

The mega peripheral metropolis: towards a comprehensive explanation

La megametropolis periférica: por una explicación completa

A megametropole periférica: por uma explicação abrangente

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Abstract

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This paper presents a comprehensive approach for the urbanization process, firstly discussing urban growth in order to perceive how a set of forces of urbanization work together. The analysis presents economic crises and roles of states as central elements through an argumentative discourse, targeting the exam of urban growth in periphery emerging countries. This is an attempt to explain super urban agglomerations in these countries, which often absorb most of the domestic and foreign investments, creating a cycle of growth, either economic or in terms of population, apparently with no control. Yet theoretically, this thinking also discusses possible scenarios of the process over networks of cities in these countries, defining and confining the concept of urban network, as well as other concepts in a critical way.

Keywords: Megalopolis. Urbanization driving forces. Political economy of urbanization. The belt of metropolises of São Paulo City.

Resumen

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Este documento presenta un enfoque integral para el proceso de urbanización, discutiendo primero el crecimiento urbano para percibir cómo un conjunto de fuerzas de urbanización trabajan juntas. El análisis presenta las crisis económicas y los roles de los estados como elementos centrales a través de un discurso argumentativo, dirigido al examen del crecimiento urbano en los países emergentes de la periferia. Este es un intento de explicar las aglomeraciones súper urbanas en estos países, que a menudo absorben la mayoría de las inversiones nacionales y extranjeras, creando un ciclo de crecimiento, ya sea económico o en términos de población, aparentemente sin control. Sin embargo, teóricamente, este pensamiento también analiza posibles escenarios del proceso a través de las redes de ciudades en estos países, definiendo y confinando el concepto de red urbana, así como otros conceptos de manera crítica.

Palabras clave: Megalópolis. Fuerzas de urbanización. Economía política de la urbanización periférica. El cinturón de las regiones metropolitanas de São Paulo Capital.

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Resumo

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Este artigo apresenta uma abordagem abrangente do processo de urbanização, primeiro discutindo o crescimento urbano e buscando nisto perceber como o conjunto das forças de urbanização se articula. A análise introduz as crises econômicas e o papel dos estados nacionais como elementos centrais, valendo-se de um discurso argumentativo e objetivando o exame do crescimento urbano em países emergentes periféricos. Isto constitui uma busca de explicar superaglomerados urbanos nestes países, que geralmente absorvem a maior parte dos investimentos, tanto domésticos, quanto externos, gerando ciclos de crescimento econômico e populacional, aparentemente, sem controle. Ainda que teoricamente, esta reflexão discute cenários possíveis deste processo, considerando redes urbanas e outros conceitos associados, embora sempre de modo crítico.

Palavras-chave: Megalópole. Forças motrizes de urbanização. Economia política da urbanização periférica. O cinturão das regiões metropolitanas de São Paulo Capital.

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1. Introduction

This paper presents a comprehensive approach of urbanization, firstly, discussing explanations of the urban growth in order to perceive how forces of urbanization work together. Besides market forces, the analysis includes the economic crises, and roles of states as key major player, targeting the observation of metropolises in the periphery of the capitalist system in emerging countries. This is an attempt to explain super urban agglomerations in these countries, which often absorb most of the domestic and foreign investments, creating a cycle of growth, apparently with no control. Yet theoretically, this thinking also evaluates effects of this process over metropolis networks in these countries.

The complexity of the overall process of urbanization has a normative factor, associated with political decisions about where to locate investments both defined by the private and public sectors. Once such metropolitan regions acquire a certain level of capacity to attract investments, this national dominance should only grow, considering just the market forces. Nevertheless, public investments and other political action for urbanization can counteract this tendency, providing infrastructure and financing through regional policies to deconcentrate economic growth, although planning measures are often not effective in many emerging countries.

This last point examined in the section “Reviewing Urbanization” encompasses the main theoretical approaches to urbanization, finding complementarities and

common focus on political choices among them. This exam draws a general picture of urbanization, serving for the following section that presents the definition of key concepts as *urban growth* and *urban network*.

The section “Approaching Urban Growth” focuses on the analysis of market and state forces in order to draw a conception of the urban processes. This conceptualization serves to proceed with the next section, combining seminar works on political economy of urbanization applied to a peripheral metropolis.

The complete gathering of evidence that might support the design of a precise model requires a quite extensive collecting of data in a long-run basis about typical cases as São Paulo, Buenos Aires, and Mexico City metropolitan areas. Thus, The Empirical Approach section just evaluates the long-term effects of this sort of urbanization for São Paulo Metropolitan Region, with data that support assertions in a preliminary basis.

2. Reviewing urbanization

The section presents a critic review of seminar references, which by selecting, connecting, and articulating, puts forward a *composed concept*, in order to guide an argumentative discourse. The idea of composed concepts follows schemes of the theory of complexity (MORIN, 2010), and it should function as a sort of an engine to process information, involving base concepts or assumptions in a set of relationships, which forms an understanding of the *urban problematic* (LEFEBVRE, 2003). However, seen as an open system, this understanding is not close to external inputs of ideas, even antagonistic ones, but do not propose to explain everything of what is changing, i.e. urbanization. As manifold process, which produces cities, the urban, and beyond, this vision implicitly gathers the idea of *urban fabric* (LEFEBVRE, 2003). Explicitly, this *urban fabric* encompasses all the agribusinesses and family agriculture that cover the world (BRENNER, 2019; BRENNER; SCHIMID, 2019; BRENNER; ELDEN, 2009).

The idea of open system is the approached here, not as holism, since computes information and operation, it is a loose system whose possible mathematical modelling is of secondary importance. What is essential is the meaning for crucial decisions, as statistics depends on interpretation. In this way, more than focusing on urban organization as a profit machine, it proposes to bread it down as a product of independent dominant agents seeking for profitability and the means of surpluses distribution in face of the state decisions. It is not new but often neglected the exam of approaches of urban economics, to elucidate the ways investments decisions are taken with their long-term consequences for the whole environment of the *urban fabric*. On the other hand, there are urban economist wondering why there is complains about foreign investments of central capital countries in the “*periphery*”. Today, the term *central capitalist countries* may not just apply to *developed capitalist countries*, nonetheless in general they are.

Contested in human geography (GREGORY et al., 1994), this idea of central and peripheral countries neglects that peripheries exist within developed countries

as backward states, provinces, or as cities' slums. Nonetheless, the increasing gap of urban inequality is evident, and universal, as Portes testified in his researches decades ago, cited in Planet of Slums (DAVIS, 2004). This happens at calamitous levels in Africa, Asian, and Latin America in poor, middle-income countries, and in emerging countries.

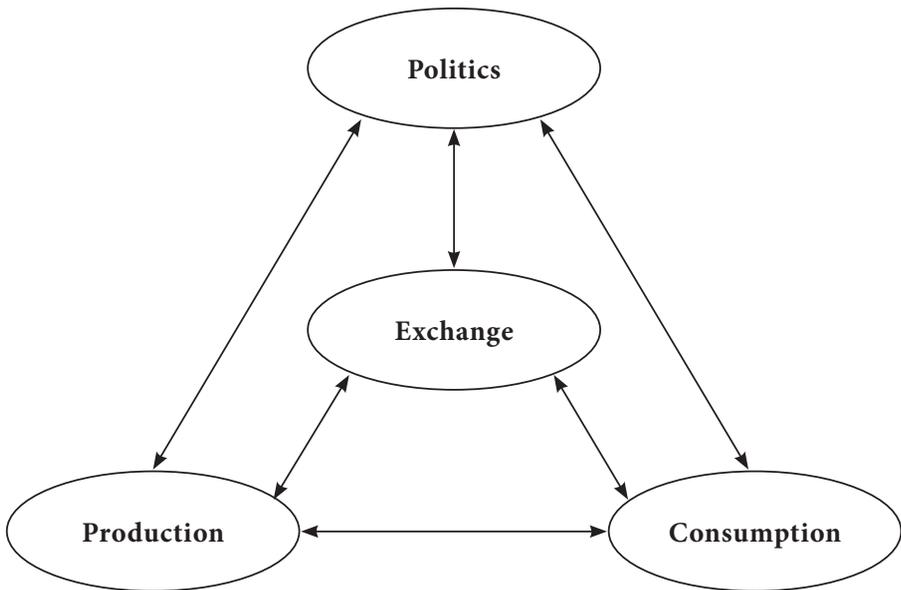
Davis (2004) calls attention for the long-term effects of the IMF-mandated Structural Adjustment Programme (SAP), over poverty as responsible for the boom of over-increase of suburban areas of peripheral cities, also much over predictions made in the 1970s, due to land grabbing and migration to cities, resulting in a global empire of slums, and nature depletion.

This process also affects China, recent studies (CHEN, 2016; ZHAO, 2013) reveals processes of slums generation associated with an intricate process of land grabbing of old rural communes in the outskirts of mega-cities. The remedies of superficial governance may alleviate but effective governance implies profound structural institutional changes, and in the whole society, concerning values, change of values. How to supplant epistemological divides, bodies of knowledge, or institutions ideologies? The Toronto meeting discussed possibilities of this in a similar perspective of open conceptualization previously outlined in this section (BRENNER, 2019).

The political dimension of the *urban fabric* with decisions of long-term effect exerts a crucial role over the urban system, which viewed by Castells (1980) involves production, consumption, exchange, administration, symbolic or cultural values exercised by a series of combined actors, namely state authorities, local national and global organizations. Thus, the administration dimension where states act, or are enable to act, or even avoid to act, or are impeached to act in the urban system has out-most consequences over the long-term outcome of the territory of the *urban fabric*.

As frequent in the academic debate, there are recent disputes about this argument pointing that endeavours towards regional planning has to come first of the institutionalization of governance from bellow. Otherwise, these efforts would not contemplate the increasing concentration and those most needed (DAVIS, 2004). However, the so-called good governance comes with a sophisticated institutionalization at all levels, vertically and horizontally, involving a series of social processes as leadership, surpassing epistemological and intuitional divisions, superseding state and private divisions, and the development of plans and project with joint responsibilities and roles for all, at all levels. Again, the fostering role of the states is crucial.

There are much more to discuss but it is possible to put forward a composed concept, involving the political decisions divided in private and government sectors defined within Politics or a political systems, which straight connected to a changing production systems, presently marching towards to the economy of innovation, information technology, and sustainability. These dimensions of processes find their physical urban locations, work together with exchange and consumption, all connected by flows of goods, services, and information.

Diagram 1: The Urban Engine main components

Source: performed by the author.

In the context meant to be analysed, governments legislate, regulate, and act just circumstantiating private actions, since sharing the same capitalist ideology and ideals. Most of this paper tries to decipher the determinant factors behind these urban investment decisions, drawing a qualitative model for the analysis of the meaning of their combined dynamics.

As private decisions led to periodical cyclical crises, they affect investments in the *urban fabric*. How take this in account, regarding the role of states?

3. Approaching urban growth

Following the line of thinking, it is necessary to define metropolitan networks as an open system of exchanges between cities and towns, mostly converging to some of those, which contain bigger markets, higher provision of urban infrastructure, services, and better means to connect other cities and towns. They generally present a main central city, but not necessarily with higher population. The quality and amount of these relationships varies and may constitute trade of goods, services, or information. A superimposing of these relationships mapped and observed over time could be revealing. These open systems is not well reducible to mathematical systemizing, these relationships do not have linear behaviours, and produces environments that become part of the natural environment, so

its effects are nor externalities, since urban system as any living being, at the same time, contains nature, containing nature (MATURANA; VARELA, 1995).

Contrary to some views, it is possible to affirm that the centre of nature depletion is the cities, especially metropolises, and the extent of this depletion is not constrained to the urban areas. This is so because emissions and water pollution spread globally, and humans are scientifically pointed for climate changes since a considerable time (KANDEL, 2002). Moreover, the maintenance of urban economies also is very depleting of soil, deforestation, biodiversity, and waters supporting predatory agriculture and livestock. At the same time, the cities provide knowledge, machinery, fertilizers, and poisons to farming, and they enhance the main consuming markets of farming products. Moreover, researches point cattle livestock industry as depleting as the fossil fuels, because associated with deforestation use of poisons in agriculture, and methane emissions. All this is a consequence of the *urban fabric* beyond urban areas.

For this study, the first guiding question is how to establish an explanatory common approach to analyse the development of urban realities that result from processes of urbanization in so diverse contexts, involving political, social, cultural, and historical aspects? For this intent, the main target was to identify, first, the main driving forces of urbanization, starting from establishing a joint understanding of their dynamics with models of increasing outputs with the assumption of imperfect competition (KRUGMAN et al., 2002). Furthermore, the analysis reinterprets the findings, regarding other models as endogenous growth, input/output chains, and the *institutional lines of analysis* that emphasize the roles of states and civil societies (CAMPOLINA; DINIZ, 2014; 2007; DINIZ, 2009; 2003).

3.1. The analysis of forces of agglomeration

Networks of cities is a general context for urban growth, in which opposing forces act, both for geographical concentration and for dispersion of industrial and services activities. After a certain point of urban growth, diseconomies became dominant, forcing the dispersion of activities. Export activities are the core engine of urban economic growth, changing with innovation, and information technology. The financial system, and agribusinesses in peripheral countries as Brazil are important but the industry close connects with these sectors.

Urban economics point that higher the *connectivity among firms*, higher the tendency for agglomeration of businesses in urban environments. This factor constitutes an “external” factor (concerning companies alone), which is specific for different urban centres, according to the spatial distribution of the production chains that are more or less extensive and diversified according to each urban network. These economies of agglomeration generate base multipliers for the aggregated production of cities, although with their associated “externalities”.

The *transport costs* (obviously associated with infrastructure) and *competition* among firms also uphold the formation of a hierarchical system of cities. Yet, this last

factor combined with the production costs, in one hand involving families and governments expenses with goods and services in cities. On the other hand, this generates a model that explains the profile of the urban network development, and hierarchical relations between cities. In this way, economies of agglomeration may arise from interactions of *economies of scale*, *transport costs*, *local wages* spending, and, fundamentally, gains acquired from *export activities* from spends in other cities that explains the increasing spatial concentration of wealth.

The reduction in transport costs associated with the size of the urban market, connections of firms and competition can make the industrial agglomeration occurs, grow, self- sustain, stagnate or extinguish (KRUGMAN et al., 2002).

Combining the factors presented in the big picture, firstly suppose a city in a core industrial country subjected to higher wages, higher input cost, and competition. Secondly, the coincidence of the reduction of international shipping costs, with urban market increases in emerging countries, which make viable the migration of activities to the periphery of the system, which offers lower wages, close distance to raw materials, and government incentives. Third, in these emerging domestic markets industries can later migrate to other regions of these peripheral countries, making further use of obsolete equipment and last investments on industrial renewal in central regions possible to offset higher competition and a new cycle of expanded flow of surplus to their urban centres.

These cyclical conditions also happen in these countries. However, this is specific according to the roles these cities perform in their urban networks, and thus the relevance of them in the transfer of surplus their activities generate. Firstly, the migration of industry to peripheral centres is more attractive to activities in the first links of production chains, because they do not require intermediate products. Besides, there should be lower costs of labour, the use the basic inputs available, and transport even when at first precarious it is viable. Today, assembly lines, the low cost of shipping, and low wages made possible the migration of industries at the end of production chains.

Anyhow, the transfers of activities from the centre to the periphery of the system in order to profit still happen in areas as fossil fuels, minerals, and agriculture. These transfers define limitations to urban peripheral economies for the production of surpluses with the export of products with less value-added, as well as functional limitations for cities, as commercial outlets, for example, constrained with industries and services associated with primary activities, and mining. With assembly lines, investors regain from incentives to exports and low wages, although this tend to concentrate surplus among few agents and nonetheless increasing tax-income frequently goes to inefficient governments with poor mechanisms of income distribution. These often may bring positive economic results for peripheral countries, although also generating negative consequences for both societies and the environment.

In the national contexts, the transport costs are associated with wage costs and the proximity to bigger markets. Hence, when transport costs increases with

metropolitan congestion, and infrastructures tend to obsolescence, it becomes advantageous to exploit low wages in markets of smaller cities. This happens even forced by increasing competition, which manifests itself in varieties of substitute products, and with high- interest rates during the expansion phase of capitalist economies business cycle (SHERMAN, 1991).

The overall analysis concerning urban activities indicates that the relationship of centripetal forces (which promote urban growth) and centrifugal forces (which induce to migration industry and service activities) vary with the increase of agglomeration. However, they work differently for different types of activities. In addition, some of these forces (as transport costs going from centrifugal to centripetal) are contingent, regarding time, i.e. changing with the growth of cities from the spatial point of view, their comparative advantages, and their infrastructural conditions, which provision tends to retreat during recession and depression periods.

The period of recession of the business cycle restrains markets on a temporary basis. This delays investments, including those from the public sector subjected by fiscal problems from unemployment and low production, while the demand for services continues to grow.

With the stages of recovery and expansion of production, the migration of activities is more likely to occur, both in national economies and at the international level. This affects peripheral metropolises, especially their surrounding regions and nearby towns. The classic areas of state counter-cyclical actions are cuts on public expenses, and reduction of interest rates but they also induce investments in the construction sector, thus in infrastructures regarding urban areas, energy, and transport. Thus, cities should pulse with the business crises, in terms of job opportunities, and lower with infrastructure provision. Besides, the bigger the city, the greater will be its resilience to crises during recession and stagnation, regarding investments postponements. Moreover, stagnation can be permanent for some of them as Krugman (2002) observes.

Because of this greater resilience to crises even with the infrastructures legged behind during recession and depression, peripheral metropolises still relatively more attractive for the workforce in peripheral countries. The net result of these crises in many emerging economies is urban overpopulation with a dramatic increase in the lack of minimum standards for housing, sanitation, education, and health. The population pulsing behaviour follow investments, also considering return migration flows (DAVIS, 2004; CAMPOLINA; DINIZ, 2007). Yet, it is a common “understanding” that the society should pay for problems of lack of access to social services and infrastructures since those are duties of states. However, as pointed before, the business crises also create fiscal crises for the states, generating deficiencies in the provision of services and infrastructure.

In addition, the type of worker required in every cycle is gradually more specialised, and today, more focused on maintenance, provision of services, including for industries, which generates a parallel informal economy, often of low quality but quite vigorous.

Facing chronic distributive problems in many peripheral economies, the social crisis (defined here as the lack of working conditions and life socially acceptable), seems to be a *permanent crisis*, pulsing quantitatively depending on the phase of the business cycle, but maintaining the lack for many basic needs in cities and towns.

A common urban feature in emerging countries is the existence of a great number of informal activities. This creates a significant number of unemployed workers, although usually occupied, generating an informal circuit of the economy, in general with no labour rights (SANTOS, 1979). Most of these workers reside in urban areas around the main peripheral metropolitan city, occupying the largest area of those metropolises. This periphery of the periphery constitutes urban settlements of relative low density, making higher the cost of urban services and infrastructure provision, just where the average income is lower. The social and environmental outcome of this dilemma is disastrous, concerning inadequate or neglected official management. This is a present and future pertinent issue, about what major economic agents and scholars often avoid.

3.2. *The engine of urbanization*

This section pursues to establish a scheme for case studies. Firstly, it follows a discrimination of the trends of factors associated with attraction or migration of activities in urban centres. Secondly, we define the combined effect of these factors.

For the purposes of this work, it is not important an algebraic model, although it seem plausible with contention forces of urban agglomeration/deconcentrating. Thus, empirical works may assign values to these forces and their parameters, observing the long-term evolution of main urban agglomerations that happened to become the major national metropolitan region.

Is there a connection between foreign trade and national geographies? Yes, the trade policies affect urban economies. The emerging countries use the *substitutive industrialization* to protect their nascent industry. Empirical evidence from Ades and Glaeser (KRUGMAN, 2002) show that the population of the largest city in a sample of 85 countries had a negative relationship with the fraction of Growth Domestic Products (GDP) spending on imports when are fewer trade restrictions and positively with greater trade barriers, i.e. such larger cities grew with customs costs and imports under control. However, the trade barriers may promote super urban agglomeration when associated with the concentration of infrastructures, markets, low competition, and business connections, labour that is more skilled and information.

In contrary, Krugman (2002) argues that the removal or loosening of customs or trade barriers can contribute to a spatial deconcentrating of the industry at the international level, as well as to the specialization of cities in production, resulting in the more gains than once earned with these barriers. Hence, the search for urban competitive advantages can generate a regional and urban specialization in the neo-liberal model. Costs of transport, wages, and trade create these advantages. Tax incentives, the proximity to

emerging markets, and cheaper raw materials also convey for this, which may also explain this spatial deconcentration and urban decline. Among the negative effects of this process are technological dependence and disconnection of enterprises (upstream or downstream of productive traditional regional chains). There are workarounds. In the 1980s, the Chinese “islands” of development with high state control was one way for this, but how did these large investments affected the nearby regions?

Returning to the central line of thinking, the systematization of trends of growth or decline of economies of agglomeration operated by the referred forces could consider the rationale that follows:

- The market potential with a certain base multiplier, and expenditures from households, companies, and government in the cities, coming from export activities, should present positive correlation with urban growth.
- The costs of transport for labour, production inputs, and products should have a negative correlation with urban growth.
- The business connections expressed by the size of production chains in sectors of activities – a positive correlation.
- Number and types of junctions (transport stations) and transport infrastructure that works (as business connections) towards economies of agglomeration and urban growth.
- Firms compete for bigger share in urban markets, tending to cause increase in the diversification of products and economies of scale, thus investment and urban growth but also migration of activities².
- Economies of scale should influence urban growth in the same way as competition.
- Access to information and innovations are associated with economies of scale, what is congruent with high wages, lower prices of industrial goods, and urban growth, or migration of activities.
- The negative “externalities” (pollution, congestion, obsolescence, lacks, or deficiencies in services and infrastructures) should present negative correlation with urban growth.
- In addition, the increase of trade between cities of products and services – a combined factor towards growth of domestic networks.

From the above, groups of forces of spatial agglomeration/deconcentrating of activities appears in **Table 1**, according to three categories: centripetal, centrifugal, and transient forces (those that may change to an opposite effect).

² The competition produces higher wages and substitutive products, which growths in scale should offset. Therefore, at the start of a recovery and expansion phase, competition should present a positive correlation with urban growth, and after a threshold, increases in the competition should cause a centrifugal force, though presenting a negative correlation with urban growth.

Table 1: Factors Operating in Forces of Agglomeration

Urban	As forces increase
Centripetal Forces	Market Size
	Junctions, Transport Costs, Other Infrastructure
	Enterprises' Connections
	Economies of Scale
	Information and Innovation
	Trade among Cities
Changing Forces	Competition
	Economies of Scale
Centrifugal Forces	Externalities (including environment effects)
	Trade Tariffs
	Wages Costs
	Input Costs
	Interest Rates
	Land and Rent Costs

Source: systematization of the author.

This systematization provides a platform for a compared critic to the political economy of urbanisation, which should consider, side by side, the evolution of the role of national states. Moreover, this model can gradually include or replace variables to represent these forces, suggesting a basis for more sophisticated analysis.

As a general summary of the process, it may be possible to say that the passage from a national agglomeration to become a player in the international context, when exchanges of industrial goods and services take relevance, points out two ways for the analysis. The first should characterize growth of international trade in products for exports. These exchanges when mostly restrained to large national agglomerations, those forces seem to produce super urban concentrations, *cities regions*. This conveys for this the role of peripheral states that are generally unsuited for regional planning, failing to deconcentrate growth in the urban network at national level, since private investments mostly tend to go in the opposite way, which goes where there are infrastructures, services, suppliers and buyers, bigger markets, and cheaper labour. The second path is when trade between urban centres in national networks balances the evolution of export of goods and services to foreign markets. This means that public policies for the construction of cargo transport infrastructure should have special relevance for significant reductions in transport costs, as well as for incentives to industries to be able to maximize external economies, at downstream positions in production chains. The trend toward regional specialisation in

these exchanges should promote a more equitable national growth, potentially higher, whereas stirring the development of regional advantages.

This conceptual framework serves not just to think about the present problems of the negative externalities of super urban concentrations but also to discuss causes and the capacity building for the necessary *solving processes*.

3.3. Urban system

To deal with networks of cities is relevant to consider intercity flows of people, goods, services, and information that sustain these networks. Thus, as we are focusing on the forces of urban agglomeration, it is important to consider the combined consequences of transport and rent costs, the quality of services, infrastructure networks, labour motivations to migrate or commute for jobs and higher levels of wages, and characteristics and environmental “externalities”. These forces together contribute to the migration of economic activities and people.

In a metropolis, the cities near its borders are the prime locations of industrial migration, but in economic terms, these borders are imprecise and dynamic.

In the observation of the North American, Krugman et al. (2002) shows that in the development of urban centres over time, there are those that grow, others that reduce in population, while others stagnate or disappear, nevertheless, the cities and towns networks tend to expand. The stagnated towns might appear between re-emerging cities or updated ones; the abandoned appear off route and close to the stagnated ones. This indicates that urban interactions are fundamental to support cities and towns development, defined by their roles in their urban networks. The migration of economic activities also happens from the smaller to the larger urban centre. Therefore, as pointed before, the inner evolution of the metropolises shows that when there are losses on accessibility, activities should migrate or fail.

For above theoretical formulation and discussion, data of these forces of agglomeration were not possible to present and it was not in the scope of this work. Nonetheless, we will use this view for a critical qualitative analysis in the discussion of the outcome of the peripheral metropolis, which is in accordance with many recent works.

4. The political economy critic of peripheral urbanization

The concerns made so far, especially for including the role of the state in both inner urban and interurban dynamics, allow a critic of the analyses of the spatial economy that do not include in their models the role of states and the environment. The strategic political aspects of the national states with their geopolitics of development are important as its roles. This drives away such economic models of urbanisation from the real world, challenging the antagonistic economic forces of agglomeration to explain completely the process on focus. In addition, these abstract models take the industry as the core engine of agglomeration economies. Hence, such an abstraction makes marginal the political economy of urbanization and its associated public policies, and does

not place state interests among the “great economic agents.” This deliberate omission aims to identify and to capture how the market forces “acting alone” would determine the processes of creation, growth, sustenance, and extinction of cities. Despite this bias, it is observed that it has become innocuous, to oppose the role of states. This, given the importance and size that states are acquiring in a long-run and the roles they have been playing in the provision of public services, infrastructures, reproduction of the labour force, besides constituting the “invisible hands” for the market in periodic of crisis. It is also worth mentioning that the Krugman’s analysis (Krugman et al., 2002) addresses the interests of industrial workers, albeit as passive. This refers to labour mobility (from countryside to cities, between urban centres or inner urban commuting), as result of the quest for higher real wages in activities located in larger urban centres, although not observing the motivations of migration for other income opportunities. This, specially, for informal activities that gives rise to migration of millions. Despite these limitations, it was important to understand the logic of spatial economy, because it brings a literature review of the new- classic economic geography, with a trial of a unified approach.

Regarding the above line of thinking, the bigger is the city the better the interest of the financial sector. The financial sector today has a greater power over accumulation worldwide, although the limits of financial and real estate speculation continue linked to income, and to the tangible production of goods and services, given the recent American crisis. Therefore, the critique coming from the system itself with rents remains pertinent (SHERMAN, 1991). Thus, the explanations of the driving forces of agglomeration that create, develop and overflow, or shrink cities, supposedly spontaneous, work as a network phenomenon, given by the relatively independence of economic players, aiming to maximize their benefits with higher profitability.

According to Singer (2002), the most important centripetal forces of agglomeration economies are the size of the market and the existence of infrastructures. Discussing the size of markets, they exert an attraction for traders and producers, and this generates the circular logic of the agglomeration economies. That is, where the customers go or pass, the trade will prefer to be located, and the producers should approach. Conversely, where the stores concentrate and diversify customers will converge. Thus, the size of the market has a powerful effect on the aggregate urban product, which surpluses reveal to have a *more than proportional increase*, including the capture of external surpluses from exports, spend in a city. To some extent, the concentration of activities in a city happens by the lack of infrastructures in other cities and by successive accumulation of surpluses over time (expressed by the base multiplier). This is a way not just to capture foreign surplus but also to speed up the growth of the urban income with city exports. In other words, those so-called base activities capture external savings when spent in the city, resulting in an exponential increase in the local income and in the aggregated urban product over time. Once surpass a certain threshold, the urban agglomeration of economic activities can become an “uncontrollable force” capable to create an “autonomous” urban economy, more probable to happen in national economies where a city concentrate most of the available necessary infrastructures.

In addition, while the share of exports in the urban economy grows, the base multiplier grows even more, since it is a function of income in an earlier time. Thus,

this multiplier accelerates and, from a certain threshold (α_s), it generates the self-support level for an urban agglomeration. Conversely, the continued loss of export activity in a city, or urban area, or region, may find a desegregation threshold at a certain value (α_d). This difference indicates more or less resilience to the economic self-sustenance of urban centres. In the intra-urban scale, larger cities reveal that some of their areas experience this rupture, with emptying and decay, while others begin to grow. In the interurban dimension, the higher breakdown threshold may be due to competition among urban centres. Market estimation techniques use the base multiplier to calculate the market potential as a criterion to define location and size of new activities.

According to Krugman et al. (2002), the approaches that use market potential are more consistent with an analysis of the economy as a whole and as an explanation of the emergence of urban centres without having to assume the existence of cities and regions, based on the central area theory of Christaller and Lösch, founders of this German tradition. This potential is inversely proportional to the distance to the central market and directly to income or purchasing power.

In the absence of a rigorous theory and regarding the need to give practical answers to the regional science, approaches to regional economics and planning have become a toolbox of practical analysis, a set of methods, used by planners, and consultants, designed to guide private investment decisions. In the face of the need to support such decisions is better to tackle the right issues than to neglect them.

Although incomplete, this approach above offers a more elaborated conceptualization for the central area theory, encompassing the base multiplier to the market potential analysis. In practice, it expands the range of observation, if there is nothing more than market forces. Agglomeration economies also have negative results such as super urban concentrations, economic dependence, and periphery-centre migration of people with all the associated human miseries. Besides, it is possible to induce limits of this process, observing the migration of people and companies that can generate export activities to secondary centres. A virtuous cycle of growth happens in these places, but with costs not accounted. Thus, the reasons and limits of this process, not based on the public interest, may end up generating environmental depleting, as well as an unprecedented development of parallel, informal, black, irregular, or illegal markets, structurally generated and established, as presented in long-term evidences in Planet of Slums (DAVIS, 2004).

As for infrastructure, the analysis in the regional economy focuses on transport. This is because transport costs directly influence private decisions on business migration. The intra-urban mobility of workers is an important criterion for the location of activities, as well as the transport of goods and service provision inside and between urban centres.

The regional economy characterizes by ports, airports, and cargo centres, and shopping centres as junctions are locations that minimize transport costs, attractive places that stir business connections. Many cities were born on junctions, which also explain the development of urban networks.

By attracting more commercial and industrial activities, the process of circular causation of agglomeration economies creates more connections between companies and

this becomes a criterion of location. The greater existence of suppliers and customers of intermediate and final products is what substantiates the strength of this centripetal force. In this sense, reinforcing urban agglomeration, those companies that constitute stronger external economies establish more connections, generate or extending production chains.

The existence of specialized services is possible in a context of a certain critical number of companies, associated with greater diffusion of information, and generation of innovations. These urban attributes also constitute centripetal forces, derived from the size of the market. On the other hand, urban agglomeration also boosts competition, a centrifugal force, while the increasing return from economies of scale that the urban environment promotes counteract.

In addition, under competition the price of urban land and rent of real estate is a criterion for people and firms to settle down. Theoretically, the distribution of the value of urban land (and rents) occurs in a centre-periphery gradient basis (as in the central area theory), represented as a negative function of the square of the distance to the urban centres, hence a centrifugal force. However, for multi centred cities, the price of land depends on its use and on the access to urban infrastructures, markets, work, and leisure places, indicating that availability and transport costs have a decisive role in generating this value. On the other hand, land uses (whether commercial, residential, industrial, or even agricultural near cities or today within cities) have different qualities, generating land price fluctuations in the centre-periphery gradient. Such prices are like topographical representation around centres and sub centres over the territory of cities or regions. In practice, this diversity produces localizing options for firms and residence choices for workers.

The creation of shopping malls, business centres, and garden or satellite cities, and even gated communities may constitute mega-building operations in the escape from negative “externalities” of traditional urban centres. These initiatives can result in, and can be a result of decaying traditional central urban areas, generating other centres in the intra- urban sphere.

4.1. Towards the analysis of the peripheral metropolis

We begin this section by commenting on what Santos (SANTOS, 1979; 2008) points, as one of the key characteristics of the Brazilian urbanization, which the super concentration of economic activities (and people) in the *city region* of São Paulo, with the expansion of the Metropolitan Area of São Paulo City, Brazil (GSP, 2015; CAMPOLINA; DINIZ, 2007; CANO, 1975).

The São Paulo city is the economic capital of Brazil, whose market encompasses the whole country, although with high transport costs, and low competition, regarding the country as a whole. Therefore, in face of other regions industrial options, this centrality is reinforced, which results in high levels of environmental depletion, congestion, and other negative “externalities” in this *city region*.

Nevertheless, this high concentration reveals a hysteresis – the resistance of activity to migrate for several reasons. In a sense, the building of this super urban

concentration is due to the relative backwardness of the other regional and national centres and to cheap labour migration coming from all corners of Brazil, and recently from neighbour countries. Supported by conservative development strategies (CAMPOLINA; DINIZ, 2007 ; CANO, 1975), especially stirred in the 1970s, this measure of the political economy has stimulated the concentration of public, private, and foreign investments, mainly oriented to the city of São Paulo, its metropolitan region, latter to the State of São Paulo, and other south-eastern and southern states.

Cano (1975) exams the industrial development of the State of São Paulo, comparing with other Brazilian states, since the late nineteen century to the mid-twenty century. He reveals that the economic dominance, and concentration of industries in the former, specially came with the fixing of the exchange rates that enormously favoured it, in detriment of many others states, since the early twenty century. In a previous context from an archipelago of colonial enclaves, later national regions significantly isolated just connected by sea, this dominance heritage engender a concentration that in 1945 about 45% of the industrial outputs production was from there. Of course, there are other reasons for such concentration, as cultural, vast land ownership elsewhere but the key decisions were of macroeconomic nature. Later, in the analysis, Cano (1975), points that the way out of super concentration (that is expanding from but still concentrating in national terms) can only be overcome with regional policies.

Pulled by regional policies, the transfer of companies to the Northeast and Northern regions was largely associated with obsolete industrial equipment with tax-free incentives. They were not able to generate sufficient surplus, since not adequate to local conditions and vocations. There are other reasons for the failure of these earlier regional policies as lack of national project to supersede the opposition of regional elites towards a genuine federative pact, the backwardness of traditional elites (specially opposing land reforms), and corruption in all regional agencies. This project should not just act to integrate regions to the foreign market but integrate country regions, which lack of a national railway system, demonstrates the backwardness of political fragmentation.

It is also worth noting that the importance of these decisions in the domestic market, with the growth of the Metropolitan Region of São Paulo in the military regime (1964 - 1986), since it did not dismantle the mechanisms of substitutive industrialization, especially, customs barriers. The regime just opened the domestic market to foreign industrial companies that wanted to operate in Brazil, when the São Paulo Metropolitan Region offered comparative advantages. This created the conditions under which, supposedly, nothing could resist the agglomeration forces of an economy that became (almost) monocentric.

The formation of this super concentration also indicates a lack of investment in urban and transport infrastructures in Brazilian cities, especially medium and small ones. In part, this may explain the profile of cities sizes in the Brazilian urban network, which involves a large number of small cities and a small number of medium-sized cities for a relatively large number of larger cities.

Similar processes of super concentration seem also to have occurred in Mexico City and Buenos Aires. In Brazil, the colonial strategy produced an intended regional fragmentation extended after independence with the development of regional economies. The development of regional cultures with cities distributed along the coast prolonged even further the fragmentation in a country that only recently occupied the interior with deficient rail transport in a continental size country. In the other hand, this has generated the possibility of the development of relatively autonomous regions, “perhaps” constituting a Brazilian advantage. However, the failure of a genuinely national policy to coordinate inter-regional development has largely undermined local emergencies. Today, the result of this short sight regionalism is a general backwardness in social, economic, and environmental terms.

4.2. Selecting indicator for empirical studies

Facing the number of forces of urban agglomeration, there is two way to get across this difficulty. The first is to define and select the apparently most significant of these forces in order to test the explanation of the super concentration of peripheral metropolises in different emerging countries. This should gather data over a long period of time, when these metropolises experienced processes of super concentration of activities. The indicators of the selected forces should be available, accessible, compatible (as with statistical standardized variables), available in or built from reliable sources.

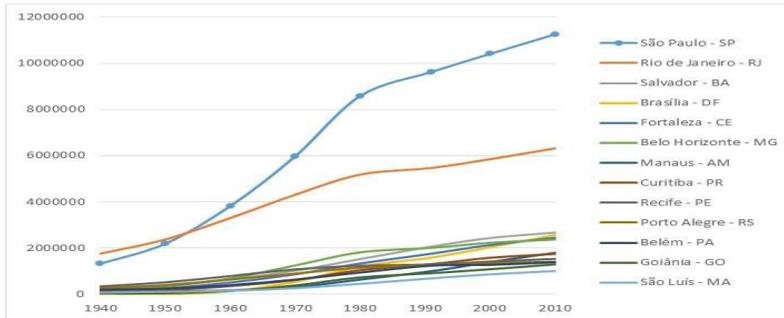
Another way to approach the evolution is to analyse the effects of these factors in urbanization, which net results are population growth, job opportunities over time, value- added on the industry, production data as well as externalities indicators. The growth capital formation in the construction sector is a pro-cyclical indicator, which signals recession and recovery periods of business cycles (SHERMAN, 1991).

5. The empirical approach

As a preliminary experience, following the part of the second line of development above described, although without construction sector information. The data gathered from São Paulo Metropolitan Region reveal that its core city (São Paulo City) is changing to concentrate more service activities while transferring industrial activities to peripheral towns and beyond (SEADE, 2017; GASPAR et al., 2015; PASTERNAK, 2015, CAMPOLINA; DINIZ, 2007). This is a general trend as previewed in Krugman’s model (Krugman et al., 2002). The population growth also involves industrial job migration, from this core city through its network.

From the 1950 to 1980 São Paulo City observed a fast pace of population growth, which coincides with a period of fast industrialization. Until 2010, it follows a phase of consistent but rather lower growth. However, in the long-term population compare of growth among the core metropolitan cities in Brazil, the gap between São Paulo City and other of these cities is significant (see **Chart 1**). This is consistent with the theoretical frameworks presented.

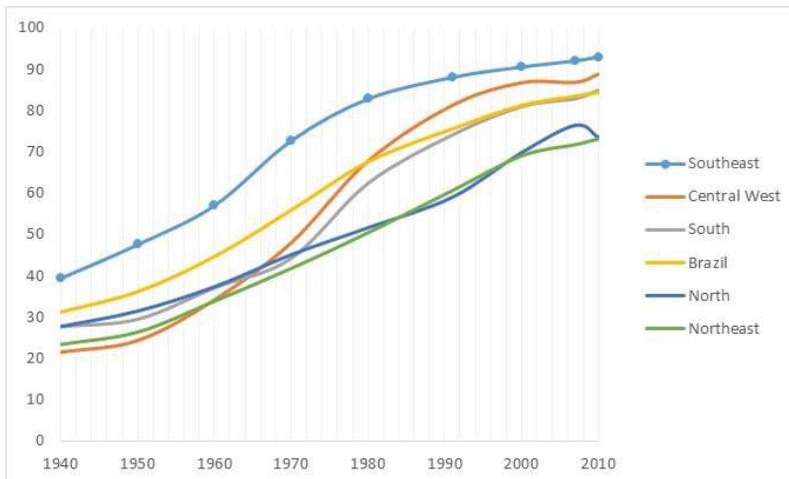
Chart 1: Population Growth in Core Metropolitan Cities of Brazil, 1940 - 2010



Source: IBGE, 2010.

Defining urbanization as rural over urban population, and examining the relative growth of urbanization in the Brazilian regions, again from 1940 to 2010, there is clear higher growth in the Southeast, which involves São Paulo and neighbour states, presenting a steady evolution, nonetheless at lower pace (see **Chart 2**). It follows the Central West region that presents the faster pace of urbanization, which became the extended cellar of São Paulo, recently accelerated growth with agro-industrial-businesses. Nevertheless, this growth of Central West cities and towns started from a very low level, i.e. scarcely populated urban centres.

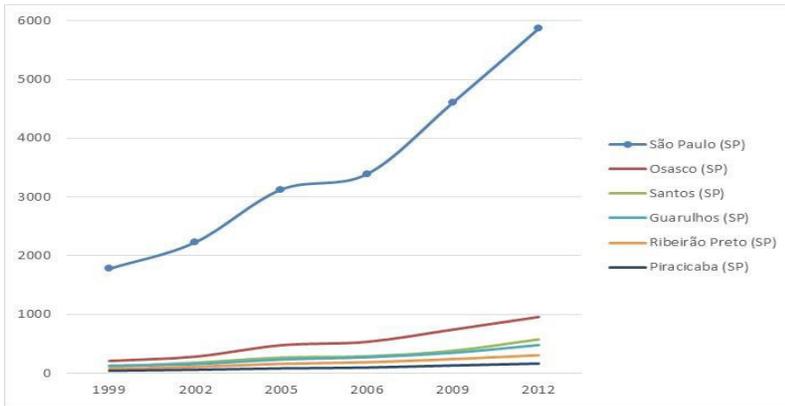
Chart 2: Urbanization in Brazil and Grant Regions (%), 1940 - 2010



Source: IBGE, 2010.

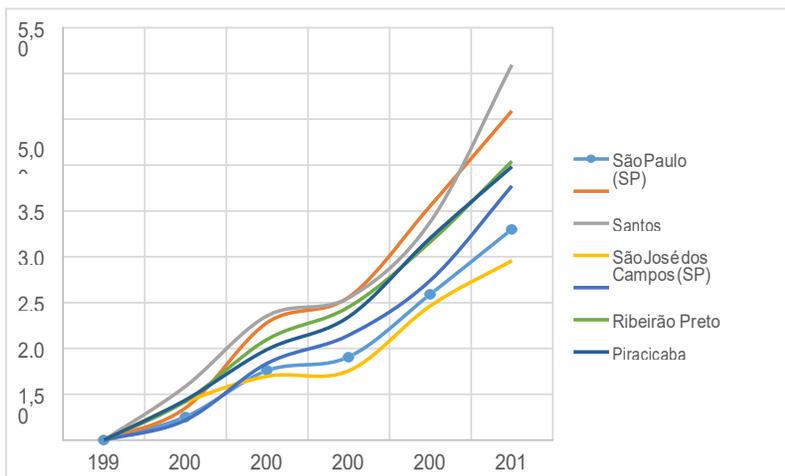
Investigating the municipal GDP from 1999 to 2012, this gap has enlarged even more, between São Paulo City and neighbour cities, explained by the increase of the service sector, especially the financial sector (see **Chart 3A** and **3B**). This is also consistent with the theory, in spite of the migration of industries from São Paulo City in the same period.

Chart 3A: Municipal Growth Domestic Product (GDP/100,000), 1999 - 2012



Source: IBGE, 2017.

Chart 3B: Municipal Growth Domestic Product (compared growth), 1999 – 2012

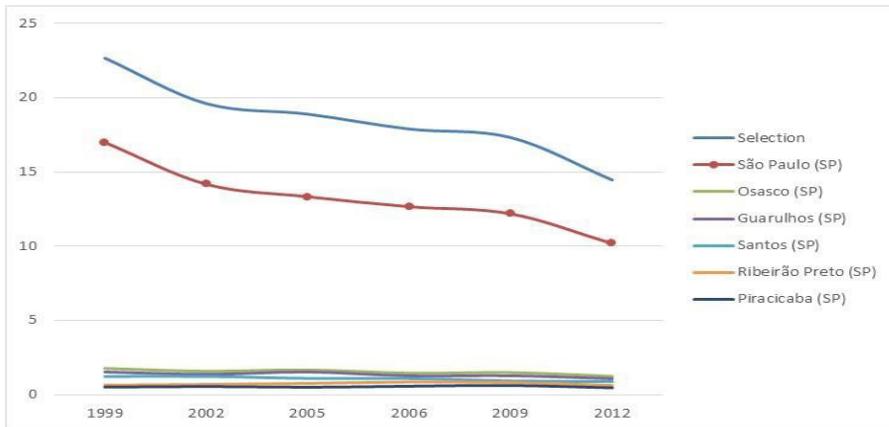


Source: IBGE, 2017.

Now, the share of the value-added in the industry of São Paulo City and neighbour cities compare to the Brazilian value-added in the industry is significantly high, although it also has significantly reduced in the observed period (see **Chart 4**). Together, the value-added in industries of cities in the São Paulo State revealed a high level of industrial concentration in, and around São Paulo City. The **Chart 4** also indicates a strong deindustrialization, or stagnation of industrial production and growth of other sectors, in part linked with industrial migration from the São Paulo City to nearby Region. This is a fact accepted and worked up with policies of São Paulo City governments, which do not imply any irreversible process, or the sustenance for any conceptualization of deindustrialization in a larger geographical scale.

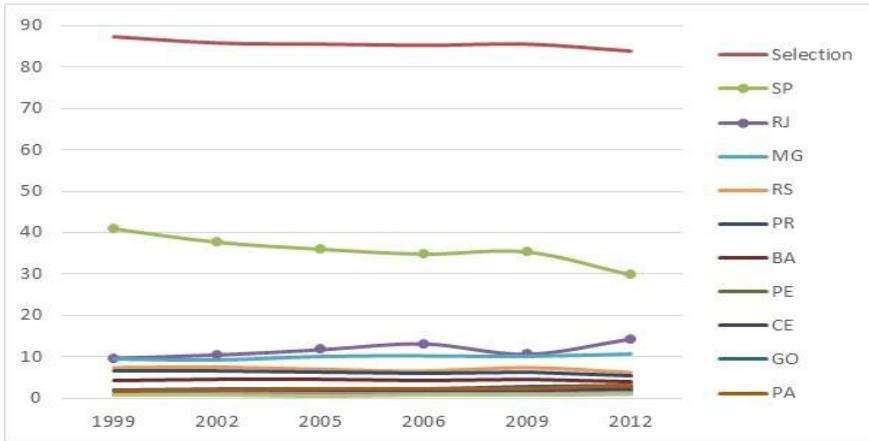
Regarding this deindustrialization and migration of industries, there are indications that the State of Rio de Janeiro received investments mostly associated with fossil fuel industry after a long decaying period, links with state investments and the state oil industry – the Petrobras (see RJ in **Chart 5**). Recently, the Central West Region (see **Chart 6**) has been hosting industries, also due to state policies backed by foreign new-liberal inducement since the 1990s.

Chart 4: The Share of the Growth Value-Added (in current values) in the Industry of São Paulo City and Neighbour Cities over the Growth Value-Added in the Industries of Brazil (%), 1999 – 2012.



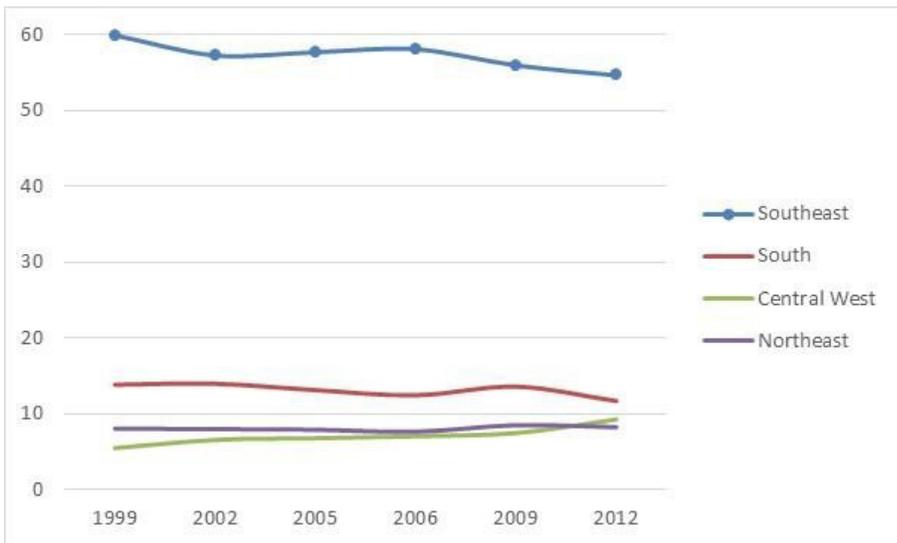
Source: IBGE, 2017.

Chart 5: The Share of the Growth Value-Added in the Industry of selected Brazilian States over the Brazilian Growth Value-Added in the Industry (%), 1999 – 2012



Source: IBGE, 2017.

Chart 6: The Share of the Growth Value-Added in the Industry in the Gran Brazilian Regions over the Brazilian Growth Value-Added in the Industry (%), 1999 - 2012



Source: IBGE, 2017.

6. Conclusions

With the purpose to explain super agglomeration in peripheral countries, argues by analysing combined forces of urban agglomeration and dispersion of activities, stressing the role of markets, infrastructure, but encompassing state policies and economic crises. Even developing a conceptualization that includes a pulsatile dimension for urban growth, it reaffirms the growth of these metropolises that manifest, notoriously, in an unprecedented level of agglomeration in history.

The thinking over urban historical development and political economy of urbanization in Brazil about the super agglomeration of São Paulo reveals a context in which the choice for investment on interregional transport across the country had an important and long- term impact in development of this city region. This come together with macroeconomic decision associates with the interplay of political interests and mentality of regional elites. Today, this city region gathers several others metropolises in a radius of one hundred kilometres, expanding its economic centrality over its State, its southeaster region, its neighbour regions, and beyond.

Starting the analysis from market forces, this work arrives to the conclusion that it is not possible to arrive at a model of urbanization without the inclusion of political and historical analyses, baked by theoretical and historical approaches. Decisions about where to place investments are highly political, including power coalitions and the analysis of normative aspects involving states strategies along with private counterparts. Conversely, starting from state planed action, it found the need to consider market forces, and entrepreneurial mentality, which constitute an epistemological divide to supersede in governance terms. It also takes in account the informal economy, highly manifested in those countries, and regard as public beyond governments and states. Nonetheless recognizing contentions between private and public interests, also finds complementarities.

Regarding the population growth for the São Paulo Metropolitan Region and the gap ahead of others states in Brazil, this city region should maintain its economic dominance in a long run. This should happen even with the deindustrialization, and migration of jobs in industry as observed. Meanwhile, the city of São Paulo has changed and became the main service and financial centre of Brazil and some neighbour countries.

Concerning infrastructures the action Plan for the Macro Metropolis of São Paulo, which should provide among other infrastructures, transport infrastructure to integrate five metropolitan areas around the capital should engender more concentration of activities. Even if only partially completed up to 2030, this also should sustain or broaden the economic gap between this Mega Metropolitan Region with other Brazilian metropolises and this should count with substantial investments from the federal government (GSP, 2015). Thus, the main centripetal force of agglomeration should be not so much associated with state investments, and private counterparts in industry but with other activities associated with the construction sector and all sort of new business services, that create job opportunities, both formal and informal.

References

- BRENNER, Neil. *Debating planetary urbanization: for an engaged pluralism*. Disp.: <https://journals.sagepub.com/doi/abs/10.1177/0263775818757510> . Em: 01/2019.
- _____; SCHMID, Christian. Planetary Urbanisation. *In*: Gandy, Matthew (Ed.) Urban Constellations. Disp.: <https://www.jovis.de/en/books/product/urban-constellations.html> . Em: 01/2019.
- _____; ELDEN, Stuart. Henri Lefebvre on State, Space, Territory. *International Political Sociology*, v. 3, p. 353-377. [S.I.]: [s.n.], 2009.
- CAMPOLINA, B.; DINIZ, C. C. Crise global, mudanças geopolíticas e inserção do Brasil. *In*: Revista de Economia Política, v. 34, n. 4 (137), p. 638-655. [S.I.]: [s.n.], outubro-dezembro/2014.
- _____. A região metropolitana de São Paulo: reestruturação, re-espacialização e novas funções. *In*: Revista EURE (v. 33, n. 98, p. 27-43, Santiago de Chile: [s.n.], maio de 2007.
- CANO, Wilson. Raízes da Concentração Industrial em São Paulo. *Tese de doutorado* apresentada ao Instituto de Filosofia e Ciências Humanas da Universidade Estadual de Campinas. Campinas: UNICAMP, 1975.
- CHEN, C. et al. Chin's Hukou Puzzle: Why Don't Rural Migrants Want Urban Hukou? *In*: The China Review, Vol. 16, No. 3 (October 2016), 9–39. Hong Kong: The Chinese University Press, 2016.
- DAVIS, Mike. *Planet of Slums*. New Left Review 26, [S.I.]: [s.n.], March-April, 2004.
- DIEESE. *Desindustrialização: conceito e a situação do Brasil*. Nota Técnica Número 100, jun. 2011. Disp.: <http://www.dieese.org.br/notatecnica/2011/notaTec100Desindustrializa-cao.pdf>. Em: Fev. 2019.
- DINIZ, C. C. Celso Furtado e o Desenvolvimento Regional. *Nova Economia*. Belo Horizonte, v. 19, n. 2 p. 227 – 249. Belo Horizonte: [s.n.], maio-agosto de 2009.
- _____. Repensando la cuestión regional brasileña: tendencias, desafíos y caminos. *Revista EURE*, v. 29, n. 88, p. 29-53, Santiago de Chile: [s.n.], diciembre 2003.
- GASPAR, Ricardo Carlos; Aparício A.C P; Bessa, Vagner de C. “A Metrópole de São Paulo: desenvolvimento econômico recente e configuração interna”. *In*: BÔGUS, Lucia M.M. e PASTERNAK, Susana (Orgs.), p. 28. São Paulo: transformações na ordem urbana [recurso eletrônico] coordenação Luiz Cesar de Queiroz Ribeiro. 1. ed. Rio de Janeiro: Letra Capital, 2015.

GREGORY, D. et al., **Human Geography: society, space and social science**. Manchester: Macmillan, 1994.

GSP - Governo do Estado de São Paulo. **Plano de Ação da Macro Metrópole Paulista** – PAM 2013/2040, referência para o Plano de Desenvolvimento Urbano Integrado da Região Metropolitana de São Paulo. São Paulo: PDUI, outubro de 2015.

IBGE, **Censo 2010**. Brasil: IBGE, 2011. Disp.: www.ibge. Em: 2019.

KANDEL, R. **Le réchauffement climatic**. Paris: Presses Universitaire de France, 2002.

RUGMAN et al. **Economia Espacial**. São Paulo: Futura, 2002

LEFEBVRE, Henri. **A produção do espaço**. Trad. Doralice Barros Pereira e Sérgio Martins do original: La production de l'espace. 4e éd. Paris: Éditions Anthropos, 2000.

LEFEBVRE, Henri. **The urban revolution** [Révolution urbaine]. English translated by Robert Bononno; foreword by Neil Smith. Minneapolis, London: University of Minnesota Press, 2003.

MATURANA, H. & VARELA, F. **A Árvore do Conhecimento**. São Paulo: PSI, 1995.

MONTE-MÓR, Roberto Luis. What is the urban in the contemporary world? **Cad. Saúde Pública**, Rio de Janeiro, v. 21, n. 3, p. 942-948. Rio de Janeiro: [s.n.], mai-jun, 2005.

MORIN, Edgar. **Ciência com Consciência**, Rio de Janeiro: Bertrand, 2010.

PASTERNAK, S. (Org.). **São Paulo: transformações na ordem urbana** [recurso eletrônico] coordenação Luiz Cesar de Queiroz Ribeiro. - 1. ed., p. 53. Rio de Janeiro: Letra Capital, 2015

SANTOS, Milton. **O Espaço Dividido: os dois circuitos da economia urbana dos países subdesenvolvidos**. Rio de Janeiro: Francisco Alves Editora, 1979.

_____. **A Urbanização Brasileira**. São Paulo: Edusp, 2008.

SEADE - **Fundação Sistema Estadual de Análise de Dados**. Disp.: <https://www.seade.gov.br/?option=comttvideo&view=videolist&id=0&Itemid=52> . Em: 2017

SHERMAN, H. J. **The Business Cycle**. [S.I.]: Princeton University Press, 1991.

SINGER, Paul. **Economia Política da Urbanização São Paulo**. Perseu Abramo, 2002.

ZHAO, P. The impact of urban sprawl on social segregation in Beijing and a limited role for spatial planning. **In: Tijdschrift voor Economische en Sociale Geografie**. [S.I.]: Royal Dutch Geographical Society KNAG, 2013.