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Conjectures about the Rise of Metropolitan Regions: Sustainable Urban Mobility and Regional Development

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Abstract:

In recent years, Rondonia (Brazil) has made great strides in economic growth and development. This growth has been accompanied by rapid urbanization that has transformed Rondonia cities. Urbanization has the potential to boost national economic growth by facilitating the emergence of agglomeration and localization economies. Increasing urbanization presents Rondonia (Brazil) with an opportunity to leverage the transformation taking place to ensure that it is harnessed for economic growth and, more importantly, sustained improvements in the quality of life of its community members. Urbanization in Rondonia is driving the emergence of metropolitan areas whose boundaries stretch beyond the jurisdiction of administratively defined cities, creating an urgent need for mechanisms that optimize and coordinate development beyond the formal city unit. The purpose of this report on Rondonia regional and urban development is to provide a comprehensive assessment of the country's spatial patterns of urbanization and economic development and to evaluate the extent to which Rondonia urbanization has fostered increases in agglomeration economies and economic productivity growth. The study provides the analytical work to evaluate such performance and to identify key issues, constraints and opportunities for promoting faster and more inclusive growth. The

overarching goal of the study is to provide a timely and rigorous analysis of regional and urban development in order to foster informed policy discussion at the state and municipalities.

Key words: Metropolitan Regions. Regional Development. Sustainable.

1. Introduction

In industrialized countries, particularly those like the Brazil that have undergone massive urban transformation and suburbanization during the past half Century, efforts to effectively "manage" urban growth have increased along with the increasing complexity of the urban growth challenge. Once, zoning regulations were the principal tool deployed to ensure that land development met public goals. Along with continued urban growth, however, came an increase in its adverse consequences – loss of open space and agricultural land, inefficient provision of public infrastructure and services, deteriorating environmental quality, etc. As these impacts increased, so too has the public's concern about them, bringing demands for a broader range of instruments to manage urban growth. Today, the term urban growth management encapsulates the number of tools that can influence, regulate, guide, or control urban development.

In the developing world, urban growth challenges are often compounded by urban areas' relative speed of change. Additionally, rapid growth in income, urban population, technological change, motorization rates, and urban expansion complicate efforts to manage urban growth. Additional challenges arise due to the fact that developing countries often have relatively young institutional and legal structures (linked to decentralization), face more pressing needs related to relatively large numbers of people living in poverty, and typically have fewer available resources (both financial and

human capital) to dedicate to a greater number of problems. While these challenges and constraints can hamper urban growth management initiatives, they also offer some room for potential innovation. For example, an ongoing process of institutional change provides the chance to "institutionalize" growth management, while a lack of financial resources can spur interesting potential public-private partnerships or accelerate the deployment of instruments such as impact fees.

In an attempt to clarify the challenges to and potentials for growth management in a developing country context, this paper looks at the case of the Rondonia metropolitan area. Rondonia is a middle income developing state which has enjoyed relatively strong economic growth for the past fifteen years. According to the IBGE (2008), there were 1,519,000 people residing in the Rondonia. The population density was 6.6 inh./km². Urbanization: 66.8% (2004); Population growth: 2.2% (1991-2000); Houses: 430,747 (2005).

The PNAD (National Research for Sample of Domiciles) census revealed the following numbers: 832,000 Brown (Multiracial) people (54.81%), 546,000 White people (35.95%), 115,000 Black people (7.56%), 16,000 Asian people (1.08%), 8,000 Amerindian people (0.53%)

The state has a suite of growth management policies and instruments in place – both regulatory and financial – with a number of innovative tools recently coming to the fore in response to new urban growth challenges.

Today, the major factors influencing urban growth include: a strong and growing private real estate development sector initiating "megaprojects" at an unprecedented scale; an evolving political and governmental structure characteristic of decentralization; changing consumer demands for housing and transportation services; entrenched spatial socioeconomic segregation; a continuing need to provide low income housing for a large poor population, and increasing concerns about quality of life, particularly environmental degradation and

traffic congestion.

This paper looks specifically at using growth management as a way to improve transportation system performance and the overall mobility/accessibility system. In reality, growth management has many important justifications, such as environmental preservation and/or social equity and our analysis inevitably touches on these issues as well. Nonetheless, without discounting the importance of other growth management goals, we focus primarily on transportation system effects; hopefully, focusing on this urban "subsystem" will provide useful lessons for the larger urban system. Our emphasis on the transportation system must also be viewed within the broader range of factors that influence transportation. While urban growth certainly affects mobility patterns, other forces such as income growth, motorization, changing trip behavior, and changing demographics (such as women in the work force) likely play an even more important role. Finally, in our assessment of growth management potentials for Rondonia, we have looked primarily at incremental improvements to the existing system – assessing the promise and shortfalls of existing tools and institutional structures – rather than proposing a slew of new potential instruments.

2. Rondonia Metropolitan Area

This paper highlights a relatively new concept for local public administration from Rondonia (Brazil). Discussions on the goal of economic and territorial intelligence in the national context derived from a set of government decisions and projects which stimulate the integration of urban and rural settlements in self managed organizational structures, even autonomous. Such structures are complex entities and for example we can mention poles of urban development, urban growing poles, competitive poles and local action groups (Radu and Şendroiu 2013).

Although currently in Rondonia, there is a specific framework that would ensure the development and promotion of territorial intelligence, there are certain similarities found in those countries. The concept of territorial intelligence has its origins among others, in the process of adapting to the changes occurring clusters in public management. Thus, with the adoption of modern business practices, some clusters have obtained the status of intelligent clusters, this process is extended to public management and, therefore, the management of the territory.

3. Research Methodology and Study Approach

Taking into consideration that this paper proposes the identification of relevant factors related to territorial intelligence the Metropolitan Area Rondônia (Brazil), the appropriate tool for the research is STEER analysis: Socio-cultural, Technological, Economical, Ecological and Regulatory (Radu, Brânzaş and Matei 2013).

4. Results and Discussion

It is analyzed in this section of the document highlights the factors mentioned above for all five dimensions of STEER analysis (Radu, Brânzaş and Matei 2013). Thus, as each dimension involves a specific own research, the authors consider as the most relevant results in a final form.

At this level did considered strategic aspects of local and metropolitan importance, both exist among specific literature on intelligent clusters and local government practice in developed European countries. As yet there is no official framework for issuing intelligent status of a regional area, for Rondonia Metropolitan Area have been taken into account a number of structural elements on the socio-cultural dimension (Tableau 1).

Numbers of Socio-cultural factors
I - Technical and sciences research centres;
II - Economic and business administration research centres;
III - Public administration and Legal sciences research centres;
IV - Industrial and specific area specialization training institutes;
V - Social protection programs provided by government according to prevention principles;
VI - Clusters for civic skills development – social experimental centres;
VII - Actions for transformation civil servants into Key Account Managers;
VIII - Small impact of the political factor in the manifestation of civic values.

Tableau 1 - Numbers of Socio-cultural factors.
Font: adapted from Radu, Brânzaş and Matei (2013).

Taking into consideration the input of these factors, the level for similarity of scientific requirements on territorial intelligence in the Rondonia Metropolitan Area. Among the main reasons for this we consider that a pronounced political factor is constantly influencing the system of social values. Also, the transformation process of public workers into Key Account Managers requires even spiritual and material motivation for the work and after the assessment sessions. Territorial intelligence acts similarly with its own public workers as with employees that activate in the private sector. Thus, the equity between revenues and evaluation of work performance is mandatory.

Social experimentation centers are entities (mostly governmental) that train citizens for new development areas forthcoming on short and middle term. These social experimentation centers are developed by government and are operating in a permanent schedule, since the intelligent territories are involved in a continuously transformation process and are based on innovation and experimental principles.

According to Radu, Brânzaş and Matei (2013), we can consider as areas of technological development both retrofitting existing industrial infrastructure and new investments for activities related to research and innovation field. Having a

widespread access among the entire population and economic entities within the region at Internet connections and latest technological products and services represents a big challenges but also a big advantage for a region. Another advantage occurs by facilitating the collaboration with the external environment too. Some of the technological factors seem to have different features and impact, so that a multi-perspective is specific for this dimension. That's why technological dimension has an important influence on local informational strategy. Hence, this dimension is approaching also the e-Governance principles, as we talk about IT&C and technological development. Tableau 2 is relevant for the conducted analysis.

Numbers Technological Factors
I - Integrated intelligent traffic system existing or under implementation;
II - Inter-modal transportation system existing or under implementation;
III - Developed and implemented facilities according to e-Government requirements;
IV - Explicit integration of computerization within undertaken or in progress projects;
V - 100% geographical coverage of Internet connections;
VI - Virtualized knowledge sharing tools;
VII - Public institutions transformed in unique informational cells (equipped with modular information system);
VII - Functional mechanisms for international transfer of know-how.

Tableau 2 - Numbers Technological Factors.
Font: adapted from Radu, Brânzaş and Matei (2013).

Technological dimension is distributed by its factors within the Rondonia Metropolitan Area, due to some relevant issues. Thus, one important reference is regarding the poor proliferation of virtualization instruments and technologies for sharing knowledge. In other words, among this region there is not implemented an integrated system that can provide support for distribution and enrichment of intellectual capital resources. Concepts such as management systems, knowledge bases are suitable in this region and are both reachable in price

and level of use. Also, specific e-Governance methods are not recognizable for local administration, likewise specific international partnerships. Another critical issue is expressed by converting the public institutions into unique informational units. Mostly, this factor requires the employment of extranet instruments, valid Business-to-Business collaborations, and also providing guarded access to concrete users out of domestic users. The main gain consists in diminishing bureaucracy and a shorter information path for tasks and reporting.

According to Radu, Brânzaş and Matei (2013) in this category of factors there have been analyzed elements that target stability of the business climate, the capacity to formulate a comprehensive economic policy, and economic KPIs for regional trade efficiency. Also, this dimension addresses policy aspects that covered investment research and innovation tasks conducted by local and central public administration. As mentioned above, just a part of the concrete KPIs can be measured by conventional tools. Thus, majority of the exposed factors involves infrastructure elements built by private corporate environment, and also by local and central public administration. Tableau 3 highlights the results on this dimension.

Number of Economical Factors
I - Regional governance strategy oriented business practices;
II - Adequate local infrastructure for companies and competitive developing poles;
III - Regional policy on promoting public private partnership (PPP);
IV - Tools to prevent scarcity of raw material;
V - Regional financial provisions established by local government to cover projects financed by local government;
VI - Monetary reserve fund to mitigate periods of recession or crisis.

Tableau 3 - Number of Economical Factors.
Font: adapted from Radu, Brânzaş and Matei (2013).

According to Radu, Brânzaş and Matei (2013), at this level were

analyzed information that reflects regional policy on the environment protection and conservation. The most important aspects burden on the current infrastructure which comply with environmental legal requirements, civic values on the environmental dimension among the business habitat. A critical factor deals with international agreements and partnerships that approach environmental issues of the developing areas. In Tableau 4 there are revealed some relevant factors targeted by environmental aspects.

Number of Ecological Factors
I - Integrated system for water-protection by any type; II - Air protection system; III - Integrated selective waste collection; IV - Clusters of firms in waste collection; V - Regional warning system for environmental emergencies; VII - Integrated regional energy strategy; VIII - Energy supply facilities from autonomous sources; VIII - Removing plants, factories and big polluters of urban area.

Tableau 4 - Number of Ecologically Factors.
Font: adapted from Radu, Brânzaş and Matei (2013).

According to Radu, Brânzaş and Matei (2013), this factor burdens on the legal infrastructure that is encouraged by the existence of territorial intelligence features among Rondonia Metropolitan Area. So that we analyzed interpretation of the regulations, level of bureaucratization within local public administration, and within current tasks conducted by those who are responsible with decision making processes. Tableau no. 5 presents the proposed factors for this last dimension.

Numbers Regulatory Factors
1. Public institutions transformed into semi-autonomous organizations; 2. Redistribution government funding based on the principle of quantified

performance; 3. Use of managerial accounting systems in the public institutions; 4. Evaluating system for public institutions developed by clusters representatives; 5. Regional regulatory policy; 6. Low impact of the political factor within regional decision-making processes; 7. Specific regulations for international transactions; 8. Effective intellectual property regulatory rules.

Tableau 5 - Numbers Regulatory Factors.
Font: adapted from Radu, Brânzaş, Matei (2013).

According to Radu and Şendroiu (2013), the most important disparity is identified on aspects related to the political factors and the management of public institutions. More than that, legal framework for regulatory dimension is the base for territorial intelligence development among a region as big private companies, and also clusters efforts must find a real help by adequate legislation and regulations in order to build competitiveness poles.

4.1 Discussions

Rondonia has urbanized rapidly and will continue to do so into the midterm future. Rondonia has the potential to substantially increase its economic returns from urbanization, by boosting regional economic growth and create vibrant cities and metropolitan areas.

Larger cities in general are more economically productive and competitive than smaller cities and rural areas because of positive externalities known as agglomeration. Using the Agglomeration Index method, this study identifies agglomeration areas in Rondonia.

Cities in different size categories perform differently. The study finds that medium-sized cities (those with populations in the range of 50.000 – 100.000) have performed better than cities in any other size class in terms of generating benefits from agglomeration economies.

There should be different development strategies to cities in different size categories. Infrastructure capital investment is necessary to promote growth in two megacities and medium-sized cities. Major attention needs to be focused on the large metropolitan cities (population of 50.000 – 100.000) which are currently stagnating, while small cities the focus should be on the delivery of basic services.

Inefficient land markets, limited connectivity and limited access to investment credit facilities are some constraints against the economic development of cities.

5. Final Considerations

This article outlines the key assumptions and similar features between elements of territorial intelligence revealed in Rondônia and the specific features proposed by the theoretical approach Radu, Brânzaş, and Matei (2013). Thus, governments face a number of common challenges in the development of its main centers of economic growth and its main vehicles for promoting common aspirations of its citizens to a better quality of life - their cities. Development that is sustainable in that it protects the economic, environmental and social priorities long term is critical to realize these aspirations, given the pressures arising from rapid urban growth. Flourishing cities need sustainable mobility systems now, and the opportunity to build the infrastructure should not be in contradiction with the opportunity to ensure continued prosperity.

There are four primary areas of concern for sustainable urban transport policy: strengthening national leadership and reinforcing sustainable outcomes, empowering localities, using funding and financing structures to guide local action, and maximizing the project- development process to ensure successful execution of urban-transport efforts. These core concerns emerged from discussions with policymakers in large countries confronting the task of constructing sustainable

transport for the booming urban populations that have resulted from rapid industrialization and economic growth.

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