

PUBLIC TRANSIT GOVERNANCE IN THE METROPOLITAN AREA OF SÃO PAULO: AN ANALYSIS BASED ON THE 2010 CENSUS DATA AND THE MUNICIPAL BUDGETS.

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Abstract

This paper aims to analyze the governance's challenges in the public transit policies in the Metropolitan Area of São Paulo (MASP), based on the 2010 Census data regarding home-to-work commuting, as well as the municipal finances obtained from the Secretariat of National Treasury (SNT). There are any standardization of the transportation services' quality and its infrastructures to allow fluidity and decrease the inter- and intra-municipal commuting time. The economic space and the activities' distribution do not respect the existing administrative boundaries. The governance in public transit is an unresolved challenge to municipalities in the MASP that can be understood by the political sociology of public action theory.

Keywords: metropolitan governance, public transit policy, São Paulo, public policy

Introduction

This paper aims to analyze the governance's challenges in the public transit policies in the Metropolitan Area of São Paulo (MASP), based on the 2010 Census data regarding home-to-work commuting, as well as the municipal finances obtained from the Secretariat of National Treasury (SNT). There is not a standardization of the transportation services' quality and its infrastructures to allow fluidity and decrease the inter- and intra-municipal commuting time. The economic space and the activities' distribution do not respect the existing administrative boundaries. It is prevalent for people to commute between municipalities.

There is neither a unified, standardized billing system, nor is there an intermodal infrastructure integration so that the public expenses (both municipal and state) are inefficient. Besides, the Brazilian federalism structure is composed of The Union, the States, and the municipalities. They have autonomy and responsibility to implement their public policies, including the traffic ones.

This research consists of the following steps: initially, we presented the mobility indicators and their spatial distribution patterns, as well as the municipal budget data on transportation. After that, we show the institutional characteristics of the metropolitan transportation arrangement in São Paulo will rise, as well as the governance practice problems as inter-municipal public policy. The theoretical approach is the Political Sociology of Public and its three key concepts. The first key element is the concept of global-sectorial relations. The second key element is the concept of referential, and the third one is the dynamic action established by the political actors involved. Based on that, we can describe a public policy as a continuous articulation exercise in the pursuit of a balance between needs, interests, and relations of cooperation and conflict between the actors involved.

The importance of this study is expressed in the characteristics of MASP itself: 39 municipalities with their own political and socioeconomic particularities, about 22 million inhabitants, the concentration of the Brazilian industry base and almost 20% of the country's GDP. The cities that make up the Metropolitan area have very distinct characteristics and include global towns like São Paulo to tiny towns like Salesópolis. The city of São Paulo has more than 12 million inhabitants, a GDP of almost US\$186,5 billion and it is the financial capital of the country, while the city of Salesópolis has less than 20 thousand inhabitants and a GDP of US\$ 53 million.

1 – The Theoretical Approach: The Political Sociology of Public Action.

Public policy studies can be geographically restricted to specific political units: the union, the state, the province, the local government. Governance studies, otherwise, must take into account the relation fluxes established among administrative units that define governance itself. Political Relationship dynamics is a crucial element in governance analyses. Metropolitan governance is concerned with cooperation, compromise, and conflict relationships among cities. One of it the most distinguishing characteristic is the existence of an important city that acts as a centripetal force in terms of economic and political power. The theoretic choice made in this paper considered these elements.

The metropolitan governance policies are a kind of specific public action. They can be described first, through the key stages that constitute it: defining the problem that is the target of government action, formulation, decision-making, implementation, and finally, evaluation of the actions carried out. This sequence can be found, with variations, in public policy theories since the early works of Lasswell (1951, 1956, 1970). The differential thing about metropolitan governance policies is that they are not just local government decisions; they are the result of local government compromises. Therefore,

in order to understand governance policies, we should consider the political and social actors involved, their relations with other areas of government, what are the other government levels involved in these policies and what are their interaction dynamics.

According to Jobert and Muller (1987), the political sociology of public action assumes that public policy analysis must be integrated into a broader conception of State-society relations. Its composition is arranged in three elements: the sector-global relationship, the referential, and the interaction dynamics of the actors involved in the power relations and regulation of a specific public policy.

The sectorial-global relationship is primarily an attempt to manage the relationship that is established between the sector considered in public policy and the other areas and government and society in general. Its logic consists in the constant exercise of adjusting different areas, interests, and powers. In the study put here, the sectoral is public transit policies in MASP; the global are all other public policies implemented in all cities in this metropolitan area. Articulations with the global happen in multiple areas. First, public actions in one area needed support and complementarity of the other areas of government action. In terms of metropolitan government actions, these implicate other areas of 39 municipalities and regional governments. These relationships are expressed in the way the social actors involved, public or private, are articulated in the construction of public policy. This relationship can also reveal conflicts and power disputes that exist in public institutions. According to Jobert (1985, 2004), it is a mistake to consider the State as a unified and homogeneous entity and the public administration as a rational executor of administrative decisions. The various parts of government can represent, and often represent, distinct, often complementary, and sometimes conflicting social and economic interests. Thus, government functioning and public policy actions fit into a logic of the sectoral-global and dialectical relationship between the demands of legitimacy and regulation.

The second key element is called a reference and covers a set of norms, learning, and references that are expressed in public policy. The referential can also be described as the representation made by the actors involved in this action. This representation is the way in which the various actors and social classes involved understand the problem to be the target of the State intervention. And it is also the expression of the perception of the role that must be played by the government at that time. They are norms and references built by the actors involved through their relationships, interactions, consensus constructions, and decisions. To know how the referential is elaborated is to know how the actors

themselves see their respective roles, functions, values, and interests. The referential definition will influence how the relationship with the power of the State will be guided and how the actions and decisions of the group of actors will take place.

The referential framework can be divided into three parts: global, sectoral, and articulation. The first part is the representation from which the sector representations are ordered and is not always a coherent and rational image. It is the representation of the type and role of the state. The sectoral referential is the representation or the dominant model of economic, political, and social sectors. The last part - the articulation - are the norms that integrate the two levels, the global and the sectoral. It is the way the government responds to the needs and demands coming from economic sectors and also from political and social organizations. "The referential of a public policy understood as the representation of global-sector relations has the effect of structuring the field of public policy. It determines the geographical or social extension and hierarchizes its objectives" (JOBERT and MULLER, 1987; 70).

The third and final key element is to look for and describe who the actors who work in the construction of the referential are. That is, knowing who the actors are that build the image of the system to be regulated. At this point, the set of actors encompasses the various state actors, local, regional or national and also non-state actors, representatives of specific sectors of the economy and society. Another question is how the system will be regulated, from which values, principles, and mechanisms? The regulation refers to the norms, procedures, and the legitimation of the actions taken by public power. And finally, what is the outcome of activities in terms of power relations, reformulation and creation of new power relations. The relationships between the constituents of public policies are marked by acts of cooperation, conflicts, and disputes of power.

Besides, the functioning and interaction of the key elements must be considered according to the action cycles. Pierre Müller (2015) identifies four cycles. They are: the industrial liberal, the welfare state, the state-enterprise, and sustainable governance. Cycles are social configuration processes that define the role of state action and public policies for society. Each cycle corresponds to different economic, citizenship and public policy regimes that express the referential in which the State is inserted. The basis of these cycles is the configuration of Western European states. In our case, the cycles are others and refer to other dispositions of the political and economic forces acting in public policies.

2 – The Diagnoses

A diagnosis of transport governance in the Metropolitan Area of São Paulo should contain a description of the main problems faced both for the establishment of this regime and the challenges to make it work in a process of constant improvement. The challenges of governance are the expression of the contradictions and tensions between the economic and social needs and the public policies run by the municipalities.

According to Sinha and Labi (2007), two key goals of a transport system are to ensure mobility and accessibility. Mobility refers to the flow of movement of people and cargo between a point of origin and destination. Performance measurements associated with mobility include, for example, journey time, level of service, speed, delay time and traffic jams. On the other hand, accessibility means people's ease of commute to/from home and work, for shopping or recreation.

Accessibility is important to understand mobility and its effects on quality of life due to data availability and its compatibility with the quality of life index previously established. Thus, accessibility was measured from the information of the person's journey time from home to work using the 2010 Population Census microdata (IBGE, 2012). The question of the Census sample component was about "the usual journey time from home to work" (IBGE, 2012: Variable 0662). So, the index expresses the journey time from home to work and, by definition, it is limited to people who have formal or informally paid labor. The potential answers to the question were definite and not a figure so we could change them into minutes, as displayed in Table 2.

Table 2. Transformation of categorical responses

Categories of responses ('usual time')	Transformation ('average time')
Up to 5 minutes	5 minutes
From 5 to 30 minutes	15 minutes
From 30 minutes to 1 hour	45 minutes
Between 1 and 2 hours	60 minutes
More than 2 hours	120 minutes

Source: Based on the 2010 Population Census (IBGE, 2010).

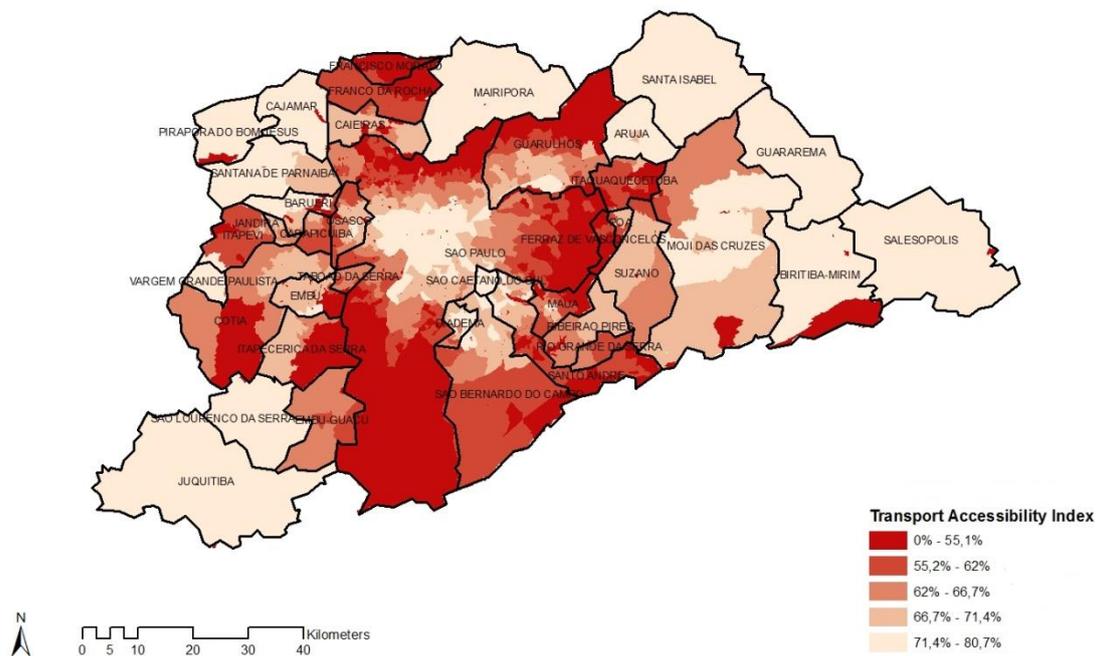
From this transformation, we created the accessibility index referred to the pendulum motion from home to work similar to the one Piza and Kuwahara (2009) elaborated the

indexes of the income, education, health care, access to information, household conditions and urban infrastructure dimensions. It is called Transport Accessibility Index (TAI), calculated in the equation as follows:

$$TAI = \frac{\text{stated average time in minutes} - 5 \text{ minutes}}{120 \text{ minutes} - 5 \text{ minutes}}$$

The TAI was calculated for each individual who answered the question about the usual journey time from home to work. It ranges from 0 (lack of accessibility) to 1 (full accessibility) and is related to the declared maximum and minimum journey time. It is a fuzzy index then.

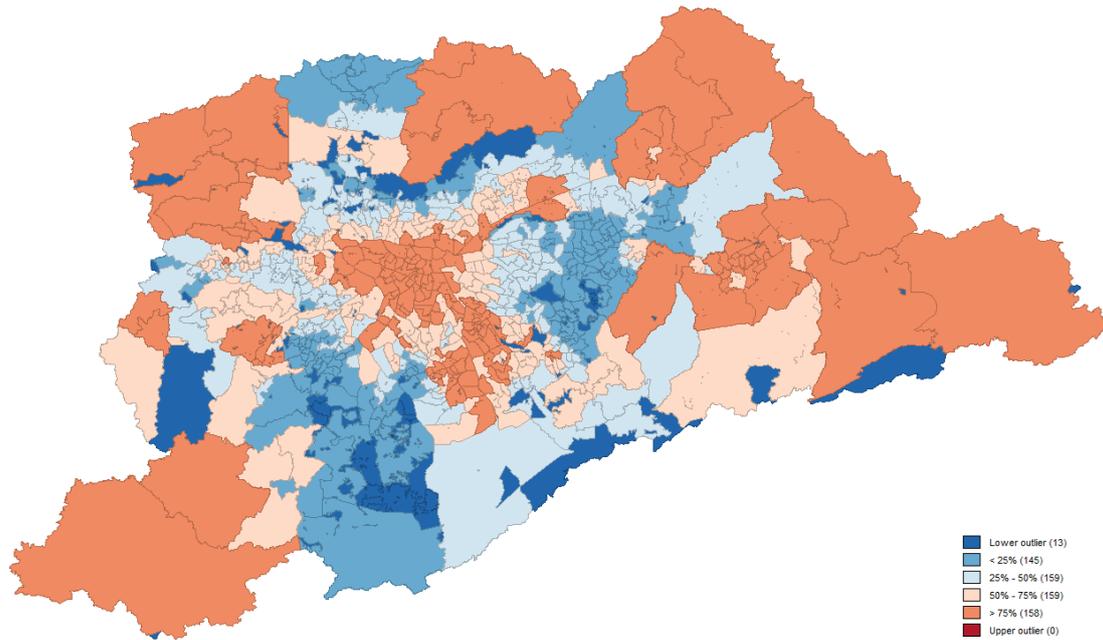
The first TAI compilation was made by the weighting areas of the Metropolitan Area of São Paulo (MASP) by calculating the weighted mean of the individuals who answered the question and their respective sample weights. The distribution of the values somehow approached the normal distribution ranging between 0.65 and 0.70 though. While the maximum value was 0.81, the minimum value was 0.3 (relatively too low). The standard deviation 0.1 was not high showing that most accessibility values are next to an average of 0.63, more particularly between 0.53 and 0.73. As a type of fuzzy index, the figure is not itself relevant but rather the distribution of the weighting areas among the quintiles (the relative position). The spatial representation of the TAI average per weighting area is displayed in Map 1 giving the visual impression that there are spatial patterns or else a ‘spatial dependency’ (or correlation).



Map 1. Quintiles of distribution of the average TAI per weighting area of the MASP

Source: Based on the 2010 Population Census (IBGE, 2012)

The probability distribution of TAI values per weighting area is shown in Map 2. It is visually possible to identify some spatial patterns: clusters of weighting areas according to its range of value and the presence of ‘islands,’ weighting areas isolated by their values in relation to their neighbors.



Map 2. Probability distribution of the TAI values per weighting area

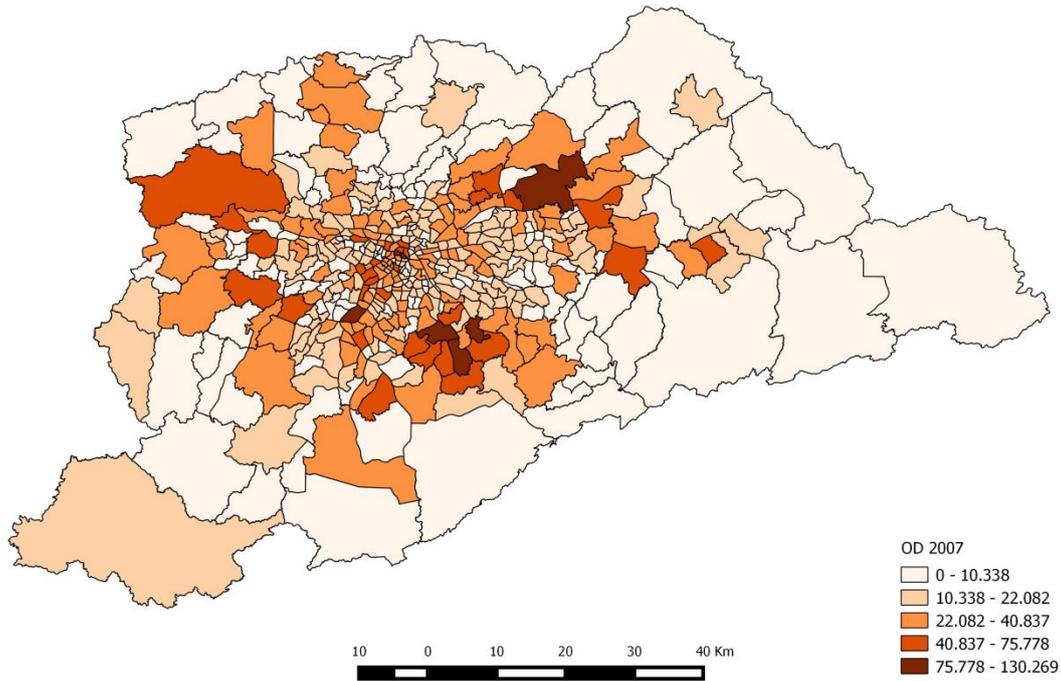
Source: Based on the 2010 Population Census (IBGE, 2012)

For Anselin (1992), the presence of spatial patterns for specific variables implies the evaluation of the spatial association and the systematic variation of the phenomenon by location. On the other hand, LeSage (1999:3) claims that “in a data sample there is spatial dependency when the observation of the local i depends on other observations located in $j \neq i$ ” so that:

$$y_i = f(y_j), \quad i = 1, \dots, n \quad j \neq i$$

It makes sense intuitively as the TAI is an index constructed from the declared journey time from home to work. Therefore, some locations in the Metropolitan Area of São Paulo (MASP) share the same commuting infrastructure and the same difficulties or facilities of access to the main locations where employment is concentrated. Employment is not evenly distributed in space but is rather concentrated in some areas, such as the expanded center of the municipality of São Paulo (the Greater São Paulo), the ABC Region, the Barueri region and whereabouts and the municipality of Guarulhos. This corroborates LaSage’s (1999:3-4) statement that “location and distance are important driving forces in human geography and the market mechanism.”

The concentration is even higher if we consider the index of employment rates per acre in the area of each Origin-Destination (OD) Zone. As depicted in Map 3, job density in the MASP is high only in the zones comprising the Greater São Paulo, the axis towards Avenue Av. Luís Carlos Berrini and Chácara Santo Antônio, Guarulhos and part of the ABC Region, evidencing the concentrated character of employment in the MASP.



Map 3. Total employment numbers per Origin-Destination Zone in 2007

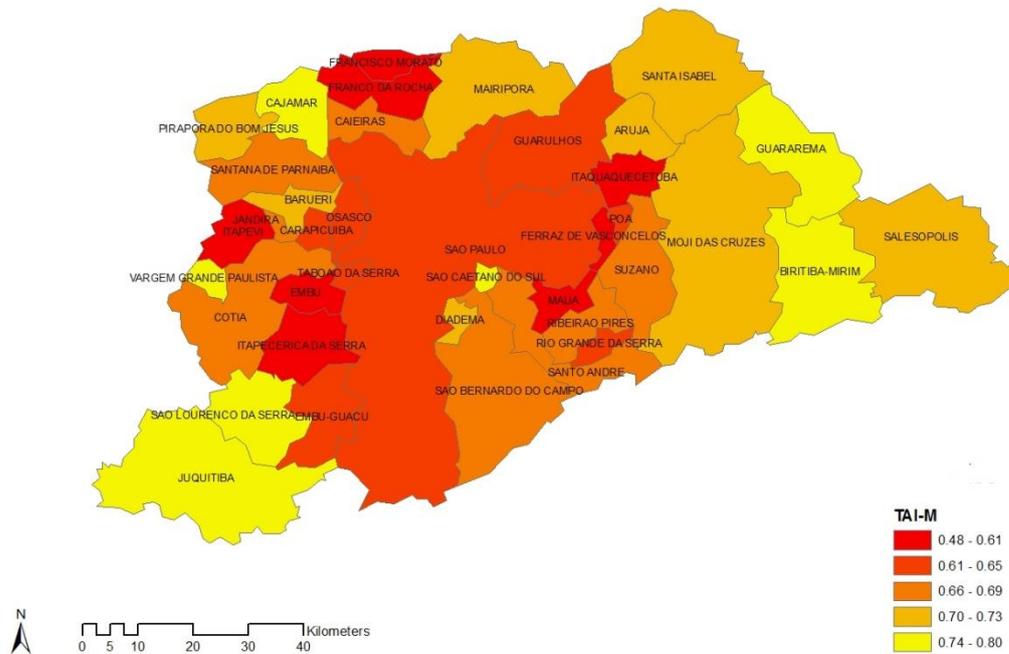
Source: Research of Origin-Destination (OD) of the São Paulo Metropolitan (2007)

Moran's I index applied to our data measured the TAI degree of spatial association among the 634 weighting areas in the Metropolitan Area of São Paulo. The result was 0.69 showing the significant presence of high TAI spatial autocorrelation per weighting area. Intuitively, it also makes sense since the accessibility of a given region is related to the accessibility to the neighboring areas by sharing the same infrastructure and the available means of transport. In order to calculate TAI per municipality (TAI-M):

$$(I_t) \equiv TAI_M = \sum_1^n \left(\frac{n}{N} \right) TAI_n$$

The average TAI-M for MASP is 0.67 and the standard deviation is 0.07, meaning little dispersion in the TAI-M values. The distribution has two ranges of values concentrated

in 21 out of 39 municipalities: the first one, varying from 0.60 and 0.67 right below the average), concentrates 14 municipalities and the second, around 0.75 (above average), includes 7 municipalities, as displayed in Map 5.



Map 5. Quintiles of distribution of the average TAI per municipality of MASP

Source: Based on Population Census 2010 (IBGE, 2012).

Despite the subjectivity inherent in an individual choice and all aspects related to it, the municipal average expressed by the TAI-M reflects the municipalities' patterns of accessibility in their residents' perspective, that is, how easy (or difficult) it is to commute from home to work daily. The result is the consequence of the process of the MASP socioeconomic development and occupation.

The empirical method Data Envelopment Analysis (DEA) was used to measure the degree of municipal transport efficiency and expenditure in the 2000s based on the TAI-M so as to build efficiency frontiers. Methodologies of efficiency frontier work on the notion of the production function, that is, the combinations of inputs and products, similar to a 'cake recipe': a number of ingredients that are combined to generate the final product. Thus, it is possible to compare combinations between resources (inputs) and achieved results (products) as far as municipal transport policies are concerned. The efficiency frontier

associates optimal combinations of product inputs, that is, cases of best practices in public resource management.

The database was drawn from the Finances of Brazil ('FINBRA') of the National Treasury Secretariat ('STN') and the declared transport expenditure of each MASP municipality from 2000 to 2010. These values were then adjusted to 2010 prices by the General Price Index (so-called 'IGP-DI') monetary restatement. As some municipalities did not present the budget execution to the STN, or else are zeroed out in the specific section, we computed the average expenditure for the decade and then divided it by the resident population in 2010 to get the average transport expenditure per capita for the decade in order to avoid comparing different numbers of municipalities and public budget. It is worth pointing out the high degree of variability and the nontrivial values for some municipalities: while the average is R\$46.40, the standard deviation is quite high, R\$39.51, as depicted in Figure 3.

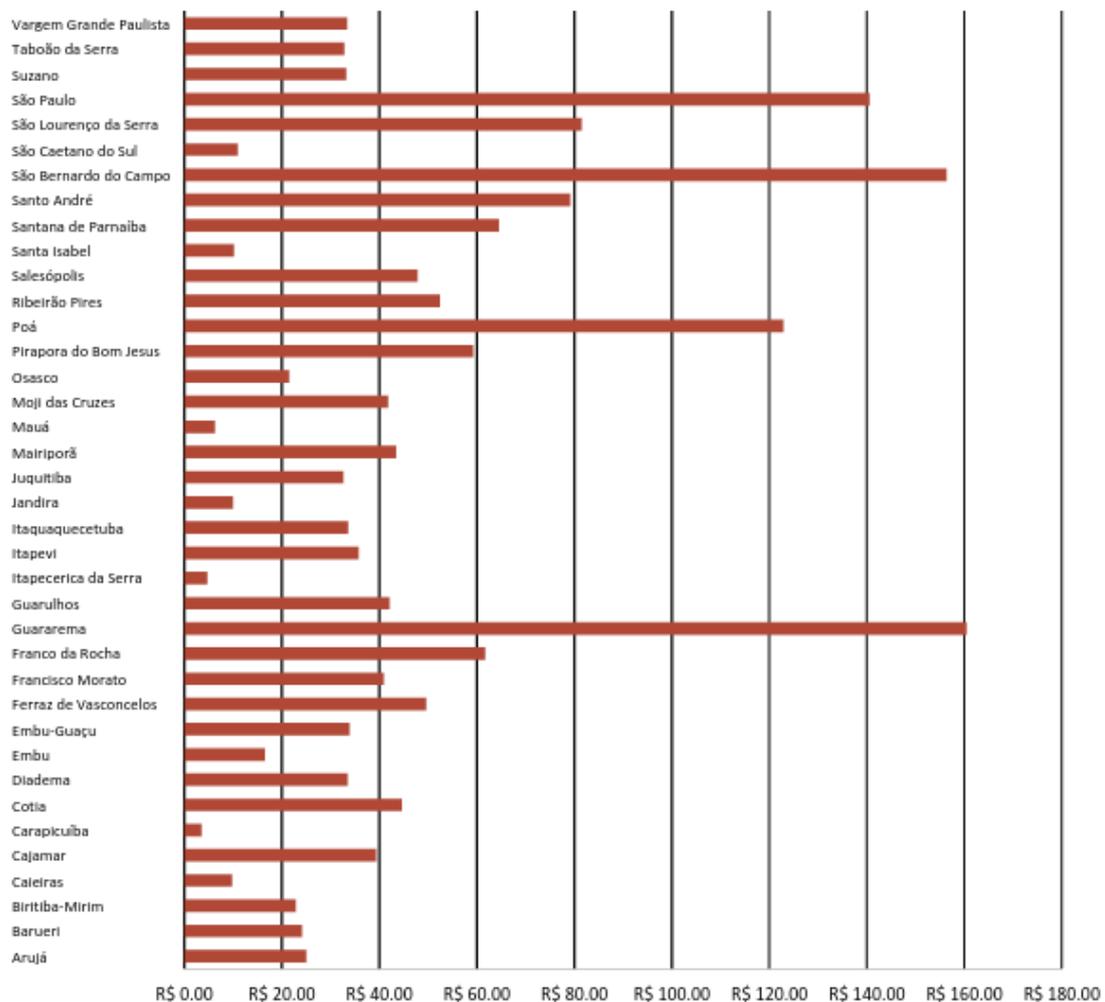
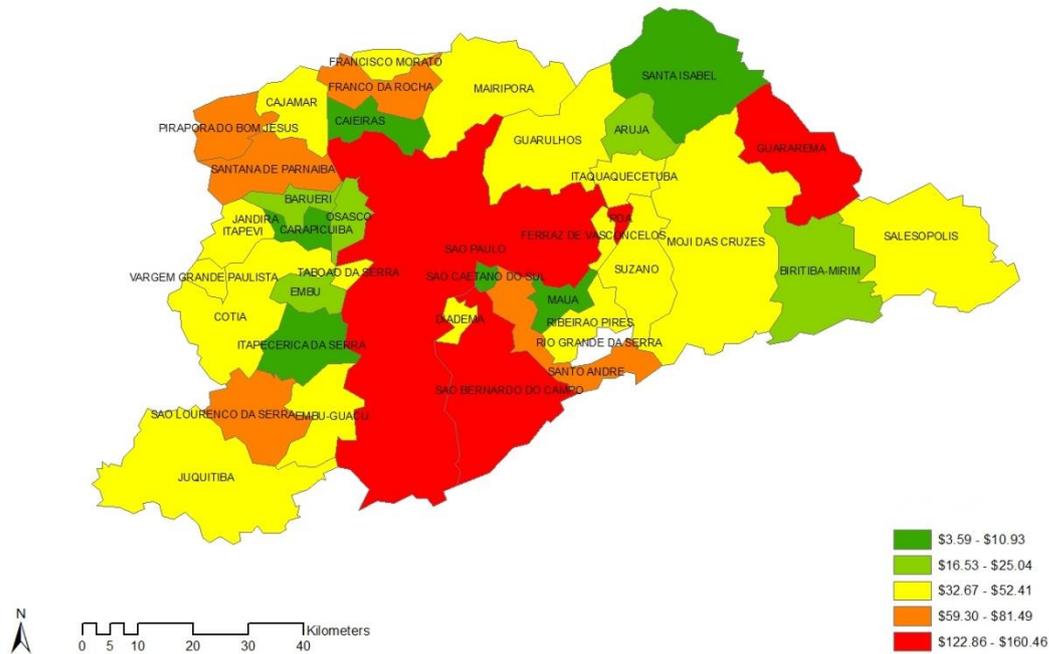


Figure 3. Average expenditure *per capita* on transport (2000-2010)
 Source: Based on Finances of Brazil (FINBRA)/ National Treasury Secretariat (STN)

With the STN official data, it is not possible to find out the reason for such discrepancies or to make a clear statement about the quality of public expenditure on municipal transport. Unfortunately, there is no harmonization on classification criteria and accounting entries among the municipalities. While some of them, for example, classify expenditure on school transport in the urban transport section, others classify it as education expenses. There is no way to know exactly what each municipality does without investigating public accounts individually, which is beyond the scope of this research. But as far as the geographical pattern is concerned, it seems reasonable to make a generalization: São Paulo and most of its adjacent neighbors have higher quintiles of average expenditure *per capita* on transport, as displayed in Map 8.



Map 5. Quintiles of the real average expenditure per capita on the transport dimension (2000-2010)

Source: Based on Finances of Brazil (FINBRA)/ National Treasury Secretariat (STN)

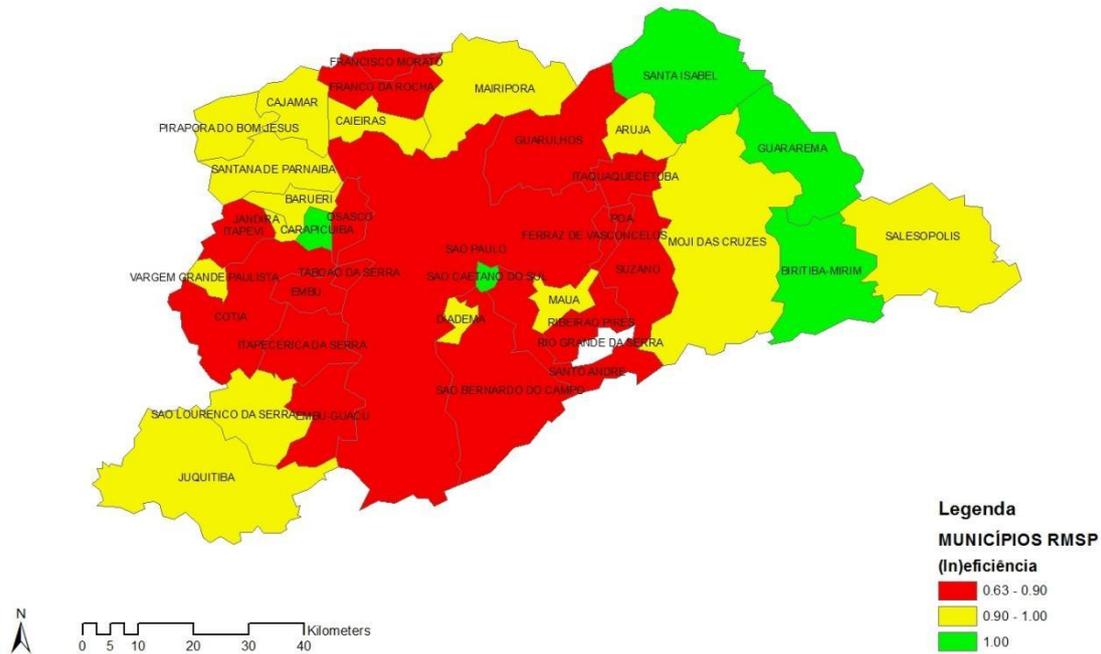
Although the linear and direct correlation between real average expenditure *per capita* and accessibility, the TAI-M index is positive (0.17) but small. We claim that there is a production function wherein the municipal resources spent on transport result in different standards of transport services expressed in the TAI-M. The DEA methodology enables this type of association. However, being efficient does not mean it is the best possible standard of service (it is neither efficacy nor effectiveness), but it is simply a relation between the results measured by the TAI-M and the used inputs, that is, the allocated public resources. If few resources are applied to transport and the standard of service is low, a low TAI-M is expected and this would be as efficient as a municipality which uses many resources on transport with a high standard of service expressed in a high TAI-M. Inefficiency occurs when expenditure is relatively high so as to result in a low standard of service. Moreover, the DEA methodology provides relative efficiency, that is, among the analyzed DMUs, it is not absolute efficiency.

One of the limitations of the original Data Envelopment Analysis is that the assumed production function has constant returns to scale. Charnes, Cooper and Rodes (1987) assume constant returns to scale and all Decision Making Units (DMUs) in an optimal

operation scale. However, this claim is incompatible with several economic activities and even for the state, which provides public good, it is little convincing. That is why Banker, Charnes and Cooper (1984) reject the assumption of constant return to scale in favor of variable returns to scale so that the DMUs do not need to operate in optimal scale, which is the most usual case due to constraints in either the input or the product. In particular, the transport area has expenditure related to subsidies and payment of the collective system (mainly buses), and investments in mobility infrastructure. As there are high chances of economies or diseconomies of scale, a function which exhibits variable returns to scale should be used.

As municipalities suffer from financial restrictions, we used the Banker, Charnes and Cooper's (1984) product-oriented DEA model – the BCC (Banker, Charnes and Cooper) – with focus on the (in)efficiency of the generated product given a level of used inputs – , since product orientations is more adequate to analyze the efficiency of accessibility from the resources spent by the municipalities in the transport function.

Although the findings point out that only five municipalities are efficient of 34 inefficient ones, there are distinct levels of inefficiency, as shown in Figure 4.



**Map 6. Score efficiency of municipal expenditure on transport accessibility
 (the BBC product-oriented model)**

Source: Based on the 2010 Population Census (IBGE, 2010) and Finances of Brazil (FINBRA)/ National Treasury Secretariat (STN)

The municipalities located farther from the nucleus of the MASP with more significant agricultural activities belong to the group of low degree efficiency, as seen in Map 9. On the other hand, São Paulo and adjacent neighboring municipalities, particularly the dormitory towns, have a higher degree of inefficiency. When comparing Map 9 and Map 6, we can notice that they have something in common: a great deal of the municipalities which worsened position in quality of life ranking due to the incorporation of the mobility dimension are the ones with higher degree of inefficiency (range between 0.63 and 0,9).

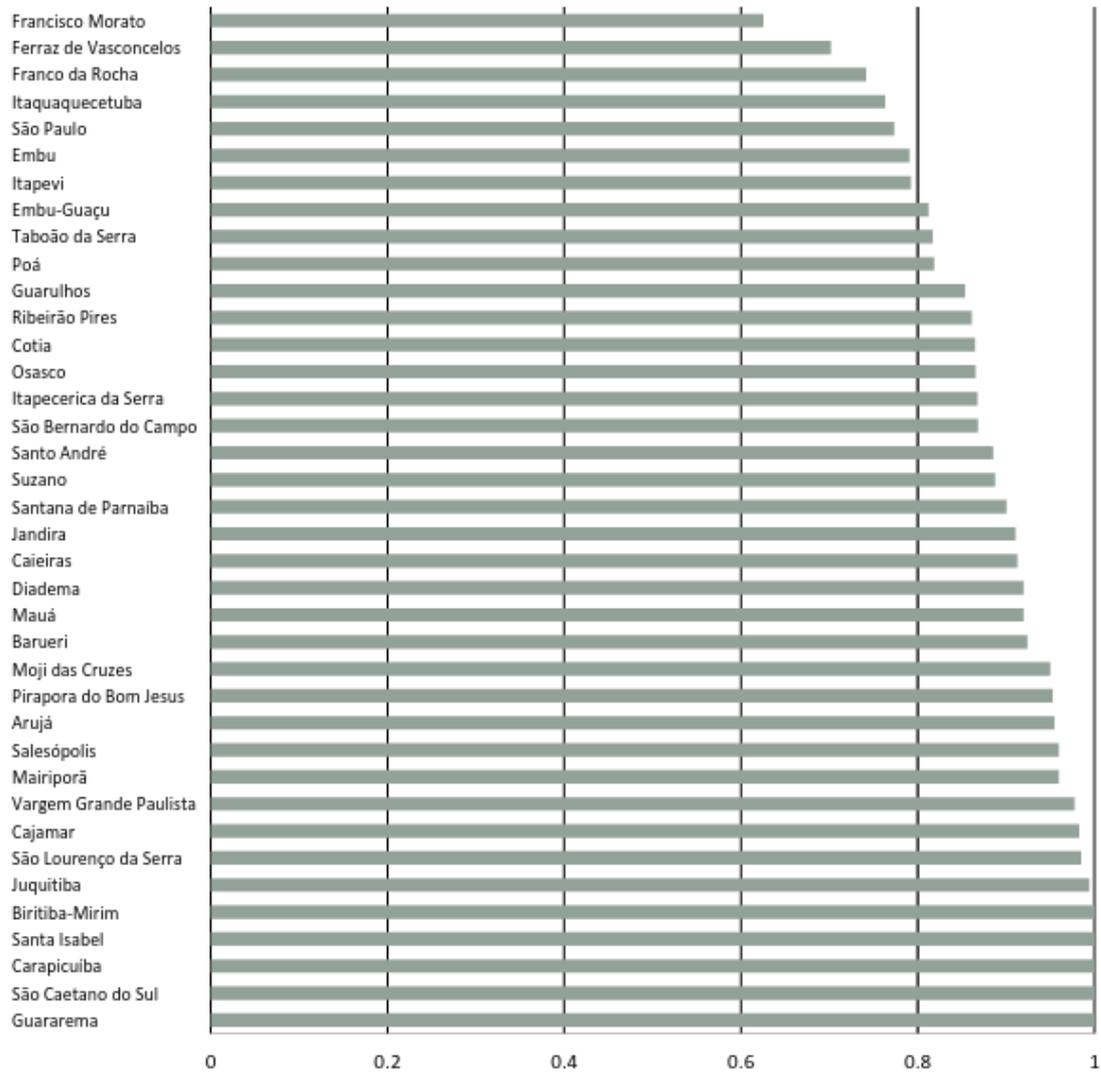


Figure 4. Efficiency score of municipal expenditure on the transport dimension

Source: Based on the 2010 Population Census (IBGE, 2010) and Finances of Brazil (FINBRA)/ National Treasury Secretariat (STN)

Let us assume that the difference between the efficiency score (equals 1) and the score of the respective municipality can be interpreted as a measurement of relative effort. Then, the municipalities (particularly Francisco Morato) have to make an effort to be efficient, which does not necessarily mean spending more public resources but rather spending better. Although this instinctive advantage of the DEA analysis, it has some limitations. Since the results depend on the type of data used and there are also problems with the data on municipal public finances provided by the STN, the monitoring and evaluation of public policies tend to become more complex.

To conclude, it is worth mentioning the issue on the metropolitan system. By way of example, the municipalities of Francisco Morato and Franco da Rocha are known to have a low degree of TAI-M accessibility index. Nevertheless, even if there is a great positive change in their municipal transport management, it will be limited: they are ‘dormitory towns’ most of their population commutes daily using the São Paulo Commuter Rail Metropolitan Company (CRMC) to work in São Paulo. Mobility and accessibility in these municipalities also depend on state level decisions and policies on metropolitan trains, that is, inter-federative relations.

3 – Metropolitan Area of Sao Paulo

The union, the states, and the municipalities are Brazilian federal unit members. Each one is autonomous in their responsibilities. The harmony of the Federative Republic is not only this sharing of responsibilities but integrated actions and cooperation among confederate entities. The articulation between various levels of public power and social actors can be called governance. Being harmonious and in line with citizens interests, it is good governance. That is when the public authority exercises its functions to manage social and economic resources, articulating democratically. In Brazil, municipalities are considered federal entities by the Constitution of 1988, so they have autonomy and are accountable for manage many social problems. Sometimes, indeed, they must deal with issues that often go beyond their political capacity of action. There are countless examples of public policies that transcend municipal action, such as solid waste treatment, air quality, public health, public transport and public policies for urban mobility. Brazilian federalism configuration requires joint public action of municipalities, States and the Union.

MASP municipalities are quite diverse in their size, geographical dimensions, social, juridical, and economic characteristics. According to Spink, Teixeira, and Clemente (2009) Brazilian 1988 Constitution built a federal structure which did not take these factors into account. Thus, in the legal infrastructure conceived small and major cities basic organization are identical. In this sense, one first governance challenge is the need to plan and implement public policies for the problems emerging from this juxtaposition of municipal logics. From the political sociology of public action, the institutional interactions between federal levels units and their interconnections inside MASP transport policies shape the sectorial-global relationship in governance. If the sectoral part

is public transit policies, the global can represent here by all other public policies implemented by MASP municipalities. However, there is another dimension in the global part; the governance one. So, the global is also represented by all other public transit action outside each municipality.

3.1 – MASP historical landmarks

The firsts Brazilian metropolitan regions were conceived by complementary Law No. 14 of 1973 during the military Regime (1964-1985). This law was a response from the federal government to the problems already existing in the large urban agglomerations in Brasil. And it was also an attempt to regulate and rationalize urban territory occupation. This public action reflects legitimation and regulation concerns, which are one base of all public policies (JOBERT and MULLER, 1987). Urban and industrialization processes were not the results of some State's action. Rather it is up to the public power, by instruments that are their own, to act in an attempt to solve metropolitan problems resulting from these processes. It was according to this political logic that the following metropolitan regions were created in 1973: São Paulo, Belo Horizonte, Porto Alegre, Recife, Salvador, Curitiba, Belém, and Fortaleza. According to Ronik and Somekh (2002), although the creation of these regions has responded to older aspirations, it was made according to an authoritarian logic, and it did not grant the so needed autonomy to metropolitan areas face their inherent problems. The metropolitan organization conceived had a rigid structure based on regional state executive powers and not in municipal public authorities. His deliberative councils were composed of members appointed by regional state executive powers which were, by their turn, nominated by federal executive power. According to the authors, the advisory board, a place of representation of the municipalities did not have any decision-making power.

Demands for democratization and economic crisis in the 1980s put on evidence the mismatch of this governance model. Democratization put on scene new social actors and increased demands for new channels of municipal participation. Brazilian 1988 Constitution defined a new legal structure regarding metropolitan regions, which are regulated by state laws as an integral part of their public policies. According to Spink,

Teixeira, and Clemente (2009) this change did not translate into more democratic forms of management since decisions were still impositive. Ronik and Somekh (2002) emphasize that the legal structure did not see metropolitan governance as a priority. And, this law was made in a context of political decentralization, which was seen as a way to get efficiency in public power. In this context, the government should be to build governance through the instruments of inter-municipal consortia and subnational cooperation to avoid what the authors call "municipal Hobbesianism" (MELO, 1996).

"Municipal Hobbesianism" refers to "state of nature" concept, created by English philosopher Thomas Hobbes in his book "The Leviathan" (2017). The term "municipal Hobbesianism" could describe, in metaphorical, a specific relation between federate entities in MASP. Political conflicts between the municipalities in this situation are the expression of the absence of a metropolitan political power that establishes clear rules of cooperation and political coexistence. Existing governance mechanisms do not seem effective in the construction of municipal agreement.

Efficient public governance depends on a complicated balance between policy and politics inside the 39 constituent municipalities in MASP. Each city presents diferentes power dynamics. Rival groups and political parties have a little degree of cooperation in conducting local public policies, it is possible to perceive the conflicts that occur between the municipal authorities within the metropolitan region. Moreover, as cities have unequal political forces, governance practices rely on a complicated compromise between different and conflicting political units.

Governance on public transport policies (mobility and accessibility) must have actions involving access road standardization, common regulations for vehicles, complementary itineraries between buses, trains and common tariffs and common environmental policies. However, municipal authorities actions seem to indicate the opposite direction in their public policies that transport. Local authorities are concerned about policies within their administrative territory because they act within the local power logic dispute. Building governance means having the ability to overcome this restricted policy logic. It means overcoming the municipal "Hobbesianism", or the referential according to the political sociology of public action. It is the legal and political paradigm established and from which actors interact and build their expectations. Besides, the referential is also an image

or representation of the system to be regulated by public actions. MASP political dynamics is represented by images of the competition and, sometimes, cooperation.

Brazilian states, according to the 1988 Constitution, should regulate their regional units and metropolitan areas. In 1994, São Paulo state government elaborated on the second Metropolitan development. In 2011, EMPLASA - São Paulo Metropolitan Planning Company - rearranged MASP political structure by supplementary state law 1.139. MASP was divided into five sub-regions, and the following governance institutions were created (IPEA 2013): A Development Council, an Advisory Board, and special Thematic chambers.

The Development Council consists of representatives from municipalities, the state (in public functions areas of common interest – FPIC) and state legislative representatives (two members) and he should deliberate on policy projects of common interest to MASP members. The Council can also create thematic chambers for issues of collective interest and specific projects. The Advisory Board is present in each of the sub-regions and can present suggestions and projects on public policies. State Government, in turn, can create, if necessary, regional autarchy that would be responsible to plan and execute common public policies if necessary. He and can also create a development fund for the region. The executive secretariat of the Development Council is represented by EMPLASA.

Table 5 – MASP Sub-regions

SUB-Region	Municipalities
North	Caieiras, Cajamar, Francisco Morato, Franco da Rocha e Mairiporã.
East	Arujá, Biritiga-Mirim, Ferraz de Vasconcelos, Guararema, Guarulhos, Itaquaquecetuba, Mogi das Cruzes, Poá, Salesópolis, Santa Isabel e Suzano.
Southeast	Diadema, Mauá, Ribeirão Pires, Rio Grande da Serra, Santo André, São Bernardo do Campo e São Caetano do Sul
Southwest	Cotia, Embu, Embu-Guaçu, Itapeverica da Serra, Juquitiba, São Lourenço da Serra, Taboão da Serra e Vargem Grande Paulista
West	Barueri, Carapicuíba, Itapevi, Jandira, Osasco, Pirapora do Bom Jesus e Santana do Parnaíba

Source: IPEA (2013)

Regarding the Union participation, on January 12 of 2015, the law 13.089 establishing the statute of the Metropolis was sanctioned by the President of the Republic. It divided into six chapters the law establishes general guidelines for the planning and management of metropolitan regions instituted by the States. Concerning federative governance, the following principles are established:

- Prevalence of common interest
- Sharing of responsibilities
- Observance of the Peculiarities
- Democratic management of municipalities
- Effectivities in the use of public resources
- Search for sustained development.

It also establishes the following guidelines:

- Establishment of a permanent and shared process of planning and decision-making.
- Shared means of an administrative organization
- Interlinked system of resource allocation and accountability
- Joint implementation of public policies of common interest
- civil society participation
- Compatibilization of multi-annual plans and compensations
- Elements for the integrated development of the regions.

As for the Union, its role is to support federal states initiatives in the field of inter-federative governance. The statute of the Metropolis complements the LAW 10,257, which instituted the Statute of the city that established norms to regulate the use of urban territory for the benefit of its citizens.

It is noteworthy that the law sanctioned by the Presidency of the Republic vetoed the article that established the FNDUI – National Fund for Integrated Urban Development. The FNDUI had the aim to capture financial resources to support and develop the actions of governance in the areas Metropolitan. This Fund could receive contributions from individuals, corporations, and national and international cooperation agencies (CAU/SC, 2015). In this way, the presidential veto not only deprived the metropolitan regions of primordial investment funds for their development, but it also hinted their possibility of decentralized international cooperation with other subnational units. Decentralized

cooperation appeared as a new form of governance, stimulating the relations of international cooperation between subnational units and States and international Organizations (FRONZAGLIA, 2005, 2014).

At the beginning of the 2018 federal government edited provisional measure 818 which established the obligation of metropolitan regions to develop integrated urban development plans – PDUIs. In addition to that Metropolis Statute presents some important institutional novelties as the OUCIs - urban integrated consortium operation (SANTOS, 2018). That is a new institutional reference organization that aims to promote more integrated action among metropolitan constituents unites. However, Metropolis Statute does not solve central problems in metropolitan governance. According to Peres, Adriano, Seraphim, and Olaquiaga (2018) the law does not conceive a definite territory and space definition and does not recognize the existence of inherent interest conflicts and power struggles between distinctive political actors. Because conflict resolution continues to be placed in a grey area in metropolitan governance.

3.2 Interfederative governance and public transport policies: examples of cooperation and conflict

If the instruments of effective inter-federative governance are available in a legal structure (even an incomplete one) there must be the translation from legislation to public practices and actions that can harmonize their interests and conflicts. If each municipality follows its own public transport policy without considering one another policies the result cannot be considered as an example of good practices of Governance.

During Marta Suplicy mandate as São Paulo mayor (2001-2004) the "single ticket" public policy was implemented as part of what would be a new model of the public transport system. The "single ticket" guarantees bus users the possibility of using more than one vehicle in the same displacement paying a single ticket. According to Bonduki (2011), this action was part of the strategic master Plan of the city of São Paulo, adopted in 2003. The structuring idea was to rearrange the transport system from the subway articulation, metropolitan trains, corridors and exclusive lanes for buses and smaller capacity vehicles. This articulation would be ensured with the implementation of the "single ticket".

Ronik and Klintowitz (2011) saw it as the expression of a greater rationalization of the transportation system of the capital of São Paulo and defended that it would reduce the pressure on the tariffs then practiced. The Transfers, prior to the implementation of the single ticket through the use of the magnetic card, were only performed at bus terminals and there was a charge for each bus used. This public policy implementation brought the need for renovation and renewal of the city's fleet of collective vehicles, the adequacy of the existing terminals as well as the installation of electronic turnstiles that validated the single ticket (HIGA, 2012). To implement single ticket policy cooperation from the state government was needed, but it was only in 2005 that the so needed measures were taken under a different mayor mandate, José Serra (2005-2008). Only after that single ticket policy was implemented through metro lines, urban trains and municipal buses integration.

Governance challenges in public transit policies in MASP are evident in this single example. The public policy launched by the then PT government did not articulate with the policies of the other municipalities constituting the metropolitan region and only managed to articulate with government state policies from the moment the prefecture and the government of state were in the hands of the same political party, the PSDB. According to Cruz (2010), having the same political party ruling the Government of State of São Paulo and the government of the municipality of São Paulo facilitated institutional articulation to adopt single-ticket policy in a collective transport network involving buses, Metro and urban trains. The single-ticket policy was not new in public transit policy (it has already being implemented in cities such as London and Paris) it was part of official São Paulo state government's plans. However, the single-ticket transit policy was just initiated because of an action of the São Paulo City Government.

Conclusions remarks

In this paper, we analyzed governance challenges in MASP. We first presented the theoretical approach based on the political sociology of public action. Secondly, a diagnosis was presented. The research made use of the benefits of a simple procedure, the Data Envelopment Analysis (DEA) to describe municipal expenditure on public transport and the Transport Accessibility Index for Municipalities (TAI-M) which, despite its

limitations, contributed to shed light on measuring the results of fostering municipal transport policies.

Classified as ‘municipal expenditure with the transport function,’ it is not always easy to evaluate since there is a lack of harmonization of public account between the municipalities of the same metropolitan area and the other Brazilian municipalities.

We may also add that the formal institutionalization of the Metropolitan Area of São Paulo is quite recent. As long as forty years ago, the metropolis was the municipality of São Paulo which used to rule transport policies affecting all its regions. Nowadays, there is a disproportionate weight on transport policies inside MASP with impacts beyond its borders. As far as the size of the municipalities is concerned, further studies may investigate if this imbalance results in a significant difference between tax revenue and expenditure per capita in detriment to municipalities with less tax revenue per inhabitant, and the determinants of the differences between bus fares among the municipalities as well.

Still, even with the existence of new institutional instruments can enable harmonious governance in the metropolitan regions, common transit public policy are not the most common practice is MASP. We argue that one of the most crucial metropolitan governance challenges is the absence of an autonomous metropolitan government institution. There is no MASP autonomous government. There are MASP governance institutional tools that are not able to solve transit public problems or to articulate common actions in this área. MASP transit policies depend on a fragile balance of governance Inter-federative cooperation.

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