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COMPETIÇÃO E COOPERAÇÃO NA CENA URBANA: SEGREGAÇÃO RACIAL NA REGIÃO METROPOLITANA DE SÃO PAULO

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Resumo: O estudo examina a atual segregação socioespacial na região metropolitana de São Paulo. Usando ferramentas quantitativas como Summary Statistics, Location Quotient (LQ), Global Moran's I, Local Indicators of Spatial Association (LISA) e agrupamento K-Means na escala municipal, ele revela como os limites entre grupos raciais são moldados por condições históricas, políticas, sociais, culturais e econômicas. Os resultados indicam padrões espaciais distintos. Enquanto as populações indígenas estão concentradas em áreas rurais e semi-rurais, as populações pretas e pardas apresentam níveis moderados a altos de agrupamento nos municípios vizinhos, relacionados à segregação histórica e à desigualdade sistêmica. Além disso, as populações amarela e especialmente as brancas estão mais integradas em áreas economicamente desenvolvidas. A análise também destaca a inter-relação de fatores socioeconômicos. As descobertas contribuem para a compreensão atual de como a dinâmica social molda o acesso dos grupos raciais a recursos e oportunidades potenciais.
Palavras-chave: Competição social. Cooperação social. Identidade social. Segregação socioespacial. Grande São Paulo

COMPETITION AND COOPERATION ON THE URBAN SCENE: RACIAL SEGREGATION IN METROPOLITAN SÃO PAULO

Abstract: The study examines the current sociospatial segregation in Metropolitan São Paulo. Using quantitative tools such as the Summary Statistics, Location Quotient (LQ), Global Moran's I, Local Indicators of Spatial Association (LISA) and K-Means clustering at the municipality scale, it reveals how the boundaries between racial groups are shaped by historical, political, social, cultural and economic conditions. The results indicate distinct spatial patterns. While the indigenous populations are concentrated in rural and semi-rural areas, the black and brown populations show moderate to high levels of clustering in the surrounding municipalities, related to historical segregation and systemic inequality. In addition, the yellow and especially the white populations are more integrated in economically developed areas. The analysis also highlights the interrelationship of socioeconomic factors. The findings

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contribute to the current understanding of how social dynamics shape racial groups' access to resources and potential opportunities.
Keywords: Social competition. Social cooperation. Social identity. Socio-spatial segregation. Metropolitan São Paulo

COMPETENCIA Y COOPERACIÓN EN LA ESCENA URBANA: SEGREGACIÓN RACIAL EN EL METROPOLITANO DE SÃO PAULO

Resumen: El estudio examina la segregación socioespacial actual en el área metropolitana de São Paulo. Mediante el uso de herramientas cuantitativas como las Estadísticas de Resumen, el Cociente de Localización (LQ), el Índice de Moran Global, los Indicadores Locales de Asociación Espacial (LISA) y la agrupación K-Means a escala municipal, se revela cómo las fronteras entre los grupos raciales están determinadas por las condiciones históricas, políticas, sociales, culturales y económicas. Los resultados indican patrones espaciales distintos. Mientras que las poblaciones indígenas se concentran en áreas rurales y semirrurales, las poblaciones negras y pardas muestran niveles moderados a altos de agrupación en los municipios circundantes, relacionados con la segregación histórica y la desigualdad sistémica. Además, las poblaciones amarillas y especialmente las blancas están más integradas en áreas económicamente desarrolladas. El análisis también destaca la interrelación de factores socioeconómicos. Los hallazgos contribuyen a la comprensión actual de cómo la dinámica social determina el acceso de los grupos raciales a los recursos y las oportunidades potenciales.
Palabras-clave: Competición social. Cooperación social. Identidad social. Segregación socioespacial. Área metropolitana de São Paulo

INTRODUÇÃO

Cities are not only physical arrangements but also social structures defined by power relations, historical processes and identity constructions. Thus, the socio-spatial segregation is the outcome of economic, political, social and cultural dynamics (BOURDIEU, 1986; LEFEBVRE, 1991; QUIJANO, 2000). Within these social structures, in addition to material gains such as the acquisition of urban resources, abstract gains such as identity and social acceptance lead to the emergence of competition and cooperation strategies among individuals and social groups. In this process, in addition to many identity elements, racial identities may become determining factors in the amount of urban resources acquired and in the struggle to find a place in physical space. As a result, social competition and cooperation shape power struggles and resource sharing among individuals and groups, while also playing an important role in the production of segregated spaces as an outcome (TAJFEL; TURNER, 1979; TURNER et al., 1987).

Henri Lefebvre's theory of the social production of space provides a framework for understanding this issue. The theory emphasizes the partiality and dynamism of urban spaces by distinguishing between perceived space, designed space and lived space. Thus, urban space is constantly reproduced through social interactions, power struggles and ideological practices. As a result, discrimination appears as a dynamic process rather than a fixed outcome (LEFEBVRE, 1991). Edward Soja, drawing on Lefebvre, connects the mental and social dimensions of space with the concept of the third space and emphasizes the importance of spatial justice in addressing inequalities (SOJA, 2000). On the other hand, Pierre Bourdieu explains the mechanisms of socio-spatial segregation through the concepts of habitus and capital, where cultural capital maintains access to privileged urban spaces and excludes disadvantaged groups (BOURDIEU, 1986; BOURDIEU, 1990). Loic Wacquant completes this perspective by examining spatial exclusion and stigma, showing how urban spaces are used as mechanisms of social exclusion and control (WACQUANT, 2008).

From an anti-colonialist perspective, Aníbal Quijano's concept of coloniality (QUIJANO, 2000) and Silvia Rivera Cusicanqui's ch'ixi metaphor (CUSICANQUI, 2012) highlight the enduring legacy of colonial hierarchies and the conflict between indigenous and marginalized groups. Walter Mignolo and Boaventura de Sousa Santos also expand the epistemic dimension by criticizing the dominance of Western-centric knowledge systems that perpetuate inequalities (MIGNOLO, 2011; SANTOS, 2014). In addition, Frantz Fanon underlines the psychological dimension by showing how colonial systems impose new identities that reinforce urban racial and cultural hierarchies (FANON, 1961). Focusing on racism, George Lipsitz explains how urban planning practices institutionalizes discrimination through exclusionary practices (LIPSITZ, 2006).

Furthermore, David Harvey and Saskia Sassen offer insights into the capitalist and globalized nature of urban segregation. They explain, on the one hand, segregation is associated with class inequalities and collective consumption (HARVEY, 2009), while on the other hand, global forces reshape urban areas and intensify socio-spatial divisions (SASSEN, 2001). When these theories are combined, it is understood that urban segregation is not simply the result of local factors, but a complex and dynamic product of intersecting global, historical and social processes.

It should be emphasized that social identities, which emerge depending on context, individual perceptions and group dynamics, are not fixed. Rapid and abundant social interactions and complex spatial arrangements accelerate this dynamism (TAJFEL; TURNER, 1979; TURNER et al., 1987). Considerable difficulties will be encountered when the issue is addressed on an urban scale due to its dynamic and multifaceted nature. However, the dynamics of social competition and cooperation provide an important perspective for understanding human behavior in urban environments.

Metropolitan São Paulo, with its colonial legacy, social structures founded on this legacy, and rapidly growing population due to local as well as global influences, is a suitable example for addressing the relationships between social groups shaped by different dominant identity elements, together with the historical and structural mechanisms that determine these relationships. Its current situation has been shaped by intense capitalist and global expansion processes on the one hand, and by segregationist policies that reinforce racial and class hierarchies on a spatial level on the other. Thus, it is important in terms of showing how the results of relations between social groups are embodied in space.

This study analyzes the spatial distribution of the racial categories defined by the Brazilian Institute of Geography and Statistics (IBGE) such as indigenous, black, brown, yellow and white population groups. The study examines the settlement patterns of these groups within the framework of social competition and cooperation dynamics and aims to present the current results in light of the causes of socio-spatial segregation in the process. For this purpose, quantitative spatial analysis methods such as Summary Statistics, Location Quotient (LQ), Global Moran's I, Local Indicators for Spatial Association (LISA) and K-Means (K-Means) clustering are used to determine spatial differentiation and clustering trends. In addition, these analyses are supported by demographic and socio-economic data, presenting the multidimensional structure of urban inequalities.

LITERATURE REVIEW

From a sociopsychological perspective, as a result of interactions between competition and cooperation, individuals often group around common identity values such as ethnic and racial origin, religious belief, and socioeconomic status. Social Identity Theory (TAJFEL; TURNER, 1979) and Self-Categorization Theory (TURNER et al., 1987) offer frameworks to understand the formation and dynamics of these social groups. The theories, propose that individuals derive their sense of self from their membership in specific social groups. In return, groups determine the behavior of individuals, their interactions with each other and their social positions.

According to Social Identity Theory, group membership provides individuals with a sense of belonging and identity. This situation affects both intra-group and inter-group relations. Identity formation, a dynamic process, leads individuals to constantly compare their own groups with other groups. This comparison shapes individuals' attitudes towards competition and cooperation in line with the group advantages and disadvantages they perceive. In addition, Self-Categorization Theory elaborates on this process by emphasizing the cognitive mechanisms. According to these mechanisms, individuals place others as well as themselves into categories. This categorization influences their behavior in ways that support the interests of their in-group. This reinforces divisions between groups because individuals tend to serve their collective identities. This can lead to social consequences such as prejudice, discrimination, and, in the extreme, dehumanization (TAJFEL AND TURNER, 1979; HASLAM, 2006). The process of dehumanization occurs when other groups' members are viewed as morally or cognitively deficient, inferior, or threatening. Moreover, outgroup members are viewed as inhumane and are therefore unable to demand the resources they deserve. This can also lead to conflict (HASLAM, 2006).

From a sociological perspective, Henri Lefebvre's findings on the social production of space also touch on these features of the urban segregation phenomenon. These findings include the distinction between perceived space (physical environment), designed space (space planned by authorities) and lived space (space of daily experiences and resistance). In this context, space is not neutral. There is a continuous production through social interactions, power struggles and ideological practices. Class and social inequalities are reinforced in the production process, and space hosts resistance and cooperation practices. In this context, space is a dynamic

structure with both product and producer characteristics (LEFEBVRE, 1991). According to this framework, while space prepares the ground for the struggle to gain more advantage among social groups, it also offers the opportunity to develop strategies to combat these inequalities through solidarity.

Based on this, Edward Soja defines the third space, where physical, mental and social spaces are interconnected. According to the concept, segregation is a product of imagined and lived experiences beyond material reality. The concept of spatial justice also put forward by Soja addresses the unequal distribution of resources and opportunities. His work is important in understanding how racial identities are constructed through space. He suggests that marginalized communities can achieve gains in urban space through collective actions and alternative imaginations. In this context, these communities can develop new spatial and social imaginations against inequalities through collective actions and solidarity practices (SOJA, 2000). In other words, the potential of cooperation to balance social competition is emphasized.

Pierre Bourdieu's concepts of habitus and capital also focus on the economic, social and cultural roots of the issue. Habitus (BOURDIEU, 1990) refers to the ways individuals think, feel and act, shaped by their social positions and past experiences. The concept of cultural capital (BOURDIEU, 1986) explains the critical role that education, language, art and cultural practices play in maintaining and reproducing differences between classes. This form of capital, which allows individuals to gain advantage, also deepens spatial segregation. Because cultural capital improves the mobilization of individuals within social hierarchies and provides access to more spatial opportunities. Thus, space emerges as an area where social segregation and struggles become concrete.

Loic Wacquant's concepts of urban marginality and spatial stigma, which focus on the experiences of marginalized communities, complement Bourdieu's ideas. According to these concepts, spatial segregation is a mechanism of social control and exclusion beyond economic inequalities. Marginalized neighborhoods are stigmatized with negative connotations that reinforce isolation. In this way, cycles of poverty are perpetuated. Thus, by emphasizing the symbolic and material dimensions of segregation, it is seen how racial identities are intertwined with spatial stigmatization. As a result, stigmatized spaces are tools that serve to push marginalized communities

into disadvantaged positions. At the same time, stigmatized spaces push these communities to develop solidarity practices (WACQUANT, 2008). Thus, the interaction of social competition and cooperation dynamics in the spatial context is revealed again.

Among the contributions specific to the southern sphere, Aníbal Quijano's concept of coloniality provides a better understanding of the Latin American context. According to concept, modernity is a historical context in which race is a fundamental element of hierarchy, beyond the process of progress and development that is a claim of the northern sphere's perspective. The economic, cultural and social structures that are the legacy of the colonial period also form the basis of today's social inequalities. This legacy has also left deep effects on spatial segregation processes. Thus, colonialism is a form of domination that is shaped on the axis of race, identity and culture, beyond economic exploitation. The structure it causes is constantly reproduced through today's cities (QUIJANO, 2000). Silvia Rivera Cusicanqui's decolonial perspective, in addition, addresses the issue at the center of indigenous knowledge and resistance. Cusicanqui defines urban spaces as areas of conflict with the concept of ch'ixi, which expresses the coexistence of opposites. The concept emphasizes the resistance that indigenous and marginalized communities demonstrate against dominant spatial logic in order to preserve their cultural identities in the context of segregation (CUSICANQUI, 2012). Thus, Quijano and Cusicanqui's decolonial theories address the historical and epistemic dimensions of social competition. Colonialism is an expression of the social competition between individuals and groups throughout history, as well as an expression of alternative cooperation possibilities against dominant knowledge and spatial systems.

In parallel, Walter Mignolo and Boaventura de Sousa Santos also emphasize the importance of knowledge production and systems in social dynamics (MIGNOLO, 2011; SANTOS, 2014). Mignolo's concept of epistemic segregation explains the global dominance of colonial knowledge systems and how they marginalize local alternative forms of knowledge production. Western-centered epistemologies have shaped social order as well as norms of knowledge production. Forms of knowledge outside the West have been marginalized by being excluded, devalued, and labeled as false. In this way, social structures, value systems, and power dynamics have also been

transformed. This separation in knowledge production also ensures the continuity of existing inequalities. Santos supports this discussion with the concept of invisible knowledge. Western-centered epistemologies systematically render other forms of knowledge invisible. Thus, the questioning of the value of these forms of knowledge is prevented. According to both philosophers, local and alternative knowledge systems are a powerful tool against the system that produces existing inequalities. At this point, the decisive effect of the control of information on inter-group competition and cooperation configurations is seen, and the role of information production is further underlined.

Frantz Fanon's studies on colonialism and identity further deepen the analysis of socio-spatial segregation. Fanon also draws attention to the identity problem of individuals and groups affected by colonialism. Colonial systems transform their identities by imposing their own norms and values on local individuals. In this process, individuals experience internal conflicts in addition to external interventions. In this context, it is emphasized that spatial segregation is also related to social perceptions, identities and the subjective experiences of individuals. The racial and cultural hierarchies that shape the identities of individuals and colonial discourses reproduce the minds of individuals and the network of social relations. As a result, when analyzing the phenomenon of segregation, psychological elements such as identity, belonging and social harmony gain importance in addition to economic and political dimensions (FANON, 1961). As a result, while the identities of individuals are shaped by spatial segregation, competition and cooperation are experienced at individual and social levels. While the legacy of colonialism leaves individuals at a disadvantage in social competition, the role of cooperation is once again highlighted.

Lipsitz draws attention to another perceptual aspect of the issue. According to him, racial discrimination and economic inequalities in cities are not only results but also active elements of spatial organizations. While the white spatial imagination idealizes the creation of safe, orderly and high-value areas, the idealization process brings about the exclusion of other groups. Exclusion is accompanied by physical boundaries as well as the direction of urban planning, housing policies and economic investments. Thus, socioeconomic and cultural polarization is deepened. Reactions to these processes bring us back to the concept of spatial justice. In order to ensure

justice, in addition to the reorganization of physical space, the systems that reproduce social inequalities must be addressed and transformed in their historical contexts (LIPSITZ, 2006).

David Harvey's understanding of the social production of space is also parallel to the theories of the pioneer philosophers (HARVEY, 2009). According to him, space is not merely a physical area but also an area where social relations are shaped and reproduced. The capitalist mode of production uses space as a tool for this purpose. In addition to economic interests, social relations, power structures and ideological practices are also effective in the production. While class and cultural positions among individuals are reflected in space, these positions are also reproduced. Thus, space is used as a tool that deepens class differences and reproduces inequality.

Saskia Sassen's theories on global cities and competition between cities are also important contributions. Also according to her, with the driving force of globalization, settlements that have become financial and trade centers have led to deepening social inequalities and strengthening spatial segregation. Global cities have become not only centers of economic activities but also centers of global governance, communication and culture. As a result, the concentration of international capital and labor has led to further polarization of urban space. The needs of global capital have made spatial structures in cities and even certain regions economically valuable while marginalizing other regions (SASSEN, 2001). As a result, it is seen that urban segregation does not only stem from differences between local social classes but is also driven by global economic structures. Thus, the reshaping of the social dynamics mentioned within neo-liberal and global economic structures is emerging. As social competition carried to a global scale intensifies, cooperation is also being reshaped.

When the above-mentioned ideas are synthesized, urban space can be defined as a field of competition and cooperation where social groups compete for resources, recognition and power. Social identities, whether racial, ethnic, class-based or cultural, are not static, but dynamic phenomena shaped by historical processes and interactions with space. Furthermore, segregation reflects and strengthens social power structures, and on the other hand, gives rise to cooperation strategies. Therefore, urban segregation is the reproduction of social inequalities related to the identities and struggles of competing groups as well as physical structures. At the end of the process,

groups that are placed at the upper levels of the social hierarchy in line with their strategies become advantageous, while those whose mobilization is restricted and imprisoned at the lower levels become disadvantaged. The tension between these two dynamics that shape social transformation and resistance plays a decisive role in the evolution of social structures.

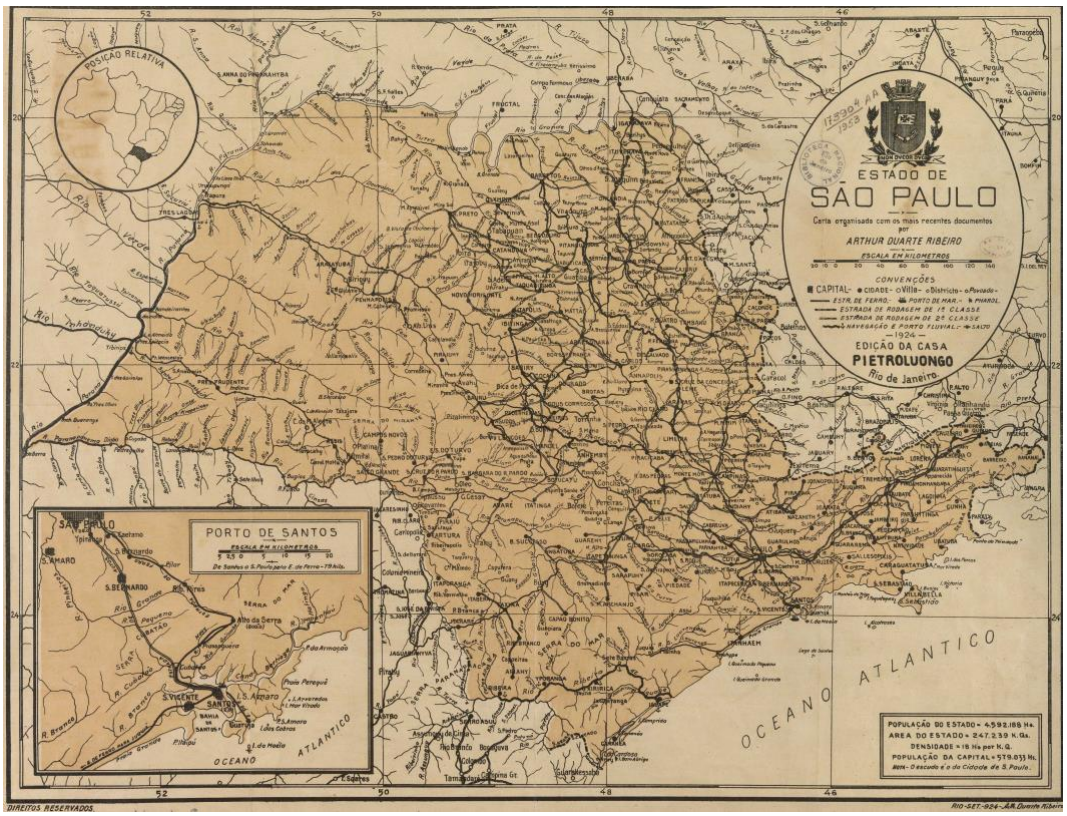
These dynamics are intertwined with structural racism, income concentration mechanisms, laws, urban planning, urban transformation projects, and real estate speculation. Urbanization processes create mechanisms that reinforce structural racism, while discriminatory housing policies confine certain racial or ethnic groups to areas with limited access to infrastructure, educational and economic opportunities. In addition, these areas are socially and economically excluded through spatial stigmatization. Moreover, hierarchies related to historical context reproduce themselves in space. As a result, social inequalities are further deepened (WACQUANT, 2008; HARVEY, 2009).

Legal systems also play an important role in perpetuating inequalities. They tend to protect the interests of advantaged groups at the top of the social hierarchy. For example, expropriation laws often target disadvantaged groups located in poor neighborhoods, prioritizing capital accumulation over social equality. Legal frameworks inherited from colonialism further deepen inequalities by excluding local knowledge systems and community-based approaches (QUIJANO, 2000; MIGNOLO, 2011; SANTOS, 2014).

Urbanization under the influence of globalization also increases social injustices by concentrating wealth in certain regions. While city centers generally become areas where high-income advantaged groups live and economic opportunities are concentrated, low-income disadvantaged groups are pushed to the periphery. In the process, urban planning becomes a tool that shapes social inequalities spatially. This tool generally prioritizes the interests of advantaged groups. Infrastructure investments remain limited in areas where disadvantaged groups are settled. The needs and information systems of these communities are not taken into consideration as much as they should be in planning processes (SASSEN, 2001; HARVEY, 2009). As a result, spatial injustices become permanent and social hierarchies are reproduced in urban space (LEFEBVRE, 1991).

Moreover, urban transformation projects, which are tools that accelerate capital accumulation, further victimize disadvantaged groups by prioritizing economic gain over social equality. These groups are pushed more violently to the periphery of the city, while the positions of advantaged groups are strengthened. Thus, the identities and cultural assets of disadvantaged local communities are destroyed through both spatial and cultural transformations (SOJA, 2000). In the process, real estate speculation also increases inequalities by commodifying urban space. High housing prices caused by speculation make it even more impossible for low-income groups to live in the center. While speculative investments consume resources that could be allocated to public infrastructure and affordable housing projects, international capital movements further segregate city centers and ignore the needs of local people (SASSEN, 2001; HARVEY, 2009).

Map 1: São Paulo State and its location in Brazil.



Obs. The port of Santos has maintained its importance since the early development of the settlement. It has undertaken important roles during different periods, from the transportation of goods abroad to the arrival of immigrants to the state. Source: RIBEIRO (1924)

In Metropolitan São Paulo, which is apt to reflect this complexity of the issue, the diversity dates back to 1554. The city of São Paulo was first established as a mission by Portuguese Jesuit priests (FREYRE, 1987). In Brazil, where economic activities were concentrated in coastal areas such as Pernambuco and Bahia, São Paulo exhibited a rural character at that time (MARTINS, 2000). In the 17th century, explorers called Bandeirantes, who were in search of gold and precious mines, used the city of São Paulo as a station while organizing expeditions to the interior. During these expeditions, the indigenous people were either enslaved to work or killed (PRADO, 1994). In the 17th and 18th centuries, the need for labor began to be met by slaves brought from Africa (BETHELL, 1989). With the decline of the indigenous population and the institutionalization of slavery in the Portuguese colonies, the economic structure of São Paulo began to change. In the 18th century, the fact that São Paulo was a transit point due to the gold mines in the state of Minas Gerais reinforced the importance of the settlement for Portuguese colonialism (BOXER, 1962).

Since the 19th century, Brazilian cities, including São Paulo, have become centers of production, migration and consumption (LANNA, 1996). The economic structure has been based on agricultural production shaped by European capitalist economies, where rural oligarchies settled in São Paulo and Minas Gerais holding the power. During this process, the agricultural production has also been sold abroad (FAUSTO, 2000). Additionally, São Paulo's railway network contributed to industrialization and the development of some urban settlements that became production centers under the control of the European market (see map 1). The existing socio-economic structure has also caused urbanization to intensify (CANO, 2012).

After the abolition of slavery in 1888, the coffee industry’s need for a large workforce was met by large waves of migration from Europe. Italians, Portuguese, Germans and Spanish flocked to São Paulo (HOLLOWAY, 1980). Thus, during the expansion of the settlement these communities established their own neighborhoods (LEVINE, 1999). In addition, Japanese immigrants, who found a place for themselves especially in the agricultural sector, were another group that contributed to the social fabric of the city (TSUNECHIRO AND PINO, 2008). In the mid-20th century, economic difficulties, drought and social inequalities in the Northeastern states of Brazil caused

large waves of internal migration to São Paulo. Immigrants, who were generally of Afro-Brazilian origin, increased the group diversity. In this period also historically marginalized indigenous, black and brown populations were integrated into the social structure (AMARAL, 2013).

Today, the state of São Paulo, one of the 27 federative units that make up Brazil, offers a dynamic structure with a population of 44,411,238, 645 municipalities and a total gross income of R$ 343,634,435,413.40. According to 2022 data, 57.78% of those living in the state of São Paulo identified themselves as white, 32.96% as brown, 7.99% as black, 1.16% as yellow and 0.11% as indigenous. Metropolitan São Paulo, which includes São Paulo as capital and 38 separate municipalities, also hosts a population of 20,743,587. The largest municipalities in this dynamic structure are São Paulo with a population of 11,451,245 and Guarulhos with a population of 1,291,784. There are also municipalities with high populations such as São Bernardo do Campo (810,729), Santo André (723,889) and Mauá (472,912) in the ABC Region, where industrial production is concentrated (IBGE, 2024).

Thus, Metropolitan São Paulo has been the subject of several studies addressing the issue. These studies reveal that the black, brown and indigenous populations are subject to a systematic process of exclusion due to historical and structural dynamics. Thus, these groups face social, economic and spatial inequalities within the city. Historically, immigrants from Europe and Asia have had more economic and social opportunities, while others have been pushed into low-wage jobs, the informal sector and the periphery. Black and brown populations in particular are concentrated in informal settlements, social housing projects and low-income neighborhoods. Indigenous communities are often exposed to environmental injustices and struggle to preserve their identities (MARQUES and RODRIGUES, 2013; BARROS, MEDEIROS and MORAIS, 2016; FRANÇA, 2020; PRETECEILLE AND CARDOSO, 2020).

Marginalization is reinforced by urban policies and structural racism. According to current police violence statistics, black and brown young men are the most targeted. Racial inequalities exist in the criminal justice system (SOUDAPAZ, 2024). In addition, the social mobility of these groups is limited. Inequalities in access to quality education and health services perpetuate the cycle of poverty. Gentrification

processes also increase marginalization. Urban transformation projects are often implemented in a way that further excludes low-income black and brown communities. Thus, spatial segregation deepens. As a result, black, brown and indigenous populations are excluded both spatially and economically and politically (CALDEIRA, 1997; PEARLMAN, 2010; VILLAÇA, 2011).

METHOD

The study uses an approach that integrates statistical and spatial analyses to reveal socio-economic and racial patterns. The methodology consists of data preparation, summary statistics, social concentration, spatial auto-correlation, and socio-economic cluster analysis steps. The municipality-based dataset used in the analysis includes demographic and socio-economic variables (IBGE, 2022; OBSERVA SAUDE, 2022; SEADE, 2022). This set and the geographic information system files showing municipal boundaries were obtained from the IBGE (2022), the official statistics agency of Brazil. Finally, analyses and visualizations are performed using python libraries and packages.

In addition to summary statistics (WEISBERG, 2005), Location Quotient (ISARD, 1956), Global Moran's I (MORAN, 1950), Local Indicators of Spatial Association (ANSELIN, 1995) and K-Means Clustering (MACQUEEN, 1967) methods were used for detailed analysis. Each method provided outputs from different perspectives to understand the relationships between the racial groups comprehensively.

The population structure of each municipality is represented by the official classification categories of indigenous, black, brown, yellow and white populations. Summary statistics provide a summary of the distribution, central tendency, and variability of data. In the context of urban segregation, they can be used to understand the general profile of the population before complex analyses. For example, they can provide a quick look at income inequalities, the concentration of racial groups, or the distribution of income levels in certain areas (WEISBERG, 2005). In the study, summary statistics were also used to summarize the main features of the data set and provide an overview. The data set contains geographic size, population, population density, gender ratio, birth and death rates, infant deaths (under 1 year), married population,

household numbers, child dependency ratio, elderly dependency ratio, GDP, formal employment numbers, education levels, scientific, technical, educational, cultural, recreational and health organizations, international organizations, hospitalization numbers, health facility numbers, health expenditure per capita, the number of households with water supply, and with connection to sewage system.

Location Quotient (LQ), a non-spatial measure, is a ratio that measures how densely populated social groups are in a particular area within a region compared to the entire region. It is generally used to examine the distribution of socio-economic or demographic groups (LI and GOU, 2020). In the study, it also helped to understand the spatial clustering densities of the groups considered. The coefficients obtained for each group revealed whether a particular racial group was over-represented (LQ > 1) or under-represented (LQ < 1) in the general population distribution.

Moran's I statistic is used to measure spatial auto-correlation. The method can be used to test the spatial dependence of a particular socio-economic variable, such as income level or racial distribution, across geographic areas. In urban segregation studies, Moran's I is used to understand whether similar socio-economic groups are clustered in certain areas (TORRES and BICHIR, 2009; CUNHA and JIMENEZ, 2009; FLORES and WILSON, 2009; GROISMAN and SUAREZ, 2009). A positive and significant Moran's I value indicates a strong spatial relationship between similar values. This indicates that certain social groups are spatially separated. The existence of groups formed around common identity elements clustered in certain areas is analyzed with Moran's I. The main results also included expected I values, and global and local p-values. The expected I value is the value expected to be obtained from a random distribution of Moran's I. Deviations from this value helps understanding the spatial structure. In addition, the global p-value is used to test whether a cluster is statistically significant. A low value indicates that the clustering is not random. Finally, the local p-value shows whether there is significant clustering in certain regions.

Local Indicators of Spatial Association (LISA), a local version of Moran's I, helps determine the degree and spatial patterns of segregation between different areas in urban segregation analyses. Although being a different analysis, it uses a local iteration of Moran's I with weighting in cluster determination (CUNHA ET AL., 2009; FLORES, 2009; NIELSEN and HENNERDAL, 2017; POULSEN, JOHNSTON, and FORREST, 2010;

GIBBONS et al., 2020). In the study, it was used to determine spatial heterogeneity. Queen contiguity weights were created to define neighboring municipalities for spatial autocorrelation analysis. As a result, spatial clusters in areas where certain racial groups are concentrated were determined. A more comprehensive understanding was aimed by using Moran's I and LISA, which complement each other.

K-Means Clustering, on the other hand, defines common clusters by grouping data points according to their similarities through unsupervised learning. The method is often used in large data sets to separate data into meaningful subgroups (DONEGAN and TAVARES, 2024; KILANI and DAHER, 2024). After determining the optimum number of clusters (k), each data is assigned to the closest cluster and the mean points (centroids) of the clusters are continuously updated. K-Means was used to determine areal clusters according to socio-economic and demographic characteristics. The variables include gross domestic product (GDP), formal employment, nominal average salary, total dependency ratio and racial group percentages. Before clustering, the data was standardized using the Standard Scaler to reduce the negative effects of different units in which the variables were expressed. Thus, all variables used were on the same scale. Elbow Method (THORNDIKE, 1953) and Silhouette Scores (ROUSSEEUW, 1987) were used to determine the optimum number of clusters. Then, K-Means clustering was performed and municipalities with similar socio-economic and racial profiles were grouped into four separate clusters. Thus, it is aimed to better understand the reasons for the segregation.

RESULTS

As a result of the summary statistics, a heterogeneous spatial, demographic and socio-economic structure was detected in the study area. The inequalities are reflected in the uneven distribution of population, land, economic output, access to health services and basic infrastructure. Below is the municipality-based general profile of the Metropolitan São Paulo derived from mentioned demographic and socio-economic indicators.

The average geographic size of the municipalities is 203.77 km², while the standard deviation value is 268.64 km². This shows a remarkable size diversity. The

population distribution is even more unbalanced. The average population is 531,558. However, a very high standard deviation (1,814,200.14) indicates extreme differences in population sizes among municipalities. Additionally, the average population density is 3,480.42 people/km². The high standard deviation value (3,941.86) here also reflects the density changes between urban, rural or semi-rural areas. This situation can be thought to be due to factors such as urbanization history, economic activities and infrastructure development. In contrast, the gender ratio is relatively consistent. There are an average of 94.27 males for every 100 females. The standard deviation (3.40) indicates only a slight unbalanced distribution. Moreover, birth and death rates are relatively balanced throughout the region. This relative balance indicates a moderate population growth. Although there is an average of 71 infant deaths per 1,000 live births, the distribution of infant mortality reveals inequalities with a standard deviation of 224.13, especially in access to health services. This suggests deeper socio-economic and public health differences.

The distribution of married population is also unbalanced, in line with other demographic data. While most municipalities have relatively fewer married couples, a small group of them are more densely populated with them (standard deviation: 8949.60). Household structures also show significant differences. A small number of municipalities have the majority of households. The average number of households is 224,978. Furthermore, the standard deviation (791,463) highlights the large differences. While the dependency ratios for children and the elderly show some balance, they also indicate differences in demographic pressures on the working-age population. Some municipalities have much higher proportions of elderly people than others. Minimum and maximum values for the elderly dependency are 26.26 and 3.27, respectively.

The average municipal GDP is approximately R$35.6 million. However, the large standard deviation (R$132M) indicates significant economic inequalities. Only a few municipalities contribute disproportionately to the overall economy. In addition, formal employment numbers follows a similar pattern. On average, there are 192,363 formal jobs in each municipality. However, the very high standard deviation (870,176.4) highlights the unequal distribution of employment opportunities.

Education levels (min. 0.41 and max. 0.72) vary. In addition, scientific, technical, educational, cultural, recreational and health organizations are concentrated in certain municipalities. There are significant differences in the total number of companies with a standard deviation of 101,478.90. Moreover, international organizations are concentrated only in the city of São Paulo. Thus, standard deviation values highlight the uneven development of civil infrastructure. Health care use and expenditures are also uneven. Hospitalization rates and access to health facilities are concentrated in a few municipalities. The average number of patients is 26,188. Additionally, the high standard deviation for this variable (87,136.65) underlines the inequalities in access to health services and infrastructure. Although per capita health expenditure varies at a moderate level (min. 446.84 and max. 4,281.96), it is still biased towards some municipalities. Finally, standard deviation values for access to water supply systems also indicate significant differences in basic infrastructure. The standard deviation value for the households without connection to network and with connection to sewage system are 4,273.22 and 651,040.57, respectively. The existence of many municipalities with poor access deepens public health and environmental inequalities.

LQ results (see table 1) for racial groups provide clues to the interplay between socio-economic factors, cultural dynamics and historical contexts. Economic pressures, cultural preferences and historical migration patterns appear to have contributed to the segregation and integration of all these groups. Indigenous populations are more concentrated in peripheral and semi-rural municipalities such as Pirapora do Bom Jesus, Guararema and Itapecerica da Serra. These areas should be offering opportunities for shelter, proximity to natural resources and cultural preservation. In contrast, these populations are less concentrated in urbanized municipalities such as Salesópolis, Itapevi and Osasco. These ones might be less accessible or desirable for indigenous residents due to cultural factors and economic pressures. Due to historical processes, cultural or social networks that would support indigenous populations may not have developed. São Paulo and Guarulhos, where the population is moderately represented, indicate a relative integration. Thus, it can be seen that despite the presence of indigenous communities in the metropolitan area, their integration and segregation vary significantly.

The results for the black population presents a complex demographic structure. This population is concentrated in Embu das Artes, Francisco Morato and Diadema. These municipalities must have strong community networks serving the group, thus standing out as concentration areas with cultural resources that increase the group's resilience. On the other hand, Salesópolis and São Caetano do Sul have lower density values, indicating important obstacles, likely systemic inequalities.

Table 1: LQ coefficients for racial groups in the municipalities.

Municipality	Indian population	Black population	Brown population	Yellow population	White population
Aruja	0,978	0,86	1,083	1,01	0,977
Barueri	0,524	0,85	1,09	0,431	0,993
Birit ba Mirim	0,669	0,629	0,937	2,264	1,081
Caieiras	1,093	0,987	1,024	0,171	1,019
Cajamar	0,61	0,899	1,146	0,207	0,953
Carapicuiba	0,829	1,147	1,2	0,183	0,87
Cot à	0,879	0,935	1,101	0,684	0,957
Diadema	0,559	1,112	1,21	0,338	0,862
Embu das Artes	0,743	1,386	1,347	0,237	0,723
Embu Guacu	1,06	0,898	1,211	0,426	0,892
Ferraz de Vasconcelos	0,946	1,225	1,255	0,137	0,811
Francisco Morato	0,647	1,358	1,377	0,071	0,715
Franco da Rocha	0,548	1,101	1,174	0,106	0,839
Guararema	1,32	0,655	0,94	0,755	1,115
Guarulhos	0,929	0,977	1,14	0,582	0,919
Itapecerica da Serra	1,214	1,216	1,277	0,338	0,793
Itapevi	0,329	1,101	1,41	0,113	0,738
Itaquaquecetuba	1,019	1,104	1,38	0,169	0,756
Jandira	0,537	1,066	1,201	0,261	0,883
Juquit ba	0,947	0,626	1,063	0,316	1,048
Mairipora	0,805	0,682	1,021	0,464	1,063
Maua	0,679	0,933	1,125	0,244	0,955
Mogi das Cruzes	0,903	0,874	0,921	2,3	1,042
Osasco	0,561	0,98	1,057	0,502	0,982
Pirapora do Bom Jesus	1,413	1,021	1,358	0,167	0,782
Poa	0,581	1,21	1,081	0,315	0,934
Ribeirao Pires	1,282	0,741	0,979	0,619	1,073
Rio Grande da Serra	0,795	1,105	1,291	0,241	0,811
Salesopolis	0,201	0,255	0,607	0,441	1,411
Santa Isabel	0,517	0,604	0,891	0,58	1,163
Santana de Parnaiba	0,822	0,75	1,033	0,604	1,043
Santo Andre	0,633	0,661	0,757	0,813	1,232
Sao Bernardo do Campo	0,979	0,746	0,906	0,903	1,119
Sao Caetano do Sul	0,853	0,374	0,416	1,255	1,501
Sao Lourenço da Serra	0,523	0,629	1,063	0,808	1,032
Sao Paulo	1,171	1,039	0,934	1,302	1,027
Suzano	0,725	1,004	1,157	1,389	0,887
Taboao da Serra	0,938	1,284	1,126	0,557	0,883
Vargem Grande Paulista	0,515	0,725	0,957	1,302	1,077

Source: Prepared by the author.

Embu das Artes, Francisco Morato and Pirapora do Bom Jesus are important centers for the brown population. Apparently, these areas can provide the group with housing, cultural vitality and community cohesion. On the other hand, the low densities encountered in São Caetano do Sul and Salesópolis suggesting socio-economic barriers that prevent the settlement and growth of this group. These

findings suggest the specific difficulties faced by these communities in the areas of housing, employment and cultural support.

There are also clear spatial variations in the yellow population distributions. The over-representation in Biritiba Mirim and Mogi das Cruzes suggests the existence of racial pockets or historical settlements that have persisted over time. Probably, these municipalities offer cultural, social or economic environments that is attractive to this group due to social networks. However, municipalities with very low LQ values such as Ferraz de Vasconcelos and Francisco Morato show a limited presence. This might be related with the socio-economic factors that not matching the needs of this group. Finally, the relatively balanced distribution in São Bernardo do Campo and Osasco suggests integration.

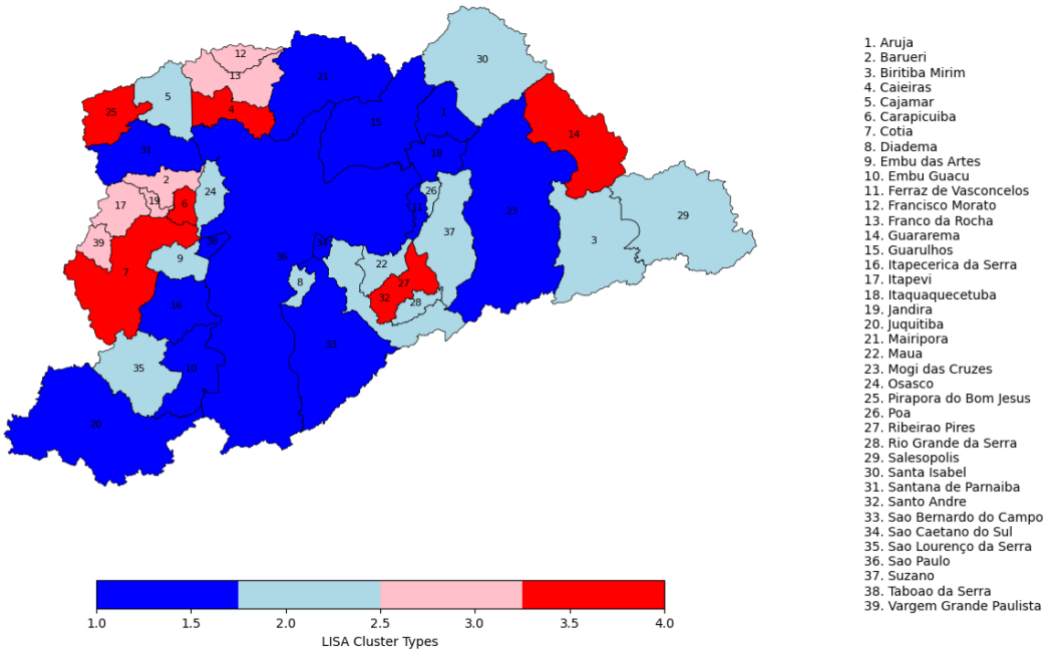
Finally, the high LQ values of the white population in São Caetano do Sul, Santo André and Salesópolis suggest that historical migration patterns, socio-economic factors and housing availability contribute to concentration. It is noteworthy that these municipalities generally offer higher living standards and more developed infrastructures. In contrast, municipalities such as Francisco Morato and Embu das Artes have lower densities. These areas are more populated by the other groups. Peripheral areas and low-income areas tend to host relatively fewer members of the white population than other areas.

The LISA analysis for the percentage of indigenous population (see map 2) shows a negative Global Moran's I value (−0.095), indicating slightly negative spatial auto-correlation. This suggest that municipalities with higher densities are more dispersed. The global p-value is 0.259, indicating that the distribution is not statistically significant. Local p-values are above 0.05 in many municipalities. Thus, there is no significant clustering. However, some municipalities show lower values, pointing out isolated areas of concentration. Overall, these findings shows that the indigenous population is dispersed within the larger community of the metropolitan area.

A value of 0.312 for the black population presents a moderate positive spatial auto-correlation. This suggests that municipalities with higher densities tend to cluster together (see map 3). The expected I value is −0.026 and the global p-value is 0.001. These confirm the statistically significant clustering. Local p-values also highlight this significancy in some municipalities with values around 0.004 and 0.015. However, the

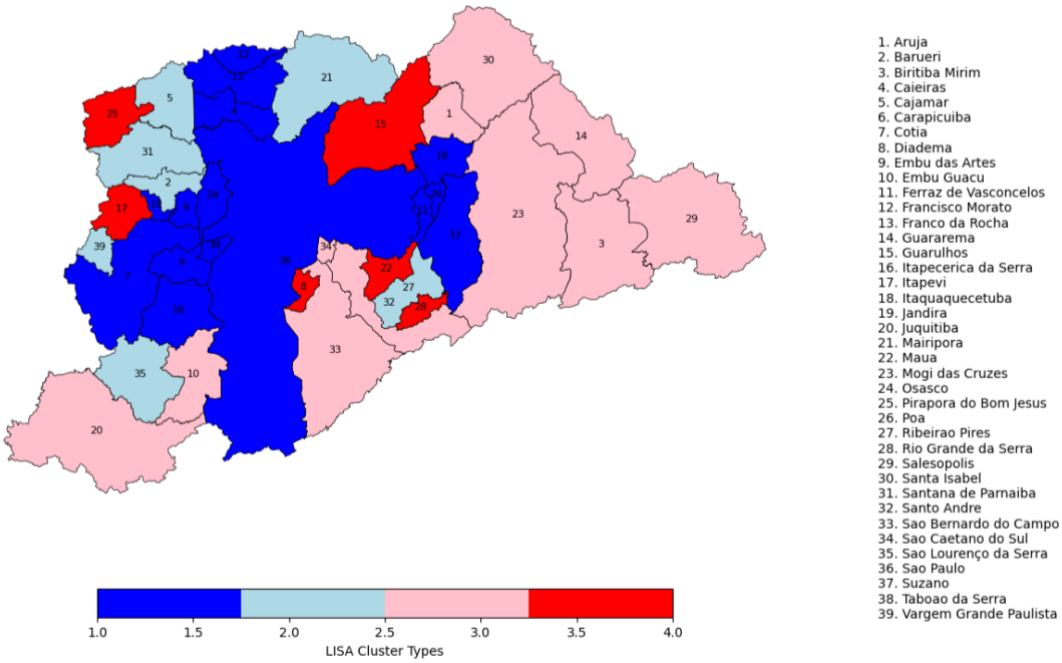
majority of the municipalities do not have significant p-values, indicating a more diverse demographic distribution. As a result, the municipalities where this group is concentrated form a certain spatial structure.

Map 2: LISA clusters for Indigenous population.



Source: Prepared by the author.

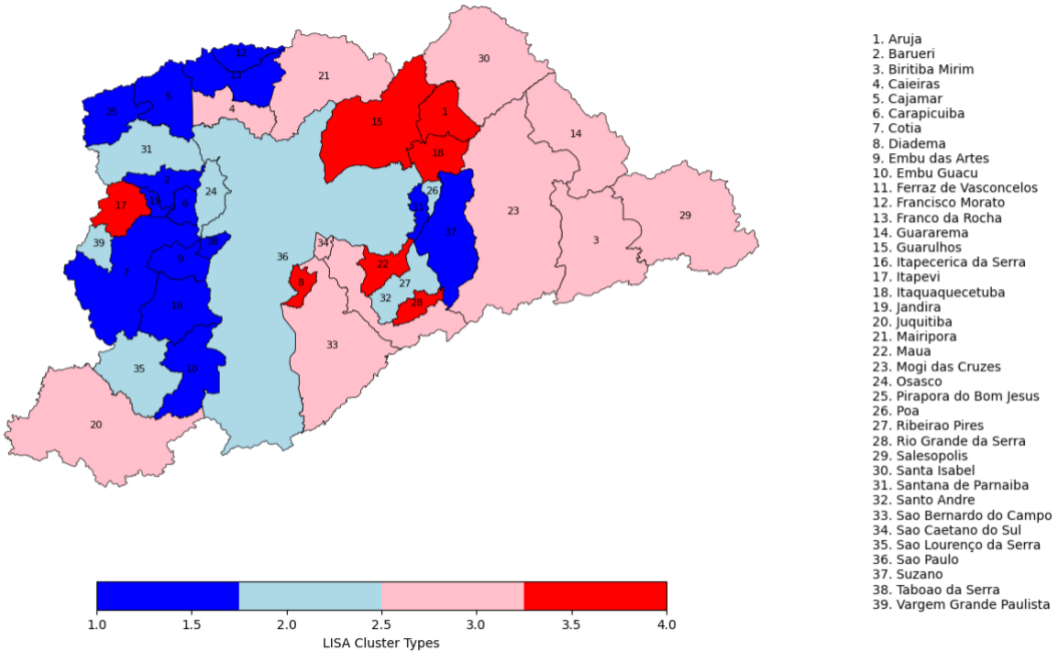
Map 3: LISA clusters for black population.



Source: Prepared by the author.

With a value of 0.241, the brown populations show moderate positive spatial auto-correlation (see map 4). This suggests that municipalities with higher percentages are generally clustered together. There are significant spatial patterns. The statistical significance of these patterns is supported by the global p-value of 0.008. Local p-values of 0.015 and 0.023 also support this significancy in several municipalities. Conversely, many municipalities exhibit local p-values above 0.05, suggesting more integrated demographic distributions. As a result, a significant concentration is revealed also for this group.

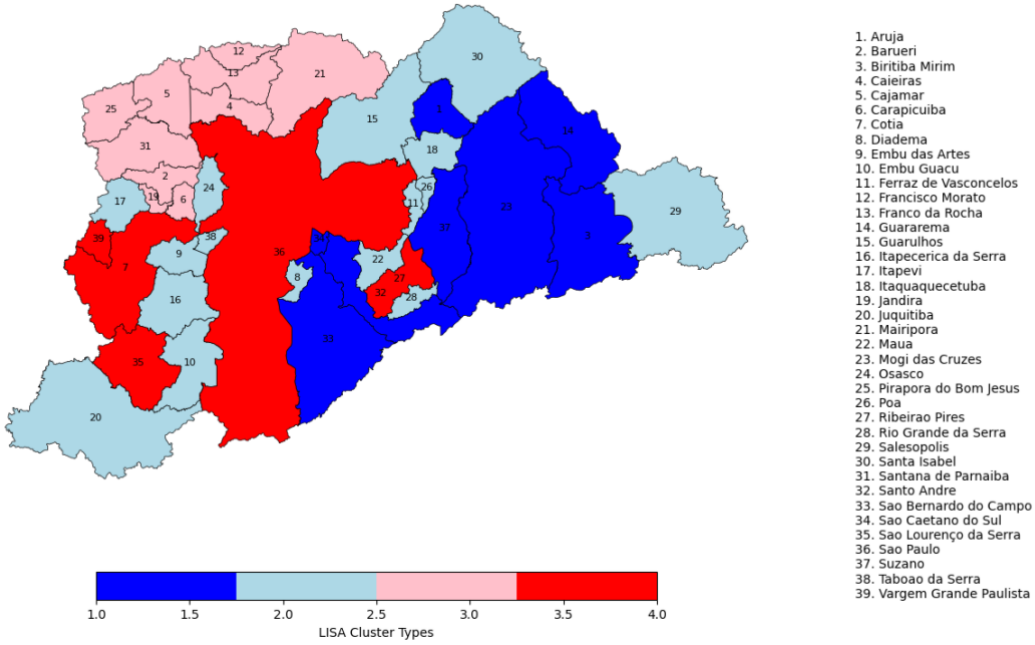
Map 4: LISA clusters for brown population.



Source: Prepared by the author.

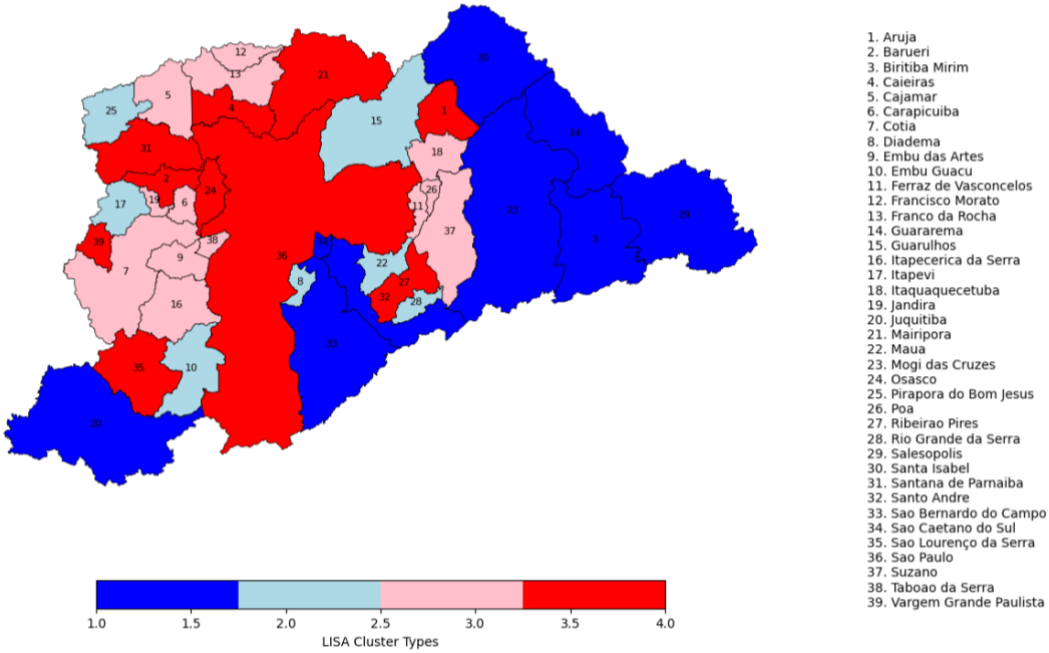
The yellow population also exhibits positive spatial auto-correlation with a Global Moran's I value of 0.180 (see map 5). Municipalities that host higher yellow populations tend to cluster together with a certain pattern. Additionally, the global p-value is 0.029. The clustering is statistically significant. Many municipalities with local p-values below 0.05 support the result. In particular, areas with local p-values indicating strong clustering reflect socioeconomic or cultural factors affecting the distribution of the group.

Map 5: LISA clusters for yellow population.



Source: Prepared by the author.

Map 6: LISA clusters for white population.



Source: Prepared by the author.

Finally, a positive value (0.251) for the white group indicates that this population tends to be more concentrated than dispersed (see map 6). The global p-value of 0.01 also confirms that the clustering is significant. Further, local p-values highlights this significancy, particularly in some municipalities below 0.05. This clustering may reflect the influence of socioeconomic factors, historical settlement patterns, or policies that facilitate residential segregation.

K-Means cluster analysis also reveals distinct patterns in terms of various socioeconomic and demographic indicators (see table 3). The optimum number of clusters is defined as four. These clusters, characterized by their centroids, provide more information about the socioeconomic conditions and racial compositions of the areas.

Table 3. Clustered Municipalities

Cluster	0	1	2	3
Municipality	Barueri	Biritiba Mirim	Aruja	Sao Paulo
	Cajamar	Mogi das Cruzes	Caieiras	
	Cotia	Salesopolis	Carapicuiba	
	Diadema	Santa Isabel	Embu Guacu	
	Embu das Artes	Santo Andre	Ferraz de Vasconcelos	
	Franco da Rocha	Sao Caetano do Sul	Francisco Morato	
	Guarulhos	Sao Lourenço da Serra	Guararema	
	Itapevi	Vargem Grande Paulista	Itapecerica da Serra	
	Jandira		Itaquaquecetuba	
	Maua		Juquitiba	
	Osasco		Mairipora	
	Sao Bernardo do Campo		Pirapora do Bom Jesus	
	Suzano		Poa	
	Taboao da Serra		Ribeirao Pires	
			Rio Grande da Serra	
			Santana de Parnaiba	

Source: Prepared by the author.

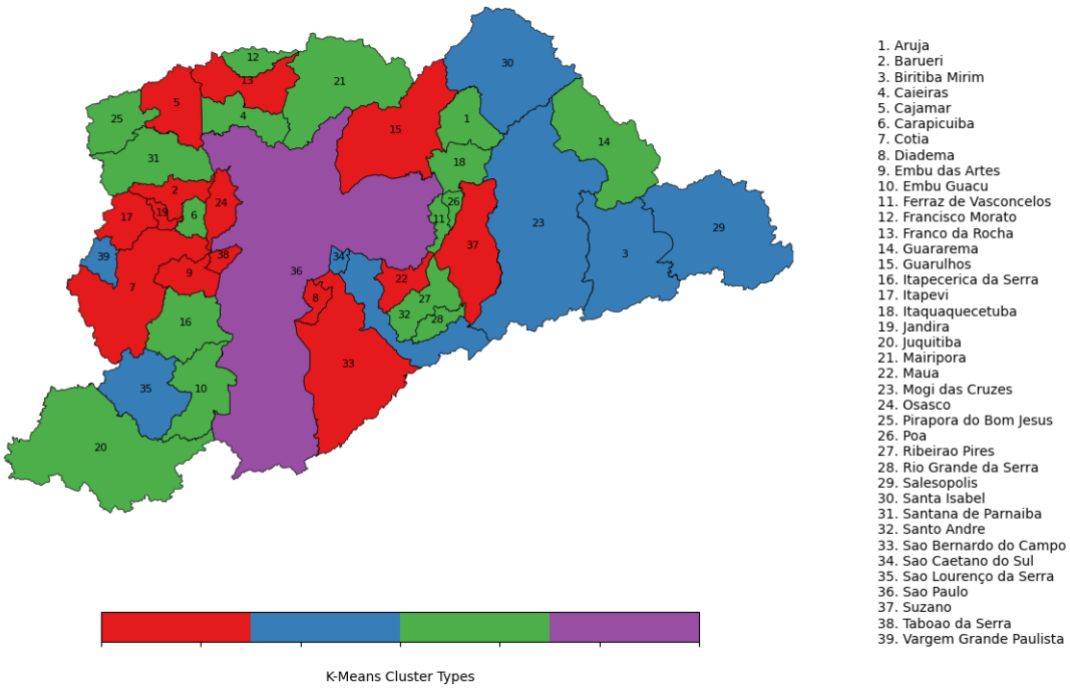
Cluster 0 exhibits moderate values for the most socio-economic indicators. Gross domestic product (GDP) and formal employment are slightly below average, while nominal average wages are significantly higher than other characteristics. This suggests potential wealth inequality among municipalities in the cluster. According to racial composition data, the indigenous population (−0.444) is significantly underrepresented, while the brown (0.361) and black population (0.433) are moderately represented. Thus, this cluster includes municipalities with a complex demographic structure and moderate economic activity. Although it constitutes an

economically active community, there are also challenges in income inequality and racial representation.

Cluster 1 consists of municipalities that reflect low GDP, formal employment, and nominal average salary. All indicators are well below average (−0.202, −0.171, and −0.780, respectively). The racial demographics here are particularly underrepresented, with brown (−1.308) and black populations (−1.269). This composition also points to systemic inequality and social mobility. The residents in the cluster, likely struggle with economic hardship and lack of resources, offering limited opportunities for community advancement.

Cluster 2 has low GDP and employment figures, as well as moderate salary levels (−0.240, −0.215 and −0.371 respectively). However, it has significantly higher representation of the indigenous population (0.672). Also, brown (0.383) and black population (0.225) are moderately represented. The higher presence of the indigenous group suggests that the cluster may contain municipalities with specific cultural or economic characteristics for this group. Finally, despite the large challenges in the area, there are also economic opportunities.

Map 7: K-Means clusters of municipalities



Source: Prepared by the author.

Cluster 3 contrasts with the others by displaying exceptionally high values for GDP, formal employment and nominal average salary. In this cluster, the indigenous population (1.358) has a relatively strong representation, while the black population (0.481) has a moderate and the brown population (−0.739) has a lower representation. This cluster includes the economic centers of the metropolitan area, which offer high employment and income levels. The significant presence of the indigenous population suggests the existence of potential cultural and economic networks that supports them.

As a result, K-Means cluster analysis highlights the diversity of socioeconomic conditions and racial composition within the Metropolitan Region (see map 7). While some areas are economically dynamic, others struggle with inequality. Cluster 0 represents moderate socioeconomic conditions. It offers opportunities for policies to reduce economic inequalities and promote racial inclusiveness. Cluster 1, where all racial groups are significantly underrepresented, needs critical interventions to alleviate economic hardship and improve access to resources. Intensive efforts are needed to address systemic barriers. Cluster 2 presents mixed results. It offers growth and development potential, particularly for the indigenous population. This cluster could benefit from policies that promote cultural diversity while improving local economic conditions. Finally, Cluster 3 represents the economic elite of the region. In addition to strategies to sustain growth, approaches should be developed to share economic prosperity across all groups.

CONCLUSION

In Metropolitan São Paulo heterogeneous demographic, social, economic and spatial structures reveal that intense competition continues among racial groups. While existing inequalities are both the result and the guarantor of relatively intense access of certain groups to various services and opportunities, it is observed that disadvantaged groups are eliminated at different levels.

This strengthens the of economic and infrastructural opportunity concentration, especially in a small number of municipalities, while the inhabitants of the remaining municipalities are condemned to struggle to access the resources. The

differences between urban, semi-rural and rural areas also play an important role in maintaining the imbalances in access to infrastructure and services in the future.

Population density and demographic structures are also concentrated in certain municipalities as a result of urbanization processes. In these areas, the pressure on resources increases. In return, competition also intensifies. On the other hand, rural or semi-rural areas with lower densities is left behind in terms of both economic development and infrastructure. Thus, the population is concentrated around economic opportunities, and the peripheral municipalities are developed to a limited extent, while the central municipalities are developed disproportionately.

Inequalities in access to health services also demonstrate the impact of competition between groups on public health. While access to these services is limited in certain regions, there is disproportionate access in some other. This additionally increases the competition and maintains the unbalanced distribution. Furthermore, the concentration of relatively higher levels of education in certain municipalities also leads to similar results. The dynamics between urbanization processes and economic development also direct the access to these opportunities. Since educational competition is a factor that strengthens socio-economic positions, it facilitates the maintenance of advantaged groups' positions.

The Location Quotient (LQ) analysis results also indicate distinct spatial patterns. Municipalities with high LQ values for marginalized groups points out cooperation where intra-group community networks provide cultural and social support that serve to enhance resilience. However, the overall picture reflects deep inequalities. Intra-group cooperation does not transcend the broader dynamics of competition that shape access to resources, infrastructure, and opportunities across the landscape. Thus, the current socio-spatial structure reflects the persistence of historical competition between groups driven by systemic constraints.

Furthermore, the analysis of Local Spatial Association Indicators (LISA) reveals varying degrees of spatial auto-correlation for different populations. There are significant differences in the spatial patterns. Indigenous populations show limited clustering, highlighting the strength of the socio-economic barriers and limited support for cultural preservation. The remaining groups show varying degrees of positive spatial auto-correlation. Black and white populations are particularly prominent among

them, reflecting cooperation within groups. Spatial consolidation of social networks might be playing an important role within these groups. However, black and brown populations are generally concentrated in marginal or peripheral areas, while the white population is concentrated in more advantaged municipalities. This suggests that the white population still benefits from historical and ongoing privileges. These spatial patterns are further evidence of the persistent effects of socioeconomic inequality and systematic inequalities that shape the urban landscape.

K-Means analysis also confirms previous results. Four clusters representing diverse socioeconomic conditions and racial compositions provide information on the socio-spatial organization correlated with economic indicators. The remarkable differences among clusters call for policy interventions. The focus should be on reducing deep-rooted inequality, promoting integration, and ensuring that economic development benefits all communities.

The identified segregation, which also confirms previous studies, is not simply a matter of physical distance between social groups. As Quijano (2000) argues, the past colonial experiences continue to shape the region. The racial hierarchies established during the colonial period continue to exist today, especially where black and indigenous populations are confined to the peripheries. It is seen that the mobility of non-white populations and their access to urban resources were restricted.

Cusicanqui's (2010) concept of ch'ixi can be used to understand the tension between the advantaged and dis advantaged groups. The area is a site of cultural resistance where marginalized groups struggle to preserve their identities and reclaim their rights. In this context, Mignolo's (2007) concept of epistemic disjunction also highlights how local knowledge systems, especially those of marginalized groups, are often excluded. The neglect of these knowledge systems in urban planning processes must have contributed to the perpetuation of spatial and social inequalities.

Urban marginality and spatial stigma (Wacquant, 2008) are also relevant here. Disadvantaged groups are likely marginalized through processes and physical isolation. This leads to a lack of access to quality services, housing, and infrastructure while reinforcing the social stigma that marks these areas with negative connotations. Thus, spatial segregation can be considered as a continuous process of exclusion.

Metropolitan São Paulo is also an example of capitalist urbanization that leads to the concentration of wealth in certain areas. As described by Harvey (2008), the region should be considered as a mechanism that reinforces and reproduces social inequalities. Advantaged groups reside in areas with access to economic opportunities and services, while marginalized groups are pushed to the periphery. In return, this spatial distribution should be expected to increase income inequality, as certain areas are invested more while others remain underdeveloped. This also reinforces class-based spatial divisions. It is very likely that existing legal and policy frameworks are inadequate to meet the needs of marginalized communities. This issue must also be addressed in the context of existing patterns of segregation.

Moreover, as argued by Sassen (2001), global capital has positioned the city of São Paulo and the metropolitan region in a prominent position in the global urban network. Thus, the region is likely influenced by international capital interests rather than needs based on local interests. The flow of capital into real estate markets must have contributed to increasing inequality. As noted by Harvey (2008) and Wacquant (2008), the speculative nature of real estate development transforms urban space into a commodity, prioritizing investment returns over the well-being of residents. This process can be considered as an example of the exploitation of urban space as a way of reproducing social hierarchies.

As a result, each of the above topics can be examined separately. However, this study focuses the determining role of social dynamics in the Metropolitan São Paulo. The results underline that the struggle of different social groups to access resources increases imbalances throughout the area. This further reinforces existing inequalities. It shows areas where social competition is intense with the uneven distribution of resources such as economic, education and health services. Social cooperation and socio-economic integration processes, on the other hand, are limitedly effective as a by-product of this competition. A more balanced resource distribution policy should be developed between urban, semi-rural and rural areas. Strengthening cooperation will enable resistance to the intensity of competition and reduction of socio-spatial injustices. In this way, all social groups living in both the center and the periphery might have more equal access to urban resources.

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