



## Local economic development: Theory, evidence, and implications for policy in Brazil

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### ARTICLE INFO

#### Article history:

Received 13 April 2007

Received in revised form 26 July 2010

#### Keywords:

Brazil

Latin America

Local economic development (LED)

Regional and urban economics

Sub-national policy

### ABSTRACT

Local economic development policies have surged in Brazil over the past decade—a major shift in this regionally diverse country of 27 states, over 5000 municipalities, and the largest economy in Latin America. We review the stylized facts, expected patterns and policy recommendations from the foundational studies in regional and urban economics. We then provide a summary of a more recent stream of scholarship focused on local economic development (LED) studies in developed and developing countries that have surged in the last 20 years. Based on this review, we then systemize the findings emerging from studies focused on analyzing local economic development policies in Brazil recognizing the distinctive contributions emerging from both the empirical and the case studies literatures. We identify key lessons for (and from) the Brazilian experience and conclude that Brazil and Latin American countries need a new generation of studies that undertake more rigorous evaluations of these policy experiments. Finally, we recommend steps to advance such research.

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### 1. Introduction

Local economic development strategies have surged in Brazil over the past decade—a major policy shift in this regionally diverse country of 27 states, over 5000 municipalities, and the largest economy in Latin America. Remarkable changes in economic conditions resulting from macroeconomic stabilization, particularly the drastic reduction in inflation, and government decentralization, have induced governments to direct increased attention to micro-economic reforms including policies to reduce unemployment and generate income in specific geographic regions within Brazil. Though research directed at examining how growth can be ignited at the local level has long occupied the attention of scholars, scholarship on how issues of public administration and policy are impacted in space in the case of Brazil remains an emerging field of research.

Research on regional economic development is particularly important for developing countries such as Brazil, where the uneven spatial distribution of economic activity has been particularly marked and has tended to persist over time. Beginning with the seminal studies by Marshall (1890 (1961)), Weber (1929), Christaller (1966), Lösch (1954), and Isard (1956), a robust tradition of scholarship in regional economics on the relationship between increasing returns to scale, transportation costs and agglomeration

advantages stemming from the concentration of economic activity to specific geographic locations has developed. Students of regional development have also long held a preoccupation for the problems posed by unbalanced growth as manifested in the seminal studies of Myrdal (1957) and Hirschman (1958). Scholarship has also advanced on the conditions under which regional policies are merited, as well as why outcomes may not always be as predicted by specific theoretical models. The formalization of models and the increase in empirical studies have contributed to a set of stylized facts; predicted outcomes; and general policy recommendations.

Building on this tradition, more recently, a research stream, largely advanced by urban planners, business economists, geographers and urban sociologists, has focused on examining the development and impact of “local economic development” (LED) initiatives in developed and developing countries. Studies developed following this literature, which we classify and refer to as LED research in this paper, have sought to establish general parameters that characterize strategies for fostering innovation and prosperity in regional economies. Thus far, the vast share of the LED literature has been mainly concerned with local economic development policies in the developed world. Initiatives in developing countries have been documented, but the analysis of the wealth of cases that are found in Asia, Africa and Latin America has been limited.

This paper attempts to partially fill this gap by focusing on Brazil, which is one of the countries where there has been a dramatic and wide set of experiments with LED policies in Latin America. To do so, we first introduce some of the important reasons that help explain why Brazilian economic activity has remained geographi-

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cally concentrated over time and the policy interventions that have been found to circumvent geographic determinism in the regional economic literature. These insights from the literature usually labeled as Regional and Urban Economics or Economic Geography also show the reasons why outcomes may differ from policy goals. Secondly, we then turn to reviewing the LED policy experiments that have been undertaken in developed and developing countries, identifying key lessons for (and from) the Brazilian experience. We summarize findings from LED research on the importance of institutions (organizational forms) and processes in development efforts. Thirdly, we systemize the findings emerging from studies focused on analyzing local economic development policies in Brazil recognizing the distinctive contributions emerging from both the empirical and the case studies literatures. To do so, we gathered and analyzed the Brazilian LED case studies that we could find in the published literature in English, Portuguese and Spanish. To the best of our knowledge these cases have not been summarized before. In the final section, we conclude that Brazil and other developing countries (especially in Latin America) need a new generation of studies that go beyond describing LED experiences and toward evaluating these efforts.

## 2. Regional development: theory and stylized facts

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). The uneven spatial distribution of economic activity in Brazil has remained concentrated in a core region centered in São Paulo beginning with the period of industrialization in the early 20th century 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. In 1939, 63% of national income was concentrated in three states—São Paulo, Paraná and Minas Gerais—comprising the Southeast region of Brazil (Azzoni, 2001). Table 1 presents the share of income for Brazil's five regions in 1939 and 2000. Relative to 1939, the level of economic activity in the Southeast region had only fallen by 6.8–56.2% by 2000. In contrast, the share of income for the nation's historically poorest region, the Northeast composed of the states of Alagoas, Bahia, Ceará, Maranhão, Paraíba, Pernambuco, Piauí, Rio Grande do Norte and Sergipe, decreased from 16.9% to 12.6% during six decades.

Economic theory has provided some important answers as to why economic activity has continued to be concentrated in Brazil. Building on earlier work on the geographic concentration of economic activity and urban/rural differences, recent research has offered renewed attention to 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 et al., 2003; Fujita and Thisse, 2002; Krugman, 1991a,b). 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. Instead, these models show that growth may be uneven and tend towards divergence within regions (Aghón et al., 2001; Henderson et al., 2001).

Scholarship has also documented 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 et al., 1999). And unlike models predicated on constant or diminishing returns, these

**Table 1**

Regional GDP as a share of national GDP in 1939 and 2000.

Region	1939 <sup>a</sup>	2000
North	2.7	4.5
Center-west	2.1	9.5
Northeast	16.9	12.6
South	15.3	17.3
Southeast	63.0	56.2

<sup>a</sup> Data for 1939 reported by Azzoni (2001). Source: IPEA.

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, 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 to the “periphery” predicting increased inequality across geographic 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).

On the other hand Puga (1998), for instance, argues 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.

Storper and Walker's (1989) unique contribution is relating regional growth with capitalist cycles. During expansion periods, new industries emerge and create new centers. In an instability phase, new industries de-stabilize the very center that they had created. Finally, as a result of the division of labor, cities become differentiated. Some of their ideas were modeled a decade later in main stream economics. Fujita et al. (1999) summarizes models for new center formation and destruction that could be considered compatible with the expansion period described by Storper and Walker. Regional differentiation is compatible with increasing returns at the firm level, although it is not quite compatible with the increasing returns at the urban level externalities that Jacobs (1969) emphasizes.<sup>1</sup> Furthermore, as expected, the mainstream literature has neglected the instability phase.

## 3. Policy implications

By shedding light on the concentration of economic activity and spread of development to developing regions, the literature has also provided evidence of cases showing how policy interventions can circumvent geographic 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 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 devel-

<sup>1</sup> Storper and Walker (1989) assume returns to scale in center formation explicitly (see pp. 76–77).

opment (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, such as São José dos Pinhais in the state of Parana (Hansen, 1987; Townroe and Keen, 1984).

Due to the cumulative, nonlinear processes under way, models have also provided insights revealing the difficulties in anticipating the impact of specific policy interventions as a result of complex interactions and endogeneity (theoretically predicted by Myrdal's cumulative causation first formalized in Richardson (1969)). With cumulative causation, 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).

While models provide insights to show that public infrastructure policy interventions can yield enhanced growth in less-developed regions, other models have shown why these trends may not necessarily materialize, or the benefits may be less than initially predicted. For example, policies may successfully promote the diffusion of industrial activity across states, while also contributing to the formation of new clusters within these regions. In this vein, both Glaeser et al. (2002, 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 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.

Models have also 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 others localities. Such models may be particularly important for future research directed at Brazil, where there has been a surge in recruitment subsidies conceded as exemptions in the payment of value-added taxes (ICMS) and granted to firms that relocate production leading to the so-called *guerras fiscais* (literally, "fiscal wars") between state governments (Biderman et al., 2004).

In contrast to neoclassical growth theory that predicts the convergence between richer and poorer regions, endogenous growth theory provides justification for regional policies. Nevertheless recent modeling efforts have also underscored why the impact of regional (and local) economic development initiatives may be limited. Fiscal incentives to attract firms can potentially backfire. There are also trade offs to increasing accessibility as disparities may increase in rural remote regions since the supply of products from more developed regions will be facilitated. In sum, regional policy can be an effective instrument for changing a vicious cycle to a virtuous one, but implementation depends very much on the specifics of each case.

#### 4. Local economic development research in developed and developing countries

Regional policy has evolved in tune with the findings of the theoretical and statistical literature in regional science. The main

objective of any regional policy is (and has always been) to promote growth of specific regions usually attempting to thereby reduce regional disparities. Maillat (1998) classifies four generations of regional policies and the periods in which each were dominant. The first generation of policies that surged in the 1960s were mainly concerned with distribution following neoclassical growth theory in which resource distribution was viewed as a solution to redressing a regional inequity as otherwise the local economy should be converging to the national growth level. The second generation of initiatives was mainly concerned with stimulating endogenous growth by improving the efficiency of specific (local) resources, such as labor and technological capacities. The formalization of Myrdal's (*inter alia*) (1957) work on circularity pioneered by Richardson (1969) shows that both exogenous and endogenous factors contribute to local economic development. In the 1980s, a third generation of regional policies was put into effect that attempted to use both endogenous and exogenous policies to create comparative advantages for the local economy. Most recently, the so-called fourth generation of regional policies aims to promote a territorial production system based on the presence of diversity, innovation, second-tier cities and the institutional aspects that influence local economic development.

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 LED literature 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 key insights that underscore the importance of institutions (organizational forms) and processes in LED efforts. LED research has stressed that activity types, as well as locality matter (Webster and Muller, 2000). Saxenian's (1994) work on Silicon Valley and Route 128 is illustrative of the insights derived from this literature. 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. Studies have highlighted the importance of studying the presence of, and linkages to, related activities and institutions (Porter, 2000). The LED literature has also stressed that an important determinant of the success or failure of specific initiatives is the ability for coalition-centered development strategies to effectively translate into positive outcomes (Meyer-Stamer, 2003a).

#### 5. Policy implications

The potential of regional innovation strategies in the context of local development has been discussed thoroughly by many scholars. For instance, Morgan (2004) argues that innovation plays an important role in regional renewal though its impact to date has been modest. In general, the role of institutions in local economic

development represents a very important branch of the literature. Maillat (1998) advocates an “institution-objectivization function”. The author recognizes explicitly that the town is a system of players including companies; training and research organizations; trade and unions; political and administrative authorities; etc. They are interconnected through codes and norms. The urban system is able to institutionalize these codes and norms. The way the links between players is institutionalized plays a significant role in the potential for innovation and consequently for local development.

Historically, regional development initiatives were often promoted by national governments, such as the case of the Tennessee Valley Authority (TVA) to advance progress in the economically depressed areas of the Appalachian Region of the US and the creation of the SUDENE (Superintendência de Desenvolvimento do Nordeste) to promote development in the nine states of Northeastern Brazil.<sup>2</sup> In contrast, the LED policies that emerged in recent decades are rooted in the recognition that initiatives must be territorially-based and locally managed (Rodríguez-Pose and Tijmstra, 2007). Traditionally LED efforts were undertaken by a single agency, but increasingly initiatives are elaborated as parts of partnerships and coalitions comprised of the public and private sectors, as well as community development organizations. The number of actors engaged in local development initiatives has increased significantly ranging from national, sub-national, and local governments, to the private sector, NGOs and international organizations, as well as community development organizations.

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).<sup>3</sup> 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; Tandler, 2002b). In terms of courses of action, LED initiatives include 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 specific neighborhoods (Ettlinger, 2001).

Scholars have noted that there are important differences between LED in the “North” (advanced economies) and the global “South” (developing countries) (Nel, 2001). In Europe and the US, LED has been characterized as being more widespread and largely driven by a locality-specific crisis of deindustrialization, as well as pressures to “rollback the role of the social welfare state.” In the European Union, the primary instrument of regional policy is through the financing of impoverished regions through the Structural Funds, which now comprises approximately 35% of the EU budget (European Communities, 2007). In the US, 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). In contrast, LED has been argued to be in an infancy stage in most of the developing world.

Research on LED has only been carried out for a select group of countries in Latin America, Asia and Africa (Helmsing, 2001a). As we will argue below, the literature on LED in developing countries

is just starting to flourish. The available evidence, however, 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 continent.

In the case of Latin America, Helmsing (2001b) argues that LED initiatives 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 9 of the 12 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 largely absent in most LED initiatives in Latin America.<sup>4</sup>

The stages of LED policies outlined by Helmsing (2001) and the four generations of regional policies presented by Maillat (1998) are related. Endogeneity and the players involved in the process are basic variables in both chronologies. Indeed, the focus of regional and LED policies have been converging. More recently, for example, the decentralization process in Latin America has moved the center of decision-making to the local level and second-tier cities seem to be performing better than large central cities. The regional strategies targeted by national governments have generated agglomeration patterns concentrated in very large central cities in Latin America as the population distribution in Latin American countries is more concentrated in a few metropolitan areas than in developed countries. Whereas Buenos Aires has one third of Argentina’s population, Santiago has around 40% of Chile’s population and São Paulo represents more than 10% of the citizens living in the largest country in the region, New York City only represents a little more than 5% of the US population.

The emergence of second-tier cities and the goals of decentralization both provide opportunities for a new generation of LED policies in developing economies. Indeed, consensus is beginning to build that the challenges and experiences of different African countries share more than is often realized with other developing regions contrary to those who have argued that the region’s poor performance based on the continent being “different” (Nel, 2007). Rather than exceptional policies, scholars called for LED African policies that are directed at smaller urban areas and intermediate regions and city-regions (Kessides, 2007; Rodríguez-Pose and Tijmstra, 2007).

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 et al., 2002; Nel, 2001). Nevertheless, Nel (2001) stresses that although pressures including decentralization, globalization and economic

<sup>2</sup> For an excellent historical summary of spatially explicit regional policies in Brazil, see Fay et al. (2005).

<sup>3</sup> For a valuable discussion on the policy challenges posed by these concepts, see Martin and Sunley (2003).

<sup>4</sup> This is not unanimous in the literature. Actually there are many initiatives in Brazil that contradict this assertion.

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. Indeed, a central preoccupation in the literature directed at examining LED policies in Africa has precisely focused on trying to identify which policies can be most effective in the context of constrained weak states in the world's poorest economies (Hill et al., 2007).

Rodríguez-Pose and Tijmstra (2007) remind us that LED programs in both developing and developed countries can be classified as belonging to two types. There are programs emphasizing growth by directing attention at local binding constraints that impede the operation of local business, the attraction of new companies, etc. Another set of programs is more focused on welfare enhancing policies aiming to reduce poverty and exclusion. The first group of LED programs is usually called pro-growth while the former is called pro-poor. In Africa pro-poor programs are currently widespread while the pro-growth programs are rare. In contrast, the opposite pattern can be observed in Latin America where significant efforts are underway to strengthen local economies, increase competitiveness, and exploit market niches. The only exception in Sub-Saharan Africa is South Africa where experiences similar to those in Latin America and Asia have been undertaken in large metropolitan areas such as Durban or Johannesburg (Rodríguez-Pose and Tijmstra, 2007).

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). Studies have concentrated on developed countries. However, more rigorous evaluations of local economic development policies remain a significant gap in the LED literature. 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 (p. 26).” Some scholars have been even more pessimistic, noting that there is only scant evidence that LED has ever been successful anywhere (Meyer-Stamer, 2003b).<sup>5</sup>

If the lack of rigorous evaluation is a gap in the LED literature for developed economies, the lacunae is far larger in developing countries. In the next section, we present the findings of our review of the regional science and LED literature focused on the case of Brazil in which we gathered and analyzed the Brazilian LED case studies that we could find in the published literature in English, Portuguese and Spanish. Our review shows that there is an important body of research for Brazil that poses some interesting puzzles for research on the impact of LED in practice, as well as helping to elucidate why more robust evaluations are necessary for developing economies.

## 6. Research on Brazil

Work on examining Brazil's regional and 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. A second path has directed attention at

the role of federal, state and local government spending on national or sub-national growth patterns. This path has also directed its efforts at examining the impact of specific government policies on industrial development and economic growth. The third research stream, largely driven by a recent set of case studies written in a comparative context with other Latin American countries, has sought to map the types of LED initiatives taking place, as well as some of the distinguishing characteristics of this new stage of LED in Brazil. In this section, we summarize the findings derived from these three research streams.

### 6.1. Convergence and agglomeration forces

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, 1984, 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 et al., 2000b; Mossi et al., 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 evidence suggesting that the gaps in Brazil's uneven spatial development appear to be narrowing (Azzoni et al., 2000a). 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).

Similar efforts have been undertaken to test convergence across Brazilian municipalities. Andrade et al. (2004) report a lack of convergence across municipalities between 1970 and 1996. Using alternative methodologies, 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 states of the North and Northeast of Brazil (excluding Amazonas) and another group of more prosperous states comprised of the states in the South, São Paulo, Rio de Janeiro, Espírito Santos and Amazonas. 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 not for per capita income and longevity.

Special attention has been directed at whether municipalities in Brazil's poorest regions are catching up. For the municipalities in the Northeast, da Silva Porto and Ribeiro (2003) do not find convergence between 1970 and 1996. Vergolino and 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).<sup>6</sup> In the work targeted toward examining evidence of con-

<sup>5</sup> 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 (1999).

<sup>6</sup> 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 de Ávila (2004).

**Table 2**  
Local taxes and constitutional transfers to Brazilian municipalities. Source: de Souza (2004).

Local taxes	Federal transfers	State transfers
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)

vergence in the 1372 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. Overall, these studies suggest that the concentration of per capita income in the South and Southeast remain and the lagging performance gaps in the North and Northeast have not been found to be lessening.

### 6.2. The impact of federal, state and local government policies on local development

Regional development initiatives have tended to follow similar patterns across countries (Fay et al., 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 in 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 LED programs largely led by state and municipal governments has emerged in Brazil.<sup>7</sup>

Decentralization has been a particularly important driver for the surge in locally-targeted development programs. Efforts by municipal governments have increased 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 service delivery responsibilities. As part of the impetus of decentralization, there has been a concomitant rise in the number of municipalities. Whereas there were 3991 municipalities in 1980, the number had risen to 4491 in 1991 and to 5507 by 2000 (IBGE, 2001). By the end of the 1990s, municipal governments were responsible for collecting 32% of Brazilian tax revenue and receiving 44% of total revenue collected. The greater share of resources in the hands of municipal governments was due to the receipt of federal and state transfers (see Table 2). 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 spent on public sector salaries and 49.7% on fixed investments.

Given the unprecedented surge 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 et al., 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 dis-

tribution 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 de Souza (2004) notes, "municipalisation in Brazil has not necessarily meant the transfer of policy decision-making to local governments, but rather it has delegated responsibility for implementation."<sup>8</sup>

With respect to LED, local governments have become prominent players in promoting public policies to attract firms and industries to their localities. A recent review of LED policies adopted across Brazilian municipalities reveals that 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 (Urban Property Taxes) and ISS (Service) taxes, donating land, creating industrial districts, and launching employment and income generation programs (Biderman et al., 2006). By 2001, the Brazilian Institute of Geography and Statistics' (IBGE) survey of the country's 5560 municipalities revealed that 1945 municipalities (35%) had implemented some type of fiscal incentive program and that 2892 municipalities (52%) had implemented some type of employment or income generation program. Of course, the existence of such programs does not mean that they are authentic LED programs but is a sign of the importance of those themes (income and employment) for the municipalities. In our view, fiscal incentives cannot be classified as a LED program from any perspective.

A series of recent studies have directed attention at the effects of government spending on regional economic 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 to 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. Studies have also presented evidence to indicate that smaller cities tend to be less efficient than larger ones with respect to budget management (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). The reasons for these differences in resource spending efficiency have included explanations related to economies of scale advantages for larger municipalities.

Using an innovative methodological approach, da Mata et al. (2005) examine 123 Brazilian agglomerations between 1970 and 2000 to test whether mostly external factors or specific city policies influence city growth. Inflows of rural migrants, inter-regional transport improvements and the educational attainment of the labor force are reported to have strong impacts on the population growth of a city, but the size of cities in the base year counteracts these effects. An important contribution of this study is their exploration of the ongoing debate on whether investments should be directed towards secondary cities to stimulate local economic development versus large cities in Brazil. These authors show that

<sup>8</sup> This assertion however merits further exploration as it was not confirmed by the authors in examining average municipal spending between 1994 and 1996. Furthermore, to the ends of this article, LED programs might be programs managed by the local government even if it is not "owned" by this level, although an ideal LED program would be both managed as owned by the local representative.

<sup>7</sup> 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 (2000).

there are very small differences in total urban income from favoring small cities vis-à-vis large cities as income differences ranged around 0.3–0.7% of total urban income growth in 2000 depending on which group is favored. In addition, the authors also do not find that the collection of property taxes (IPTU) is associated with city growth.

Research has also attempted to evaluate the role of specific policies and how these influence the location and performance of industrial activity. A significant share of this research has focused on examining the extent to which state-level recruitment policies have successfully ignited or sustained economic growth for a particular region or city. Since Brazil's state governments acquired the right to excise value-added taxes (ICMS) in 1988, there has been a surge in state recruitment subsidies given by each of the country's 27 states to outsider firms through the granting of 10-year exemptions or reductions on these taxes. Often argued in the literature as a collective action problem of causing a "race to the bottom," the *guerras fiscais* have become an important instrument of local economic development efforts at the state and local level throughout Brazil.

Studies generally concur that states that reduced their tax rates after 1988 have not experienced a significant boost in economic activity (Biderman et al., 2004). At the same time, studies have also identified determinants that have rendered recruitment subsidies a more effective policy tool in certain contexts. In a review of recruitment policies targeted at the nine states in the Northeast of Brazil, Tandler (2000) argues that there have been some successful cases where recruitment subsidies have been used strategically by state governments to strengthen their development strategies beyond the objective of "catching an outside firm" toward one based on a broader LED agenda. Tandler contends that successful cases are defined by those examples in which states adopt recruitment policies to benefit existing local firms and institutions, such as the case of the Paraíba footwear industry, and those in which governments effectively exercise their capacity to negotiate and excise improved conditions for the local economy, such as the case of the negotiation of the municipality of Porto Alegre with the Carrefour and Zaffari supermarket chains.

In contrast, Tandler draws attention to recruitment policies that focus on generic qualities as being sub-optimal because they focus on qualities which are not unique to those regions seeking to lure firms. As she 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 spreads their benefits more widely (p. 32)." As further evidence, Tandler cites a study by de 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.<sup>9</sup>

Focusing on the recent dispersion of automobile sector production in Brazil, Rodríguez-Pose and Arbix (2001) echo concerns about the negative consequences of recruitment policies that have led to the rise of new plant clusters outside the São Paulo metropolitan area. The deconcentration of 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 competition among Brazilian states represents a complete waste of resources, both for the states engaged in them, as well as for Brazil as a whole.

Using estimates from a 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 et al. (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.

Some evidence is also emerging which reveals that effective policies are not necessarily determined by the size of the locality or government. For example, Tandler (2000) contrasts the effectiveness of the municipal government of Porto Alegre with the Carrefour and Zaffari supermarket chains with the lack of ability of the state government of Rio Grande do 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 one cannot jump into conclusions from one observation. Studies analyzing the differences between state and municipal governments in terms of local economic development efforts in Brazil have to date not been undertaken.

### 6.3. 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 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.<sup>10</sup> As Table 3 indicates, case study specific research has examined well-known examples such as the industrial belt of the Greater ABC Region in São Paulo (Cocco et al., 2001; Klink, 2001; Rodríguez-Pose et al., 2001); the shoe industry in the Sinos Valley (Meyer-Stamer, 2003a; Schmitz, 1995) and the furniture clusters in São Bento do Sul (de França et al., 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,b). These studies seek to characterize the origin, evolution and unique features of LED initiatives. In addition, cross city/region surveys

<sup>9</sup> Although the open and closure 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.

<sup>10</sup> Nel (2005) 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.

**Table 3**  
Local economic development case studies in Brazil.

Region	Research 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 et al. (2002), Cocco et al. (2001), Klink (2001), Rodríguez-Pose and Arbix (2001), and Rodríguez-Pose et al. (2001)	Supra-municipality comprised of seven municipalities	Initiative started in 1990
		Metropolitan region <i>Polos de Desenvolvimento Integrado</i>	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
Northeast	ILDES, Llorens et al. (2002), and Tendler (2002a,b)	State-run initiative	Initiative started in 1997
Ceará	Llorens et al. (2002) and Tendler (2002a,b)	Agro industries, small and medium cities Medium-size municipalities <i>Banco do Nordeste</i> , financial institution, as development agency focusing on the agro industrial productive chain. UNDP funding (1993–1999) as a precursor	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
		Agro industries (cotton, aviculture); long-term strategic plan; metropolitan plan for Fortaleza (urban development)	Reaction to crisis
Porto Alegre (RS)	Llorens et al. (2002)	Municipal initiative 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	Strategic plan developed afterwards 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	Reaction to attempt to transition from exploitation of natural resources (wood) to a manufacturing base
		<i>Pólo Agroflorestal de Rio Branco</i>	Employment-focused on promoting employment in the 14 neighborhoods of the periphery of the city
Rio Branco (Acre)	Affonso (2001)	Agriculture development	Response to situation of displacement of rubber planters due to collapse of industry Small land redistribution of plots to former rubber planters (200–20,000 families)
Quixadá (Ceará)	Affonso (2001)	SUDAM and Ministry of the Environment, as well as larger network of partners Microenterprise loans	
Tupandi (RS)	Affonso (2001)	Programa de Geração de Renda e Emprego Banco do Nordeste, Prefeitura Municipal, Banco do Estado de Ceará, Secretaria do Trabalho, Sistema Nacional de Emprego	Initiative started in 1993 Reaction to high unemployment, employment increased in municipality
		Municipality Fundo de Desenvolvimento Agropecuário de Tupandi (FUNDAT) Conselho Municipal de Agricultura, Sindicato de Trabalhadores Rurais, Empresa de Assistência Técnica e Extensão Rural Credit-line with funding from Banco Regional de Brasília, FUNSOL and Secretaria do Trabalho	Initiative started in 1993 Focus on improving agricultural and livestock production in order to increase local employment and municipal tax revenue
Brasília	Affonso (2001)	Projeto Merco-Favelas	Initiative started in 1995 Small business lending No strategic plan
Rio de Janeiro (RJ)	Affonso (2001)	Programa Favela – Bairro Fundação Federich Ebert, Secretaria do Trabalho – Município de Rio de Janeiro, Rocinha and Jacarezinho	Initiative 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 (1998)	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)	de França et al. (2004) and 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)

Table 3 (continued)

Region	Research studies	Initiative type	Highlights or main features
Simplicio Mendes (PI)	de França et al. (2004)	Honey production cluster	Initiative started by parish priest; leadership role of Catholic Church in 1980s; 17 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)	de França et al. (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)	de França et al. (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)	de França et al. (2004) and Meyer-Stamer (1998)	Furniture cluster	Micro, small- and medium-sized firms; no foreign companies; the sector has never enjoyed much government support

of the recent wave of LED initiatives in Brazil have been conducted by Affonso (2001) and Llorens et al. (2002), and de França et al. (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, companies that are in mature and declining industries tend to be more organized and more effective in terms of lobbying efforts. Secondly, the experiences of the surge of the footwear cluster in Sinos Valley and the furniture cluster in São Bento do Sul, Meyer-Stamer suggests that leading companies in global value chains 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 et al. (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.

As compared to the research on regional economic development and the impact of government policy, LED case study research in Brazil has been far more descriptive. Most of the comparative studies that include Brazilian cases do not undertake evaluation or impact assessments for LED policies. Rather, the strength of this research to date

has been in identifying ex-ante determinants and typologies of the types of features that help explain particular successes.

## 7. Conclusions

This study has focused on evaluating the insights gained from studies directed at regional and local economic development in Brazil. Based on this review, we have attempted to synthesize the contributions of these bodies of work for scholarship directed at explaining the divergent patterns of development across regions within Brazil. Despite notable advances, there are important questions originating from both regional science and LED literatures that require further study. In this concluding section, we briefly review these important gaps and identify questions where future study on the Brazilian case should be directed.

As we have described in this paper, spatial concentration is clearly an important feature of Brazil's economic development trajectory. Agglomeration in central regions has tended to persist over several decades. 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. At the same time, the formation of new agglomerations as a result of frontier expansion in less-developed regions is a salient and increasingly important feature of economic growth across the territories, 27 states and over 5000 municipalities.

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.

Similar to patterns found with respect to LED research in the United States (Bartik and Bingham, 1995), evaluations of LED efforts in Brazil are lacking. 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 and should be encouraged.

Further empirical analyses to evaluate the impact of different policies on local economic growth could strengthen research on what types of LED policies are most effective for Brazilian municipalities. Evaluations involving more robust testing, however, may be difficult to undertake. Researchers have noted that data at the sub-national level to undertake specific analyses in the case of Brazil are missing, cannot be collected or, more precisely, cannot be recalled or standardized (Biderman et al., 2006). Thus, a necessary precursor to evaluation efforts should be to strengthen data gathering in order to make more rigorous evaluations of LED programs possible.

A new generation of studies that take into account the insights emerging from both the regional science and LED research streams is required. In contrast to the research conducted to date, greater discussion and debate should be encouraged between both literatures as they complement each other very well. Research building on regional science is quite effective for studying the desirability of a particular intervention across regions and thus help to identify cross-regional policies that have been effective. Yet, those studies will offer few insights on policy implementation. In contrast, case studies carried out in the LED field have a great deal to offer on policy issues. Thus, the two approaches should be regarded as complementary, rather than substitutes.

Our review of the case studies on Brazil LED programs show that most of the research has been directed at only a few cities. There are clearly more instances of LED programs than the cases that have been examined to date. It is not very clear, however, why these cases have been selected and not others. In addition to sample selection, we have found very limited attempts to assess the impact of policies despite the extensive descriptive literature about some of these experiments. One interesting research strategy that could produce interesting insights is to compare similar municipalities in which some adopted some kind of LED program and others that did not. If cases were selected in this manner, researchers could explore whether pro-LED regions performed better or worse than their non-participating counterparts. The first step for such analysis in Brazil is suggested by the cases that are selected in Table 3.

Another important task that will aid research directed at examining LED is efforts directed at coming up with more precise definitions of what types of policies should be included in assessments of LED programs. If LED is defined very broadly it will be very unlikely to find a municipality above some population threshold that does not have any LED program. The definition should be done a priori and in this paper we have attempted to point out restrictions for the general definition that should be heeded.

Some critics could counter this advice by arguing that LED strategies are essentially normative and therefore assessments are not required. The main idea of having income or employment generation programs that are managed and owned locally is a policy objective that should be pursued regardless of its end result. However, even if one follows this rationale, programs can be managed by any of the three tiers of government in Brazil and it is not clear which should be the ideal tier charged with local development. There are tradeoffs to charging the municipality, the state and the national government, and oftentimes there are overlapping policies across these three levels. An important empirical task could be directed at trying to help elucidate which is the best tier for such programs taking into account the heterogeneity that exists in the largest federal republic in the Americas.

This type of research is even more important for countries like Brazil where decentralization has been promoted to the point of it being included as a provision in the 1988 Brazilian constitution. Beyond the efficiency concerns of appropriate levels of government that should be engaged in LED policymaking, there are many ways

to manage LED programs within decentralized settings. Comparative research on the types of government programs that have been most effective could be very important for Brazil. As many other countries in Latin America and Asia (and very few in Africa, notably South Africa), Brazil is undergoing a transformation in its regional development policies. Similar to many other developing countries, it started with national agencies attempting to develop large territories. Those programs ended up giving more incentives to primate cities that are suffering from overpopulation, congestion and other negative pressures. Decentralization in favor of second-tier cities has been introduced in Brazil and other Latin American countries as a means of changing the distribution pattern towards more spatially balanced growth across national territories. In addition, meso-level institutions like the consortium experiences in the metropolitan region of São Paulo have emerged to play a critical role. At the same time, municipal governments are increasingly playing a more active role in policymaking aimed at promoting local economic development although the resources are derived mainly from the federal and Brazilian state governments.

Finally, it is interesting to note that the large share of research has thus far concentrated on manufacturing. However, it is well known that the service industry has been growing consistently in recent decades, while manufacturing has been shrinking in developed countries. This is also the case in Brazil (Biderman, 2002). As the early literature on regional growth originated in the 1950s, this focus on manufacturing was quite sensible. Given the surge in the service sector in recent decades, however, it is a puzzling to see that the dearth of studies on this growing sector has remained. An exception is Kolko (2007), who notes that “[e]mpirical work in economic geography has focused almost exclusively on manufacturing even though there are many reasons to expect that findings from research on manufacturing industries cannot be generalized to services industries (p. 2).” On the other hand, the concentration of the financial sector in the main metropolis of the world has been examined by urban sociologists such as (*inter alia*) Sassen (1991). This fact is not unrecognized by the literature. Indeed, Krugman (1991a) notes that the “most spectacular examples of localization in today’s world are, in fact, based on services rather than manufacturing (p. 66)”. But statistical evidence is still missing.

Kolko (2007) points out that services have a different transport cost composition. First, some services may be sold remotely since, by definition, they are non-tangible. Advances in information technology (IT) have reduced their transport costs. On the other hand, services may require a face-to-face interaction. A lawyer may need to meet with his client, as well as a consultant. If they are in the same neighborhood, the transport cost is low. However, if air travel is required, distance is relevant. Flying from Boston to New York or to DC costs more or less the same (considering the cost of the time spent travelling) especially given current air security regulations and technology. This explains why there is the co-agglomeration (agglomeration in other industries weighted by the input–output table<sup>11</sup>) of services clustered at the zip code level, but not at the state level. In contrast, manufacturing is sensitive to state level agglomeration and co-agglomeration but not at the neighborhood level. Since the cost of transport for goods is linear, Kolko shows how these empirical patterns are consistent with a simple transport model underscoring how the advances in IT have discouraged agglomeration over long distances and reinforced the benefits of proximity at very short distances for services.

Considering the importance of the service sector and the evidence showing that its development trajectory behaves differently

<sup>11</sup> Despite the theoretical concerns with the I–O table, its role in the empirical literature is worth noticing from computable general equilibrium models to econometric models of agglomeration.

from manufacturing, research must also aim to explore how public policies can address the challenges of local economic development in regions where this sector is dominant in Brazil. As we have underscored in this article, it is clear that evaluations for manufacturing have thus far been limited. It is even harder to draw policy recommendations for services based on this body of research. This is another reminder that more dialogue between these research streams is needed and that empirical evidence and policy need to be connected. Clearly, we urgently need more evidence and theory on the service sector. To have sound policies in LED, sound policies for both the manufacturing and the service sector, which place greater attention on diversity versus specialization, are needed. Addressing these gaps in the literature may result in better policies for Brazil's development.

## Acknowledgements

The authors thank Xavier de Souza Briggs, Paulo Correa, Christine Kessides, Andre Herzog, Judith Tendler, Tito Yepes, participants in the meetings of ANPAD and NARSC, three anonymous referees and especially the editor Michael Samers, for helpful comments and suggestions. The usual disclaimer applies. Biderman acknowledge funding generously provided by FAPESP Grant 2008/03595-7. This research was partially funded by the World Bank through the Brazil BNPP research fund. The findings, interpretation and conclusions are entirely those of the authors and do not necessarily represent the view of the World Bank, its executive directors, or the countries they represent.

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