (1994) case study. On the other hand we may be neglecting a variable that is observable (by the econometrician) just because the theory is too generic to indicate all controls needed. A case study may suggest new variables to be included in the regression analysis. We may test if the added variable did its job if the outlier is not an outlier anymore when this variable is added. The regression furnishes information to the case selection that feed back the regression specification. Finally, since the methodology clearly identify extreme and average groups if we can study a reasonable number of cases, we may be able to find similarities in the detailed analysis between the extreme “positive” groups that are not observable in the average and in the extreme “negative” group or vice versa. These details may be the determinants of success or fail if the analysis is done the other way around (i.e. observing similarities in the “negative” group that were found neither in the average nor in the “positive” group). For all those reasons we believe that the method proposed maximizes the possible benefits of a case study and, at the same time, it connects the inductive analysis with a more deductive one.

The municipalities we select did use the sampling methodology proposed but not as much as we would like. The problem is that the methodology was developed at the same time of the case study. We regret for instance not using the performance X performance approach proposed in Chapter 4. We did use the methodology (the multiple objectives version) to define which municipalities would be acceptable to study but we use a lot of discretion in deciding which specific municipality we would be studying. We do think that this methodology should be used with discretion. To be robust regarding this statement we should estimate the trade off between type I error (choosing a municipality that should not have been chosen) and type II error (not choosing a municipality that should have been chosen). However, we believe that we need to give room for the researcher to decide which cases to follow using less systematic information including research cost. In other words, a case study is not supposed to be a sampling research even if you are very careful in the starting sample from where you pick up your case.

This report was mainly interested in improving the methods for analyzing LED policies. At the same time, we believe that we did learn something about LED programs in Brazil from the case studied and from the econometric analysis. Although education is the main explanatory variable for inequality the analysis carried over in this report raise some doubts on the efficiency of local investment in education or in health questioning the constitutional limits on those type of expenditure. It appears that the municipalities are more able in affecting employment growth than per capita income increase or reduction in poverty. Given the budget constraint, the municipalities seem to be more efficient and equitable when they manage to invest more in infrastructure. Also, the cases do not deny the idea that special programs may contribute to the performance of the municipality.

We were very skeptical about the feasibility of a local policy aiming to increase employment growth in the municipality. However our results suggest that this is the variable most easily affected by local policies. Additionally, the increase in employment foster income growth so it does make sense to adopt employment oriented strategies at the local level. Municipalities have very low power in poverty reduction and just indirect power on income improvements. There is a clear need for higher level funded policies. However a LED policy can be perfectly funded by higher level leaving the decision power

to local governments as we saw in the “Bolsa Familia” funded by the federal government or in the micro-credit funded by the State of São Paulo. The level of decentralization varies a lot in these programs and this aspect definitely deserves another research.

In this report we propose a sort of recipe for analyzing LED programs in developing countries using the recent advances in economic geography and making an integrated research including statistical analysis and case studies. First start reviewing the literature on LED and on convergence, local efficiency and other empirical related literature in the country you are analyzing. Collect all relevant secondary data and describe what you can learn from the LED programs in the country before going to the field research. Find the main determinants of efficiency increase or poverty reduction at the local level using the secondary data collected in the previous stage. Finally select the cases that have the worst fit in the statistical analysis and chose some of those to do a case study. Standardize part of the information collected in the case studies so you can compare each case more easily and to studies done in other countries. If we had such report for many developing countries we believe that our knowledge about LED programs in developing countries would be considerably increased.

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