

Favela: the challenge of living in the São Paulo Metropolis

Favela: o desafio de morar na metrópole paulistana

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Abstract

The text shows the recent evolution of the urban fabric in the Metropolitan Region of São Paulo and the inequality expressed by favelas, using data from the Brazilian Institute of Geography and Statistics and MapBiomas. Although population growth in all sub-regions has decreased compared to previous periods, the so-called periphery still grows more than the hub. The urban structure is highly segregated, with part of the poor population living in favelas. In 2019, the metropolis had 1,703 favelas, with a population of more than 2 million inhabitants, occupying 12.26% of metropolitan households. As the population in this type of settlement grew at an annual rate of 3.44%, the result was an increase in the number of favelas, which poses problems for urban upgrading.

Keywords: Metropolitan Region of São Paulo; favelas; socio-spatial segregation; metropolitan structure.

Resumo

Este artigo descreve a evolução recente do tecido urbano na Região Metropolitana de São Paulo e da desigualdade expressa pelas favelas, por meio de dados do Instituto Brasileiro de Geografia e Estatística e do MapBiomas. Embora o crescimento populacional em todas as sub-regiões tenha decrescido em relação aos períodos anteriores, a chamada periferia ainda cresce mais do que o polo. A estrutura urbana mostra-se altamente segregada, com parte da população pobre morando em favelas. A metrópole, em 2019, apresentava 1.703 favelas, com população de mais de 2 milhões de habitantes, ocupando 12,26% dos domicílios metropolitanos. Como a população nesse tipo de assentamento cresceu quase a 3,44% anuais, a resultante é um adensamento das favelas, com problemas para sua urbanização.

Palavras-chave: Região Metropolitana de São Paulo; favelas; segregação socioespacial; estrutura metropolitana.



Aims

This text has, as its guiding question, the evolution of favelas in the urban fabric of the Metropolitan Region of São Paulo (RMSP). It seeks to answer the following question: How does the growing inequality, expressed by precarious settlements, manifest itself in the spatial structure of the metropolis?

Briefly characterizing the population dynamics of the region and its changes, the text focuses, especially, on the evolution of favelas, understood as a locus of housing precariousness over the years 2010, elucidating some of their characteristics. Where did favelas grow the most, and why? To address this, data from Demographic Censuses from 1960 to 2022, the preliminary IBGE survey of 2019, estimates from the Foundation Seade (F.Seade) for 2022, and territorial information from MapBiomas will be used.

In the first part of the article, the main elements characterizing the city of São Paulo and the metropolis will be presented. In the second part, the intention is to show the growth of one of poverty's faces – the favela – in the metropolitan fabric. Undoubtedly, the infrastructure conditions in these settlements have improved over these 25 years, both in the periphery of the central city and in the periphery of the metropolis. However, inequalities have increased and are strongly reflected in the territory.

Urban structure until 2020:¹ features and trends

São Paulo is the largest metropolis in South America, with approximately 11.5 million inhabitants in the city itself and nearly 21 million in the metropolitan area. The so-called Metropolitan Region of São Paulo encompasses 39 municipalities, including the capital. These 39 municipalities are often, for analytical purposes, grouped into 5 sub-regions in addition to the hub.²

The expansion of the periphery as a residential area for workers and the replacement of rail transport by road transport from the mid-20th century marked a center-periphery pattern, with a significant increase in population in the municipalities surrounding the capital. In the hub municipality, São Paulo, the elite left the old center and moved southwest. Changes in the production pattern, linked to the exodus of industries from the capital and a reduced use of labor already indicated transformations in the metropolis in the 1980s and 1990s, although in 2010 the RMSP (Metropolitan Region of São Paulo) still accounted for 20% of the Brazilian Gross Domestic Product (GDP). The metropolitan profile changed, with regions like ABCD (Santo André, São Bernardo do Campo, São Caetano, and Diadema) experiencing a significant loss of working-class population, while others assumed the role of dormitory cities for the

Table 1 – Metropolitan Region of São Paulo: population by sub-regions and growth rates, 1991-2022

RMSP Sub-region	Population – Year							
	1950	1960	1970	1980	1991	2000	2010	2022
North	39,221	56,615	93,410	152,616	282,162	423,953	517,797	591,324
East	148,362	300,376	578,947	1,091,339	1,680,055	2,306,607	2,667,696	2,917,314
Southeast	212,519	504,416	993,569	1,647,352	2,048,674	2,354,722	2,549,135	2,696,530
Southwest	34,160	51,512	137,489	354,299	596,395	812,236	986,638	1,117,115
West	63,673	168,400	390,150	854,714	1,199,076	1,546,933	1,710,945	1,970,059
Hub	2,198,096	3,824,102	5,978,977	8,475,380	9,646,185	10,434,252	11,244,369	11,451,245
RMSP	2,696,031	4,905,421	8,172,542	12,575,700	15,452,547	17,878,703	19,676,580	20,743,587

Source: Demographic censuses of 1950, 1960, 1970, 1980, 1991, 2000, 2010 and 2022.

Map 1 – Sao Paulo Metropolitan Region and sub-regions



Source: Emplasa (2019).

poor population. The old pattern of popular housing, with installment purchases of peripheral land and self-built houses, changed.

These urban transformations are directly related to the ongoing economic changes in the RMSP, particularly with the evolution of the GDP and the expansion of the service sector, with a relative decrease in the importance of the industrial sector since the 1970s. In the 2000s, this process deepened with the value added (VA) of the industry reducing from 17.6% to 12.1% of the RMSP GDP between the first quarter of 2002 and the first quarter of 2022, while the service sector expanded its value added from 63.9% of the metropolitan GDP to 67% in the same period (Fundação Seade, 2022). Between 2002 and 2016, the loss of the manufacturing industry in the State of São Paulo reached more than 6 percentage points, according to the Mapa da Indústria Paulista (Fundação Seade, 2019). And the Metropolitan Region of São Paulo, which in 2004 was responsible for 39,80% of Industrial Transformation Value (ITV), saw this proportion reduced to 30,22% in 2016.

The demographic growth of the São Paulo metropolis has decreased with each decade: in the 1990s, it reached 1.63% per year, at the beginning of the current century, the pace dropped to 0.96%, and in the period 2010-2022, it was 0.44%, the lowest rate ever recorded, with an increase of just over 1 million people in 12 years. Growth rates have decreased in all regional units of the RMSP, a phenomenon observed since the 1970 Census, with occasional exceptions indicated in Table 2. In the last census period, the only exception occurred in the West sub-region, where the rate rose from 1.01% p.a. in 2010 to 1.18% p.a. in 2022.

The growth rates are higher in the other municipalities than in the central hub. However, in 2022, the growth ratio between the rates of the periphery (other municipalities) and the hub reached its maximum: 5.4, meaning the demographic growth rate of the periphery is more than 5 times that of the hub. Until then, the highest proportion had occurred in the period 1991-2000 when the population growth in the other municipalities was 3.2 times higher than that of the hub. The highest growth

Table 2 – Metropolitan Region of São Paulo: geometric annual growth rates, 1950-2022, by sub-region

RMSP Sub-região	Geometric Annual Growth Rates (TGC) – Population (%)						
	1950-1960	1960-1970	1970-1980	1980-1991	1991-2000	2000-2010	2010-2022
North	3.74	5.13	5.03	5.75	4.63	2.02	1.11
East	7.31	6.78	6.54	4.00	3.58	1.47	0.75
Southeast	9.03	7.01	5.19	2.00	1.56	0.80	0.47
Southwest	4.19	10.32	9.93	4.85	3.49	1.96	1.04
West	10.21	8.76	8.16	3.13	2.87	1.01	1.18
Hub	5.69	4.57	3.55	1.18	0.88	0.75	0.15
RMSP	6.17	5.24	4.40	1.89	1.63	0.98	0.44

Source: IBGE-Demographic Censuses of 1950, 1960, 1970, 1980, 1991, 2000, 2010 and 2022.

rates in the period 2010-2022 occurred in the municipalities of Cajamar (3.12%), Santana do Parnaíba (2.94%), Cotia (2.60%), and Barueri (2.31%), the only ones exceeding 2% among all metropolitan municipalities.

Cajamar is a municipality in the North sub-region, where logistics-related businesses have been situated in recent years, and it has received numerous "Minha Casa Minha Vida" (a local budget housing project) projects, contributing to an increase in the population by over 28 thousand people, i.e., 44.56% more than its population in 2010. Santana do Parnaíba has had high rates since the 1980s, but this annual rate of 2.94% represented only a growth of 8,387 people over the 12-year period. Thus, among the municipalities that grew the most, two are in the West sub-region, one in the North, and one in the Southwest.

The North sub-region, with a rate of 1.11% per year, is the second spatial segment in the ordering of demographic growth rates. However, essentially, only Cajamar showed a high rate. Mairiporã, which was growing at 3.02% per year in the 2000s, decreased its growth to 1.22% p.a between 2010 and 2022. Franco da Rocha, Francisco Morato, and Caieiras, which were growing above 1% in the 2000-2010 decade, reduced their growth to rates lower than unity.

The municipality of São Paulo has experienced modest growth in recent decades. It gained only 206,876 inhabitants between 2010 and 2022, representing a total increase of just 1.8% annually over 12 years. In the West sub-region of RMSP, the population increased by almost 260,000 people, slightly over 15% of the 2010 population, concentrated mainly in Osasco and Barueri.

On the other hand, the Southeast region, where ABCD is located, shows the lowest growth rates, not counting the hub. The central municipality's weight in the state of São Paulo decreased from 30.57% in 1991 to 25.78% in 2022. In addition to the West and North sub-regions, the Southwest sub-region (Cotia, Embu, Embu-Guaçu, Itapeverica da Serra, Juquitiba, São Lourenço da Serra, Taboão da Serra, and Vargem Grande Paulista) also presents a growth rate higher than 1% in the period 2010-2022, after showing a high rate between 2000 and 2010 (2.30% per year). These are dormitory cities with a significant proportion of the poor population, as seen in Cotia (3.06% demographic growth in the last 31 years), Vargem Grande Paulista (3.79% between 1991 and 2022), and São Lourenço da Serra (2.43% in the period).

What explains this lower metropolitan growth in São Paulo? Some hypotheses are raised, including deaths caused by the Covid-19 pandemic (in the RMSP, 95 thousand deaths, of which 45 thousand in the central municipality), deaths caused by the Zika epidemic a few years earlier, as well as the postponement of pregnancy resulting from this threat, the departure of young people from the metropolis due to the weakening economy, a decline in fertility and birth rates greater than expected, and the expansion of remote work, which encouraged the search for housing in quieter, less dense, and cheaper locations.

Metropolitan cities, as a whole, have shown significant population growth, often serving as dormitory cities. The population growth rates of other metropolitan municipalities have been, since the 1980s, higher than the rates of the capital. Between

Table 3 – Metropolitan Region of São Paulo: Population growth rates, according to the central hub and other municipalities, from 1950 to 2022

RMSP Sub-region	Population Growth Rates (%)						
	1950-1960	1960-1970	1970-1980	1980-1991	1991-2000	2000-2010	2010-2022
Hub	5.69	4.57	3.55	1.18	1.45	0.75	0.15
Other municipalities	8.04	7.23	6.45	3.21	3.94	1.25	0.81
RMSP	6.16	5.24	4.40	1.89	2.32	0.96	0.44

Source: Demographic Censuses of 1950, 1960, 1970, 1980, 1991, 2000, 2010 and 2022.

Table 4 – Metropolitan Region of São Paulo: comparison of population and permanent private households growth rates by sub-region

RMSP Sub-region	Population (%)		Households (%)	
	2000-2010	2010-2022	2000-2010	2010-2022
North	2.02	1.11	2.78	3.02
East	1.47	0.75	2.19	2.38
Southeast	0.80	0.47	1.80	1.95
Southwest	1.96	1.04	3.01	2.81
West	1.01	1.18	2.01	2.60
Hub	0.75	0.15	1.78	1.60
RMSP	0.96	0.44	1.93	1.93

Source: IBGE. Demographic Censuses of 2000, 2010 and 2022.

2000 and 2010, the capital's rate was 0.76% per year, while that of the other municipalities reached 1.25%. And in the period 2010-2022, the rates indicate 0.44% and 0.81%, respectively. The peripheral pattern still remains, both within the urban fabric of São Paulo and in relation to the municipalities in the periphery.

The overall demographic density of the metropolis is still quite low, at 26 inhabitants per hectare (hab/ha). However, some

municipalities already exhibit high densities, such as Taboão da Serra, with 137.17 hab/ha, Diadema, with 127.96 hab/ha, Pirapora do Bom Jesus, with 114.46 hab/ha, Carapicuíba, with 112.06 hab/ha, and São Caetano with 108.05 hab/ha. In 2022, the city of São Paulo showed a gross density of 75.28 hab/ha.

On the other hand, the 2022 Census has shown that the number of domiciles in Brazil has grown at much higher rates than the population. The amount of permanent

Table 5 – Metropolitan Region of São Paulo:
residents per permanent private household, by sub-region

RMSP Sub-region	Residents per household – Population – Year		
	2000	2010	2022
North	3,88	3,60	2,88
East	3,77	3,50	2,89
Southeast	3,56	3,22	2,70
Southwest	3,87	3,49	2,83
West	3,72	3,36	2,85
Hub	3,49	3,16	2,66
RMSP	3,58	3,35	2,73

Source: IBGE. Demographic Censuses of 2000, 2010 and 2022.

private households increased from 57,324,167 in 2010 to 72,446,745 in 2022, at an annual rate of 2,81%, significantly higher than that of the Brazilian population growth of 0,52% p.a. For the metropolis of Sao Paulo the household growth rate was 1,93% p.a which was 4,39 times higher than the population growth (Table 4). In the state of Sao Paulo the population growth rate was 0,65% and the household growth rate 1,98%, 3,41 times higher. This phenomenon was already occurring in the 2000-2010 decade but with less intensity: for the metropolis as a whole the household growth rate (1,93%) was twice higher than the population rate (0,96%) in the 2000s. As a consequence there was a significant decrease in the average number of residents per household, which went from 3,58 in 2000 to 2.73 in 2022 (Table 5)

The peripheral municipalities of the metropolis show a higher percentage of impoverished households (without income or

with up to 1 minimum wage per month) than the capital. In 2010, 14.04% of households in the other municipalities and 13.14% of households in the capital fell into this category. On the other hand wealth dwells mainly in the capital, where 12,59% of homes showed an income greater than 10 minimum wages at that time whereas in the periphery only 8,59% of households situated in other municipalities reached this level of household income.

The North sub-region had the highest proportion of households with up to 2 minimum wages per month, with nearly 60% of its households in this income range. In 2010 the hub and Southeast sub-region gathered the highest percentage of households with income exceeding 10 minimum wages: 22,34% and 15,86% respectively. In the East, West, and Southwest sub-regions, the percentage of impoverished households with incomes up to 2 minimum wages was around 55% in 2010 (Table 6).

Table 6 – Metropolitan Region of São Paulo:
household income, by sub-region, 2010

	Polo	Leste	Norte	Sudeste	Sudoeste	Oeste	RMSP
no income	5.66	5.29	5.96	4.36	5.79	12.76	6.11
up to 1/2 m.w.	2.91	5.42	5.13	2.86	4.74	3.65	3.38
from 1/2 to 1 m.w.	10.19	15.30	16.50	10.30	15.23	12.63	11.38
from 1 to 2 m.w.	23.15	29.44	31.97	24.87	31.12	26.87	25.00
from 2 to 5 m.w.	25.61	26.58	27.25	29.96	27.41	25.98	26.44
from 5 to 10 m.w.	10.15	8.45	7.12	11.89	7.43	7.94	9.79
from 10 to 20 m.w.	9.31	5.83	3.96	9.02	4.82	5.41	8.19
over 20 m.w.	13.03	3.69	2.12	6.84	3.46	4.76	9.71
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Demographic Census of 2010.

Table 7 – Metropolitan Region of São Paulo:
situation of households in the metropolis according to infrastructure, 2010

Households	São Paulo municipality (%)	others municipalities in RMSP (%)
With power from the utility company	98.91	98.24
with an exclusive energy meter	86.06	80.64
connected to the public water network	99.09	95.89
with household garbage collection	95.29	94.93
with bathroom	99.96	99.93
with toilet connectec to the public sewer system	91.86	80.92

Source: Demographic Census of 2010.

The fact that the amount of rented properties is much higher in the central municipality (23,53% in 2010) than in the other municipalities in the metropolis (19,26%) is quite noteworthy. In Brazil there is a connection between poverty and homeownership, fueled by the traditional system of housing acquisition by the lower- income groups, i.e, peripheral allotments – own house – self building. Thus, the proportion of homes owned and leased in the other metropolitan municipalities is almost 80%, whereas in the central municipality it was 75.2% in 2010.

The situation regarding basic infrastructure in 2010 was quite reasonable, both in the central municipality and in the other municipalities of the metropolis. It is worth noting that by 2010, these two territorial segments already had basic infrastructure, although in the other municipalities the sewerage network coverage was only 80.92% and a very high percentage of households in the periphery did not have an exclusive energy meter.

The city of São Paulo was never the national capital. In fact, until the mid-19th century it was a small regional center of little

relevance. At the end of the 19th century, the city began to develop, first as a business center for the coffee economy in the State of São Paulo and, later, after the First World War, as a center for the emerging Brazilian industry. It attracted large waves of international migrants from Italy, Japan, Syria and Eastern Europe, as well as strong internal migration from the poorer regions of the country. Between 1940 and 1980, national migration flows rocketed, increasing the city's demographic growth at rates exceeding 5% per year. These flows were only partially absorbed by urban and industrial markets, resulting in high unemployment and a vast army of precarious and informal workers. Despite improvements in infrastructure conditions, both in the capital and in the metropolis, the poor population settled in vast segregated and, until recently, fairly homogeneous peripheries.

The population increase was mainly concentrated in the outskirts of the municipality. Between 2010 and 2020 the demographic increment was small, just over 600 thousand people, but of this total, 70% lived in the periphery. In the period 2010-2022, the population increase in the city of São Paulo was just over 200 thousand people. At the time this article was written, population data by district had not yet been published. Using the proportions provided by the Seade Foundation's projections for 2022 by rings, the peripheral ring, although with increasingly lower rates per intercensal period, still accounted for the entire demographic increase in the periods since in the central and inner rings the growth was minimal (just 15,486 people) and the intermediate and outer rings would have experienced a loss of almost 47

thousand residents. Thus, despite positive growth rates in the expanded center, the city's expansion remains peripheral.

The urban structure is marked by great segregation, with the wealthier social classes residing in the central, more equipped areas, and the poor in irregular settlements and favelas. Today, these peripheries also host gated communities for higher social classes, and are targeted by the real estate market for lower-middle-income classes. However, inequality has not changed substantially. The structure may not be as clear as in the 80s/90s, but it remains unfair and segregated. Nevertheless, there is an improvement in infrastructure conditions, with nearly all municipal households having access to electricity, public water and garbage collection. The most significant difference concerns the disposal of sewage, where in the central rings, 99% of houses were connected to the public sewer network, while in the peripheral ring this percentage was around 85% (data from 2010).

On the other hand, some new phenomena can be seen in this periphery, which constitutes a more heterogeneous space: with horizontal and vertical condominiums and formal housing production for the low-income populations, it now hosts strong pockets of poverty. Between February 2020 and September 2022, the periphery hosted almost 300 housing movements (there were 218 in 2020 and increased to 516 in 2022), made up of people in extreme vulnerability, who can no longer afford rent, not even in favelas (Machado, 2022). This new periphery is devoid of infrastructure and presents very precarious living conditions.

Table 8 – Municipality of São Paulo:
geometric rates of population growth by ring, 1960 to 2022

MSP ring	Geometric rates of population growth – (%)					
	1960-1970	1970-1980	1980-1991	1991-2000	2000-2010	2010-2022
Central	0.69	2.23	-0.94	-2.05	1.24	0.16
Inner	0.08	1.26	-1.17	-1.78	1.05	0.11
Intermediary	2.79	1.28	-0.71	-0.79	0.81	-0.01
Outter	5.52	3.13	0.83	0.13	0.33	-0.11
Peripheral	12.81	7.39	3.05	2.71	0.96	0.35
Total	4.78	3.66	1.13	0.92	0.76	0.15

Source: Demographic Censuses of 1960, 70, 80, 91, 2000, 2010, and 2022. Data for districts in 2022 have not been published yet. The same proportion of the population estimate from Fundação Seade for 2020 was used.

Table 8 illustrates the population growth in the so-called rings (territorial segments of the municipal urban fabric of São Paulo) since the 1960s (Pasternak and Bógus, 2000).

Until the 1990s, the growth pattern of the city of São Paulo was characterized by the central districts, better equipped with infrastructure, losing population, while the so-called peripheral ring grew in a disorderly and horizontal manner. The growth rates of the central, inner, and intermediate rings between 1980 and 2000 were negative, indicating a population loss of over 500 thousand residents during that period (Pasternak and Bógus, 2000).

After a productive restructuring that redefined the economic role of the metropolis and its capital, some changes in the growth pattern were observed. It's not accurate to describe this change as a complete reversal of the peripheral growth pattern, as it still persists accounting for virtually all population growth between 2010 and 2022. Nevertheless, the central districts have ceased to lose population.

In summary, the demographic growth rates have been decreasing, mainly in the city of São Paulo. The internal population dynamics

apparently remain similar among the sub-regions, with the Southeast, East and the hub having low rates and the Southwest, North and West sub-regions having yet higher rates albeit with lower absolute numbers than in the 2000s. All regions, except the West sub-region showed lower growth rates in the 2010's than in the 2000's.

The growth rate of households remained stable for the RMSP (Metropolitan Region of São Paulo) over two decades (1.93% for both intercensal periods), despite the decrease in population growth. This indicates a greater expansion of the built environment than the population, leading to an increase in occupied areas, although verticalization, especially in the expanded city center, is on the rise. It should be noted, however, that census data indicate different dynamics for some municipalities, with a significant increase in household units, well beyond demographic growth.

Cajamar, Guararema, Santana do Parnaíba, and Cotia experienced a household increment of over 4% per year, with a total increase of 75 thousand houses and a population growth of over 550 thousand

inhabitants. This would result in only 56 thousand houses with the household density calculated for 2022. Even in the city of São Paulo, the increase of 746 thousand private households for an increase of almost 207 thousand people deserves a closer look.

Among the 4.3 million permanent private households in the city of São Paulo, there are almost 589 thousand vacant and 87 thousand occasionally used. In other words, 13.67% of the city's residential units are vacant, and 2% are occasionally used, indicating an increase in the proportion of vacant households, which were 293,621 in 2010 out of a total of 3,935,645 permanent private households (7.46%).

The urban structure post-pandemic

In 2020, the pandemic brought new variables to an urban fabric that was already structurally inadequate. Increased unemployment, abandonment of commercial buildings, closure of service points and stores led to greater inequality and poverty.

In 2022, the census revealed a slowdown in the growth of São Paulo city and its metropolitan area. According to architect and urban planner Sérgio Magalhães, speaking to *Valor Econômico* newspaper (page A4, July 22-24, 2023), “the fact that the population isn't increasing doesn't imply a halt in the city's expansion”. The 2022 data highlights population growth in the peripheral ring. However, expanding the city poses challenges in terms of infrastructure, mobility, and social facilities. Expansion, particularly in São Paulo, often occurs in economically disadvantaged areas with limited or no infrastructure.

Interestingly, there seems to be no decline in residents in the expanded central area (central and inner rings), which boasts the highest vitality and well-established facilities. Demographic density data for various locations indicate that six municipalities in the Greater São Paulo area – Taboão da Serra, Diadema, Osasco, Carapicuíba, São Caetano do Sul, and São Paulo itself – are among the most densely populated in Brazil.

Density should be analyzed with a more localized perspective, focusing on specific segments of the urban area rather than just by municipality. Very high densities can lead to the exhaustion of urban infrastructure and a decline in quality of life. High density is not always detrimental, though; it can result in lower costs for the city. It is crucial to identify urban voids in well-structured areas and allocate them for housing policies, especially for low-income populations.

In metropolitan areas, slums tend to emerge on lands overlooked by real estate developers, often in areas unsuitable for construction. This is the only space available for affordable housing for the poor.

The characteristics of the hub city are already undergoing changes. In 2000, the built-up area in residences was 158.4 million square meters, while residential buildings covered 104.2 million square meters. Twenty years later, in 2020, apartments occupied 190.4 million square meters, and houses covered 187.7 million square meters (Vila Olimpia..., 2022, based on studies by CEM with data from the Municipal Department of Finance for IPTU). These figures account only for formal properties, excluding a significant portion of informal constructions, especially favelas, which are also experiencing vertical growth.

Regarding the changes observed during the pandemic, with the rise of remote work and the closure of commercial establishments such as restaurants, bars, cinemas, and theaters, several questions arise. Will corporate office spaces return to full occupancy? In some areas of the capital, such as Vila Olímpia and the Berrini corridor, there is a noticeable emptiness. In December 2019, the vacancy rate for corporate properties in Vila Olímpia was 10.5% of the total. In 2020, the rate rose to 24.5%, and by the end of 2021, it reached 29.4% (Vila Olimpia..., 2022, p. B3, data from Secovi). "Will these rates return to pre-pandemic levels?" "What about the numerous small shops, bars, and restaurants in the area, now closed?" "Will the encouragement of remote work continue and become a trend, reshaping these parts of the city?" On Avenida Paulista, in December 2019, the vacancy rate for corporate properties was 10.7%. It increased to 14.4% in early 2020 and to 17% by the end of 2021.

As the mass return to offices remains uncertain and remote work has established itself as an alternative, the pandemic has sparked debates about the future of commercial areas. Regions in major financial centers are grappling with the consequences of the exodus from offices. Much of the work that was previously done in offices has shifted to homes or to co-working spaces near the workers' residences.

The pandemic persisted throughout 2022. What will be the future of urban commercial districts? According to an article in *The Economist*, globally, vacant office spaces account for 12% of the total. In London, it's 18%, and in New York, it's nearly 16%. Traditionally comprising the majority of commercial real estate portfolios in the United States, offices represented less than a fifth of transactions in 2021.

Empty offices also impact the transportation system, lead to a decline in tax revenues, and result in the closure of support points such as cafes, bars, and restaurants, causing reduced activity in the surrounding businesses. Empty streets, "for lease" and "for sale" signs are prevalent. Restaurants, cafes, and hair salons have closed their doors. As mid-2023 unfolds, business owners and employees are discussing the possibility of returning to traditional office settings.

On the other hand, with the increase in poverty and social inequality, the physical marks of this urban degradation become even more pronounced.

The metropolis, favelas, and the population in extreme poverty

The already complex metropolitan structure in 2019 was exacerbated by an increase in the number of homeless residents. Data from the Census of the Homeless Population, conducted between October and December 2021, revealed that 31,884 people were homeless in the city of São Paulo, representing a 31% increase compared to the previous census in 2019, conducted before the pandemic (Hiperverticalização..., 2022, p. B1). On some avenues in São Paulo, the central median is a never-ending line of tents. The occupation of risk areas has also increased in all municipalities in Greater São Paulo. A publication from the Geological Institute, excluding the capital, states that more than 132,300 properties are in high or very high-risk areas, especially in

Embu, Franco da Rocha, Francisco Morato, Caieiras, in the Northern sub-region. In addition, other municipalities with a significant number of properties in high and very high-risk areas include Santo André (17.5 thousand properties), Guarulhos (15.7 thousand), São Bernardo do Campo (15.1), Mauá and Mogi das Cruzes (both with 10.4 thousand), Itapevi (8.2 thousand), and Itaquaquecetuba (7.4 thousand) (*Estado de S.Paulo* Newspaper, February 1, 2020, p. A19).

A survey conducted by MapBiomias, based on satellite images captured since 1985, revealed that in Brazil, favelas are expanding rapidly, already covering 106,000 hectares. This area is equivalent to 69.59% of the total land area of the city of São Paulo and 3.1 times the size of the city of Salvador, Bahia. For every 100 hectares gained by these areas between 1985 and 2021, 15 hectares are in high-risk zones. In the state of São Paulo, formal urbanized areas expanded by 327,601 hectares, while informal areas saw growth of 9,020 hectares. Notably, favelas contributed to 2.7% of the total area increment during that period.

The area occupied by favelas in the São Paulo metropolis witnessed growth, expanding from 10,108.9 hectares in 2000 to 10,682.0

hectares in 2010, and further estimated at 11,377.5 hectares in 2019. With the resident population in these settlements increasing by 3.93% annually between 2000 and 2019, and the area growing at a lower rate of 0.59% per year, there is a clear indication of rising density and verticalization in metropolitan favelas. The 1,196.59-hectare increase over 19 years reflects an 11.75% expansion in the identified area compared to the beginning of the century in 2000.

In the city of São Paulo, MapBiomias data indicate an area occupied by favelas of 529,921 hectares in 2019. That means, between 1985 and 2019, there was an increment of 2,547.41 hectares of area and 448,312 households located in favelas. The density of households increased from 14.54 households per hectare in 1985 to 64.92 households per hectare in 2019, maintaining a household density of 3.70 for 2019, equivalent to demographic densities of 68 hab/ha and 240 hab/ha. This represents an increase of 2.53 times. The growth rates of households in favelas have consistently outpaced the growth rates of occupied areas. In summary, between 1985 and 2019, the area occupied by favelas in the city of São Paulo grew at a rate of 1.11% per year, while households in favelas grew at a rate five times higher, at 5.66% annually.

Table 9 – São Paulo Municipality: areas, and resident population in favelas, 1985 to 2019

Year	Area (ha)	Households	Population
1985	5,614.13	81,609	384,056
1991	6,352.46	146,891	891,673
2000	7,522.36	225,133	930,628
2010	7,787.37	355,756	1,280,400
2019	8,161.54	529,921	1,960,708

Source: MapBiomias, 2021; Demographic Censuses of 1980, 1991, 2000, and 2010. IBGE Survey on Subnormal agglomerates of 2020.

In 2010, the Metropolitan Region of São Paulo exhibited the highest concentration of favelas in Brazil, with 1,703 settlements (27% of the total Brazilian favelas) and a resident population of over 2 million people (19% of the Brazilian population residing in favelas). As of the year 2000, only the cities of São Paulo, Guarulhos, Osasco, and Diadema collectively had 938 favelas, accounting for approximately a quarter of the country's favelas. By 2010, these four municipalities had 1,348 settlements, constituting 21% of the total settlements in Brazil. In 2019, these same four municipalities (São Paulo, Guarulhos, Osasco, and Diadema) recorded 640,988 houses in favelas, representing 74% of the favela houses in the metropolis. Simultaneously, the Metropolitan Region of São Paulo, with a total of 866,177 housing units in favelas, accounted for 16.89% of these units in Brazil in 2019.

As shown in Table 10, the proportion of households in favelas in peripheral municipalities has been increasing since 1991. Thus, this proportion, which was 5.95% in 1991, reached 9.23% in 2000, rose to 9.58% in 2010, and reached 11.35% in 2019. The growth rate in the capital was substantial: 18% of the absolute growth of houses in the Municipality of São Paulo was attributed to the growth of units in favelas in the period from 2010 to 2019, and

24% in the 2000-2010 decade. In peripheral municipalities, the growth of households between 2010 and 2019 is characterized by an increase of 95,533 units in favelas, representing 21.24% of the growth in the housing stock occurring in informal settlements. Although “favelization” is affecting municipalities in the metropolitan periphery, in the last decade, the relative concentration increased in the capital. If, in 1991, 61% of housing units in favelas were in the capital, this proportion fell to 55% in 2000. However, it rose again to 60% in 2010 and to 61% in 2019. In the 1990s, the growth rate of favela households in peripheral municipalities was almost double that rate for the capital. In the first decade of this century, the reverse occurred: the rate of households in peripheral favelas, at 2.49% per year, was 64% of the rate in the capital. In the years 2010 to 2019, again the rate of these peripheral households increased to 3.78% per year, more than 80% of the growth rate of favela households in the capital. On the other hand, the cost of transportation may be affecting the “favelization” of the capital, and the existence of verticalized units has expanded the supply of housing in the favelas of the central municipality, close to jobs and income opportunities. A strongly suggested hypothesis is the increased availability of rental units in the favelas of the capital.

Table 10 – Metropolitan Region of São Paulo: total households and households in favelas, 1991 to 2019

Unidade geográfica	Total households				Households in favelas				Proportion of households in favelas – (%)			
	1991	2000	2010	2019	1991	2000	2010	2019	1991	2000	2010	2019
Municipality of São Paulo	2,630,138	3,039,104	3,576,864	4,104,611	146,891	225,133	355,756	529,921	5.58	7.41	9.95	12.91
Others municipalities	1,580,306	2,040,084	2,512,983	2,962,656	93,972	188,220	240,723	336,256	5.95	9.23	9.58	11.35
RMSP	4,210,444	5,079,188	6,089,847	7,067,267	240,863	413,353	596,479	866,177	5.72	8.14	9.79	12.26

Source: IBGE Demographic Censuses of 1991, 2000, 2010. IBGE (2020). The 2022 Census provided 7,605,023 households for the Metropolitan Region of São Paulo (RMSP).

Among the 39 metropolitan municipalities, including São Paulo, 24 have favelas in their urban fabric. In some municipalities of the metropolis, the percentage of favela households is significant, exceeding 10%: Mauá (20.04% in 2010 and 22.85% in 2019), Diadema (20.97% in 2010 and 20.55% in 2019), São Bernardo do Campo (20.04% in 2010 and 18.15% in 2019), Taboão da Serra (11.02% in 2010 and 11.95% in 2019), São Paulo (11.42% in 2010 and 12.91% in 2019), Embu (13.14% in 2010 and 14.92% in 2019).

Data from the IBGE Survey for the 2020 Census on favelas, conducted in 2019, shows the significant growth of households in favelas in the metropolis: if in 2000, the number of homes in favelas in the Metropolitan Region of São Paulo was 416,143, by 2019 this number had risen to 866,177, representing 12.26% of the total households.

The highest proportion of households in favelas is in the Southeast sub-region, with over 15% of its housing units in these settlements. In the hub, the proportion reaches 12.91%.

However, the percentage of houses in favelas is noteworthy and expanding in all sub-regions of the metropolis (Table 11).

While the North sub-region does not have the highest proportion of favela households, it boasts the highest household growth rate in the last 19 years: 11.22% over the period. It also exhibits the greatest increase in the area occupied by favelas, at an annual rate of 1.08%. Worth noting is that it was the sub-region with the highest proportion of low-income households in 2010, with 60% of households earning up to two minimum wages per month. The area occupied by favelas in the North sub-region was 424.22 hectares in 2000, increasing to 520.25 hectares in 2019, an expansion of 96 hectares over 19 years, constituting 23% of the area in 2000. This region is mountainous, with a substantial part located in an environmental protection area, prone to landslides and challenging for urbanization.

Population densities in favela settlements are increasing across all spatial segments. In the hub and Southeast, densities surpass 300 inhabitants per hectare, posing a challenge to

Table 11 – Metropolitan Region of São Paulo: total households and households in favelas, 2000 to 2019

Region	Households in favelas Year			Total households Year			Percentage of households in favelas Year – (%)		
	2000	2010	2019	2000	2010	2019	2000	2010	2019
North	1,105	6,485	16,888	104,045	143,665	191,610	1.06	4.51	8.81
East	41,674	69,939	96,780	591,909	760,550	881,851	7.04	9.20	10.97
Southeast	93,966	115,410	144,208	658,444	791,345	936,792	14.27	14.58	15.39
Southwest	10,673	17,056	26,484	206,769	282,724	332,605	5.16	6.03	7.96
West	41,491	32,732	51,896	415,377	508,410	619,798	9.99	6.44	8.37
Hub	227,234	356,692	529,921	2,954,732	3,561,505	4,104,611	7.69	10.02	12.91
PMSP	416.143	598.314	866.177	4.931.276	6.048.199	7.067.267	8,44	9,89	12,26

Source: IBGE Demographic Censuses of 2000 and 2010; IBGE (2020).

Note: the 2022 Census provided the figure of 7,695,023 households for RMSP.

Table 12 – Metropolitan Region of São Paulo:
annual growth rates of population, area, and favela households, 2000 to 2019, by sub-region

Sub-region	Population in favelas		Households in favelas		Area of favelas	
	2000-2010	2010-2019	2000-2010	2010-2019	2000-2010	2010-2019
North	18,36	14,92	19,36	11,22	1,05	1,08
East	3,67	4,23	5,31	3,67	0,99	0,83
Southeast	2,51	1,77	2,08	2,51	0,46	0,31
Southwest	5,01	4,42	4,80	5,01	0,77	0,94
West	5,25	0,81	-2,34	5,25	0,46	0,50
Hub	4,50	4,02	4,61	4,50	0,64	0,52
PMSP	4,20	3,44	3,70	4,20	0,70	0,59

Source: IBGE Demographic Censuses of 2000 and 2010, IBGE (2020).

the urbanization process without the relocation of families. In the North sub-region, the density is comparatively lower, and although topography poses challenges, favelas appear to be more recent.

This rise in density stems from both the occupation of vacant spaces within favelas and the observed trend of increasing verticalization. As early as 2010, the verticalization of favelas in the metropolis reached 62.29% of the constructed units in metropolitan favelas. In the city of São Paulo, the proportion of verticalized units was even higher, at 69.52%. However, even in other metropolitan municipalities, the percentage was 51.60%.

By 2010, a territorial analysis revealed that among 84% of favela households, there was no spacing, with the proportion varying little between units of favela households in the hub municipality and other metropolitan municipalities. An article from *Folha de S.Paulo* (pages B1 and B2, September 7, 2019) featured the headline "Hyperverticalization reaches favelas in São Paulo, where slabs overlap," reporting that São Paulo's favelas are increasingly occupied by small buildings. It points to family growth and the pursuit of

extra income as the main causes. Families, over generations, increasingly occupy favelas. When they grow and form new nuclei, a new slab is the most commonly used form to shelter them. Another way to earn extra income is by constructing new units on the same already occupied lot. The demand exists, and the resident population responds to this demand by building new slabs.

However, with the proliferation of small buildings, traffic increases, and issues of insolation and ventilation grow alarmingly. Since these constructions lack adequate technical supervision, they pose risks. Data from the 2022 Census will enable a comparison between the verticalization in 2010 and that existing in 2022.

In summary, the metropolitan structure now reveals even greater signs of fragility, characterized by a proliferation of favelas across all sub-regions, particularly in the North sub-region, where the household growth rate in subnormal settlements/favelas exceeded 15%. In the city of São Paulo, the surge in favelas (constituting almost 13% of the city's housing stock) signifies a deterioration of urban conditions, despite dedicated efforts towards favela urbanization.

Table 13 – Metropolitan Region of São Paulo:
households in favelas, by number of floors, in the hub municipality and others, 2010

Domicílios Unidade territorial	Households in favelas			Total
	one floor	two floors	three or more floors	
MSP	108,423	232,255	15,078	355,756
others municipalities	116,505	113,539	10,679	240,723
RMSP	224,928	345,794	25,757	596,479

Source: IBGE (2010).

Table 14 – Metropolitan Region of São Paulo:
demographic densities in favelas by sub-region

Sub-region	Demographic density hab/ha		
	2000	2010	2019
North	10,39	50,22	119,02
East	82,25	121,89	154,39
Southeast	238,74	261,80	314,02
Southwest	131,91	173,40	251,34
West	289,34	201,70	306,78
Hub	170,43	232,85	326,60
PMSP	162,34	292,98	276,15

Source: IBGE Survey 2019; MapBiomas (2021).

The 2010 Census demonstrated notable improvements in sanitation within favela households in São Paulo, with 94% utilizing water from SABESP, and 67.4% having access to sanitary sewage through the public network. Nevertheless, it is probable that recent favelas, being less structured, feature more precarious housing units and infrastructure. Studies analyzing recent favelas in the metropolis indicated that among these newer settlements, precariousness was predominant: 43% were predominantly constructed of wood, and 72% had roofs predominantly made of fibrocement (SENGER, 2019, p. 48). Senger's work, focused

on 117 favelas in 2017 that did not exist in 2010, was primarily situated in the most peripheral areas of the urban conurbation of São Paulo.

The zone that presented the highest concentration of recent favelas was the East, especially in Mauá, Itaquaquecetuba, Ferraz de Vasconcelos, and Suzano. There is also a noticeable concentration of new nuclei in the western region of the capital and nearby municipalities - Carapicuíba, Embu das Artes, Osasco, and Taboão da Serra, totaling 27 new favelas in these locations. Another relevant observation concerns the 19 clusters of favelas that emerged to the north, located very close to

the boundary with the Serra da Cantareira, both in the municipality of São Paulo and in Guarulhos. (Senger, 2019, p. 44)

It's worth noting the increase in the demographic density of favelas in all regions of the metropolis, which will pose a challenge for urbanization projects, requiring a new influx of constructed and verticalized units.

The city of São Paulo and the favelas

Table 8 illustrates that the demographic growth of the city of São Paulo from 2010 to 2022 was modest, registering a mere 0.15% annual increase, equivalent to a population rise of less than 200,000 people. Examining intraurban dynamics, the city, which experienced population decline in the three central rings between 1980 and 2000, saw a reversal in 2000, although the growth rate in the peripheral ring remained the highest. In absolute terms, the peripheral ring gained 491,491 residents in the 2000s, surpassing the increase of 216,295 inhabitants across the three central rings from 2000 to 2010 – less than half of the peripheral ring.

During the 2010-2022 period, the two innermost rings continued to exhibit positive growth rates. However, in absolute numbers, estimates reveal an increase of only 15,486 people. In contrast, the peripheral ring, albeit with a small growth rate, witnessed an estimated increase of 229,000 residents. The intermediate and outer rings, on the other hand, experienced an estimated population loss of nearly 47,000 people.

The rate of increase in the resident population of favelas has consistently been much higher than the growth rate of the total population: in the period 1991-2000, it was 2.72 times that of the total population; between 2000 and 2010, this number reached 4.24, and in the last interval, from 2000 to 2019, it was 7.73 times higher. In a sense, the city is undergoing “favelization”. Until 2010, the growth of the resident population in these settlements was primarily peripheral. Central favelas, especially with verticalization, saw an increase in population. During the pandemic, simple observation confirmed this growth. However, the majority of them are still allocated in the periphery.

It is also noteworthy that, at least until 2010, the demographic density in the favelas of the municipality was remarkably high: 297.45 inhabitants per hectare, according to census data. In comparison, the overall demographic density of the municipality was 73.98 inhabitants per hectare at that time. Thus, the density in the favelas was more than four times higher than the municipal average. Contributing factors to this figure include both the lack of free space and the increasing trend of verticalization. In the inner ring, the average density in favelas surpassed 900 inhabitants per hectare in 2010. Data from 2019 provided by MapBiomas show a density of 326.60 inhabitants per hectare for São Paulo's favelas, marking a growth of over 31% in the 9 years of research. Meanwhile, the demographic density for the municipality as a whole was 75.28 hab/ha in 2022. In other words, the density in the favelas is more than four times the average demographic density of the city and continues to rise. This underscores the challenge

of urbanizing these settlements without displacing significant portions of the resident population and emphasizes the necessity of verticalizing housing construction to ensure the retention of the maximum number of residents within the community.

Living in a favela in Brazil has evolved significantly from the last century. Presently, 88% of favela households have access to the public water supply, 56% to sewage systems, 76% benefit from some form of garbage collection, and 72% have electricity with installed household meters. In the capital, as of 2010 data, approximately 90,000 residential units are situated on steep slopes, particularly in the outer and peripheral rings. Notably, the verticalization of houses in the municipality's favelas is substantial, with 70% of dwellings having more than one floor.

Certain districts exhibit a high concentration of residents in these areas. Among the 96 districts comprising the municipality, 15, in 2010, had more than 10% of their population residing in favelas. The data further reveal that, out of the 355,756 residential units in the city of São Paulo's favelas in 2010, 24.70% were located along watercourses, nearly 2% were palafittes, and 2.5% were situated in conservation units. This totals approximately 102,000 homes, indicating that over 377,000 people are consistently exposed to the risks of flooding or erosion.

The favela's spatial organization is distinctive, characterized by precarious layouts and higher population density compared to formal spaces. This poses challenges for essential urban services such as ambulance access, police assistance, firefighters, and garbage collection. Additionally, the persistent issue of garbage piles and debris attracts arthropods, mosquitoes, and rats.

Examining the morphology, houses in São Paulo's favelas in 2010 were predominantly constructed with masonry (96.31%), featuring an average of 4.10 rooms per household and 2.24 people per bedroom. Among masonry-built units, 26% lacked proper finishing. The visual impression of an eternal building site prevails in the favela.

Despite improvements, sanitation challenges persist. According to the 2000 Census, 51% of houses in São Paulo's favelas were connected to the public sewage system, a figure that increased to 67.4% in 2010, reflecting upgrading efforts at both municipal and federal levels. However, 30% of units still lack appropriate waste disposal.

Nearly all houses in the municipality's favelas have access to the public water supply and electricity, with 67.15% of households equipped with individual meters. This underscores the unique urbanistic characteristics of favela spaces, where housing units share similarities with those found in impoverished peripheral developments.

Final remarks

The article provides a descriptive and analytical overview of the metropolitan structure of the São Paulo Metropolitan Region (RMSP) from its early expansion to 2010. It observes a consistent decline in demographic growth in each decade across all sub-regions, particularly in the hub and southeast region. In 2020, the growth of the so-called periphery (municipalities other than the capital) reaches its peak relative to the hub, resulting in a growth rate five times that of the central municipality. This signals a clear trend of population suburbanization within the metropolitan area.

Several hypotheses have been proposed to explain the recent slower growth of the capital: Impact of Health Crises: The higher incidence of deaths due to Covid-19 and Zika in the capital, contributing to a population decline; rise of remote work: the expansion of remote work, leading some residents to move away from densely populated areas in São Paulo municipality in favor of locations with more open space; youth migration: the departure of younger segments of the São Paulo population in search of job opportunities that are becoming scarcer within the capital.

These factors collectively contribute to a nuanced understanding of the demographic dynamics shaping the metropolitan region. The article not only captures historical trends but also explores contemporary shifts, providing valuable insights into the evolving structure of São Paulo's metropolitan landscape.

It is noteworthy that the growth in households surpasses demographic growth, signifying a decrease in the number of individuals per household. The built environment is expanding at a swifter pace than the population, reflecting an increase in constructed areas and highlighting the peripheralization of housing. This underscores socio-spatial segregation, where economically disadvantaged individuals are relocating to more distant areas from the metropolitan center or settling in favelas, either where space allows or verticalization is feasible. Throughout the pandemic, the rise in unemployment and income loss has elevated

the number of individuals unable to afford rent, leading to an unprecedented surge in homelessness and an increase in favela residents.

The area occupied by favelas in the São Paulo metropolitan region was estimated at 11.4 thousand hectares, experiencing an annual growth rate of 0.59% between 2000 and 2019. In contrast, the population residing in favelas during the same period increased at a rate of 3.39% per year. This highlights the escalating density in metropolitan favela settlements, underscored by socio-spatial segregation, growing verticalization, and the intensification of poverty. A dual segregation is evident, occurring both within favelas and in peripheral areas, given the rising proportion of households in favelas in peripheral municipalities: from 5.95% in 1991 to 11.35% in 2019. Among the 39 municipalities in the metropolis, 24 have favelas. Recent studies depict the extremely precarious situation of the most recent favelas, especially those formed during the pandemic.

In the capital, the demographic density within the favela fabric is enormous, with nearly 330 inhabitants per hectare, indicating the challenges of upgrading in these settlements. Additionally, the majority of favelas in the capital are located in the peripheral ring.

Living in a favela in the São Paulo metropolis thus presents the challenge of facing a double segregation: residing in a place with precariousness and insecurity, and residing in a peripheral location without services and with expensive and limited mobility.

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Notes

- (1) Demographic Data cited here were initially published in the Botelim Semanal (Weelly Bulletin) of the Observatório das Metrôpoles n. 794, 7/27/2023.
- (2) Division in accordance to the metropolitan area political map and its sub-regions (State Complementary Law 1.139, 16th of June 2011): Hub:São Paulo;North sub-region: Caieiras, Cajamar, Francisco Morato, Franco da Rocha and Mairiporã; East sub-region: Arujá, Biritiba Mirim, Ferraz de Vasconcelos, Guararema, Guarulhos, Itaquaquecetuba, Mogi das Cruzes, Poá, Salesópolis, Santa Isabel and Suzano; Southeast sub-region: Diadema, Mauá, Ribeirão Pires, Rio Grande da Serra, Santo André, São Bernardo do Campo and São Caetano do Sul, Southwest subregion: Cotia, Embu, Embu-Guaçu, Itapeverica da Serra Jujuitiba, São Lourenço da Serra, Taboão da Serra and Vargem Grande Paulista: West sub-region: Barueri, Carapicuíba, Itapevi, Jandira, Osasco, Pirapora do Bom Jesus and Santana do Parnaíba

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